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JOURNAL OF THE
VIVEKANANDA INSTITUTE OF MEDICAL SCIENCES

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Dr. Shaoni Sanyal (Head & Neck Fellow, Tata Medical Centre, Kolkata)

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Editorial

Linacre, Radcliffe and Nuffield -- Medicine at Oxford

At the time of writing I am on leave, updating my Head & Neck Surgery skills at the Oxford University Hospitals in the UK. Oxford is, of course, the oldest University in the United Kingdom. The oldest college, University College, dates back to AD 1294, followed by Balliol College in1263, and Merton College in 1264. There is no documentation of when exactly a teaching programme for the medical sciences was first introduced, but the Chancellors Book from the 1300's notes that to be licensed as a Medical Teacher, the candidate first had to obtain a Master of Arts degree, then spend six year studying medicine, then undertake practical training and finally spend two years lecturing after obtaining the licence – not much of a change from the present day!

Medicine as an organised degree course in England came in to its own with the establishment, in 1518, of the Royal College of Physicians. This was the achievement of Thomas Linacre. He studied Greek at All Souls College, Oxford, in 1480, so as to read the Greek Medical texts, then spent 10 years travelling to Rome, Florence and finally to the oldest medical school in the Western world – the University of Padua, from where he obtained their MD. He returned to his alma mater and his medical degree was recognised by both Oxford and Cambridge by special Acts. He was summoned to London to become the Royal Physician to King Henry VIII, and so was in much demand by all at Court. The wealth he obtained was used to fund the Royal College of Physicians (the King having only granted the recognition, but no money), Linacre College in Oxford, and two Chairs of Greek Medicine, one at Oxford and the other at Cambridge. He translated the works of Galen from the Greek (which few English scholars could read) to Latin (which they all could). Linacre was the first President of the College in1518, and held the position until his death in 1524. One of the main aims of the new College was to ensure that only the properly trained and licensed could legally practice medicine in London, and, initially, only medical graduates from Oxford and Cambridge could become Fellows of the College.

The name of John Radcliffe is entwined with medicine in Oxford. By all accounts, he was a remarkable man. Born in 1652, he entered University College at the age of 14 and graduated in medicine by the age of 17. He built up a large practice in Oxford, and became the Member of Parliament for the adjacent county of Buckinghamshire. As an MP he spent much time in London, and, noted for his excellent bedside manner, became Royal Physician to Queen Anne. That, of course, ensured that he was consulted by the high and mighty, and he became a wealthy man. His large London townhouse was on the site of the present-day Covent Market.

When he died in 1714, childless, he left large sums of money to his servants; to the University he left his personal library of scientific and medical books, and the sum of £40,000 (an enormous amount in those days) so that an appropriate building could be designed and constructed to house them. This building is the Radcliffe Camera, now a reading room for the

University (Bodleian) library, and the centre of Radcliffe Square, the very heart of Collegiate Oxford.

A further sum of money was left to establish a hospital for the poor and needy. The Radcliffe Infirmary opened its doors to patients in 1770, and finally closed in 2007, when the last remaining clinical services were shifted to the John Radcliffe Hospital on Headington Hill.

William Morris was born in 1877. His father, a farm bailiff, fell ill so the young William gave up his ambition to study medicine, and at the age of 15, set up a small bicycle repair shop. His initial business venture failed, and in1904, with a debt of £50, he set up a motor works in Cowley, Oxford. The first Morris Oxford (an avatar of which became the Ambassador Mark I of Hindustan Motors) was launched in 1913 and sold exceedingly well. Morris Motors Ltd. was founded in 1919, and in 1923 the first MG made its appearance. Morris himself became an icon of the British Motor Industry, and was created Viscount Nuffield in 1938. In 1930 he donated £100,000 to the Radcliffe Infirmary to expand its site and set up a Maternity wing, and, in 1937 he endowed Nuffield Chairs (Professorships) in Surgery, Medicine, Orthopaedics, Obstetrics & Gynaecology. At his golf club he met Sir Robert Mackintosh, already a famous anaesthetist, who said, "I see Anaesthetics is forgotten, as always". Lord Nuffield informed the University that he was increasing his endowment to add a Chair in Anaesthetics, and the first Nuffield Professor of Anaesthetics would be Sir Robert Mackintosh. So was established the first independent Department of Anaesthesia in the United Kingdom and the British Empire. Nuffield died childless, but his name lives on in the Nuffield Departments, and in the college he funded in Oxford – Nuffield College.

In this edition of the Journal Professor Sudip Chatterjee recounts the story of Insulin in the centenary year of its discovery. Dr Bhaumik concludes his essay on the need for humanities to be taught to medical students with a fascinating view of how Big Data, Virtual Reality and Nano-medicine may completely change the way Medicine is practised.

There is much confusion regarding the rules set out by the National Medical Commission for appointment and promotion of medical faculty. To clarify this we are reproducing the latest gazette notification, February 2022, by the NMC. All members of the teaching staff will find this of benefit.

Ranjan Raychowdhury, Executive Editor; Professor, Department of ENT & Head Neck Surgery, RKMSP, VIMS, Kolkata

Guest Editorial

Diabetic Blindness : A Challenge of Modern Era

Pradeep Kumar Saraf

India is home to approximately 72.9 million people with diabetes in 2017, and this is estimated to increase to 134 million by 2045[1]. Diabetes and diabetic retinopathy [DR] have been emerging as a significant non-communicable disease leading to ocular morbidity. It was estimated that diabetic retinopathy was responsible for 1.06% of blindness and 1.16% of visual impairment globally in 2015. When diabetic retinopathy among diabetics was assessed during the survey in India, the prevalence of any form of diabetic retinopathy in diabetic population aged up to 50 years was found to be 16.9%. Mild retinopathy was the most common with prevalence of 11.8%. The prevalence of sight threatening diabetic retinopathy was 3.6%. The prevalence of DR was similar among males (17.0%) and females (16.7%). The prevalence of DR in the 60-69 years age group was 18.6%, 70-79 years was 18.3% and >80 years was 18.4%. Prevalence of blindness among diabetics was 2.1% and visual impairment was 13.7%.[2]

The treatment for DR requires costly devices and medications and the disease requires regular follow-up. Therefore, all measures should be taken for early detection and prompt management of DR. It will reduce the incidence of diabetic blindness and related financial issues.

It is recommended that yearly check-up of diabetic patients for any DR and more frequently if diabetic changes are detected, must be done. Ocular examination by retinal lenses with slit lamp is easiest way to detect DR in an OPD. Fluorescein angiography and Ocular coherence tomography has increased the assessment and treatment of DR. For mass screening the portable fundus camera is used wherein the optometrist or trained technician visits the rural or other needy area. Fundus photographs taken is reviewed by an Ophthalmologist or trained person or we can use one of the established AI algorithms. India has pioneered the development and validation of artificial intelligence-based algorithms in DR. The artificial intelligence (AI) article by investigators from Sankara Nethralaya and Aravind Eye Care was reported to be among one of the ten most important contributions of the decade to clinical medicine and public health, published by views and citations and curated by JAMA editors.[3] The suspected patients must be followed up for further investigations. Public-private partnerships should be encouraged to detect early DR by making people aware of diabetes and blindness due to DR. More people shall be encouraged to attend DR screening programs.

Treatment of DR needs control of all the risk factors which aggravates DR. The patient is advised about good glycaemic control along with control of Blood Pressure. It is recommended to check for Haemoglobin level and do the needful to keep it in optimal level along with lipid profile and renal function and advise to do the needful to get best result. Looking for all the parameters can only help us to get optimal results. In early

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stages there may be reversal of retinopathy by these measures.

Diabetic macular oedema is the most common cause of blindness. Besides doing systemic management anti vascular endothelial growth factor (VEGF) is the mainstay in treatment. As the Anti VEGF injections are very expensive biosimilars are also now available and are comparatively cost effective. Role of lasers, intravitreal injection of steroids and vitreoretinal surgeries are limited in refractory cases of diabetic macular oedema.

Timely laser for proliferative DR has improved our success rates. With newer vitrectomy machines and viewing systems, even the visual outcomes of proliferative diabetic retinopathies requiring surgeries have greatly improved.

Conclusion :

The major challenge today is cost and poor compliance to treatment. We need to explore novel ways of ensuring good compliance for treatment. People should be encouraged to have proper medical insurance.

Management of DR involves active collaboration between primary care physician/diabetologist and ophthalmologist. Lack of concern among some physicians about DR, deficient education of patients, lack of adequate infrastructure for DR screening, and poor cross-referral to ophthalmologists are the major challenges that need adequate attention to ensure comprehensive DR management in India.[4,5] Social organisations should be made aware of diabetic blindness and their focus shall be shifted to DR screening and prevention of diabetic blindness.

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Guest Editorial

The Insulin Story – The First 100 Years

Sudip Chatterjee

The insulin story is a very human story where many talented persons played a part. The first mention of a disease causing polyuria is in the Ebers Papyrus, written around 1500 BC. The papyrus, now in the University of Leipzig, is perhaps a copy of an older work. The first full description comes from Aretaecus of Cappadochia in the first century AD. He compared the polyuria of diabetes to the action of a siphon. He used the Greek word 'diabainein' for siphon, now shortened to our modern diabetes. Charak Samhita contains a description of a disease where the urine tasted sweet. He called it madhu-meha. This was one of twenty urological disorders or prameha. In the text, madhu-meha was associated with rich food, sedentary lifestyle and lack of exercise. He noted two types of madhu-meha, one which caused wasting and occurred in the young, which he called sahaja madhu-meha and the other which was seen in older obese persons which he named apathayaja or derived from wrong food habits. Unfortunately, we do not know for certain when the Charaka Samhita was written. It could be anywhere from 200 BC to 200 AD.

Fast forwarding to the nineteenth century we have the young medical student Paul Langerhans studying at the University of Berlin. He was just 22 years old when he discovered cells in the pancreas which were different from acinar cells, but he did not understand their function. Langerhans became a full professor a few years later and made many more discoveries in pathology. He contracted renal tuberculosis in 1874 and died in 1888 of renal failure just 5 days short of his 41st birthday.

Oskar Minkowski (1858 – 1931) worked on diabetes in the University of Strasbourg. His collaborator was Josef von Mering. In 1889, they surgically removed the pancreas of dogs and found the dogs developed diabetes. These studies were crucial in that they linked diabetes to the pancreas. In 1900 Opie, doing autopsies in the Johns Hopkins medical school found hyaline degeneration of the islets in patients with diabetes. In 1909, de Meyer in Belgium proposed that there was an unknown substance in the pancreas, whose absence caused diabetes. As this unknown substance was coming from the islets, he proposed to name it insuline. A British physiologist Schafer, working independently gave the same name to the unknown substance in 1916.

The next logical step was to make extracts of the pancreas and study their effect on diabetes. This was done by several workers. Notable among them were Kleiner in Rockefeller, Zuegler in Berlin, Scott in Chicago and Murlin in Cornell. Their preparations momentarily reduced blood glucose but were too toxic for prolonged use. The person who got the closest to discovering insulin was the brilliant physician, Nicole Paulescu (1869-1931). Trained in Paris he went back to his native Romania and started experiments on the pancreas in 1916. He ultimately produced a semi-purified extract called pancrein which lowered blood glucose in dogs. This was published in French in the 31 August 1921 issue of the Archives Internationales de Physiologie from Leige, Belgium. There is evidence that the work was known to Banting who probably did not understand the original French. In any case Banting's first publication was six months later, in February 1922. Paulescu

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was a rigidly devout Christian who did not believe in Darwin's Theory of Evolution. He was involved with groups that advocated hate against Jews, Muslims and Freemasons. Perhaps this is why history passed him by. In 2003, it was proposed to install his bust in his old medical school in Paris. The plan had to be called off due to vehement protests.

Meanwhile on the other side of the world, Frederick Banting, a farmer's boy was studying medicine at the University of Western Ontario. He graduated in 1916 and volunteered to join the Royal Canadian Army Medical Corps. He was posted in France where he was awarded the Military Cross. He returned to Toronto in 1919 and joined as a surgical resident in the Hospital for Sick Children. To supplement his income, he worked as a part time demonstrator in Anatomy & Physiology in his old medical school.

In 1920, Banting came upon a paper by Barron where he described the autopsy of a man whose pancreatic duct was blocked by a large stone. This had led to atrophy of the gland but the islets were unharmed. The next morning at 2 am, the idea came to him that he could duplicate this experiment of nature by ligating the pancreatic duct. It would then be possible to get an extract of the islets without digestion by trypsin. He took his idea to Professor JJ Macleod, Head of Physiology at the Toronto Medical School. Macleod found that Banting had boundless enthusiasm but poor knowledge of the literature and did not know how to measure blood glucose. After three meetings Macleod ultimately agreed to give Banting laboratory space and introduced him to two biochemistry students, Charles Best and Edward Noble. Best and Noble tossed a coin to see who would work first with Banting. Best won. Ultimately when it came to Noble's turn to work with Banting, he declined as by then Banting & Best had gelled very well.

It turns out that ligation of the pancreatic duct was completely unnecessary. Trypsinogen in the pancreas does not digest insulin. In fact, mass production of insulin was done from the intact animal pancreas for many years.

The dog surgery did not go too well. Seven of the original 10 dogs quickly died. More dogs were procured off the streets of Toronto at 1-3 dollars a dog. Banting prepared the pancreatic extracts with Macleod's advice. Ultimately in July 27 1921, a pancreatectomised dog called Marjorie received the first injection. Her blood glucose dropped but the next day she was dead. Undeterred, the work went on and was published in Toronto in the little noticed Journal of Laboratory and Clinical Medicine. By 30th December of that year, the findings were ready for presentation at a meeting of the American Physiological Society in New Haven, Connecticut.

The meeting did not go well for Banting. He was a poor speaker and was unable to answer the audience questions. Macleod stepped in and answered the questions with great conviction and used the words like 'our work' to describe the experiments. This enraged Banting who felt Macleod was taking undue credit. The bitterness would last throughout Banting's life.

The extract made so far was too impure to be used on humans. In Toronto at that time was James Collip, a talented biochemist who had come on a sabbatical. Macleod requested him to join the insulin team in December 1921. Soon Collip was able to purify the extract to a level thought suitable for human use. On 11 January 1922, a 14-year-old boy dying of diabetic ketoacidosis was injected with the first dose of insulin. Blood glucose dropped but a sterile abscess developed and the experiment was called off. Banting blamed Collip for the failure and when the latter threatened to leave, felled him with a blow. Collip ultimately stayed on and produced a more purified extract. Injections

began again from 23 Jan 1922. This time the boy Leonard Thompson, improved and went on to live for another 13 years before dying of pneumonia. Six more patients of diabetic ketoacidosis were treated over the next month and a paper was readied for publication. Banting had nothing to do with the treatment of the patients or with the paper. He became despondent and started drinking the laboratory's alcohol. He felt the credit that was rightfully his was going elsewhere. At this time Mcleod, Best and Banting handed over their patents over insulin for one dollar each to the University of Toronto. The Toronto group could not mass produce pure insulin. So, the University gave Eli Lilly and Company permission to manufacture insulin. Soon, the basic manufacturing problems were solved and insulin was available for sale from 1922.

In November 1921, Dr August Krogh of Copenhagen came to visit Toronto. He was the Nobel Prize winner in Medicine in 1920 and his wife had diabetes. He stayed in Toronto as a house guest of Macleod and learnt about insulin from Macleod's point of view. By the time he left Canada, he had permission from the University of Toronto to manufacture insulin in Scandinavia. Nordisk laboratories started production in 1923. The Nobel Committee received a nomination from Krogh to award the Prize to Banting and Macleod. On Oct 25 1923, the 19 professors of the Karolinska Institute voted by secret ballot to accept Krogh's nomination. Banting was furious that he had to share the prize with his rival Macleod and even thought of refusing the honour. However, he later relented and shared his share of the prize money with Best while Macleod did the same with Collip.

Soon afterwards, Macleod left Toronto to become the Regius Professor of Physiology at the University of Aberdeen. He continued to be scientifically productive and authored a major textbook. Charles Best succeeded to Macleod's chair in the University of Toronto. Collip went on to do pioneering work with other hormones and was ultimately Dean of Medicine of the University of Western Ontario. Banting alone failed to do any major work and died in a plane crash in 1941.

The story of insulin does not end there. Frederick Sanger (1918-2013) worked out the molecular structure of insulin for which he got the Nobel Prize in Chemistry in 1958. Meanwhile Dorothy Hodgkin (1910-1994) was doing pioneering work on X Ray crystallography for which she won the Nobel Prize in Chemistry in 1964. She unravelled the 3D molecular structure of insulin in 1969. By this time nuclear medicine was emerging as a speciality. Rosalyn Yalow (1921-2011) a physicist and Solomon Berson (1918-1972) a physician were working at the VA hospital in Bronx to develop the technique of radio immunoassay to measure minute quantities of protein. The first protein they measured was insulin, a feat that won Yalow the Nobel Prize in Physics in 1977. Berson did not qualify as he had died by then.

By the 1980's genetic engineering had emerged as a viable concept. Boyer and Cohen developed an E Coli that could produce human insulin. The product was bought by Eli Lilly and the first genetically engineered insulin reached the markets in 1982. Today we are in a position to produce limitless quantities of human insulin and its analogues.

This is a short summary of the insulin story. It is a story of many brilliant minds working together. The minds belonged to humans who had their petty rivalries, fights and quarrels but who ultimately came together for the everlasting benefit of mankind. It is fitting that we revisit the story one hundred years after the first man was saved from certain death by treatment with insulin.

Original Article

The Need for The Humanities in Medical Education – Part II

Kaushik Bhaumik

Editors introduction :

Dr Kaushik Bhaumik initially trained as a doctor at Medical College, Calcutta, but left to study French and History at Jawaharlal Nehru University, New Delhi, before receiving his D.Phil from Oxford University. This is the concluding part of his essay arguing for the need for the Humanities to be included in medical education. The first part of the essay was be published in the previous edition of the journal.

Biomedical Ethics, Quantum Digitality and Animation :

The final section of my piece could have been titled **- Why As a Rule for Our Times Medicine Should Read Science Fiction Very Deeply.** And indeed, as we start wrapping up, it would be good to notice how I have looped back to literature after having introduced cinema as the ultimate artistic and scientific triumph of the humanities and social sciences from the moment of phenomenology onwards. If the mythic human of anthropology considered the word uttered as a cosmic reality then psychoanalysis turned the mythic into modern phenomenological scientific object that cinema then started to move towards the cosmic yet again, this time the cosmos being filmed real space, rather than a symbolic space of rituals. What was intuitive cosmic revelation for the tribe is the Butterfly Effect for us where the words we speak move oceans in some far away galaxy. As we shall see the cinematic that defines everything we do today has in its new *avatar*, the digital, actually started pushing our life experiences towards a truly lived cosmic experience. *For a Medical Humanities of the future, this new expanded self of the human will be the great horizon of work.* For if ethics is ultimately about the *aesthetic* expectations of the patient, then a patient with a cosmic frame of experience would have expectations of medicine that patients of our times do not. Of course, the readymade answer to this would be to just compare the medical and psychological needs of cosmonauts to ours. Which is to say, very soon we will need to accord every patient an ethics fit for a cosmonaut. And it is for this reason that medical students must start reading good science fiction immediately if they are to live up to the ethical needs of the quantum human being. Not cinema, because we do not yet have science fiction cinema sophisticated enough to live up to the science, but fiction surely has done remarkable things and in its pages the medical workers of today will find what their fates and duties are in a not so distant future. We shall here be discussing the implications of Big Data medicine and how all the terms we have discussed before - narrative, aesthetic, environment, architecture and cinema fare with the advent of this aforesaid phenomenon. This is a huge field, but I shall try to summarize the foundational assumptions of a world in the making even as we speak. I shall give away the key terms of this section right away here so that it will be easier to follow what follows. The key terms are *design, imagination/imaginary, animation* and *cosmos*. Indeed, what we shall see is the triumph of phenomenology in the digital and then the whole flip over into something beyond phenomenology towards the quantum. Einstein was classical and phenomenological when he added time as a dimension of our reality, an heir, albeit a distant one, to the classical Newtonian physics. As we all know, what happens after that is the advent of atomic scientists who relativize the very constitutive substance of reality and show up our realities

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distributed across different universes created by the spin of quantum particles this way or that and many other worlds in between run by a whole range of physical forces that may not be held commonly across those universes. I shall of course not take the Medical Humanities across multiverses to think through ethics but will tarry with our present times defined by developments in the digitization of our lives and state that, *ultimately, Medical Humanities will have to contribute to and be a part of the larger thing called the Digital Humanities these days.*

The digital is the ultimate expression of phenomenology, in the sense, that everything in the world- from objects to landscapes to voices to sight to smell to oceans to our bodies to all animals to dust etc. can be studied phenomenologically and then this phenomenological data used to create digital *objects of* these things on computers. Digitization is the great end of Pavlov's famous experiment about conditioned reflexes, *the crowning glory of phenomenology really.* Just as Pavlov could extract hunger out as an *object-unto-itself* with no connection to actual food, so the universe is stripped of its properties as a synaesthetic *image* above all, and reproduced on computers. The digital thus replicates the universe and much else as a model created on data following phenomenological methodologies. When we operate on a digital heart we must thank Pavlov for this - the heart is an organic thing reproduced as an object disconnected from its organic settings just as the hunger was for Pavlov's dog when hearing the bell rung. But now instead of just hunger as 'artificial' object 'outside' we are getting the minutest details of our lives right down to how our lives might be affected by galactic currents five universes away. Or rather the reality of digital-driven science today is such that we can easily imagine something like that. Who could have imagined following the planets on apps? All we now need is a Neo-shaman, a Neo-neo-Platonic astrologer to connect planetary tides with the tides of our minds. Science fiction will give you an exact sense of what I am saying-such people 'exist' already.

Now quickly let me run through two aspects of current digital technologies that are going to revolutionize medicine very soon. One is hard Virtual Reality (VR) and the other is nano bio-technology. Which is to say VR outside of VR toys, and operating on VR hearts is at the toy level of things, is a stupendous and marvellous thing. When I say VR is being used to cure schizophrenia we can in some senses grasp what hard VR is. It is nothing short of replicating our entire organic architecture and environment and treating it through *cinema* to correct instabilities of the architectures of our mind. Cinema-as-VR today is a medicine. And beyond that, the aim of VR is precisely to connect an *artificial environment* to our bodies via sensors so that we live in perfect environments away from the uncertainties of nature and society. Big Data VR is precisely to collect say the sensory systems of all inhabitants of a city right down to the last detail and create an artificial environment and architecture for us to live in as per our real needs. We already have this idea being worked at in the idea of the Smart City. But the Smart City is nothing but the utilitarian Social Medicine version of the actual VR city which wants to be *quantum*-which will follow the shifts in our moods and the uncertainties of our lives and *account for our futures correctly.*

This is where VR in quantum jumps from the symbolic world of fixed signs into the *imaginary*, into the realm of *imagination*, rather than creativity. In wanting to account *totally* for our lives Big Data quantum VR actually wants to account ahead of us what we might imagine our futures to be and work towards that. In short, Alexa, which is the headquarters of Smart City VR, will be developed further through our behavioural data, culled off our buying habits, sexual habits, medical habits and so on to produce a machine that will be able to predict what we need the next moment. At least,

in theory. But theory is important, precisely to understand the *horizon* of desires of the individual who will come to the medical services demanding treatment. Medical ethics is not an unchanging thing, it will need to change and cater to this new kind of individual who arrives at its doorstep.

VR also underpins the other thing that I want to emphasize - nanomedicine. So, if we can operate via a VR heart, then the manner in which medicine is designed and produced in our times is oriented towards *infusion* via VR through *nanobots*. Which is to say the future VR city has another layer to it which makes it a fantastic thing to imagine. Not only are we supposed to live in a city which is nothing but a replication of collective nervous systems, but this nervous systems will be infused with nanomedical drugs that will act on the VR architecture of our senses without even getting into us. It is as if one could now actually feed that model of the dog's hunger extracted by Pavlov ringing the bell and the dog will feel satiated. This would mean that we are at all times mood stabilized, healthy, organ repaired as well as connected to an environment that changes and caters to our shifting moods. Needless, to say we have here a very base version of quantum entanglement where the reality observed cannot be disentangled from the condition of the observer. And therefore the world is as we imagine it. Big Data VR is a superlative, even if quixotic, attempt to realize the reality of quantum entanglement.

However, all of this is cinema. The digital is entirely based on a visual modelling of data on screens. Starting from the design of genetic and nano-molecular medicines, to buildings, to modelling the universe, the digital replication of the world is a screen media thing and in its holistic aims *wants to complete what might have been the hidden dream of cinema - to be able to exactly replicate the reality of existence*. Here, the digital does in its own way, what the philosopher Henri Bergson (the one who won a Nobel Prize for literature) stated about evolution and life - matter is image and everything, including formations of universes and evolution is an image thing, something that suddenly found purchase when the possibility of mirror neurons in the brain was posited some years ago. Thus, for Bergson everything that science studies is cinema of sorts. However, this cinema is not the cinema as we know it. At the nano-levels of reality that the digital works with this cinema of life in VR turns towards *animation*, something that we can patently make out from rough digital images that are the first phenomenological object constructs on the computer screen- these images look like cartoons. Just see how all of science today, not just the medical sciences, is done through cartoonish *animation* cinema on computer screens- from models of molecules to tissue structures to bot design and so on. The reason why digital VR cinema tends towards animation is the sheer need to compress huge amounts of data within limited speed and bandwidth. It would be impossible at the moment to store VR life in HD, so huge will be the infrastructural need for such a task. And indeed, it is this huge deficit in current Big Data VR systems that has sent computational experts to seek ways to upgrade to Quantum Computation.

The other thing that happens with Big Data VR is the idea of creating architectures becomes a *design* thing, in that digital reality follows a fractalized logic where minutely designed 'territories' are added up to larger pictures, images, films. At the basic level of creating architectures in the digital we have to design things, rather than build them, sculpt them, film them or paint them. Animation is taught in design schools for a reason. Animation requires an eye for minute details that only designers have. Although everything can be said to have a design, but as a craft design is always related to smaller scales of detailed work on creating forms. And indeed, the word design entered the world of the pharmaceutical industry only with the onset of the digital, something we call pharmaceutics. Nanomedicine is not

manufactured, it is designed. Nanomedicine belongs to a new kind of micro-industry where things cannot be manufactured any longer wholesale as Big Industry of yore was. Even the pill manufactured today is a digital object, cut by digital machines and thus with sharper perfect edges than the pills of the past. Just like the furniture in our houses. Indeed, the whole world of building and making things has folded up into designing micro-architectures. A new kind of micro-phenomenological making of environments - we live in nano-environments today which need to be designed minutely even if we are not aware of it.

In creating environments for us Big Data VR medicine remains cinema of a new kind - *it is animation and works through design rather than filming.* But it is also cinema in another sense- in the sense of narrative. Nano-medicine increasingly veers towards the narrative of genetics. And why? Because it is in orienting medication to our genetic profile that the Utopian VR city made of our brains and our bodily functions can be maintained by infusion of just the right kind of medicine for the individual. Nano bio-technology speaks of the body in terms of an organic architecture, an environment, that tells us coded stories about its health which then require the right kind of counter-code, counter-narrative, counter-story to keep things stable. *It is the dream of genetics to run my genome through a machine and produce an evolutionary cinema of me.* And it is interesting to note that code narratives are closer to animation than to realistic cinema. There is something cartoonish about the genetic and other chemical codes that run our bodies, something cartoonish about sodium and potassium channels in our cells and something cartoonish even about histology slides and haematology slides. Indeed, quite a few animated films have been made about cells. So what we have here is code *my genetic stories that need to be designed in animation cinema form that then becomes the thing to be infused into the VR brain via my personal Alexa.* Blockchain wants to become our own medical supervisor via Big Data VR. Doctors from now on will be designers and regulators of nanomedical prescriptions or better still, if robots do this job, their main job will be to train the bots to do their job properly.

At the edge of multiverses Big Data VR thus encompasses the cellular to the *cosmic* in one breath by merely *echoing* a resonance of all matter on to a computer. But what Medical Humanities needs to keep in mind in all this is that everything in the science here is cultural, bespoke to the individual, to its *aesthetic* sensibilities and its narratives as cinema. The physical reality we inhabit although measurable in numbers, in objective science, nevertheless becomes films when it works through us. Even nature is being made to tell stories and soon we will have biographies of every dust particle, its drift across how many universes across billions of years. *Objective science can therefore merely be the first step towards a more real deep science,* like the tailor taking your basic measurements. How the dress will come about is all about cinema, a creation of a life and its biographies to suit the wearer. *To be truly ethical medicine will need to become cultural through and through.* And this too only as a first step - to orient itself away from the illusion of objectivity of data and techniques. Only then will the science be able to grasp the scale and complexity of what is at stake in this simple thing called 'treatment', what it takes to do Big data VR animation cinema before coming to a diagnosis. And indeed, science in the digital will be the first to admit that it is all about narratives, about films and images. What is interesting is that it is only medicine which truly needs to become this thing since it is the only science that deals with life itself, holistically. Again, only reading science fiction will give the doctors of our times a sense of what this entails. The cinema for this fiction, the doctors will have to make.

Bottomline - Medical Humanities will need to work with architects, environmentalists,

filmmakers, designers, science fiction writers, animators, phenomenologists and last but not the least, psychoanalysts in order to deliver in all that is implied in this new discipline. An analysis which will probably proceed with analyst and analysand facing one another with VR headsets on. When things really become quantum we shall have various *avatars* of doctors/Alexas facing one another in different universes with their own physical laws. But that might take some time to happen.

Recommended Readings :

Phenomenology and Medicine

SK Toombs, *The Handbook of Phenomenology and Medicine,* Dordecht: Kluwer Academic Publishers, 2001.

Frederik Svenaeus, *Phenomenological Bioethics: Medical Technologies, Human Suffering, and the Meaning of Being Alive,* Oxford : Routledge, 2018.

Frederik Svenaeus, *The Hermeneutics of Medicine and the Phenomenology of Health,* Dordecht: Springer-Science, 2001.

Havi Carel, *Phenomenology of Illness,* Oxford: Oxford University Press, 2016.

Architecture and Medicine

Andrej Radman and Heidi Sohn (eds), *Critical and Clinical Cartographies: Architecture, Robotics, Medicine, Philosophy,* Edinburgh : Edinburgh University Press, 2017.

Andrej Radman and Stavros Kousoulas (eds), *Architectures of Life and Death : The Eco-Aesthetics of the Built Environment,* Lanham, MD: Rowman & Littlefield, 2021.

Timothy Beatley, Carla Jones and Reuben Rainey (eds), *Healthy Environments and Healing Spaces: Practices and Directions in Health, Planning and Design,* Charlottesville : University of Virginia Press, 2018.

Medicine, Digital, Design

Dietmar Hutmacher and Wojchiech Chrznowksi (eds), *Biointerfaces : Where Material Meets Biology,* Cambridge : Royal Society of Chemistry, 2015.

Metin Akay and Andy Marsh (eds), *Information Technology in Medicine* (2 vols), New York : John Wiley and Sons, 2001.

Ioannis Vizirianakis, *Handbook of Personalized Medicine : Advances in Nanotechnology, Drug Delivery, and Therapy,* Boca Raton : Pan Stanford/CRC Press, 2014.

VR, Medicine Mental Health

Brennan Spiegel, *Vrx : How Virtual Therapuetics Will Revolutionize Medicine,* New York : Basic Books, 2020.

Emanuele Bisso et al., *'Immersive Virtual Reality Applications in Schizophrenia Spectrum Therapy: A Systematic Review'*, International Journal of Environmental Research and Public Health, 17: 17, 2020. Available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7504018/

Big Data and VR

Ekaterina Olshannikova et al. *'Visualizing Big Data with augmented and virtual reality : challenges and research agenda'* in Journal of Big Data, 2: 22, 2015. Available online at : https://journalofbigdata.springeropen.com/articles/10.1186/s40537-015-0031-2.

Pyschoanalysis and Narrative Medicine

Peter Rudnytsky and Rita Charon (eds), *Psychoanalysis and Narrative Medicine,* Albany: SUNY Press, 2008.

Rita Charon et al. (eds), *The Principles and Practice of Narrative Medicine,* Oxford; Oxford University Press, 2017.

General :

Peter Weibel and Georg Flachbart, *Disappearing Architecture : From Real to Virtual to Quantum,* Basel: Birkhauser, 2005.

Victoria Vesna, *Database Aesthetics : Art in the Age of Information Overflow,* Minneapolis : University of Minnesota Press, 2007.

Lev Manovich, *Software Takes Command,* London: Bloomsbury, 2013.

Original Article

The 21st Microear Surgical Workshop And CME Programme — A Report

Moumita Sen

Our Workshop :

The live micro-ear surgical workshop and hands-on cadaveric temporal bone dissection course of the Department of ENT Head Neck Surgerywas started in our institute in the year 2002, with Prof. B.K. Roychaudhuri as organizing chairman. The micro ear surgical workshop was held every year until 2019. The cadaveric workshop was regularly overbooked and we had international participants all the way from Bangladesh and Kuwait.After the outbreak of COVID 19, organizing the workshop became next to impossible in 2020 and 2021 due to travel restriction all over India. So after a pause we were back again with our 21st workshop, held from 14th to 16th of October, 2022.

Our Guest Faculty :

Anotia (complete absence of pinna along with external auditory canal [EAC]) and microtia (partial development of pinna with or without the development of EAC) are birth defects of the ear. The reconstruction of the pinna is a challenge because it needs to be sculpted from harvested rib cartilage, which if not done with chest circumference > 60cm leads to chest deformity.

Our esteemed guest faculty Dr. Ashesh Bhumkar, completed his ENT postgraduation from B. J. Medical College (Pune)and practices in Thane, Maharashtra in his own E.N.T. hospital, delivering world class service for the past 30 years. He is known for his pioneering work in microtia-atresia surgery with hearing reconstruction, for his excellence in stapes surgery and FESS surgery. He is the founder member of the International Society of Auricular Reconstruction and also the founder of ENT academy – a medical trust teaching ENT surgeons, arranging medical camps and conducting courses nationally and internationally.Along with his entire team he arrived straight away from the airport to our hospital to examine the patients the day before the workshop, counsel them and plan their surgery accordingly. We had requested him to perform a microtia repair surgery in a 12 year old female patient, and a stapes surgery in an adult female.

The Programme :

The argument that such workshops fill the void created by the inability of postgraduate training programmes to expose students to new operative techniques has its limitations since these workshops are a poor alternative to structured teaching.

The 47 registered delegates included postgraduate trainees from all over India (Bengal, Bihar, Assam, UP, Delhi, Rajasthan and Chattisgarh) Senior Residents and Consultants.

Day 1 began with the live surgical workshop by Dr. Bhumkar and our in-house faculty which started at 8am. Live simultaneous transmission from two theatres was arranged in 2 halls. In one Dr. Bhumkar started the pinna reconstruction surgery along with his team, while in the other Prof. Amitabha Roychoudhury and his in-house team demonstrated cochlear implantation surgery. There followed Tymapnoplasty with Ossiculoplasty (Dr. Sabyasachi Gon), Stapes surgery (two cases, by Dr. Kaushik Mandal and Dr. Bhumkar) and last but not least

Senior Resident, Dept of ENT Head Neck Surgery, RKMSP, VIMS

Mastoidectomy + Tympanoplasty by Prof. Amitabha Roychoudhury. A working breakfast was provided for the audience, along with tea and coffee.

The inauguration programme followed the completion of the live surgery workshop (Fig. 1). Invocation was performed by the School of Nursing students, followed by a welcome address by Prof. Amitabha Roychoudhury, Head of Department and Organising Chairman. All the guests were called to the stage and falicitated with an uttariya. Swami Nityakamananda (Secretary, Ramakrishna Mission Seva Pratishthan) delivered a beautiful introductory speech, followed by a speech from Prof. B.K. Raychaudhuri, former Head of the Department. The ceremonial lamp was lit, then there were speeches by Prof. Pranab Kumar Das, Principal, Vivekananda Institute of Medical Sciences, Swami Shaktipradananda, Dr. Bhumkar and Prof. Haradhan Bora, President AOI West Bengal. The programme was concluded with a small vote of thanks to all the guests present there.

The last session of the day was the demonstration of temporal bone dissection by Dr. Bhumkar. The conference dinner was held at the Taj Vivanta Hotel and this was an opportunity for the delegates to socialise and meet the faculty. An otology quiz contest was conducted by Prof. Ranjan Raychowdhury; Dr. Surbhi from Patna Medical College was the winner.

Days 2 and 3 were devoted to hands-on cadaveric temporal bone dissection with 42 registered participants. Initially we had planned dissection stations for 21 candidates but after repeated requests we finally decided to double the number of stations and added one more day to our dissection programme. Each participant was given a wet temporal bone, the required dissection instruments, a dissection manual and 210 minutes time to complete their dissection. Each table had assigned facultyfor continuous supervision ofthe participants. The striking feature that we observed throughout the event was how all dissectors were happy to help their colleagues. Those who were scheduled in the later slots voluntarily came forward to assist the ones who were dissecting and vice versa. Each delegatewas handed over a certificate by Prof. Amitabha Roychoudhury, Organising Chairman. The supervising faculty included present Faculty of our Department, as well as alumni who are now academic faculty in various institutes across the state.

The Patients :

The patients had been well counselled regarding the surgical workshop and the involvement of guest faculty and in-house faculty. Informed consent was obtained by the faculty themselves. They were consented for their surgical procedures and sharing of information with the whole audience.

Conclusion :

From the view of organising secretary that I may vouch for the enormous amount of work required, from arranging cadavers to conducting the dissection programme and managing everything systematically. This was a total team effort by all members of the Department, including the Nursing and Support staff (Fig. 2). We have received very heart-warming messages from the participants thanking us for our guidance and help, and requesting for the next dissection programme to be held soon. It was not easy to restart this programme because the Covid-19 era had brought a standstill in everyones' lives due to travel restrictions, restrictions on gatherings etc. This programme was like a fresh start for us, and we hope to continue with this as a part of our annual academic programme.

Fig.1 : Inauguration of the Workshop

Fig. 2 : Organising team with delegates

Extract From The Gazette of India, NMC Notification February, 2022

NATIONAL MEDICAL COMMISSION

(POSTGRADUATE MEDICAL EDUCATION BOARD)

NOTIFICATION

New Delhi, the 14th February, 2022

TEACHERS ELIGIBILITY QUALIFICATIONS IN MEDICAL INSTITUTIONS

REGULATIONS, 2022

F. No. NMC/MCI-23(I)/2021-MED.—In exercise of the powers conferred by section 57 of the National Medical Commission Act, 2019, the National Medical Commission, hereby makes the following Regulations, namely:-

1. Short title and commencement

1.3 These Regulations may be called the "Teachers Eligibility Qualifications in Medical Institutions Regulations, 2022".

1.4 They shall come into force on the date of their publication in the Official Gazette.

2. Objectives

Appointment and promotion of faculty in various teaching specialties imparting graduate and postgraduate medical education in medical institutions, falling within the purview of the National Medical Commission, has to be in accordance with the minimum qualifications and experience prescribed in these Regulations, so as to maintain a standard of teaching in medical institutions.

3. General Norms for Appointment of Faculty in Medical Institutions

Every appointing authority before making an appointment to a teaching post in a medical college or institution shall observe the following norms**:**

3.1 All Medical Teachers must possess a Postgraduate degree or equivalent qualification included in any one of the Schedules to the Indian Medical Council Act, 1956 (102 of 1956) and National Medical Commission Act, 2019. They must also be registered in a State Medical Register or National Medical Register, except in the case of teachers with non-medical qualifications.

3.2 The maximum age limit up to which a person can be appointed or granted extension or reemployed in service against the posts of Teacher or Medical Superintendent or Dean or Principal or Director or, as the case may be, which are required to be filled up as per the norms of the National Medical Commission in any Medical College/ Institution for imparting Graduate and Post-Graduate medical education shall be 70 years.

3.3 In the Departments of Anatomy, Physiology and Biochemistry, non-medical graduates having M.Sc. (relevant medical) and PhD qualifications, granted by the recognized Medical College/ Institute as regular on campus course in the subject concerned, can be appointed as Assistant Professors. A non-medical person cannot be appointed as Dean or Director or Principal or Medical Superintendent or Head of the Department.

Provided that non-medical graduates appointed as Assistant Professors in the subjects of

Anatomy, Physiology, Biochemistry, Pharmacology and Microbiology on the basis of MSc degree prior to the coming into force of Minimum Qualifications for Teachers in Medical Institution Regulations, 1998 on 05.12.1998, shall be eligible to be considered as Assistant Professors. However, PhD degree in concerned medical subject is essential for promotion to higher teaching position. Such persons shall also be eligible after their retirement to serve as faculty on the same position from which they had retired until the permissible age for serving in a Medical College.

3.4 The appointing authority may consider certain equivalent postgraduate qualifications, which may be approved by the National Medical Commission from time to time, to be the requisite recognized qualification in the subject concerned.

3.5 In cases where candidates with requisite experience are not available, a reference may be made by the appointing authority to the National Medical Commission for consideration on merits.

3.6 The position of Dean/Director/Principal of Medical College/Institution should be held by a person possessing recognized postgraduate medical degree from a recognized institution with a minimum of ten years teaching experience as Professor/Associate Professor in a Medical College/ Institution, out of which at least five years should be as Professor in the Department. Appointment to these posts shall be made on seniority-cum-merit basis. The Dean/ Director/Principal of Medical Institution shall not hold the post of Head of the Department.

3.7 The Medical Superintendent of the affiliated teaching hospital shall possess a recognized postgraduate medical degree from a recognized Institution with a minimum of ten years teaching experience as Professor /Associate Professor in the relevant departments of the Hospital, out of which at least five years should be as Professor. Appointment to these posts shall be made on seniority-cum-merit basis. Medical Superintendent shall not occupy the position of the Head of the Department. However, he can head the unit.

3.8 The position of Dean/Director/Principal of Standalone Postgraduate Broad Specialty/Super Specialty Institution shall be held by a person possessing recognized postgraduate Degree from a recognized Institution with minimum of ten years teaching experience as Professor/Associate Professor, out of which, at least five years should be as Professor.

3.9 The Heads of the Departments of broad and super specialty courses shall possess a recognized Postgraduate broad specialty and super specialty degree, as the case may be, in the concerned specialty. This mandatory requirement is relaxed for five more years from the date of notification of this Regulation to all the Broad and Super Specialty courses which were started after 01 January, 2009.

3.10 Appointments to the administrative posts in Government Institutions including the in-charge arrangements, amongst eligible candidates, shall be on inter se vertical seniority based on date of entry into the Institution/ Government Service.

3.11 The period spent by the teaching faculty towards acquisition of degree in Super Specialty subject on concurrent duties/deputation shall not be counted as teaching experience for fulfilling eligibility criteria for promotion in the concerned Super Specialty department.

3.12 For holders of MD - PhD in Medical

Subjects, the period spent during PhD shall be considered equivalent to Senior Residency period and they are eligible for direct appointment as Assistant Professors in the concerned subject.

3.13 A person with MSc (Health Statistics/ Medical Statistics/Bio Statistics/Statistics) with PhD from a recognized University shall be appointed as Assistant Professor of Statistics in the department of Community Medicine.

4. Determination of equivalence of the qualification of DNB (Broad Specialties) with MD/MS and DNB (Super Specialties) with DM/MCh

The Diplomate of National Board (DNB) in broad specialty and super specialty qualifications when granted in a medical institution with attached hospital or in a hospital with the strength of five hundred or more beds, by the National Board of Examinations, shall be equivalent in all respects to the corresponding broad specialty (MD/MS) and super specialty (DM/MCh) postgraduate qualification, but in all other cases, senior residency in a medical college for an additional period of one year shall be required for such qualification to be equivalent for the purposes of teaching.

5. Eligibility for being designated as Postgraduate Guide

5.1 **Broad Specialties :** A teacher in a Medical College or Institution having a total of 5 years of teaching experience as Assistant Professor and above after obtaining post-graduate degree in the concerned broad specialty subject shall be recognized as Post Graduate Guide in that specialty, provided the department has been recognized/permitted for conducting Postgraduate course in that subject.

5.2 **Super Specialties :** A teacher in a Medical College or Institution having a total of 3 years of teaching experience as Assistant Professor and above after obtaining Super Specialty degree in the concerned super specialty subject, shall be recognized as Post Graduate Guide in that Super Specialty subject, provided the department has been recognized/ permitted for conducting Super Specialty courses in that subject.

Further, in the case of broad specialty/super specialty courses which were newly instituted, relaxation of qualification and experience for recognition as Post Graduate Guide was granted for ten years from the date of start of the course by the erstwhile Medical Council of India (MCI). This relaxation ceases to exist to all the existing super specialty courses on the day they complete ten years from the date on which they were started by erstwhile Medical Council of India. However, this relaxation of qualification and experience during transition period shall be extended by five more years from the date of notification of this Regulation to all the broad/super specialty courses which were started after 01 January, 2009. This relaxation is not applicable to the courses instituted before 2009.

6. Norms for Faculty Appointment and Promotion

The norms for Faculty Appointment and Promotion shall be as follows:

Table 1A. Norms for Faculty Appointment and Promotion in Broad Specialties (MD/MS) which are in existence for more than 10 years

Posts	Academic Qualifications	Teaching and Research Experience
Professor 8 year post PG experience	MD/MS/DNB in the concerned subject.	i. Associate Professor in the subject for three years in a permitted/ recognized medical college/ institution. ii. Should have at least four Research publications (at least two as Associate Professor) [only original papers, metaanalysis, systematic reviews, and case series that are published in journals indexed in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iii. Should have completed the basic course in Medical Education Technology from Institutions designated by NMC. iv. Should have completed the Basic course in Biomedical Research from Institutions designated by NMC.
Associate Professor 5 years post PG experience	MD/MS/DNB in the concerned subject.	i. As Assistant Professor in the subject for four years in a permitted /recognized medical /recognized medical college/ institution. ii. Should have at least two Research publications [only original papers, metaanalysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iii. Should have completed the basic course in Medical Education Technology from Institutions designated by NMC. iv. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.

Posts	Academic Qualifications	Teaching and Research Experience
Assistant Professor	MD/MS/DNB in the concerned subject.	One year as Senior Resident in the concerned subject in a recognized/ permitted medical college after acquiring MD/MS Degree.
Senior Resident (Medical Postgraduates) Tutors (Non-Medical Postgraduates)	Senior Resident is one who is doing his residency in the concerned department after obtaining Medical Postgraduate degree (MD/MS/DNB). Non-medical Postgraduates with MSc (Medical) degree shall be called Tutors in whichever departments they are working. The posts of Senior Resident and Tutor are tenure positions not exceeding 3 years. The graduate must be below 45 years of age at the time of initial appointment. The posts of tenured Senior Residents and Tutors are not faculty positions. All other designations practiced earlier stands deleted. However, existing Tutors/Demonstrators/Registrars appointed on permanent basis shall be renamed as Senior Residents and Tutors, as the case may be, and continue to work till superannuation. The conditions mentioned above shall not be applicable to Senior Residents/Tutors/Demonstrators/Registrars who are appointed on permanent basis before the notification of these Regulations.	

Table 1B: Index of Broad Specialties in which Persons with non-Medical Qualifications may be appointed as Faculty (Assistant Professor and beyond)

S. No.	Name of the Specialty	Academic Qualification
1.	Anatomy	MSc (Medical Anatomy) with PhD Medical Anatomy
2.	Biochemistry	MSc (Medical Biochemistry) with PhD in Medical Biochemistry
3.	Physiology	MSc (Medical Physiology) with PhD in Medical Physiology

Table 1C. Norms for Faculty Appointment and Promotion in Broad Specialties (MD/MS) wherein the Broad Specialty Course was established by erstwhile MCI and is functional for less than Ten years and also for new Broad Specialty courses proposed to be instituted by National Medical Commission.

Posts	Academic Qualifications	Teaching and Research Experience
Professor	MD/MS/DNB in the concerned subject. OR During Transition period MD/MS/DNB in broad specialty subjects as provided in Table 4.A	i. As Associate Professor for three years in the subjects as mentioned in Table 4.A in a permitted/ recognized/ medical college/ institution. ii. Special training for three years in the respective new broad specialty subject in a teaching Institution/Centre of Excellence with dedicated service in that specialty. iii. Should have at least four Research publications (at least two as Associate Professor) [only original papers, metaanalysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iv. Should have completed the NMC recognized basic course in Medical Education Technology. v. Should have completed the basic course in Biomedical Research from Institution(s) designated by NMC.
Associate Professor	MD/MS/DNB in the concerned subject OR During Transition Period MD/MS/DNB in broad specialty as provided in Table 4.A .	Special training for three years in the respective new broad specialty subject in a teaching Institution/Centre of Excellence with dedicated service in that specialty.
Senior Resident (Medical Postgraduates) Tutors	Senior Resident is one who is doing his residency in the concerned department after obtaining Medical Postgraduate degree (MD/MS/DNB). Non-medical Postgraduates with MSc (Medical) degree shall be called Tutors in whichever departments they are working.	

Posts	Academic Qualifications	Teaching and Research Experience
(Non-Medical Postgraduates)	The posts of Senior Resident and Tutor are tenured positions not exceeding 3 years. The graduate must be below 45 years of age at the time of initial appointment. The posts of tenured Senior Residents and Tutors are not faculty positions. All other designations practiced earlier stands deleted. However, existing Tutors/Demonstrators/Registrars appointed on permanent basis shall be renamed as Senior Residents and Tutors, as the case may be, and continue to work till superannuation. The conditions mentioned above shall not be applicable to Senior Residents/Tutors/Demonstrators/Registrars who are appointed on permanent basis before the notification of these Regulations.	

Table 2. Norms for Faculty Appointment and Promotion in the Department of Dentistry in a Medical College

Posts	Academic Qualifications	Teaching and Research Experience
Professor	MDS	i. Associate Professor in the subject for three years in a permitted/ recognized medical/dental college/institution ii. Should have at least four Research publications (at least two as Associate Professor) [only original papers, meta-analysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iii. Should have completed the basic course in Medical Education Technology from Institutions designated by NMC. iv. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.
Associate Professor	M.D.S.	i. As Assistant Professor in the subject for four years in a permitted/ recognized medical/ dental college/ institution.

Posts	Academic Qualifications	Teaching and Research Experience
		ii. Should have at least two Research publications [only original papers, meta-analysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iii. Should have completed the basic course in Medical Education Technology from Institutions designated by NMC. iv. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.
Asst. Professor	M.D.S.	One year as Senior Resident/Registrar/Tutor in the concerned subject in a recognized/ Permitted medical/dental college after acquiring MDS Degree.
Senior Resident	M.D.S.	Senior Resident is one who is doing his residency in Dentistry after obtaining MDS degree. The post of senior resident is a tenured position not exceeding 3 years. The graduate must be below 45 years of age at the time of initial appointment

Table 3 A. Norms for Faculty Appointment and Promotion in Super Specialties (DM/MCh) wherein the Super Specialty Course is established by erstwhile MCI and is functioning for more than Ten years.

Posts	Academic Qualifications	Teaching and Research Experience
Professor	DM/MCh/DNB in the concerned subject	i. Associate Professor in the subject for three years in a permitted/recognized medical college/institution. ii. Should have at least four Research publications (at least two as Associate Professor) [only original papers, meta-

Posts	Academic Qualifications	Teaching and Research Experience
		analysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iii. Should have completed the NMC recognized basic course in Medical Education Technology. iv. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.
Associate Professor	DM/MCh/ DNB in the concerned subject	i. As Assistant Professor in the subject for two years in a permitted/recognized medical college/institution. ii. Should have at least two Research publications [only original papers, meta-analysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iii. Should have completed the basic course in Medical Education Technology from Institutions designated by NMC. iv. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.
Assistant Professor	DM/MCh/ DNB in the concerned subject	
Senior Resident (Super Specialties)	DM/MCh student shall be designated as Senior Resident in the concerned subject.	

Table 3 B. Norms for Faculty Appointment and Promotion in Super Specialties (DM/MCh) wherein the Super Specialty Course is established by erstwhile MCI and is functional for less than Ten years and also for new courses proposed to be started by National Medical Commission.

Posts	Academic Qualifications	Teaching and Research Experience
Professor	DM/MCh./DNB in the concerned subject OR During Transition period MD/MS/DNB in the concerned Broad specialty subject as provided in Table 4.B.	i. Associate Professor for three years in the subject as mentioned in Table 4.B in a permitted/ recognized medical college/ institution. ii. Special Training for three years in the respective new Super Specialty subject in a teaching Institution/Centre of Excellence with dedicated service in that specialty. iii. Should have at least four Research publications (at least two as Associate Professor) [only original papers, metaanalysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iv. Should have completed the NMC recognized basic course in Medical Education Technology. v. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.
Assistant Professor	DM/MCh./DNB in the concerned subject OR During Transition period MD/MS/DNB in the concerned Broad specialty subject as provided in Table 4.B.	i. As Assistant Professor for two years in the subject as mentioned in Table 4.B in a permitted/recognized medical college/ institution. ii. Special Training for three years in respective new Super Specialty department in a teaching Institution/Centre of Excellence with edicated service in that specialty.

Posts	Academic Qualifications	Teaching and Research Experience
		iii. Should have at least two Research\ publications [only original papers, metaanalysis, systematic reviews, and case series that are published in journals included in Medline, PubMed, Central Science Citation Index, Science Citation Index, Expanded Embase, Scopus, Directory of Open Access Journals (DoAJ) will be considered]. iv. Should have completed the basic course in Medical Education Technology from Institutions designated by NMC. v. Should have completed the basic course in Biomedical Research from Institutions designated by NMC.
Professor	DM/MCh./DNB in the concerned subject OR During Transition period MD/MS/DNB in the concerned Broad specialty subject as provided in Table 4.B.	Special Training for three years in the respective new Super Specialty subject in a teaching Institution/Centre of Excellence with dedicated service in that specialty
Senior Resident (Super Specialties)	Registered to pursue DM/MCh in the concerned subject. OR MD/MS/DNB qualified graduates in the concerned broad specialty. This post of senior resident is a tenured position not exceeding 3 years. The graduate must be below 45 years of age at the time of initial appointment.	

7. Appointment of Faculty during transition period

7.1 The academic qualification for any new broad specialty or super specialty shall be the one shown at the time of notifying the new specialty. Persons appointed on the basis of the entry level qualification shall be eligible for promotion to the higher posts.

7.2 Persons appointed as teaching faculty during the transition period shall be eligible for promotion to the post of Associate Professor/ Professor even after the transition period of ten years are over. Such person shall also be entitled to hold the teaching position held by him until the age of 70 years in the same or any other recognized Medical Institution.

7.3 In the case of Broad Specialty / Super Specialty courses which were newly instituted, relaxation of qualification and experience for appointment as faculty during transition period was granted for ten years from the date of start of the course by erstwhile Medical Council of India. This relaxation ceases to exist for all the existing Broad Specialty / Super Specialty courses on the day they completed ten years from the date on which they were started by erstwhile Medical Council of India.

7.4 This relaxation of qualification and experience during transition period mentioned in clause 7.3, shall be extended for five more years from the date of notification of this Regulation to all the Broad and super specialty courses which were started after 01 January, 2009. This relaxation is not applicable to the departments instituted before 2009.

8. Norms for Determination of Teaching Designations for Consultants/Specialists employed by Central Government or State Governments or Local Self-Government or Public Funded Institutions for establishing a Medical College/starting a Postgraduate course

8.1 **New Medical College:**

A non-teaching Consultant or Specialist, possessing postgraduate medical degree, working for at least two years in the concerned specialty in a minimum 330 bedded non-teaching Government Hospital shall be eligible to be designated as Assistant Professor and be absorbed permanently, if that Hospital is being converted into a Government Medical College for imparting undergraduate medical education. The subsequent promotions to higher teaching designations would be as per these regulations. Provided further that this would only be a one time provision and so absorbed teacher should not be transferred from that Institution for five years. The subsequent appointment of any faculty would be as per these regulations.

8.2 **Stand-alone Postgraduate medical institution:** Consultants or specialists having the required postgraduate degree and experience of working in the concerned specialty /super-specialty department for a period of not less than 2 years in the institution or hospital, not attached to any medical college, where postgraduate teaching is being imparted as per section 9.3 of the Postgraduate Medical Education Regulations, 2022, shall be eligible to be equated as an Assistant Professor in the department concerned. This has to be confirmed by the affiliating University. The subsequent promotions to higher teaching designations would be as per these regulations.

9. Norms for Determination of Teaching Designations for Consultants/Specialists in Medical Institutions of Defence Services

9.1 **Professor**: Specialist Medical Officers of the Armed Forces having minimum 8 years teaching experience after obtaining the requisite recognized postgraduate qualification in the subject, of which at least three years as Associate Professor in a teaching hospital of the Armed Forces, with two Research publications as per clause 6, can be considered eligible for appointment as Professor in the concerned subject.

9.2 **Associate Professor:** Specialist Medical Officer of the Armed Forces having minimum five years teaching experience after obtaining the requisite recognized postgraduate qualification

in the subject, of which at least four years teaching experience as Assistant Professor in a teaching hospital of the Armed Forces, with two Research publication as per clause 6, can be considered eligible for appointment as Associate Professor in the concerned subject.

9.3 **Assistant Professor:** Specialist Medical Officers of the Armed Forces having minimum one year teaching experience after possessing requisite recognized post-graduate qualification in the subject, can be considered eligible for appointment as Assistant Professor in the concerned subject.

10. Visiting Faculty

With a view to enhance the comprehensiveness and quality of teaching of Postgraduate students in all the departments, Medical Colleges/ Institutions may appoint additional Faculty Members from abroad with equivalent qualifications as Visiting Faculty on part time basis. This International Visiting faculty shall be over and above the minimum faculty prescribed in the relevant "Minimum Requirements for Annual MBBS Admissions Regulations, 2020" and the "Postgraduate Medical Education Regulations, 2022".

11. Index of Teaching Specialties.

11.1 The nomenclature of the specialties/subjects shall be the same as that contained in the Postgraduate Medical Education Regulations- 2022. Any addition/deletion of a new specialty in these Regulations shall reflect in the corresponding table of these Regulations.

11.2 The teaching specialties and prior qualification for appointment of Faculty with Medical qualifications in the department of a Medical Institution shall be as per Table 4.A for broad specialties and Table 4.B for Super Specialties.

I. List of Departments in Broad Specialty:

(A) Medical Specialties (MD)

Sl. No.	Broad Specialty
01	Anatomy
02	Anesthesiology
03	Aerospace Medicine
04	Biochemistry
05	Community Medicine
06	Dermatology, Venereology and Leprosy
07	Emergency Medicine
08	Family Medicine
09	Forensic Medicine and Toxicology
10	General Medicine
11	Geriatrics
12	Community Health Administration
13	Hospital Administration
14	Transfusion Medicine
15	Master of Public Health (Epidemiology)
16	Microbiology
17	Marine Medicine
18	Nuclear Medicine
19	Pathology
20	Palliative Medicine
21	Paediatrics
22	Pharmacology
23	Physical Medicine and Rehabilitation
24	Physiology
25	Psychiatry
26	Radio-diagnosis
27	Respiratory Medicine
28	Radiation Oncology

(B) Surgical broad Specialties (MS)

Sl. No.	Broad Specialty
01	Oto rhino laryngology-Head and Neck
02	General Surgery
03	Ophthalmology

Sl. No.	Broad Specialty
04	Orthopedics
05	Obstetrics & Gynecology
06	Traumatology and Surgery

Table 4.A Broad Medical Specialties with academic qualifications

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
01.	Anatomy	MD/MS/DNB (Anatomy)	As per section Table 1A and Table 1B under section 6 in the subject of Anatomy	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
02.	Anesthesia	MD/MS/DNB (Anesthesia)	As per Table 1A under section 6 in the Subject of Anaesthesia	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
03.	Aerospace Medicine	MD/DNB (Aviation Medicine)	As per Table 1A under section 6 in the Subject of Aerospace Medicine.	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
04.	Biochemistry	MD/DNB (Biochemistry)	As per section Table 1A and Table 1B under section 6 in the subject of Biochemistry	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
05.	Community Medicine	MD/DNB (Community Medicine) MD (Community Health Administration)	As per Table 1A under section 6 in the Subject of Community Medicine	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
06	Dermatology, Venereology and Leprosy	MD/DNB (DVL)	As per Table 1A under section 6 in the Subject of Dermatology, Venereology and Leprosy	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
07	Emergency Medicine	MD/DNB (Emergency Medicine)	As per Table 1C under section 6 in the Subject of Emergency Medicine	MD/MS/DNB 1. General Medicine 2. Anaesthesia 3. Respiratory Medicine 4. General Surgery 5. Orthopaedics Notification date: 21.07.2009. Hence the relaxation is extended by five years from the date of the notification of these Regulations.
08	Family Medicine	MD/DNB (Family Medicine),	As per Table 1C under section 6 in the Subject of Family Medicine	MD/MS/DNB 1. General Medicine 2. Pediatrics 3. Obstetrics & Gynaecology 4. General Surgery The relaxation is extended by five years from the date of the notification of these Regulations.
09	Forensic Medicine and Toxicology	MD/DNB (Forensic Medicine & Toxicology)	As per Table 1A under section 6 in the Subject of Forensic Medicine & Toxicology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
10.	General Medicine	MD/DNB (General Medicine)	As per Table 1A under section 6 in the Subject of General Medicine	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
11.	Geriatrics	MD/DNB Geriatrics)	As per Table 1C under section 6 in the Subject of Geriatrics	MD/DNB 1. Family Medicine 2. General Medicine The relaxation is extended by five years from the date of the notification of these Regulations.
12.	Community Health Administration	MD (Community Health Administration) MD (Community Medicine)	As per Table 1A under section 6 in the Subject of Community Health Administration	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
13.	Hospital Administration	MD (Hospital Administration)	As per Table 1A under section 6 in the Subject of Hospital Administration	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.
14.	Transfusion Medicine	MD/DNB Transfusion Medicine	As per Table 1A under section 6 in the Subject of Transfusion Medicine	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.
15.	Master of Public Health (Epidemiology)	MPH (Master of Public Health in Epidemiology)	As per Table 1C under section 6 in the Subject of Master of Public Health in Epidemiology	MD/DNB Community Medicine Notification date : 08.12.2010. Hence the relaxation is extended by five years from the date of the notification of these Regulations.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
16.	Microbiology	MD/DNB (Microbiology)	As per Table 1A under section 6 in the Subject of Microbiology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
17.	Marine Medicine	MD (Marine Medicine)	As per Table 1C under section 6 in the Subject of Marine Medicine	MD/DNB 1. Physiology 2. General Medicine Notification date: 06.05.2017. Hence the relaxation is extended by five years from the date of the notification of these Regulations.
18.	Nuclear Medicine	MD/DNB (Nuclear Medicine)	As per Table 1A under section 6 in the Subject of Nuclear Medicine	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.
19.	Pathology	MD/DNB (Pathology)	As per Table 1A under section 6 in the Subject of Pathology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.
20.	Palliative Medicine	MD/DNB (Palliative Medicine)	As per Table 1C under section 6 in the Subject of Palliative Medicine	MD/DNB Anesthesiology Notification date: 21.07.2009. Hence the relaxation is extended by five years from the date of the notification of these Regulations.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
21.	Pediatrics	MD/DNB (Pediatrics)	As per Table 1A under section 6 in the Subject of Paediatrics	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
22.	Pharmacology	MD/DNB (Pharmacology)/ MBBS with Ph.D. (Med. Pharmacology)	As per Table 1A under section 6 in the Subject of Pharmacology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
23.	Physical Medicine and Rehabilitation	MD/DNB (Physical Medicine and Rehabilitation)	As per Table 1C under section 6 in the Subject of Physical Medicine and Rehabilitation	MS/MD/DNB 1. Medicine with Diploma in PMR 2. General Surgery 3. Orthopedics. The relaxation is extended by five years from the date of the notification of these Regulations
24.	Physiology	MD/DNB (Physiology)	As per Table 1A under section 6 in the Subject of Physiology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.
25.	Psychiatry	MD/DNB (Psychiatry)	As per Table 1A under section 6 in the Subject of Psychiatry	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.
26.	Radio-Diagnosis	MD/DNB (Radio-Diagnosis)	As per Table 1A under section 6 in the Subject of Radio-Diagnosis	Not applicable as ten years from the date of notification to start the course from erstwhile MCI completed.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
27.	Respiratory Medicine	MD/DNB (Respiratory Medicine)	As per Table 1A under section 6 in the Subject of Respiratory Medicine	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
28.	Radiation Oncology	MD/DNB (Radiation Oncology)	As per Table 1A under section 6 in the Subject of Radiation Oncology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
29.	Dentistry	MDS	As per Table 2 under section 6 in the Subject of Dentistry	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.

Table 4.A Surgical Broad Specialties with Academic qualifications :

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
01.	Oto-rhinolaryngology-Head and Neck	MS/DNB (Oto-Rhino-Laryngology)	As per Table 1A under section 6 in the Subject of Oto-Rhino-Laryngology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
02.	General Surgery	MS/DNB (General Surgery)	As per Table 1A under section 6 in the Subject of General Surgery.	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
03.	Ophthalmology	MS/MD/DNB (Ophthalmology)	As per Table 1A under section 6 in the Subject of Ophthalmology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
04.	Orthopedics	MS/DNB (Orthopedics)	As per Table 1A under section 6 in the Subject of Orthopaedics	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
05.	Obstetrics and Gynecology	MD/MS/DNB (Obstetrics & Gynecology)	As per Table 1A under section 6 in the Subject of Obstetrics and Gynaecology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
06.	Traumatology and Surgery	MS/DNB (Traumatology and Surgery)	As per Table 1C under section 6 in the Subject of Traumatology and Surgery	MD/MS/DNB 1. General Surgery 2. Orthopaedics Notification No.MCI.18(1)/2010-Med./45048 dated 08.12.2010 Hence the relaxation is extended by five years from the date of the notification of these Regulations.

II. List of Departments in Super Specialty:

(A) Medical Super Specialty Departments (DM)

Sl. No.	Name of the Specialty
1.	Cardiology
2.	Cardiac Anesthesia
3.	Clinical Immunology and Rheumatology
4.	Clinical Hematology
5.	Critical Care Medicine
6.	Endocrinology
7.	Hepatology
8.	Interventional Radiology
9.	Medical Gastroenterology
10.	Medical Genetics
11.	Medical Oncology
12.	Neonatology
13.	Nephrology
14.	Neuro-anesthesia
15.	Neurology
16.	Pediatric Cardiology
17.	Pediatric Gastroenterology
18.	Pediatric Neurology
19.	Pediatric Oncology
20.	Pediatric Hepatology
21.	Pediatric Nephrology
22.	Pediatric and Neonatal Anesthesia
23.	Pulmonary Medicine
24.	Virology

(B) Surgical Super Specialty Departments (MCh)

Sl. No.	Name of the Specialty
1.	Cardiac Surgery
2.	Gynecological Oncology
3.	Hepato-Pancreato-Biliary Surgery
4.	Head and Neck Surgery
5.	Neuro-Surgery
6.	Pediatric Surgery
7.	Pediatric Cardiothoracic and Vascular Surgery

Sl. No.	Name of the Specialty
8.	Plastic & Reconstructive Surgery
9.	Surgical Oncology
10.	Surgical Gastroenterology
11.	Thoracic Surgery
12.	Urology
13.	Vascular Surgery

Table 4.B Medical Super Specialties with Academic qualifications:

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
01.	Cardiology	DM/DNB (Cardiology)	As per Table 3A under section 6 in the Subject of Cardiology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
02.	Cardiac Anesthesia	DM/DNB (Cardiac Anesthesiology)	As per Table 3A under section 6 in the Subject of Cardiac Anaesthesia	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
03.	Clinical Immunology and Rheumatology	DM in Clinical Immunology and Rheumatology	As per Table 3B under section 6 in the Subject of Clinical Immunology and Rheumatology	MD/DNB 1. General Medicine 2. Pediatrics The relaxation is extended by five years from the date of the notification of these Regulations
04.	Clinical Haematology	DM/DNB (Clinical Haematology	As per Table 3A under section 6 in the Subject of Clinical Haematology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
05.	Critical Care Medicine	DM/DNB (Critical Care Medicine)	As per Table 3B under section 6 in the Subject of Critical care Medicine	MD/DNB 1. Anaesthesiology 2. General Medicine 3. Respiratory Medicine 4. Emergency Medicine 5. DM in Pulmonary Medicine Notification No.MCI.18(1)/2010-Med./45048 dated 08.12.2010 Hence the relaxation is extended by five years from the date of the notification of these Regulations.
06.	Endocrinology	DM/DNB (Endocrinology)	As per Table 3A under section 6 in the Subject of Endocrinology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
07.	Hepatology	DM (Hepatology)	As per Table 3B under section 6 in the Subject of Hepatology	DM/DNB 1. Gastroenterology 2. General Medicine The relaxation is extended by five years from the date of the notification of these Regulations.
08.	Interventional Radiology	DM (Interventional Radiology)	As per Table 3B under section 6 in the Subject of Interventional Radiology	MD/DNB Radio Diagnosis The relaxation is extended by five years from the date of the notification of these Regulations.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
09.	Medical Gastroenterology	DM/DNB (Gastroenterology)	As per Table 3A under section 6 in the Subject of Gastroenterology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
10.	Medical Genetics	DM/DNB (Medical Genetics)	As per Table 3B under section 6 in the Subject of Medical Genetics	MD/DNB 1.General Medicine 2.Paediatrics 3.Obstetrics and Gynaecology The relaxation is extended by five years from the date of the notification of these Regulations.
11.	Medical Oncology	DM/DNB (Medical Oncology)	As per Table 3A under section 6 in the Subject of Medical Oncology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
12.	Neonatology	DM/DNB (Neonatology)	As per Table 3A under section 6 in the Subject of Neonatology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
13.	Nephrology	DM/DNB (Nephrology)	As per Table 3A under section 6 in the Subject of Nephrology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
14.	Neuro-anesthesia	DM/DNB (Neuro-anesthesia)	As per Table 3B under section 6 in the Subject of Neuro-anesthesia	MD/DNB Anaesthesia Notification No.MCI.18(1)/2010-Med./45048 dated 08.12.2010 Hence the relaxation is extended by five years from the date of the notification of these Regulations

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
15.	Neurology	DM/DNB (Neurology)	As per Table 3A under section 6 in the Subject of Neurology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
16.	Pediatric Cardiology	DM/DNB (Medical Genetics)	As per Table 3B under section 6 in the Subject of Paediatric Cardiology	MD/DNB Paediatrics Notification date:21.07.2009 Hence the relaxation is extended by five years from the date of the notification of these Regulations
17.	Pediatric Gastroenterology	DM (Pediatric Gastroenterology)	As per Table 3B under section 6 in the Subject of Paediatric Gastroenterology	MD/DNB Paediatrics Notification date: 21.07.2009 Hence the relaxation is extended by five years from the date of the notification of these Regulations
18.	Pediatric Neurology	DM/DNB (Pediatric Neurology)	As per Table 3B under section 6 in the Subject of Pediatric Neurology	MD/DNB Paediatrics Notification date: 21.07.2009 Hence the relaxation is extended by five years from the date of the notification of these Regulations
19.	Pediatric Oncology	DM (Pediatric Oncology)	As per Table 3B under section 6 in the Subject of Paediatric Oncology	MD/DNB Paediatrics Notification date: 08.12.2010 Hence the relaxation is extended by five years from the date of the notification of these Regulations

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
20.	Pediatric Hepatology	DM/DNB (Pediatric Hepatology)	As per Table 3B under section 6 in the Subject of Paediatric Hepatology	MD/DNB Paediatrics Notification date: 09.12.2009 Hence the relaxation is extended by five years from the date of the notification of these Regulations
21.	Pediatric Nephrology	DM (Pediatric Nephrology)	As per Table 3B under section 6 in the Subject of Paediatric Nephrology	MD/DNB Paediatrics Notification no: MCI.18(1)/2010-Med/45048 dated: 08.12.2010 Hence the relaxation is extended by five years from the date of the notification of these Regulations
22.	Pediatric and Neonatal Anesthesia	DM in Pediatric and Neonatal Anesthesia	As per Table 3B under section 6 in the Subject of Paediatric and Neonatal Anaesthesia	MD/DNB in Anesthesia Notification date: 24.04.2012 Hence the relaxation is extended by five years from the date of the notification of these Regulations
23.	Pulmonary Medicine	DM/DNB (Pulmonary Medicine)	As per Table 3B under section 6 in the Subject of Pulmonary Medicine	MD/DNB 1. Respiratory Medicine 2. General Medicine 3. Paediatrics Notification date: 21.07.2009 Hence the relaxation is extended by five years from the date of the notification of these Regulations

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
24.	Virology	DM (Virology).	As per Table 3B under section 6 in the Subject of Virology.	MD/DNB Microbiology Notification No.MCI.18(1)/2010-Med./45048 dated 08.12.2010 Hence the relaxation is extended by five years from the date of the notification of these Regulations

Table 4.B Surgical Super Specialty with Academic qualifications:

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
01.	Cardiac Surgery	M.Ch/DNB (Cardio Surgery)	As per Table 3A under section 6 in the Subject of Cardio Vascular and Thoracic Surgery	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
02.	Gynecological Oncology	M.Ch/DNB (Gynecological Oncology)	As per Table 3B under section 6 in the Subject of Gynaecological Oncology	MD/MS/DNB Obstetrics and Gynaecology. The relaxation is extended by five years from the date of the notification of these Regulations
03.	Hepato-Pancreato-Biliary Surgery	M.Ch. (HPB Surgery)	As per Table 3B under section 6 in the Subject of Hepato-Pancreato-Biliary Surgery	1. MCh/DNB Surgical Gastroenterology 2. MS / DNB General Surgery Notification date: 09.12.2009 Hence the relaxation is extended by five years from Nthe date of the notification of these Regulations.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
04.	Head and Neck Surgery	M.Ch/DNB (Head and Neck Surgery)	As per Table 3B under section 6 in the Subject of of Head and Neck Surgery	MS/DNB 1. General Surgery 2. Otorhinolaryngology Notification date: 21.02.2012 Hence the relaxation is extended by five years from the date of the notification of these Regulations.
05.	Neuro-Surgery	M.Ch/DNB (Neuro Surgery)	As per Table 3A under section 6 in the Subject of Neuro-Surgery	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
06.	Pediatric Surgery	M.Ch/DNB (Paediatric Surgery)	As per Table 3A under section 6 in the Subject of Paediatric Surgery	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
07.	Pediatric Cardiothoracic and Vascular Surgery	M.Ch/DNB Pediatric Cardiothoracic and Vascular Surgery	As per Table 3B under section 6 in the Subject of Paediatric Cardiothoracic and Vascular Surgery	1. MCh/DNB Cardiovascular Surgery 2. MS/DNB in General Surgery. Notification date: 21.07.2009 Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
08.	Plastic & Reconstructive Surgery	M.Ch/DNB (Plastic & Reconstructive Surgery)	As per Table 3A under section 6 in the Subject of Plastic & Reconstructive Surgery	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.

Sl. No.	Name of the Specialty	Academic Qualification	Method of recruitment	Academic Qualifications during Transition period
09.	Surgical Oncology	M.Ch./DNB (Surgical Oncology)	As per Table 3A under section 6 in the Subject of Surgical Oncology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
10.	Surgical Gastroenterology	M.Ch/DNB (Surgical Gastroenterology)	As per Table 3A under section 6 in the Subject of Surgical Gastro Enterology	Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.
11.	Thoracic Surgery	M.Ch (Thoracic Surgery)	As per Table 3B under section 6 in the Subject of Thoracic Surgery	1.MCh/DNB Cardiothoracic Surgery 2. MS/DNB in General Surgery The relaxation is extended by five years from the date of the notification of these Regulations.
12.	Vascular Surgery	M.Ch./DNB (Vascular Surgery)	As per Table 3A under section 6 in the Subject of Vascular Surgery	Notification date: 06.10.2001 Not applicable as ten years from the date of notification to start the course from erstwhile MCI is completed.

12. General Norms regarding Foreign Postgraduate Qualifications for Equivalence

12.1 In the case of a person with Postgraduate medical qualifications awarded in United Kingdom, United States of America, Canada, Australia and New Zealand, his qualifications can be considered as equivalent qualifications with MD/MS/DM/MCh, as the case may be, if he fulfils the following criteria in those countries.

United Kingdom: He should have completed Certificate of Completion of Specialist Training (CCST) or equivalent training with final FRCS/FRCP degree and registered in that country to practice in that specialty.

United States of America and Canada: He should have MD qualification with Residency Training Certificate in the relevant specialty in USA. For Super specialties, successful completion

of Residency Training Programme along with completion of accredited Fellowship programme in the relevant super specialty is essential.

Australia and New Zealand: He should have completed supervised training programme culminating in the Fellowship of the respective Specialty (FRACS/FRACP). For Super Specialties, minimum two years of supervised sub specialty Fellowship programme in the respective Sub Specialty is essential.

12.2 He should have done his complete duration of training in those countries and be registered there to practice in that specialty.

12.3 In such cases he will be eligible for the post of Assistant Professor in the respective department and his subsequent promotions would be as per Teachers "Eligibility Qualifications in Medical Institutions Regulations – 2022".

12.4 Other qualifications will be evaluated by the NMC as and when reference is received.

13. Appeal

A teacher may apply to the National Medical Commission through the concerned Head of the Institution and University for determination of his eligibility for a teaching position in a Medical Institution in the case of ambiguity and controversy.

14. Saving Clause

Notwithstanding anything contained in these Regulations, any appointment made under the Minimum Qualifications for Teachers in Medical Institution Regulations, 1998 or the recommendation of the Councils prior to that, shall be protected.

15. Provision to amend the Teachers Eligibility Qualifications in Medical Institutions Regulations - 2022

National Medical Commission is empowered to make any addition, deletion, substitution or any other amendment to "Teachers Eligibility Qualifications in Medical Institutions Regulations – 2022", as and when required.

16. Repeal: The "Minimum Qualifications for Teachers in Medical Institution Regulations, 1998" is hereby repealed.

Dr. SANDHYA BHULLAR, Secy.

[ADVT.-III/4/Exty./657/2021-22]