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Development of Medical Education in Kathmandu Medical College

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Abstract

Background: When the Nepal Medical Council Act was enacted in 1964 it was accepted that it would be responsible for the regulation of Medical Education in Nepal. Subsequently followed the establishments of medical colleges of which Kathmandu Medical College is one.

Present Status: Kathmandu Medical College started the MBBS program back in 1997 and has since then developed over the years. The development of medical education at Kathmandu Medical College ensued subsequently with the formation of Medical Education Unit Teacher Training Cell on June 2001. First batch of teacher's training was held on February 2003 and since then the Medical Education Department has remained active. It was in the year 2014 that Medical Education Department was strengthened further and different committees and sub-committees were formed to develop the standard of medical education to new heights.

Conclusion: The medical education has developed over the years as has been recorded in this paper. There are shortcomings to be corrected. For medical education to develop further, specific steps need to be carried out in future years to meet the challenges of international accreditation.

Key words: Medical Colleges, Medical education, Teaching hospital.

INTRODUCTION

Human Resource for Health (HRH) production in Nepal started in a limited way in 1934 and picked up a somewhat faster pace from the 1950s as per the requirements of time. The establishment of the Institute of Medicine (IoM) led to some diversification but it was only after 1990 that the involvement of the private sector in the production of HRH initiated in Nepal.

Kathmandu Medical College (KMC) started in 1997 and was taken over by the present management on 1st May 2000. The institution had in the initial years, shifted to various sites but is now based at Sinamangal in Kathmandu and Duwakot in Bhaktapur. There is a Teaching Hospital at both sites.

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BACKGROUND

Medical Education Department (MED) and academic status of KMC, a brief overview:

The first program of KMC was MBBS. From an initial intake of 75 students in 1997 the college reached a maximum of 150 for four years 2011-2014, but following the government's new rules the college is now admitting 100 students per year. The BSc. Nursing program was started in February 2006 with an initial intake of only 12 students though permission by the Nepal Nursing Council (NNC) for admission of 20 students had been granted. Since 2011 NNC has permitted KMC to admit 30 students annually, the last intake being the 13th batch. The BDS dental program was started in 2012 with an initial intake of 50 students. The College of Dental Surgery – KMC took its 5th batch in 2017. KMC therefore runs three under graduate programs MBBS, BDS and BSc. Nursing.

POST GRADUATE STUDIES

With regards to the Basic Sciences, the first Post Graduate program in Pathology was started in June 2003 followed by Anatomy and Pharmacology but KMC is currently running PG MD program in Pathology, Community Medicine and Pharmacology as per the demand.

KMC had started the MSc Physiology course in 2010 for one batch and then discontinued it. As from 2014 KMC had been conducting MSc courses in Anatomy and Pharmacology. However, there are currently no MSc students because no candidates are coming forward to study these basic science disciplines.

On the Clinical side KMC started with MD/MS in five subjects. These were Medicine, Surgery, Obstetrics/ Gynaecology, Paediatrics and Anaesthesia initially. Now, programs in Orthopaedics, ENT, Ophthalmology, Psychiatry and Dermatology have also been started.

The increasing burden of non communicable diseases (NCDs) is increasingly affecting the developing countries like Nepal. Similar to other low and middle income countries; cardiovascular diseases, cancer, chronic obstructive pulmonary diseases and diabetes have been identified by the World Health Organization (WHO) as the four major NCDs worldwide[1]. In Nepal, 42% of deaths are caused by NCDs and nearly 35% of deaths are caused by four particular NCDs[2]. So, specialists in cardiology, oncology, pulmonology and endocrinology will be a major requirement in the future.

As from 2015 Kathmandu University has given permission to KMC to start the departments of Cardiology, Pulmonary, Neurology, Neurosurgery, Nephrology and Urology. It is expected that DM and MCH in the respective sub-specialities will also be started in future years.

The recent report by the Mathema Committee on Medical Education has stated that the facilities available for PG seats in Nepal is around 400 only whereas the annual production of doctors is around 3000. It recommends that the PG seats be increased in the future[3]. KMC is geared up to comply with this task. A Masters program on Public Health and PhDs in different areas is also envisaged.

MED AS ONE OF THE REQUIREMENTS OF THE NEPAL MEDICAL COUNCIL (NMC)

Department of Medical Education is one of the requirements of the NMC from the beginning and was made obligatory as stated in its Accreditation Standards for MBBS studies in its publication of 2013[4]. It states that the Medical Education Department should, as a minimum, consist of the Principal and faculty staff who may belong to other department having interest and adequate exposure in Medical Education.

Other specifics laid down by Nepal Medical Council are on: Information Management, Critical Thinking and Research and the Teaching/Learning Methodology. It is also recommended that there should be more attention on teaching medicine with more focus on the Community and on ambulatory patients. For co-ordination in these areas an effective Medical Education Department is necessary.

A skill laboratory has been set up at Sinamangal as per the Nepal Medical Council guidelines as a part of teaching learning methodology. This was essential, bearing in mind the fact that with increased number of medical students, it was difficult to let each and every student examine the patient. The skill laboratory has to be equipped with the necessary items required for the different departments.

Skill laboratory can proceed with two options: it can be kept as a central unit or it can be dispersed in the different departments concerned. From 2016 onwards there has been an alternative arrangement also with a private concern at Dillibazar which trained a group of KMC faculty and then has been conducting the same for students of KMC.

The Nepal Medical Council also states that the Medical Education Department in course of time must be headed by someone with a Degree or Diploma in Medical Education. Faculty members of KMC needs to be encouraged and sent for training in this field.

MED IN KMC, PAST TO PRESENT

The first batch of teachers sent from KMC to the Medical Education Unit for Teacher Training with the objective of starting a Medical Education Unit Teacher Training Cell at KMC was in June 2001. The training of this core group of faculty was interrupted and the training of this first batch of ten teachers subsequently took place only in February 2003. Since then Medical Education Department has been functioning properly and there have been a number of workshops on Teacher Training at KMC over the years.

The breakdown of trainings and workshops held at KMC at different timings from 2003 to 2017 is given in Table 1.

Table 1: Trainings and Workshops held at KMC

S. N.	Training/Workshops	Number of workshops
1.	Teacher's Training	15
2.	CME	16
3.	PBL Workshop	2
4.	Research, Publication and Ethics	3
5.	Evaluation and Assessment	1
6.	Miscellaneous	13

DEVELOPMENT OF MEDICAL EDUCATION AT KMC

Medical Education Department of KMC was further strengthened and activated in the year 2014. This department has become very active and visible for past four years.

Functions of medical education department has been identified as follows-

1. Provide training opportunities for the faculty members of Kathmandu Medical College (KMC) in different aspects of educational methodology.
2. Counsel interested faculty members to improve their skills in educational methodology / pedagogy.
3. Facilitate various clinical skill based trainings at KMC.
4. Orient every year the PG students on research methodology.
5. Conduct and facilitate research projects in the various related fields and on different aspects of medical education and contribute to improvement in practices in the education of health professionals.
6. Conduct Teacher Trainings for newly recruited teachers on a regular basis.
7. Initiate and establish problem based learning (PBL) in Basic Sciences and gradually extend it to Clinical Sciences.
8. Expand collaboration with various national and international organizations for academic benefit of students and teachers.
9. Publish journals, newsletters, academic calendar, annual report etc of and about KMC through separate units.
10. Work continuously on making institutional libraries more scientific and user friendly.

It is hoped to expand the activities of the Medical Education Department in the coming years as this is the body which will nurture the growth of education at KMC.

COMMITTEES OF MEDICAL EDUCATION DEPARTMENT

The Medical Education Department has eight committees. They each have their own terms of references and these committees function as per their Terms of Reference. It has a total of thirty members from different specialities who have been deputed to work in this department besides doing their duties in respective areas of expertise. The Head of the Medical Education Department works under the direction of the Principal of the college. The carrying out of the specific instructions and activities is under the direction of the Core Committee.

I. Core Committee
II. Training Committee
III. Research Committee
IV. Collaboration Committee
V. PBL Committee
VI. Publication Committee (Journal Committee, Newsletter Unit and Annual Report and Annual Calendar Unit)
VII. Medical Illustration & Audiovisual Committee
VIII. Library Committees

RESOURCES

The Medical Education Department has offices at both Sinamangal for the Clinical Section and at Duwakot for the Basic Sciences, Dental and Nursing Departments.

CALENDAR OF ANNUAL ACTIVITIES CARRIED OUT AT KMC:

The various activities that have been going on in KMC are listed in Table 2.

DISCUSSION

a. *Medical Education:* Academic program, MBBS in medicine started at KMC on 25th December 1997. Medical education in Kathmandu University (KU) had been started when KU decided to give affiliation to Manipal College of Medical Sciences at Pokhara (1994), Universal College of Medical Sciences at Bharatpur (1996), Nepalgunj Medical College (1997), Kathmandu Medical College (1997) and Nepal Medical College (1997).

The MBBS curriculum of KU had first been prepared in 1994[5]. A review was done and a 2nd edition was brought out in 1996 with the help of the Institute of Medicine (IoM) and the Manipal Academy of Higher Education. A 3rd edition was brought out in 2001[4]. What must however be noted is that the IoM MBBS curriculum had been

Table 2: Annual Calendar of MED at KMC

S.No	Training	Per Year	Participants
1	Teacher's training	2/yr	New faculties of KMC
2	Feedback from students	2/yr	All dept/ every semester
3	Data analysis	1/yr	Post graduates/Faculties
4	Research Methodology	1/yr	Faculties
5	CME for accreditation	12/yr	Faculties, PGs, UGs
6	PBL	1/yr	Faculties
7.	Assessment/Evaluation	1/yr	Faculties
8	Communication skills	2yrs	Pateint-Dr./student-teacher
9	Fellowship/PhD trainings	1-2/yr	PhD candidates of KMC
10	Journal of KMC	4/yr	Journal/Publ. Committee
11	Newsletter KMC times	4/yr	Publ/newsletter committee
12	Academic calendar	1/yr	Publication committee
13	Annual Report	1/yr	Publication committee
14	Budgeting	Multiple	MED, Accounts, Principal

based on the findings of research of diseases prevalent in four districts of Nepal.

The MBBS program at KU started in August 2001 in collaboration with Dhulikhel Hospital. It had some input from Harvard University in USA[5]. Kathmandu University School of Medical Sciences (KUSMS) once again reviewed the MBBS curriculum for the 2011 August batch when Problem Based Learning (PBL) and Introduction to Clinical Medicine (ICM) was implemented at all its affiliated colleges[6]. Currently at KMC the first two years of preclinical are done at Duwakot and the two and half years clinical plus one year of internship are undertaken at Sinamangal.

When the MBBS program was being started one of the medical colleges had suggested that an extra six months in which IT and communication skills be imparted to the students as this would be what they would be doing all their lives. This was not accepted back then because of prolonging the course. However, with the advancement of technology in healthcare settings we should work to incorporate Clinical Decision Support Systems (CDSS) like modules in the curriculum. CDSS has been integrated in clinical decision making for the practice of evidence based medicine[7]. It has a huge potential to reduce medical errors and increase health care quality and efficiency[8,9].

When CDSS is embedded into hospital work flow it reduces errors, decreases physicians' time for diagnosis and supports in clinical decision making. CDSS works by providing spontaneous output when necessary by comparing patient data to medical information already present in database. Training of CDSS as a component of Medical informatics to medical and paramedical students can improve their skill in using evidence for diagnostic and therapeutic purposes[7-9].

What has to be accepted by all players in the field is that many of the fee paying students are generally oriented to go to USA, UK and Australia. Many start preparing for the USMLE, PLAB etc which are required for entry. As far as UK is concerned, the Nepali doctor generally has a parent who has been in the British Gurkhas and entitled to reside in the UK. It may be noted here that considering the fees paid by the Nepali students, it is not worth their while to work in the government health services or in rural areas as this will not give proper return for their investment[10].

A new development stipulated by Eductional Commision for Foreign Medical Graduates (ECFMG) of USA that will become effective from 2023 is that all physicians applying for ECFMG Certification will be required to graduate from a medical school that has been appropriately accredited. To satisfy this requirement, the physician's medical school must be accredited through a formal process that uses criteria comparable to globally accepted norms such as those developed by the World Federation of Medical Education[11].

As far as foreign students in Nepali private medical colleges are concerned, the majority come from India and then from Sri Lanka. Students from Bhutan and Maldives usually go to IoM. Our students will be going to

distant countries to work in, it is also necessary for them to be knowledgeable in medical history and its practice in different parts of the world. These newly qualified doctors will have to be able to sit for and achieve success in foreign lands. Thus quality education in Nepal is a pre-requisite.

What is now apparent is that the new medical colleges in different parts of the country are setting standards of proper health care. They are involved in providing quality health care to Nepalis now that Health Rights is a Basic Right of the citizen in both day to day care and specialist services. These and even the big private health care institutions now being established should provide educational facilities to train specialist for the future. Present facilities and numbers for PG education are inadequate and need to be increased in view of the production of doctors and existing facilities for post graduation within the country. These need to be rectified immediately if the health care of the people is to improve.

b. *Nursing Education.* The Certificate Level course started in Dhulikhel Medical Institute in 1998 but the BSc program started at KUSMS only in 2004. It started in KMC in 2006 and at the present moment is conducted at KUSMS and seven other institutions. KU has a post basic BNS programs and also started a Masters Program in 2011. MSc nursing program was started in BPKIHS in 2009 and the PhD in nursing program at IoM in 2011. The most recent program of KU a bachelor degree is midwifery.

Nursing program in Nepal is at the cross roads. Whilst previously much stress was laid for nursing students to be involved in personal hygiene care of patients and bed making etc these can be less stressed in the future. The curriculum of the nursing program has been revised twice - initially to increase the time for Integral Health Science (IHS) and then to develop the evaluation tools in various areas of nursing education. KU, whilst running the nursing course, has so far only directed the nursing schools to work out the nitty gritty or evaluation tools of the courses! This must be corrected and the university more involved in the courses that it advocates.

The BSc Nursing program has produced nurses who are in great demand throughout the world. Based on feedback, on the job training or internship of at least six months or a year with adequate remuneration for the work that they do would help augment nursing skills, required of the nursing profession. Implementation of this will improve the clinical capabilities of the students. Whilst training in cardiac or cancer wards are done elsewhere our students need to be trained to look after geriatric cases in view of the fact that as people are living longer, this is a worldwide requirement. It should be realised that up to 35-40% of our graduates are going out of the country, mostly to Australia to work and/or for further study. After completing the requirement to be a Registered Nurse (RN) many have then gone on for Masters or even PhD.

c. *Dental Education:* The first dental college affiliated to KU was started in 2007 whilst its own started only in 2011. The College of Dental Surgery - KMC started one year later. Unlike in India, the Bachelor in Dental Surgery (BDS) at all the dental colleges in Nepal is of four and half year's duration. KMC dental course is based at Duwakot and with the first batch having graduated in 2017 it is hoped to start PG programs in the near future. The BDS, KU curriculum being implemented has not been revised yet.

SUGGESTIONS FOR THE FUTURE

In view of the fact that the medical education is changing worldwide, KMC ought to incorporate the appropriate academic changes with the passage of time. Since KMC is affiliated to KU, it should be noted that changes at affiliated colleges will occur when the university itself takes a lead in bringing about positive changes in the field. Regular meetings should be organized by the university with its affiliated colleges at timely intervals. Besides, new programs should be started by the university and it should work to facilitate the affiliated colleges in taking an initiative at starting new programs. Currently, KU now has a total of 9 affiliate medical colleges, 5 dental colleges and 5 nursing colleges besides its own. Suggestions, on individual topics has been listed individually under various sub-headings.

Teaching: The introduction of PBL at the different affiliated medical colleges has been an uphill task. Its introduction started with workshop on PBL at Nepal Medical College and KMC in February and November of 2013 respectively. Two other workshops were conducted by KU in 2014 and 2015. Besides these efforts, review meeting of Introduction Clinical Medicine (ICM) and PBL was done in the month of November of 2016 and another is due in Nov. 2017. With all these efforts the implementation of PBL and ICM is yet to become satisfactory at all the affiliated colleges. It is necessary for KU to have more liaisons with its affiliated colleges.

Publication & Collaboration: Whilst KU has laid down the requirements of original, research papers as basic criteria for promotion, it should also try to increase the frequency of the Kathmandu University Medical Journal

(KUMJ) from four times a year. KMC was instrumental in starting the Kathmandu University Medical Journal which it published for the first eight years till July 2010 and helped get it listed in Pub Med. Now, it is necessary to increase the frequency of this publication -- its mouthpiece to six times a year immediately and then double it to twelve times annually within the course of a couple of years.

Kathmandu University has developed contact with many academic institutions of the world. Facilities for different areas of research and study come about as a result of it. Somehow the affiliated medical, dental or nursing institutions attached to it hardly ever get an invitation to be involved. There should be more involvement of KU affiliated colleges rather than a mere trickledown effect!

Forensic Medicine: Teaching of this subject and implementation of services in this area is very meagre to say the least. With the creation of a Federal structure and seventy seven districts in the country the requirement of autopsy facilities, the training of personnel to provide it and the legal ramifications is going to increase tremendously in the coming years. Whilst some changes are likely to take place soon, KU itself has to be involved much more to ensure that facilities for forensic medicine education in colleges affiliated with it and within the country is further developed and expanded.

MEDICAL EDUCATION

A recent development in the field of medical education has been the establishment of the Association of Health Professional Educationists in Nepal (AHPEN) in 2072 B.S. (2015) which will work as a national level steering committee to bring necessary reforms in this sector in Nepal. This association is geared to hold regular meetings on Medical Education in the various health Institutions in the Valley. It is holding its 1st International Conference from 2-4th December 2017 at Kathmandu. With its proper functioning, it is hoped that education in medical, dental, nursing, pharmacology, public health, nutrition and physiotherapy will be tremendously benefitted by the upgrading of existing standards.

Much needs to be done for medical education in Nepal when one considers what is happening in other parts of the world. A study on education of health professionals in the 21st century was done by the Lancet and published online in November 2010[12]. It was suggested that a competency based education allows for an individual learning process rather than from a traditional format. In this particular exercise the authors studied 11054 articles and found that 73% were about medicine, 25% on nursing and only 2% on public health. Another breakdown of this same set of articles showed that 53% focussed on professional education in North America, 26% on Europe and only 21% from other areas of the world. We have to stress on conducting research and publication of one's findings here in our country, to bring positive changes in the field of medical education in the future.

In this connection it is worthwhile quoting here: "The fundamental goal of medical training is the production of a workforce capable of delivering economically sustainable care that will improve the health of patients and populations in a changing environment[13]."

CONCLUSION

In view of the existing situation of medical colleges and medical education, government regulations as well as criteria of international medical boards, certain steps are recommended:

The Medical Education Departments of different academic institutions should work in collaboration to improve medical education in Nepal. Also proactive role should be played by the Medical Education Departments of different colleges to ensure that enough work is done so that the colleges get accredited by the relevant authorities before 2023 so that the graduates can get ECFMG Certification.

University curriculum should be regularly updated together to incorporate the emerging topics in the medical curricula so as to reflect new changes in the field of medicine like patient safety, antibiotic stewardship, infection prevention and control (IPAC), to name a few. Adequate time needs to be set aside to impart skills and knowledge on CDSS to the clinical students as this seems to be lacking in present day practice. This will help to lessen the medical litigation and lawsuits.

For medical education and healthcare in the country to improve the country should focus to increase the number of specialists in different fields. Thus, number of postgraduate seats needs to be increased, such postgraduate studies should be conducted all over Nepal and be governed by a board comprising of higher educational institution or university.

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