



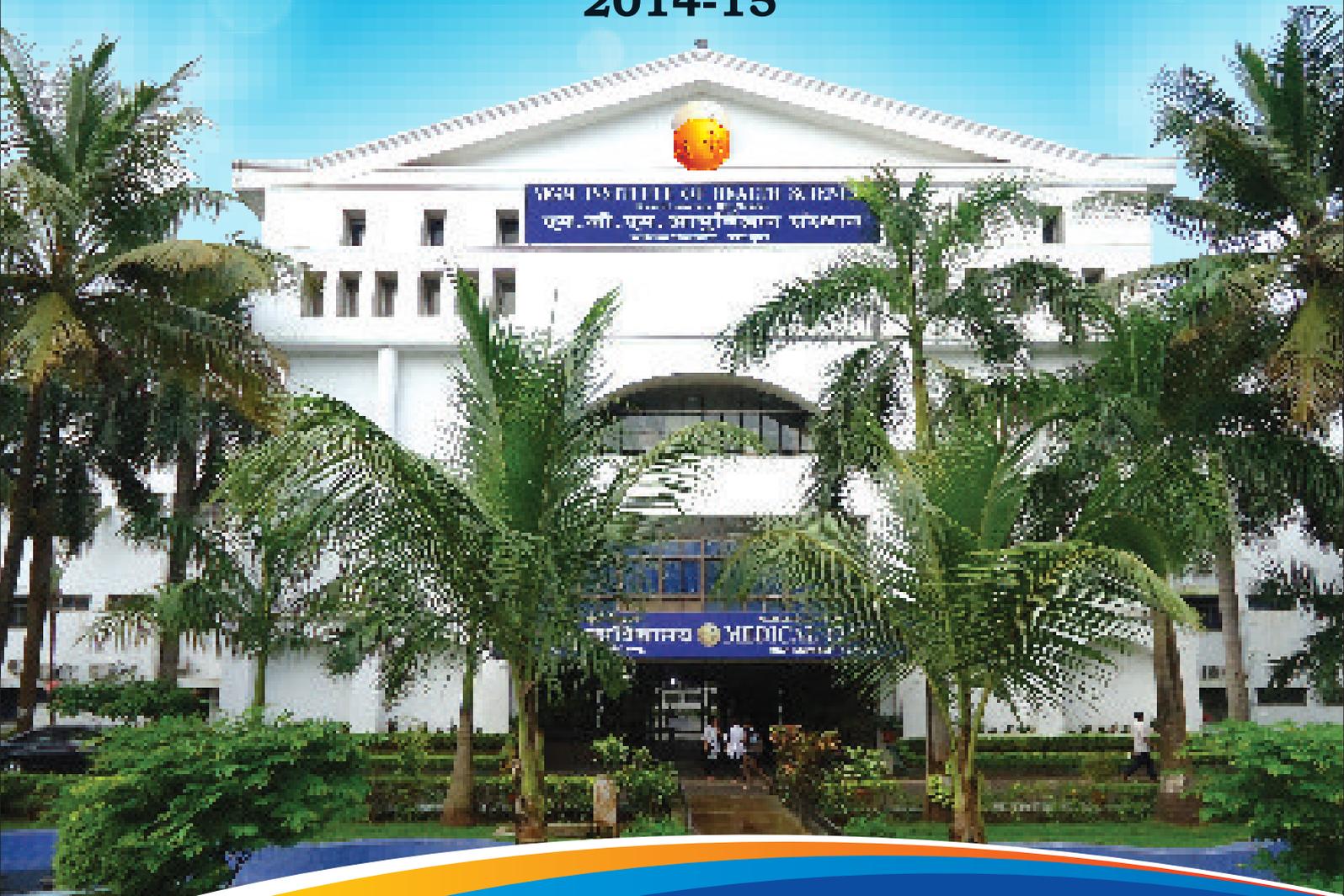
MAHATMA GANDHI MISSION

MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

ANNUAL REPORT

2014-15



An Innovation-Driven Health Sciences University
Accredited with Grade 'A'
by the
National Assessment and Accreditation Council
University Grants Commission
Government of India



MAHATMA GANDHI MISSION

MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

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MAHATMA GANDHI MISSION

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ANNUAL REPORT

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CONTENTS

	Page No.
Editorial	1
• Chander P. Puri and Shibban K. Kaul	
Editorial Board	3
Vision and Mission	7
• Core Values and Guiding Principles	
Dynamic Leadership	9
• Chairman MGM Trust	
• Chancellor, MGMIHS	
• Vice Chancellor, MGMIHS	
• Registrar, MGMIHS	
Executive Summary: MGMIHS	13
• Dr Sudhir N. Kadam	
Governance	17
• Board of Management	
• Finance Committee	
• Board of Examination	
• Academic Council	
• Faculty of Medicine	
• Board of Studies	
• Grievance Redressal Committee	
• Planning & Monitoring Board	
Executive Summary: Constituent Colleges and University Departments	39
• Medical Colleges: Dr Gurunath S. Narshetty and Dr Ajit G. Shroff	
• Physiotherapy: Dr Rajani Mullerpatan and Dr Sucheta Golhar	
• Nursing: Dr Prabha Dasila and Dr Anuradha Mhaske	
• Biomedical Sciences: Dr Zunjarrao G. Badade and Dr Prasad Burra	

Academic Activity	47
• Dr Ravindra S. Inamdar	
• Dr Gautam A. Shroff	
Clinical Training and Healthcare Services	73
• Dr Kuldip R. Salgotra	
• Dr Badrinarayan K. Somani	
Research and Innovation	89
• Dr Chander P. Puri	
Community Outreach Programs	141
• Dr Rajesh B. Goel	
• Dr Vallabh Yadav	
Welfare Programs and Social Responsibilities	149
• Dr Rakesh Ghildiyal	
• Dr Vijay Jadhav	
Celebration of Achievements	153
• Dr Nimain C. Mohanty	
• Dr Pravin R. Suryawanshi	
Academic Excellence: 2020	161
• Dr Pandurang M. Jadhav	
• Dr Chander P. Puri	

EDITORIAL

This Annual Report is a 'treasure of information' about MGMIHS, and its Medical Colleges and Hospitals, University Departments of Physiotherapy, Nursing and Biomedical Sciences both at Navi Mumbai and Aurangabad. It covers the Academic Year from July 2014 to June 2015, and reflects significant contributions of faculty, paramedical and other staff engaged in providing quality education, healthcare services, research and innovation, and community services.

The Chapter on Academic Activity is a reflection of MGMIHS and its institutions continuing endeavor to create an engaging, motivating, and intellectually stimulating learning experience; encourage the spirit of critical inquiry and creative thinking; enhance student engagement and learning through effective curriculum design, pedagogy and assessment strategies; and continuously improve teaching practice through academic staff for professional development, and critical reflection informed by a range of evaluation approaches.

The Chapter on Clinical Training and Healthcare Services suggests that MGMIHS undertakes to promote medical education, and prepare physicians having highest clinical skills to provide patient care, and aptitude for scientific research and teaching. The hospitals provide a broad range of services including training of medical and paramedical students, illness-prevention programs, comprehensive care, and the highly complex care associated with academic medical centres. The hospitals support clinical education and training to nurses, physiotherapists and other health and allied professionals.

The Chapter on Research and Innovation is documented evidence which substantiates that research is an integral to almost every realm of working at MGMIHS whether it is teaching or protecting the health of people or delivering community services. It reflects management's strong conviction that research provides new knowledge and intellectual stimulation that are vitally linked to the educational process, and have reaffirmed their commitment to support research. Increasing number of research publications, indexed in national and international peer-reviewed indexed scientific journals, reflected in this report is testimony to faculty's engagement and commitment to pursue research.

The Annual Report focuses on the Community and Outreach Programs. The contributions in the area reflect that through these programs the colleges and University Departments not only educate and train the medical and paramedical staff but also address to the health needs of underserved and rural population and provide services by way of enhancing awareness, health check-up camps and health care services which make significant impact on local, underserved communities.

We thank all the HODs of MGMIHS Institutions and their staff for furnishing the brief report covering targeted program activities and their achievements during the academic year as well as plans for the coming years. We thank the Members of the Advisory Board and Members of the Editorial Board for their guidance and help extended in the compilation of Annual Report 2014-2015. We thank Dr. Ram Dixit, Dr. Rajesh Goel, Ms. Philomena D'silva, Ms. Unnati Pagde and Mrs. Sharda Hankar for their help in editing and secretarial support.

Chander P. Puri
Shibban K. Kaul

EDITORIAL BOARD

Advisory Committee



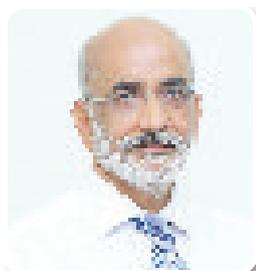
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Vice Chancellor
MGM IHS



Dr Ajit G Shroff
Dean
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Aurangabad



Dr Gurunath S Narshetty
Dean
MGM Medical College and Hospital
Navi Mumbai



Dr Nitin N Kadam
Professor, Department of Pediatrics
MGM Medical College
Navi Mumbai



Dr Zunjarrao G Badade
Professor, Department of Biochemistry
MGM Medical College
Navi Mumbai

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Pro Vice Chancellor (Research)
MGM IHS, Navi Mumbai



Dr Shibban K Kaul
Pro Vice Chancellor
MGM IHS, Navi Mumbai

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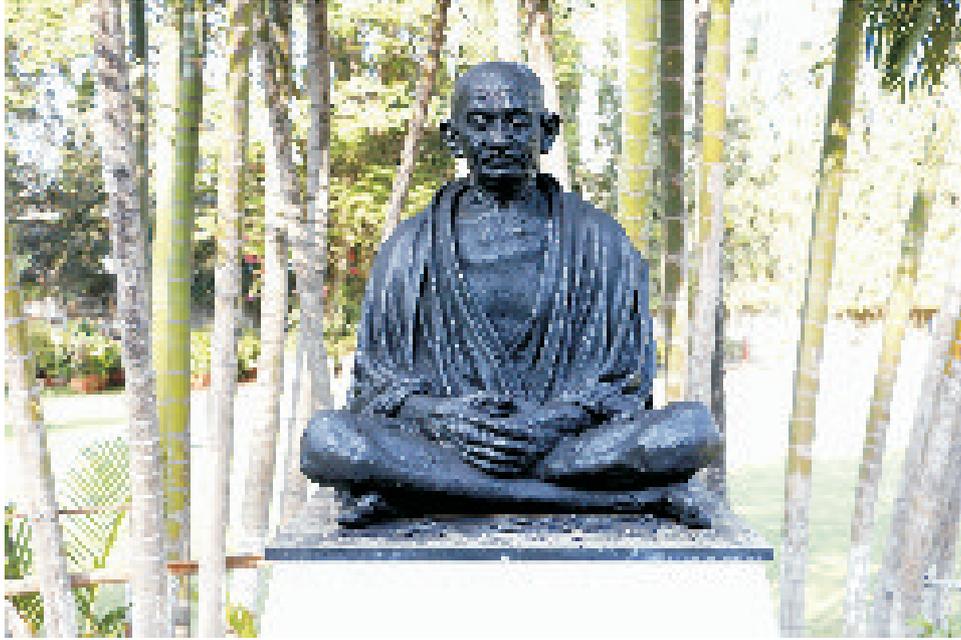
Editorial Assistants



Ms Philomena D'silva
Research Secretariat
MGMIHS, Navi Mumbai



Ms Unnati Pagde
Research Secretariat
MGMIHS, Navi Mumbai



Your beliefs become your thoughts,
Your thoughts become your words,
Your words become your actions,
Your actions become your habits,
Your habits become your values,
Your values become your destiny.

VISION AND MISSION

VISION

By the year 2020, MGM Institute of Health Sciences (MGMIHS) aims to be a top-ranking Centre of Excellence in Medical Education and Research. Students graduating from the institute will have the required skills to deliver quality health care to all sections of the society with compassion and benevolence, without prejudice or discrimination, at an affordable cost. As a research center, it will focus on finding better, safer and affordable ways of diagnosing, treating and preventing diseases. In doing so, it will maintain highest ethical standards.

MISSION

To improve the quality of life, both at individual and community level, by imparting quality medical education to tomorrow's doctors and medical scientists and by advancing knowledge in all fields of health sciences through meaningful and ethical research.

CORE VALUES AND GUIDING PRINCIPLES

MGMIHS endeavors that the students graduating from its colleges and departments have core knowledge, creative thinking, competency and attitude to serve patients, society and the profession. Teaching-learning, clinical care and community services are evidence-based. To strive for and sustain excellence in our endeavors, the University functions on the following values based on fairness, honesty, sincerity, and professionalism:

Core Values

- Encourage, support and reward team effort.
- Ensure wellbeing and professional growth of staff.
- Recognition and rewards for outstanding performers.
- Promote mutual trust, transparency and ethics.
- Discipline in performing roles and responsibilities.
- Inculcate the culture of creativity, innovation and best practices.

Guiding Principles

- Responsive to the health care needs of people particularly those from rural sector and with fund constraints.
- Education system to encourage self-reliance and self-study among students.
- Competency-based learning and teaching to cope up with rapidly emerging information and to acquire the most current knowledge.
- To make education system more affordable without compromising the standards or ethics.
- To hold ourselves accountable for all operational processes, decision making, actions, and partnerships of MGMIHS.

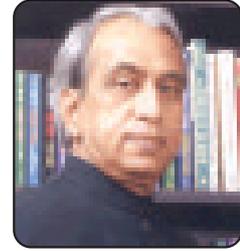
**"You must be the change
You wish to see in the world"**

• *Mahatma Gandhi*

DYNAMIC LEADERSHIP

Chairman, MGM Trust

It is now over 33 years since Mahatama Gandhi Mission (MGM) Trust was established with a vision to provide quality education; affordable health care services; promote research and innovation; and serve the community. The Trust had made the first humble beginning during 1982 from Nanded in Maharashtra. Since then, it has expanded services to many other cities including Aurangabad, Navi Mumbai, Parbhani and Noida. A chain of Schools and Colleges in Engineering, Medicine, Architecture, Nursing, Physiotherapy, Management, Computer Science and Information Technology, Bioinformatics and Biotechnology, Fine Arts and Journalism stand testimony to the endeavors of the Trust to promote education.



The Institutions of the Trust are managed by highly qualified and experienced technocrats, academicians and administrators. The other trustees are: Shri Ankushrao N. Kadam, B.E.; Dr. P.M. Jadhav, FRCS (U.K.); Dr. S.N. Kadam, FRCP (Edin.); Dr. Nitin N. Kadam; MD, DCH and Shri U.N. Kadam, B.E. All the Institutes of MGM Trust have achieved a mark of excellence in respective areas over the years.

Two MGM Medical Colleges, at Navi Mumbai and Aurangabad, under the umbrella of MGM Trust were established during 1989 and 1990 respectively. It was during 2006 that the Department of Higher Education, Ministry of Human Resource Development, Government of India had conferred the status of Deemed to be University to MGM Institute of Health Sciences (MGMIHS). Thousands of medical doctors and paramedical staff from these prestigious institutions are providing finest healthcare services to millions of people, both in India and other countries, for which we feel very proud.

During 2014, the University was awarded 'Grade A' by the National Assessment and Accreditation Council, University Grants Commission. About 10-15% of institutions in the country have the distinction of being awarded Grade 'A'. It is a great satisfaction to see the vision of MGMIHS being accomplished.

I congratulate the members of MGM Trust; Vice Chancellor of MGMIHS, and Deans, Directors, faculty and staff of MGM Medical Colleges and University Departments of Physiotherapy, Nursing and Biomedical Sciences for their dedication and commitment to promote the cause of providing quality education in order to serve the community.

Kamal Kishor Kadam

Chancellor

It has been exciting to be a part of the MGM Institute of Health Sciences (MGMIHS). The University brings together an extraordinary community of faculty, students and staffs that provide state-of-the-art education, conduct relevant research and take the lead in health care services primarily to rural community. We are happy to say that the University has focused its attention on research and development.



It is heartening to note that all the members of the University have committed to work to create a vibrant future for MGMIHS and its students. The University is fully committed to supporting students' professional, intellectual and emotional growth so they may have the opportunity to fulfil their potential and achieve their professional goals.

With the help of dedicated, talented faculty and staff, we are confident that MGMIHS will soon succeed and will continue to be one of the model Universities in the nation and the world.

This Annual Report summarizes the achievements and also reminds us of what still needs to be accomplished. I appreciate the efforts put in by students, faculty, and staff in achieving their goals and taking MGMIHS to greater heights.

K. G. Narayan Khedkar

Vice Chancellor

I am pleased to see all the Colleges and University Departments of MGMIHS performing exceedingly well. The University has been awarded Grade 'A' by the National Assessment and Accreditation Council, University Grants Commission. The teaching hospitals have been accredited by National Accreditation Board for Hospitals and Health Care Providers, and diagnostic laboratories by Accreditation Board for Testing and Calibration Laboratories.



These accreditations are reflection of the highest standards of academic programs, technical competence of medical laboratories following ISO/IEC 17025:2005, ISO 15189:2007 Standards, and hospital standards in consonance with the global benchmarks set by International Society for Quality in Healthcare. These standards are testimony of highest standards of patient safety and quality of care provided by teaching hospitals of MGMIHS.

I congratulate the faculty, staff and students for accomplishing these goals and setting very high standards for themselves and the institutions as well. This is a reflection of the 'Team Effort' and 'Quality Culture' at all levels and across all the functions, of which I am proud of.

The Vision of MGMIHS is "to be the top ranking centre of excellence in medical education and research" by 2020. To see the vision turning into reality, all the ongoing programs of teaching, research and clinical care in various colleges and institutes of MGMIHS will be reviewed in the context of changing national and global needs and to meet the requirements of the regulatory bodies. The review process will identify what needs to be achieved and how? What are our aspirations for tomorrow and how that will become a reality? We will define the goals and targets, and road map so that the Vision becomes a reality by 2020.

In this endeavor, the University will support and enhance a faculty whose members are dedicated to teaching, research, clinical care and community services; expand and enhance our nationally recognized professional Colleges and University Departments of medical, nursing, physiotherapy, biotechnology and allied health sciences as the core offering undergraduate and postgraduate programs including super-specialty educational programs; create Centres of Excellence for teaching and research; merit based student enrolment and aptitude to serve the society as medical health care provider; to foster the engagement of University in community services and through social responsibility by extending the reach of our educational programs. It will also encourage to enhance linkages and networking with institutes of repute both in India and abroad which share our Vision. Research will continue to remain at the forefront of our programs, including curiosity-driven innovations.

I wish to support, the faculty and staff of all colleges of MGMIHS and I will also work personally with all heads of institutions in realization of their dreams.

Sudhir N. Kadam

Registrar

Education is one of the most critical elements of national development effort. It is a powerful tool to build knowledge based society. The main focus of University Grants Commission (UGC) is to improve and expand education in all sectors of the society by eliminating disparities in access and laying greater emphasis on the improvement in quality and relevance of education at all levels.



In commensurate with the policies of UGC, at MGMIHS teaching is not only viewed impart knowledge, but also to ensure that the graduating students have critical thinking, and are inspired and motivated to solve need-based problems and able to deal with global challenges. It is always in our minds that it is the teacher who through intelligence, patience and wisdom has to polish the student's intellect and aptitude and shape their bright future. We know that even the knowledge of the teachers need to be regularly updated through capacity building programs.

At MGMIHS, we are aware of the view that students have varying learning capacities and this must be considered while grooming them into their profession of choice. The different teaching strategies followed at the University such as lecture-based teaching, and teaching which is primarily learner-focused like, problem-based learning, competency-based learning and outcome-based learning help students to understand the study curriculum and to be a competent professional. Some of the limitations of large class room teachings are overcome through supplementary discussion sessions, seminars and lab-based demonstrations where the number of students per batch is much less. Every effort is made to enhance bonding between teachers and their students.

The academic programs related to teaching, research and clinical skills, are reviewed periodically by competent bodies such as, Board of Studies, Faculty of Medicine, Academic Council before their recommendations are reviewed and approved by the Board of Management. The review process identifies what and how needs to be achieved? What are our aspirations for tomorrow and how that will become reality? Define the goals and targets, and road map so that MGMIHS vision, to be a top ranking Centre of excellence in medical and allied health sciences education and research, becomes a reality by the year 2020.

Zunjarrao G. Badade

**EXECUTIVE SUMMARY
OF
MGM INSTITUTE OF HEALTH SCIENCES**

Dr Sudhir N. Kadam
Vice Chancellor

This has been a momentous year for the MGM Institute of Health Sciences (MGMIHS) as its two medical colleges celebrated their Silver Jubilee during 2014. Throughout the year, the University and its constituent medical colleges hosted national and international conferences; invited highly accomplished bureaucrats, academicians, and scientists to deliver lectures, conducted workshops, training programs and CMEs for capacity building of our own faculty and those from other institutes; and expanded research facilities by establishing Central Research Laboratories.

On the international front, University of Pennsylvania partnered with the MGM Medical College and Hospital at Navi Mumbai to establish a MGM Sleep Medicine and Research Centre to help patients with sleep-related disorders and to pursue research; Department of Physiotherapy took initiative to develop partnership with Cardiff University and Indian Institute of Technology to establish MGM Centre for Human Movement Science; International Society of Biomechanics to promote research and clinical Movement Science in the country; and University of Sydney and World Spine Care to pursue research in the areas of common interests.

MGM Medical Colleges and Hospitals created excellent facilities for knowledge creation and knowledge management in an endeavor to provide best academic environment to our students. Some of these are: (i) Pediatric Intensive Care Unit: to serve critically ill infants and children; (ii) Department of Geriatric Medicine: to address the health needs of elderly population; (iii) Department of Immunohematology and Blood Transfusion: to provide high-quality patient care and hospital services in support of academic and clinical research programs; (iv) Department of Prosthetics and Orthotics: to provide prosthetic appliances at an affordable price apart from supporting education, training and research; (v) Surgical Intensive Care Unit: to help critically ill patients; (vi) new Clinical Learning and Simulation Skills Laboratories started in both the medical colleges: to offer students, residents, and faculty enhanced simulation, standardized patient care, and learning skills. (vii) New Central Library of 25,000 sq. ft. with latest facilities; and (viii) Experimental Animal Facility: to support biomedical research.

On the academic front, we believe that the teaching should be competency-based. The students should not only be intelligent, knowledgeable, experienced, but also be compassionate and caring with good communication skills. The teaching programs were tailored to make them capable of taking their educational experience beyond the confines of their own disciplines and specialities and make them competent enough to understand and serve those who need their services most as well as accept the opportunities and challenges of globalisation. They were nurtured to be visionary, able to think critically and holistically, and adopt creativity and innovation in their working.

Emphasis was made to achieve academic excellence on all fronts of academic programs. The curriculum of some courses were revised based on innovative learning strategies that emphasize team-based approaches. Robust mentoring and peer leadership programs were launched for students, which provides them academic support services and extra help.

In addition to the medical courses, the University enhanced its focus on strengthening the paramedical courses. To improve the quality and orientation of service provision towards better meeting the health needs of the people' and to increase the quantum and quality of human resources for allied health services, it was essential to strengthen the ongoing paramedical courses and to start some new. MGM Trust had highly subsidized those courses to help children from financially constrained families.

The University has continued to make strong progress in establishing state-of-the-art research facilities and encouraging its faculty and research staff to pursue quality research in areas of high national priority. Our research activities span from basic-to-applied and operational research with strong platforms in tuberculosis, HIV, and noncommunicable diseases. Researchers from multiple faculties were encouraged to collaborate and work together to achieve significant breakthroughs and high impact discoveries. The impact of investment in research is evident from the fact that about 125 students are registered for Ph.D. degree programs in various disciplines as well as increased number of research publications appeared in peer-reviewed indexed journals.

The hospitals attached with Medical Colleges continued to provide quality healthcare services, including super-specialty services like, Cardiovascular Surgery, Joint Replacement, Spine Surgery, Pediatric Surgery, Neurosurgery and others to non affording beneficiaries at free of cost. The hospitals catered health care services free of cost to patients under Rajeev Gandhi Jeevandayee Arogya Yojana program. Thousands of patients were benefitted from the scheme. National Accreditation Board for Testing and Calibration Laboratories (NABL) had accredited diagnostic laboratories. National Accreditation Board for Hospitals and Healthcare Providers (NABH) accredited Blood Bank which had strengthened necessary back-up round the clock.

MGMIHS had accorded high priority to expand and offer services to the community in rural sector. The community outreach programs had focussed to educate and train the medical and paramedical staff to address to health needs of underserved and rural population; and to provide services by way of enhancing awareness, health check-up camps and health care services which had made significant impact on local, underserved communities. The outreach programs focussed on promoting emotional, behavioral, self-esteem and empowerment along with physical wellness. Such initiatives by MGMIHS were helping by

providing primitive, preventive, curative and rehabilitative services along with interpreting the dynamics of community behavior.

MGM Medical College at Aurangabad organized an international conference on Medical Education that translated into supporting our bold vision to educate the medical and health care leaders of tomorrow and assemble a world-class faculty. The international conference featured a few leading educationists from all over the world, discussing the latest developments in the field of medical education. Prof Ronald Harden, Professor of Medical Education, Teaching Dean, and Director of the Centre for Medical Education at University of Dundee, UK delivered the inaugural address. He conducted a workshop on Medical Education.

It was remarkable to see 564 students in Medical, Nursing, Physiotherapy and Allied Health Courses were conferred degrees at the Fifth Convocation of the University. The number of students awarded degree was higher in compassion to previous years. It speaks volumes of popularity and acceptance of courses. Hon'ble Shri Sharadchandraji Pawar was conferred with "Honorary Degree of Doctor of Science" for his outstanding contributions to promote education in the country as well as for the uplift of farmers and downtrodden people.

During the year, we have further grown our pool of talented leadership team to advance the areas of strength and to open new opportunities to strengthen academic and health care programs. Lt Gen (Dr) K.R. Salgotra, an Orthopedic Surgeon, joined as Professor of Orthopedics, and Medical Superintendent, MGM Hospital, Kamothe, Vice Admiral (Dr) Sushil Kumar, an accomplished Obstetrician and Gynecologist, joined to head the Hospital for Women and Children of the University. Both have brought with them high administrative and professional skills.

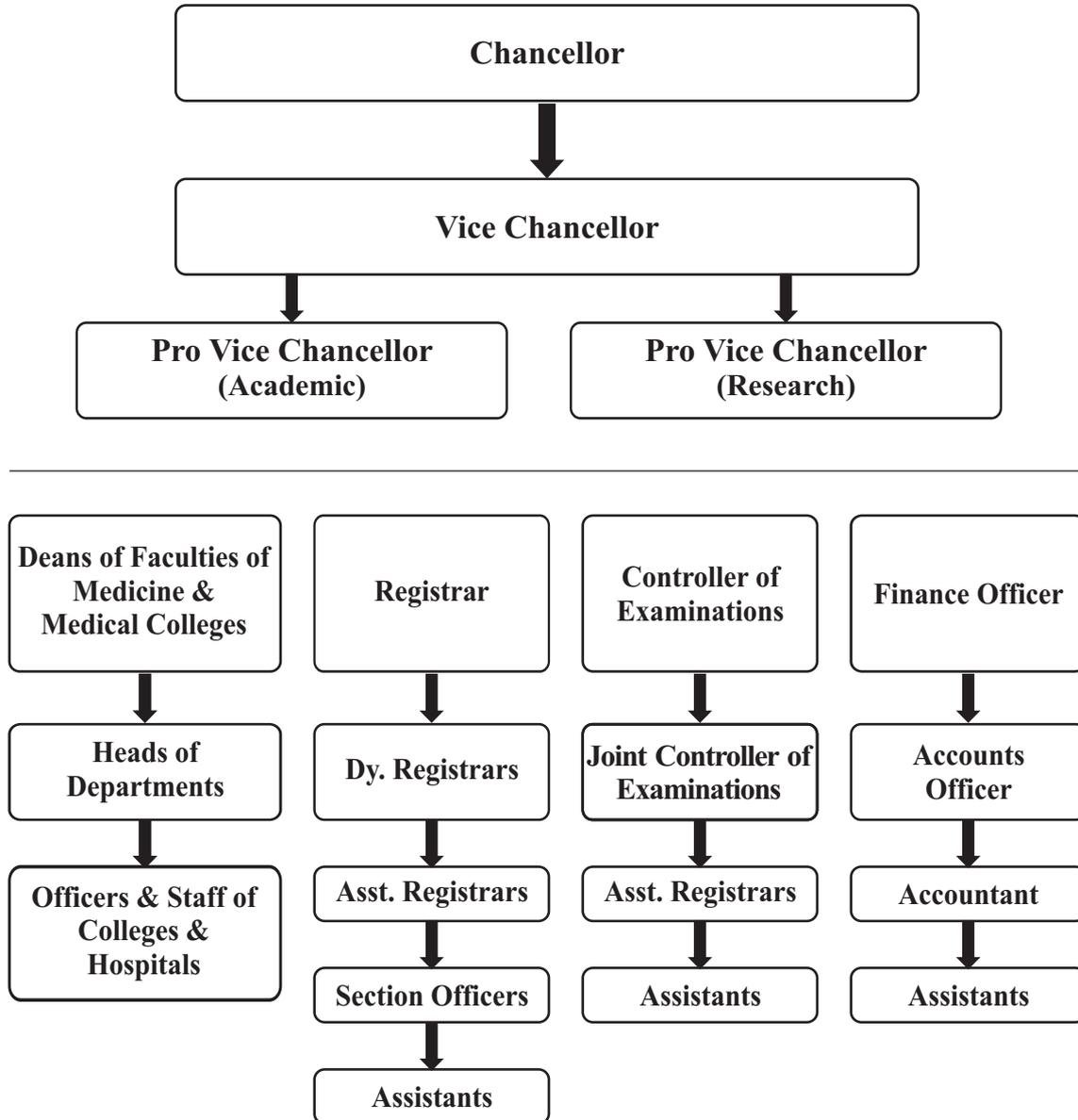
As we reflected on the progress what we have made, I applaud the passion, dedication and hard work of our students, faculty, and staff that have made it all possible, together with the strong support and encouragement of our members of MGMIHS Trust. We are indebted to the Chairman of MGM Trust, Shri Kamal Kishor Kadam for his charismatic leadership which has given unremitting emphasis on quality and patient safety. I thank Dr PM Jadhav, Vice Chairman of MGM Trust, for his commitment and significant role played within the Trust, his ambition to bring academic excellence in all Departments of the University and the diligence with which he has fulfilled. I value the input and contributions of members of Board of Studies, Academic Council, Board of Management and other committees. They served with spirit and enthusiasm across an increasing range of activities to make the University a high ranked centre of education and research. I also thank the members of the Editorial Board for compiling the report.

**"Good government is no substitute
For self-government".**

• *Mahatma Gandhi*

GOVERNANCE

ORGANOGRAM OF MGM INSTITUTE OF HEALTH SCIENCES



BOARD OF MANAGEMENT



Dr Sudhir N Kadam*
MBBS, MRCP (Edinburgh), FRCP (Edinburgh)
Vice Chancellor

Dr Kadam is a visionary, a philanthropist, outstanding gastroenterologist, and a leader with an strong unyielding commitment to students and education. He has passion to advance knowledge in all fields of health sciences through meaningful and ethical research. A health professional with over thirty years of clinical and administrative experience.

***Chairperson**



Dr Pandurang M Jadhav*
MBBS, MS, FRCS (UK)
Vice Chairman, MGM Trust

Dr Jadhav is an Hon. Professor of Orthopedics, & Medical Director, MGM Medical College and Hospital, Aurangabad. He has almost two decades of clinical, teaching and research experience working in hospitals in UK and Oman. He had been a Member of the Medical Council of India for over ten years. He has strong passion to achieve academic excellence in medical colleges of MGM Trust.

***Eminent Academician Nominated by Chancellor**



Dr (Lt Gen) Shibban K Kaul*
MBBS, MS, MCh (Cardiothoracic Surgery), FIACS
Pro Vice Chancellor

Lt Gen Kaul, a well-known cardio-thoracic surgeon, was the Director and Commandant of Armed Forces Medical College, Pune. He is a recognised post graduate teacher and examiner in cardiothoracic surgery, Pune University; and Maharashtra University of Health Sciences, Nashik. He is a recipient of Vishist Seva Medal for his meritorious services.

***Ex-Officio Member**



Dr Chander P Puri*
PhD, FNASc, FAMS
Pro Vice Chancellor (Research)

Dr Puri had worked as Director with ICMR, and Chief Executive Officer of a biotechnology company before joining MGMIHS. He is a Fellow of National Academy of Sciences, and Fellow of Academy of Medical Sciences. He has vast experience working at institutions such as AIIMS, New Delhi; Karolinska Institute, Sweden, Stockholm; Washington University School of Medicine, St Louis, USA; World Health Organization, Geneva, Switzerland.

***Ex-Officio Member**

BOARD OF MANAGEMENT



Dr Ajit G Shroff*
MBBS, MD

Dean, MGM Medical College, Aurangabad

Prof. Shroff has 35 years of experience in academics and administration. Earlier he had worked as Dean, Faculty of Medicine of Dr. Babasaheb Ambedkar Marathwada University and Dean of Government Medical College, Aurangabad. He has been instrumental in starting new PG and superspecialty courses, and enhancing the intake capacity of MBBS Course from 100 to 150 students per year.

***Dean of Faculty (Medicine)**



Dr Gurunath S Narshetty*
MS, PGDHA, PGMLS

Dean, MGM Medical College, Navi Mumbai

Dr. Narshetty is Professor of General Surgery, and Dean, MGM Medical College. His qualification and vast knowledge in medico-legal issues is an added advantage. He has over 25 years of teaching and administrative experience. His passion to achieve academic excellence and human resource development has contributed greatly to MGMIHS and its medical colleges being accredited with Grade 'A' by NAAC.

***Dean of Faculty (Allied Health Sciences)**



Dr Ujjwala Maheshwari*
MBBS, MD

Director, Central Pathology Laboratories

Prof. Ujjwala Maheshwari is Director of Central Pathology at MGM Medical College & Hospital, Navi Mumbai. She is known for her passion for improving quality by following quality control programs, and is instrumental in the diagnostic laboratories accredited by National Accreditation Board for Testing and Calibration Laboratories.

***Senior Faculty**



Dr Seema Anjenaya*
MBBS, MD

Professor & Head, Community Medicine

Dr. Anjenaya is Professor & Head, Community Medicine at MGM Medical College. She is a recipient of fellowship in Foundation for Advancement of International Medical Education and Research by GSMC-FAIMER and University of Philadelphia. She is passionate about community outreach programs and improving health professions education.

***Senior Faculty**

BOARD OF MANAGEMENT



Dr Nitin N Kadam*
MBBS, DCH, MD
Controller of Examinations, MGMIHS

Dr Kadam is a Professor of Pediatrics and Director of MGM New Bombay Hospital, Vashi. He is a member of the Management Council, Academic Council and Board of Studies of MGMIHS.

***Permanent Invitee**



Dr Subhash Gupta*
MS, FRCS (Edinburgh), FRCS (Glasgow)

Dr Gupta is a Chief Liver Transplant, Hepatobiliary Surgeon and Director Centre of Liver & Biliary Sciences, Indraprastha Apollo Hospital, New Delhi. Dr Gupta focuses his clinical and research activities towards the medical management of patients with liver diseases. He takes pride in grooming his junior associates and students.

***Eminent Academician Nominated by Central Government**



Dr Zunjarrao G Badade*
MSc, PhD
Registrar, MGMIHS

Dr. Badade is a Professor of Biochemistry and Director, School of Biomedical Sciences, with over 26 years of teaching, research and administrative experience. He has been instrumental in introducing reforms in teaching and evaluation systems in the University.

***Member Secretary**



Shri Ashok Patil*
MCom, FCA

Mr Ashok Patil, a highly acclaimed Chartered Accountant, is in practice in the fields of audits, taxation and finance. He is on the Board of Directors of Deogiri Nagari Sahakari Bank Ltd and Arya Chanakya Vidyadham, Jatwada, Aurangabad. He has also worked as a member on "Internal Audit Standards Board" of the Institute of Chartered Accountants of India, New Delhi.

*** Chartered Accountant**

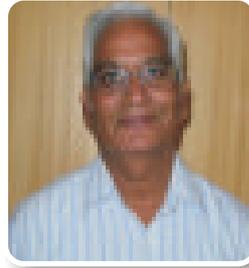
BOARD OF MANAGEMENT



Principal Pratap Shankarrao Borade*
MTech (Mech) and DILT (Plastic, IIT Mumbai)

He is a Fellow of Institute of Engineers (India), Fellow of Institute of Production Engineers, Chartered Engineer (Institute of Engineers) and DBM from Marathwada University.

***Nominee of Sponsoring Society: MGM Trust**



Dr Vijay N Bonde*
MBBS, MD (Pharmacology)

An eminent academician with over 25 years of experience in teaching, research and clinical services in medical institutions of repute.

***Senior Faculty**

Important Decisions of Board of Management during Academic Year

Meetings of members of the Board of Management of MGMIHS are held every quarterly during the academic year. The recommendations from Academic Council, Finance Committee and Examination Committee are placed before the Board for its consideration and decision. The Member Secretary ensures implementation of the decisions and provides the impact of various decisions on functioning including teaching, research, patient care and community services. Some of the important decisions taken by the Board are given below:

1. Declaration of 2015-16 an year of “Academic excellence”, whereby every staff member to endeavor to enhance improvement in respective areas of functioning.
2. The selection criteria for Best Teachers Award should be a transparent quantifiable process and the awards should be conferred on “Teachers Day”. Additional awards be instituted in the names of ex-faculty members of MGM Medical Colleges and University Departments who had helped establishing the departments and laid a strong foundation through their vision.
3. To institute a Gold Medal in the name of Prof. P.G. Samant for UG (I-MBBS) topper in Biochemistry
4. To make appraisal system for the entire staff more quantifiable, rather than subjective, and ensure its timely implementation.
5. CCTV cameras should be installed in the examination halls for fair conduct of University examination, as well as in the Campus for security purposes, including prevention of ragging and sexual harassment of staff.
6. Memorandum of Understanding be signed between MGM Institute of Health Sciences, Navi Mumbai and BIGTEC Private Limited, Bangalore, Karnataka, for diagnosis of infectious disease such as; tuberculosis through assays on the True lab™ platform.
7. Enhancement of the security features of University Mark Sheet, Passing Certificate, Degree Certificate, Transfer/Leaving Certificate, Migration certificate, Internship completion Certificate etc.
8. Starting of new specialties at MGMIHS University Department of Nursing, Navi Mumbai such as Critical Care Nursing, Neonatal Nursing, Operation Room Nursing, Cardio Thoracic Nursing, Emergency and Disaster Nursing.
9. To enhance financial support to initiate new research program, for strengthening of infrastructure required for research and capacity building.

10. To establish a Centralized Publication Cell to support publication of research articles, periodicals, annual reports, newsletters and other publications of University and its colleges.
11. To establish a Central Resource Center, wherein all clinical, academic, research and community-based data can be captured in a single format from all colleges and departments. This will facilitate easy and timely availability of desired information.
12. To bring MGM Dental College & Hospital (Navi Mumbai), MGM College of Physiotherapy (Navi Mumbai), MGM Institute of Physiotherapy (Aurangabad), MGM College of Nursing (Navi Mumbai) and Mother Teresa College of Nursing (Aurangabad) affiliated to MUHS under the ambit of MGMIHS.
13. To constitute and register an “Indian Association for Health Professional Educators” at MGMIHS with members from Medical, Dental, Physiotherapy, Nursing, Rehabilitation and related Life Science Institutes, Colleges and Universities.
14. To start B.Sc. Course in Audiometry and Speech Therapy.

FINANCE COMMITTEE

Members

Name	Role in Finance Committee
Dr. Sudhir N. Kadam Vice Chancellor, MGMIHS	Chairperson
Dr. [Lt. Gen.] Shibban.K. Kaul Pro Vice Chancellor, MGMIHS	Ex-Officio Member
Dr. Chander P. Puri Pro Vice Chancellor (Research) MGMIHS	Ex-Officio Member
Mr. Ankush N. Kadam Secretary, MGM Trust	Member MGM Trustee
Dr. Pandurang M. Jadhav Vice Chairman, MGM Trust	Member Nominee of Board of Management
Dr. Nitin N. Kadam Controller of Examinations MGMIHS	Member Nominee of Board of Management
Dr. P. G. Ramesh Deputy Registrar (Finance & Accounts) Indian Institute of Technology, Mumbai	Member Representative of Central Government
Dr. Zunjarrao G. Badade Registrar, MGMIHS	Member Secretary
Dr. Ajit G. Shroff Dean, MGM Medical College Aurangabad	Invitee
Mr. Ashok Patil Ashok Patil & Associates Chartered Accountant Aurangabad	Invitee
Mr. Bhimrao Patil Accountant MGMIHS, Navi Mumbai	Invitee

BOARD OF EXAMINATIONS

Members

Member	Role in Board of Examinations
Dr. Sudhir N. Kadam Vice Chancellor, MGMIHS	Chairperson
Dr. [Lt. Gen.] Shibban K. Kaul Pro Vice Chancellor, MGMIHS	Ex- Officio Member
Dr. Chander P. Puri Pro Vice Chancellor (Research) MGMIHS	Ex-Officio Member, and Chairperson, Board of Studies (Biomedical & Allied Health Sciences)
Dr. Ajit G. Shroff Dean, MGM Medical College, Aurangabad	Member Dean of Faculty (Medicine)
Dr. Arya D. Deepak Professor & Head, Department of Biochemistry, MGM Medical College Navi Mumbai	Member Chairperson: Board of Studies (Pre Clinical)
Dr. Deepak S. Bhosale Professor & Head, Department of Pharmacology, MGM Medical College Aurangabad	Member Chairperson: Board of Studies (Para Clinical)
Dr. Sandeep Rai Professor, Department of Medicine, MGM Medical College, Navi Mumbai	Member Chairperson: Board of Studies (Medicine & Allied)
Dr. R.B. Bohra Professor, Department of ENT MGM Medical College, Aurangabad	Member Chairperson: Board of Studies (Surgery & Allied)
Dr. Alope Banerjee Professor & Head, Department of Neurology, MGM Medical College Navi Mumbai	Member Chairperson : Board of Studies (Superspeciality)

Member	Role in Board of Examinations
Dr. Prabha Dasila Principal, MGM Institute's University Department of Nursing, Navi Mumbai	Member Chairperson : Board of Studies (Nursing)
Dr. Rajani Mullerpatan Director, MGM Institute's University Department of Physiotherapy Navi Mumbai	Member Chairperson : Board of Studies (Physiotherapy)
Dr. Nimain C. Mohanty Professor of Pediatrics MGM Hospital, Navi Mumbai	Member Chairperson : Board of Studies (Health Management Studies)
Dr. Gurunath S. Narshetty Dean, MGM Medical College, Kamothe Navi Mumbai	Member Head of Institution : Nominee of Vice Chancellor
Dr. Nitin N. Kadam Controller of Examinations MGMIHS, Navi Mumbai	Member Secretary
Dr. Zunjarrao G. Badade Registrar, MGMIHS, Navi Mumbai	Member Permanent Invitee

MEMBERS OF ACADEMIC COUNCIL

Chairperson



S N Kadam
Vice Chancellor MGMIHS

Members



P M Jadhav
*Vice Chairman
MGM Trust*



S K Kaul
*Pro Vice Chancellor
MGMIHS*



C P Puri
*Pro Vice Chancellor
MGMIHS*



Z G Badade
*Registrar
MGMIHS*



N N Kadam
*Professor and Head
Pediatrics, NM*



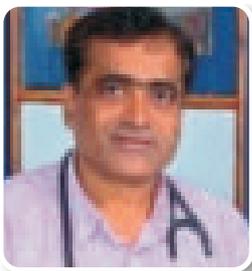
G S Narshetty
*Dean
MGMMC, NM*



A G Shroff
*Dean
MGMMC, A'bad*



A D Deepak
*Professor and Head
Biochemistry, NM*



D S Bhosale
*Professor and Head
Pharmacology, A'bad*



S Rai
*Professor
General Medicine, NM*



R B Bohra
*Professor and Head
ENT, A'bad*



A Banerjee
*Professor and Head
Neurology, NM*

MEMBERS OF ACADEMIC COUNCIL



R Mullerpatan
Director
Physiotherapy, NM



P Dasila
Director
Nursing, NM



R Inamdar
Professor and Head
Physiology, NM



A D Urhekar
Professor and Head
Microbiology, NM



Y A Deshmukh
Professor and Head
Pharmacology, NM



R Dhar
Professor and Head
Pathology, NM



R Chaudhari
Professor and Head
FMT, NM



J Ghanekar
Professor and Head
General Medicine, NM



S H Talib
Professor and Head
General Medicine, A'bad



A Gursale
Professor and Head
Radiology, NM



R Ghildiyal
Professor and Head
Psychiatry, NM



VB Yadav
Professor and Head
Community Medicine, A'bad



H R Jerajani
Professor and Head
Dermatology, NM



P V Potdar
Professor and Head
Chest TB, NM



A Kalyanshetty
Professor and Head
General Surgery, NM



P R Suryawanshi
Professor and Head
General Surgery, A'bad



S Shiradkar
Professor and Head
ObGyn, A'bad



A Vieira
Professor and Head
Orthopedics, NM



N Abidi
Professor and Head
Ophthalmology, NM



A Sabnis
Professor and Head
Genetics, NM

MEMBERS OF ACADEMIC COUNCIL



G A Shroff
*Professor & Head
Anatomy, A'bad*



I Ray
*Professor
Pharmacology, NM*



K R Salgotra
*Professor, Orthopedics
MGM Hospital, NM*



K Rajeevkumar
*Professor
ENT, NM*



A Mhaske
*Director
Nursing, A'bad*



R P Yadav
*Technical Director
OMICS Laboratory, NM*



N C Mohanty
*Professor Pediatrics
MGMIHS, NM*



G Gadekar
*Asso. Professor
Orthopedics, NM*



M M Khan
*Asso. Professor
MGMMC, A'bad*



M Rathore
*Asso. Professor
Biotechnology, NM*



V Sathe
*Asso. Professor
Anaesthesia, NM*



M Sharma
*Professor Emeritus,
MCI, Delhi*



G Daver
*Director
Professional Services
PD Hinduja Hospital*



N G Patil
*Professor Surgery
Hong Kong*



K Sen
*Medical Superintendent
MGM Hospital, NM*



R P Dixit
*Director
Central Library, NM*

FACULTY OF MEDICINE

Members

Name	Role in Faculty of Medicine
Dr. Ajit G. Shroff Dean Faculty, MGM Medical College Aurangabad	Chairperson
Dr. Gurunath S. Narshetty Dean MGM Medical College, Navi Mumbai	Member
Dr. Arya D. Deepak Professor & Head, Department of Biochemistry, MGM Medical College Navi Mumbai	Member Chairperson : BOS - Preclinical
Dr. D.S. Bhosale Professor & Head, Department of Pharmacology, MGM Medical College Aurangabad	Member Chairperson : BOS - Para Clinical
Dr. Sandeep Rai Professor, Department of Medicine MGM Medical College, Navi Mumbai	Member Chairperson BOS - Medicine & Allied
Dr. R.B. Bohra Professor, Department of ENT MGM Medical College, Aurangabad	Member Chairperson BOS - Surgery and Allied
Dr. Rajani Mullerpatan Director, MGM Institute's University Department of Physiotherapy Navi Mumbai	Member Chairperson BOS - Physiotherapy
Dr. Prabha Dasila Principal, MGM Institute's University Department of Nursing Navi Mumbai	Member Chairperson BOS - Nursing
Dr. Nimain C. Mohanty Professor of Pediatrics MGM Hospital, Navi Mumbai	Member Chairperson : BOS - Health Management Studies

Name	Role in Faculty of Medicine
Dr. Alope Banerjee Professor & Head, Department of Neurology, MGM Medical College Navi Mumbai	Member Chairperson : Board of Studies (Superspeciality)
Dr. Gautam A. Shroff Professor & Head, Department of Anatomy MGM Medical College, Aurangabad	Member Board of Studies : Pre Clinical
Dr. Reeta Dhar Professor & Head Department of Pathology MGM Medical College, Navi Mumbai	Member Board of Studies : Para Clinical
Dr. Shafat H. Talib Professor & Head Department of Medicine MGM Medical College, Navi Mumbai	Member Board of Studies : Medicine and Allied
Dr. Ashok Kalyanshetty Professor & Head Department of Surgery MGM Medical College, Navi Mumbai	Member Board of Studies : Surgery & Allied
Dr. Veena S. Hatolkar Director MGM School of Biomedical Sciences Aurangabad	Member Board of Studies : Biomedical & Allied Health Sciences
Dr. A.S.K. Basha Principal MGM School of Physiotherapy Aurangabad	Member Board of Studies : Physiotherapy
Dr. Anuradha Mhaske Principal MGM College of Nursing, Aurangabad	Member Board of Studies : Nursing
Dr. Pravin R. Suryawanshi Professor & Head Department of Surgery MGM Medical College, Aurangabad	Member Board of Studies : Surgery & Allied

Name	Role in Faculty of Medicine
Dr. Avinash D. Yelikar Professor & Head Department of Plastic Surgery MGM Medical College, Aurangabad	Member Board of Studies : Superspeciality
Dr. Pandurang M. Jadhav Vice Chairman MGM Trust	Invitee Eminent Academician
Dr. Nitin N. Kadam Controller of Examinations MGMIHS, Navi Mumbai	Invitee
Dr. Zunjarrao G. Badade Registrar MGMIHS, Navi Mumbai	Member Secretary

BOARD OF STUDIES

Chairpersons

Preclinical



A D Deepak
*Professor and Head
Biochemistry, NM*

Paraclinical



D S Bhosale
*Professor and Head
Pharmacology, A'bad*

Medical & Allied



S Rai
*Professor
Medicine, NM*

Surgical & Allied



R B Bohra
*Professor and Head
ENT, A'bad*

Super Speciality



A Banerjee
*Professor and Head
Neurology, NM*

Physiotherapy & Prosthetics & Orthotics



R Mullerpatan
*Director
Physiotherapy, NM*

Nursing



P Dasila
*Director
Nursing, NM*

Management Studies Hospital & Pharmaceutical



N C Mohanty
*Professor, Pediatrics
MGM Medical College, NM*

Biomedical Sciences



C P Puri
*Pro Vice Chancellor
MGMIHS*

GRIEVANCE REDRESSAL COMMITTEE

Members

Name	Role in Grievance Redressal Committee
Mr. L. V. Patil Retired Judge, District and Sessions Court, Thane Advocate and Law Consultant MGM Institute of Health Sciences Navi Mumbai	Chairman
Ms. Vaishali Sathe Clinical Psychologist MGM Medical College, Navi Mumbai	Member
Dr. Jaishree Ghanekar Professor and Head Department of Medicine MGM Medical College, Navi Mumbai	Member
Ms. Shamim Mosani Assistant Registrar (Establishment) MGM Institute of Health Sciences Navi Mumbai	Member
Dr. S. H. Talib Professor and Head Department of Medicine MGM Medical College, Aurangabad	Member
Mr. J. D. Patil Legal Advisor Legal Cell, MGM Institute of Health Sciences, Navi Mumbai	Co-ordinator

PLANNING & MONITORING BOARD

Members

Name	Role in Planning & Monitoring Board
Dr. Sudhir N. Kadam Vice Chancellor, MGMIHS	Chairperson
Dr. [Lt. Gen.] Shibban K. Kaul Pro Vice Chancellor, MGMIHS	Ex-Officio Member
Dr. Chander P. Puri Pro Vice Chancellor (Research) MGMIHS	Ex-Officio Member
Mr. Aankush .N. Kadam Secretary MGM Trust	Internal Member
Dr. Pandurang M. Jadhav Vice Chairman, MGMIHS Trust	Eminent Expert
Dr. Nitin N. Kadam Controller of Examinations MGMIHS, Navi Mumbai	Internal Member
Dr. Gustad B. Daver Director Professional Services P D Hinduja Hospital, Mumbai	Eminent Expert
Dr. Ajit G. Shroff Dean, MGM Medical College Aurangabad	Internal Member
Dr. Gurunath S. Narshetty Dean, MGM Medical College Navi Mumbai	Internal Member
Dr. Sabita Ram Dean, MGM Dental College & Hospital, Navi Mumbai	Internal Member
Dr. Rajani Mullerpatan Director, MGM Institute's University Department of Physiotherapy Navi Mumbai	Internal Member

Name	Role in Planning & Monitoring Board
Dr. Prabha Dasila Director, MGM Institute's University Department of Nursing, Navi Mumbai	Internal Member
Dr. Mahesh Verma Dean, Maulana Azad Institute of Dental Sciences New Delhi	Eminent Expert UGC Nominee
Dr. Zunjarrao G. Badade Registrar MGMIHS Navi Mumbai	Member Secretary

**EXECUTIVE SUMMARY:
CONSTITUENT COLLEGES AND
UNIVERSITY DEPARTMENTS**

MGM Medical Colleges

The two MGM Medical Colleges of MGMIHS were established during 1989-1990 with a vision to be the top-ranking Centers of Excellence in medical education, healthcare and research. It was envisaged that the students graduating from the colleges will have the required skills to deliver quality healthcare to all sections of the society with compassion and benevolence, without prejudice or discrimination, and at affordable cost. The teaching programs were so designed that the graduating students have critical thinking ability. They are inspired and motivated enough to solve need-based problems as well as deal with global challenges.

It has been satisfying to see the vision and mission of the colleges being accomplished as they had celebrated their Silver Jubilee Year during 2014-15. These two medical colleges are among a few in Maharashtra State which offer postgraduate courses in medical subjects and super-specialty in five branches besides MBBS. The medical colleges are attached with teaching hospitals, each having over 800 bed capacities.

In the medical schools, during the academic year, considerable teaching time was spent on problem-based learning (PBL) and competency-based learning. Such approaches found greater acceptance among students. It was observed that when PBL sessions were conducted after lecture-based teaching it had yielded better results. Comprehensive factual subject information conveyed by teacher in a direct logical manner during the lecture facilitated discussion and working on real life problems and activities during PBL, where teachers had acted as facilitators. Such teaching formats through lecture-based teaching and PBL helped students develop comprehensive subject knowledge; learn skills of critical thinking, problem solving and team spirit. The curriculum for the competency-based education was structured on the basis of competencies to be developed in the areas of medical knowledge, patient care and communication skills.

Adoption of competency-based teaching was quite challenging for the teachers to learn and integrate information from different subjects. A series of training programs were conducted during the academic year to ensure that the teachers continue to have passion for teaching, attain full complements of attributes which a good teacher is expected to have, and most importantly learn newer formats.

It was recognised that students learn in different ways and at distinct speeds. These differences were always kept in mind while preparing them. Regular feedback both from students and colleagues was considered mandatory, apart from self-reflection by the teacher was contemplated equally important.

The Clinical Learning and Simulation Skills Laboratories established in medical

colleges further offered students, residents, and faculty enhanced simulation, standardized patient, and learning skills. Simulation-based medical education was aimed to mimic real life situations and helped in situations where patient safety was paramount.

In the field of patient care and clinical services, new Obstetrics and Gynecology Intensive Care, and Pediatric Intensive Care Units were established. The super-specialty services were strengthened specially in the field of Urology and Nephrology by way of upgrading the Kidney Transplant and Dialysis Units.

In the forthcoming years, the colleges plan to start super-specialty courses in Neonatology, Neurology, Neurosurgery and Postgraduate Courses in Emergency Medicine and Critical Care. The hospital at Aurangabad plans to upgrade its services in the field of Endocrinology, Immunohistochemistry, and Oncology. The college is going for NABH accreditation in the coming year.

The hospitals of medical colleges continued to be in top “A+” category of Rajeev Gandhi Jeevandayee Arogaya Yojana, since last three years. The Blood Bank is NABH accredited and the central path lab is accredited by NABL.

The MGM Medical Colleges recognised the importance to research, evidence-based teaching and clinical practice. Research facilities were further developed by establishing state-of-the-art facilities including Central Research Laboratories where all the scholars and faculty could work. MGM Medical College at Aurangabad had signed a MOU with Kyungpook National University, South Korea as a part of its academic and research development program. Over 120 PhD scholars are pursuing research in various departments.

A number of national and international conferences were organized throughout the year. International Conference on Challenges in Medical Education, organized at Aurangabad in January 2015, was in particular, a grand success where experts from various countries participated.

Dr Gurunath S. Narshetty

Dean

MGM Medical College

Navi Mumbai

Dr Ajit G. Shroff

Dean

MGM Medical College

Aurangabad

University Department of Physiotherapy

MGMIHS University Department of Physiotherapy is actively contributing to the academic, clinical and research endeavors since its inception in 2008. Academic activities of the department range from graduate, postgraduate to doctoral program in Physiotherapy. Experts across a wide range of Physiotherapy specialties from the country and abroad such as; Indian Institute of Technology Bombay (IITB), Cardiff University UK, Queen's University Canada, International Society of Biomechanics, and University of Sydney Australia have added value to the education program.

Interdisciplinary collaborative research projects are continuously designed and implemented to address healthcare needs. To name a few ongoing projects in the current year, in collaboration with Biomedical Engineering and Technology (Incubation) Centre (BETiC), IITB, the department is involved in designing an indigenous device for plantar tissue stiffness measurement for its application in people with reduced foot sensations such as; diabetes, leprosy etc. The Department of Biotechnology has recently sponsored a project to develop powered transtibial prosthesis in collaboration with IITB.

A momentous occasion in the current year was the establishment of MGM Centre of Human Movement Science in collaboration with Indian Institute of Technology Bombay and International Society of Biomechanics to address an urgent need for integrating the clinical biomechanics in Indian healthcare. The Center is open for movement analysis testing for patients, training of healthcare professionals and engineers in clinical biomechanics and interdisciplinary research projects.

Prof Margareta Nordin, leading Physiotherapist in Spine Biomechanics and Vice President of World Spine Care visited the Department in March 2015. Prof. Nordin delivered an oration titled 'Evidence for effective treatment of Low Back Pain and transfer of knowledge to different cultures'. Discussions were held with faculty members and medical scientists from Department of Orthopedics to consider for establishing the World Spine Care Clinic at MGM Hospital, Kamothe and Rural Health Center, Tara to offer sustainable, integrated, evidence-based spine care to under-served communities in the catchment areas to improve their function and health related quality of life.

Similar efforts were continued in the form of outreach physiotherapy investigation and management services to people from villages of Raigad District on a regular basis. Major objectives of such camps included promotion of women's health and empowering women with opportunities to evaluate and monitor their own fitness profile. Early intervention and awareness of role of physical activity in prevention of non-communicable diseases is constantly reiterated as an attempt to reduce rising burden of these conditions.

The Department reached out to Pen Taluka in June 2015 wherein total 169 patients with various disorders were evaluated and treated. Villagers were provided with physiotherapy services during individual and group exercise sessions, awareness talk on degenerative condition, osteoporosis, and menopausal problems. Prevention strategies for musculoskeletal pain and ergonomic advice for their routine household as well as farming work was provided.

Neuro-Physiotherapy Unit continued to strive for holistic care of patients with Parkinson's Disease, Stroke, Cerebral Palsy and Spinal Cord Injury. The Unit coordinated the activities of support groups in Navi Mumbai for patients with Parkinson's Disorder, which was started in 2010 and has been growing steadily. In addition to intense training offered by in-house team, graduate and postgraduate students had been benefited from the hands-on skill training provided by Prof. Sailakshmi Ganesan in neurodevelopmental technique and proprioceptive neuromuscular facilitation to enhance skills required for treatment of children with developmental disorders.

The University Department of Physiotherapy had evaluated and monitored the fitness of students and staff members of MGMIHS and suitably trained them at MGM Exercise Testing and Fitness Laboratory.

Dr Rajani Mullerpatan

Director

MGM Institute's University

Department of Physiotherapy

Navi Mumbai

Dr Sucheta Golhar

Director

MGM Institute's University

Department of Physiotherapy

Aurangabad

University Department of Nursing

MGM IHS University Department of Nursing had come into existence during August 2008. It had started with four-year BSc Degree program in Nursing with an initial intake of 30 students, which gradually increased to 50 seats per annum. The Department offers undergraduate, postgraduate and PhD programs. It has been approved to start Post-basic Diploma Programs in Critical Care Nursing, Cardio Thoracic Nursing, Neonatal Nursing, Operating Room Nursing and Emergency and Disaster Nursing by the Indian Nursing Council, New Delhi. During the span of seven years, the Department has become proud alma mater for 122 graduates who are currently working in different parts of the country and abroad. At present, 201 students including 39 PhD scholars have been enrolled in the Department.

The nursing faculty believes that learning is a challenging, deeply rewarding, and profoundly important activity which is to be shared with a spirit of collaboration. The core values of showing respect and caring for every human being is the guiding factor in all its working at the Department of Nursing. These values have helped in achieving the mission "quality patient care through excellence in nursing education, practice and research".

The students are helped to identify their potentials and encouraged to pursue higher studies. Those desirous of continuing their education in nursing are offered opportunities for postgraduate nursing program. Others are guided to apply for courses available in the campus like management studies, biomedical courses etc. Graduates willing to join nursing profession are offered job opportunities in various hospitals under MGM Trust.

The Department of Nursing visualizes research as the core component of teaching and patient care; as a result, research has become vital to current and future practice of professional nurses. The ongoing research projects are in line with the critical needs of society, the healthcare system and needs of nursing education globally. The faculty takes active participation in mentoring the research projects of undergraduate, postgraduate and PhD students.

The focus of some of the research projects are: nursing audit and competency-based education on infection control practices; emotional intelligence training program on performance of nursing students; transformational leadership educational program and job performance of staff nurses; health education for prevention of cervical cancer; and multipronged counseling on prevention of coronary artery disease. Some of these projects are of high national importance under the National Rural Health Mission Program.

Apart from academic and research activities, the Department organizes various

community outreach programs and other co-curricular activities. The Department has established innovative collaborations through a wide variety of health and wellness activities involving members of community from surrounding neighbourhoods, villages, schools and old age homes. These activities include health assessments, health teaching sessions, screening camps and participation in national immunization and other services.

To support implementation drive 'Swachh Bharat' by 2 October 2019 launched by the Government of India, the Department of Nursing and its staff takes pride in taking initiatives to keep the campus and its surroundings clean. To improve the ambience around the Department and to contribute to clean environment, the Department encourages planting of trees involving students and faculty.

During the academic year, several students participated in various competitions organized by the Trained Nurses Association of India, Millennium City Branch, Navi Mumbai and received prizes for their outstanding performances. Faculty members participated in national and international workshops and conferences. A number of workshops were organized by the Department.

Eighty nine meritorious students have been offered "Sir Ratan Tata Trust Scholarship" and 90 have been sponsored by Minority Scholarship by Department of Medical Education and Research, Government of Maharashtra over the years.

The Department has sailed through several phases in its journey by assimilating newer experiences in academics, patient care and research. The records of accomplishments are an evidence for passion of dedication and team efforts of people working for the institute.

Dr Prabha Dasila

Director

MGM Institute's University

Department of Nursing

Navi Mumbai

Dr Anuradha Mhaske

Director

MGM Institute's University

Department of Nursing

Aurangabad

University Department of Biomedical Sciences

MGMIHS had established the University Department of Biomedical Sciences with a vision to impart education to students to be competent to apply science to medicine. The university envisioned that to promote medical research it was essential to have biomedical graduates with primary responsibility to pursue research in diverse biomedical areas for developing new treatments, vaccines and drugs for human illnesses and diseases. The university envisioned that the country needs well qualified and trained personnel in allied health sciences to improve the quality and orientation of service provision towards meeting the health needs of the people.

The Department offers BSc courses in seven paramedical branches viz: Operation Theater and Anaesthesia Technology; Cardiac Care Technology; Perfusion Technology; Medical Imaging Technology; Medical Laboratory Technology; and Optometry and Dialysis Technology. About 306 students are enrolled in seven B.Sc. paramedical Courses

M.Sc. Medical Courses are offered in Anatomy, Physiology, Biochemistry, Microbiology, Pharmacology, Biotechnology, Genetics, Clinical Embryology, Molecular Biology, Clinical Nutrition and Masters in Public Health. About 70 students are enrolled in various MSc Degree courses. The Department has major teaching responsibilities within the graduate and postgraduate courses, to which the faculty members make important contributions.

The Department had organised seminars and series of lectures by inviting eminent scientists, and in addition arranged field trips for students. The Department continued to publish a newsletter "MGM News" to highlight some of the major events held within the MGM Campus.

The focus of the Department is to encourage and pursue research. About 120 PhD scholars are currently pursuing research in diverse areas. The Department has published over 120 research papers in various peer-reviewed scientific journals. During the academic year, two patents were filed and another two are expected to be filed soon. The Department has received funding from various national and international agencies besides MGMIHS for pursuing research.

Some of the research programs focus on: use of natural plant-derived products for treatment of obesity; developing natural alternatives to synthetic DPP-4 inhibitors for diabetes with metabolic syndrome; development of more affordable point-of-care test for diagnosis of tuberculosis; realization of therapeutic potential of stem cells; and use of nanotechnology in drug discovery.

Biomedical science is a continually changing and dynamic profession, therefore it offers a fantastic variety of exciting career opportunities with excellent promotion prospects including specialist laboratory work, expert and consultant roles, research, education and management. The Department makes efforts to see the dreams of young biomedical scientists into reality.

Dr Zunjarrao G. Badade

Director

MGM Institute's University

Department of Biomedical Sciences

Navi Mumbai

Dr Prasad Burra

Director

MGM Institute's University

Department of Biomedical Sciences

Aurangabad

**If a child cannot learn in the way we teach,
We must teach in a way a child can learn.**

ACADEMIC ACTIVITY

Dr Ravindra S. Inamdar

*Professor and Head
Department of Physiology
MGM Medical College
Navi Mumbai*

Dr Gautam A. Shroff

*Professor and Head
Department of Anatomy
MGM Medical College
Aurangabad*

At MGMIHS teaching is not viewed just to impart knowledge, but to ensure that the graduating students have critical thinking ability, they are inspired and motivated to solve need-based problems as well as deal with global challenges. It is always in our minds that it is the teacher who through intelligence, patience and wisdom has to polish the pupil's intellect and aptitude and shape their bright future. We recognise that students have different levels of learning abilities, and these differences are considered while preparing them. Most importantly, it is recognised that all teachers are not passionate about teaching and do not begin their careers with full complement of attributes which a good teacher is expected to have. Becoming an effective teacher is a process of continual refinement which necessitates that the teaching skills of teachers are sharpened periodically.

At the University, a format of combination of lecture-based teaching, and teaching which is primarily learner-focused such as; problem-based learning (PBL), competency-based learning (CBL) and outcome-based learning are followed. The advantages and limitations of each format are critically balanced and adopted ensuring advantages outplay the limitations. Considerable teaching time is spent on PBL and CBL. Such approaches are finding greater acceptance among students. Comprehensive factual subject information conveyed by teacher in direct logical manner during the lecture facilitates discussion and working on real-life problems and activities during PBL, where educators act more as facilitators. Such teaching formats through lecture-based teaching and PBL help students develop comprehensive subject knowledge; learn skills of critical thinking, problem solving and team spirit.

The curriculum for competency-based education is structured on the basis of competencies to be developed in students, whether medical knowledge, patient care or communication skills. Adopting competency-based teaching is quite challenging for the teachers to learn and integrate information from different subjects. Since medical colleges have to work within the framework of Medical Council of India, switching over to competency-based curriculum may necessitate change in policies including the rigid time frame and the evaluation system.

Clinical Learning and Simulation Skills Laboratories established in MGM Medical Colleges further offer students, residents, and faculty enhanced simulation, standardized patient, and learning skills. Simulation-based medical education aims to mimic real life situations and helps in situations where patient safety is paramount.

Irrespective of the format of teaching, faculty engagement remains central to the education system. Therefore, extensive opportunities are provided to faculty to enhance their teaching skills and to learn newer formats which have proven effective. To help teachers improve, regular feedback both from students and colleagues is mandatory. Self-reflection by the teacher is equally important.

To promote excellence in teaching, MGMIHS has instituted a number of rewards for the performers. Some are instituted in recognition of the great teachers who had helped shape education at the University. The rewards are personal prizes by way of research support and participation in international conferences. University has established linkages with Dundee University, UK to impart training to its faculty.

A brief report on academic activities pursued by various Colleges and University Departments of MGMIHS has been illustrated in preceding paras.

Courses Offered

MGMIHS is a multi-speciality health sciences university where its Medical Colleges, and University Departments of Biomedical Sciences, Physiotherapy, and Nursing offer a variety of undergraduate, postgraduate, superpeciality and PhD degree programs (Tables 1-4).

Table 1: Academic courses offered by MGM Medical Colleges

Undergraduate

- MBBS

Postgraduate Diploma

- Anesthesiology
- Medical Radiodiagnosis
- Ophthalmology
- Child Health
- Obstetrics & Gynecology
- Pathology
- Dermatology
- Orthopedics

Postgraduate Degree

Preclinical

- Anatomy
- Biochemistry
- Physiology

Paraclinical

- Forensic Medicine
- Microbiology
- Pathology

- Community Medicine
- Pharmacology

Clinical

- Anesthesiology
- Immunohematology & Blood Transfusion
- Orthopedics
- Radiology

- Emergency Medicine
- Geriatrics
- Obstetrics & Gynecology
- Pediatrics
- Respiratory Medicine

- ENT
- Medicine
- Ophthalmology
- Psychiatry
- Surgery

Super Speciality

- Cardiology: DM
- Nephrology: DM
- CVTS: MCh
- Plastic Surgery: MCh
- Urology: MCh

**Table 2: Academic courses offered in MGM Institute's University
Department of Biomedical Sciences**

Undergraduate

BSc (Allied Health Sciences)

- | | |
|---|---------------------------------|
| • Anesthesia & Operation Theatre Technology | • Cardiac Technology |
| • Medical Dialysis Technology | • Medical Imaging Technology |
| • Medical Perfusion Technology | • Medical Laboratory Technology |
| | • Optometry |

Postgraduate Degree

- | | |
|-----------------------------|---------------------------|
| • Medical Anatomy | • Clinical Embryology |
| • Medical Biotechnology | • Clinical Research |
| • Clinical Nutrition | • Master of Public Health |
| • Medical Genetics | • Medical Microbiology |
| • Medical Molecular Biology | • Medical Physiology |
| • Medical Pharmacology | • Medical Biochemistry |

**Table 3: Academic courses offered in MGM Institute's University
Department of Physiotherapy**

Undergraduate

- BPT

Postgraduate Degree

- | | |
|---|--|
| • Cardiovascular, Pulmonary & Fitness Physiotherapy | • Musculoskeletal Physiotherapy |
| • Neuro Physiotherapy | • Preventive & Community Physiotherapy |

**Table 4: Academic courses offered in MGM Institute's University
Department of Nursing**

Undergraduate

- | | |
|-------|------------------|
| • BSc | • Post Basic BSc |
|-------|------------------|

Postgraduate Degree

- | | |
|--------------------|---------------------------|
| • Child Health | • Community Health |
| • Medical Surgical | • Obstetrics & Gynecology |

Students Enrolled

The students in the university and its constituent colleges and departments are admitted for undergraduate and postgraduate studies in medicine, biomedical sciences, physiotherapy and nursing. The maximum number of students approved for admission in MBBS, MD, MS, Biomedical Sciences nursing and

physiotherapy are fixed by the respective regulatory body, approved by Board of Management and all the admissions are completed as per guidelines. The University has about 3,770 students working in different colleges and departments in two campuses. Maximum number of students are in Medical Colleges (1970), following by Biomedical Sciences (855), Physiotherapy (607) and Nursing (338).

The University recognised the dire needs to increase the quantum and quality of human resources for paramedical/allied health services to improve the quality and orientation of service provision towards better meeting the health needs of people. Accordingly, the new degree programs in allied health sciences were started. About 61 courses in health sciences are offered by the University. They are finding acceptance by large number of students. About 991 students had taken admission in various courses.

Table 5: Students admitted in MGM Medical Colleges during the academic year

Name of Course	MGMIHS Navi Mumbai		MGMIHS Aurangabad		Total
	Courses	Admitted	Courses	Admitted	
MBBS	1	150	1	150	300
MS	5	23	5	17	40
MD	17	50	14	38	88
MCh	2	1	3	2	3
DM	1	1	2	2	3
Diploma	6	10	6	7	17
Total	31	235	31	216	451

Table 6: Students admitted in MGM Institute's University Departments during the academic year

Course	Biomedical Sciences	Physiotherapy	Nursing
Undergraduate	266	114	53*
Postgraduate	32	15	11
PhD	30	1	18
Total	318	130	82

* Includes BSc and Post BSc Nursing.

The number of students, enrolled during 2014-15, was more than the previous year (Figure 1). It is observed that more female students are seeking admissions in health professional courses compared to boys (Figure 2).

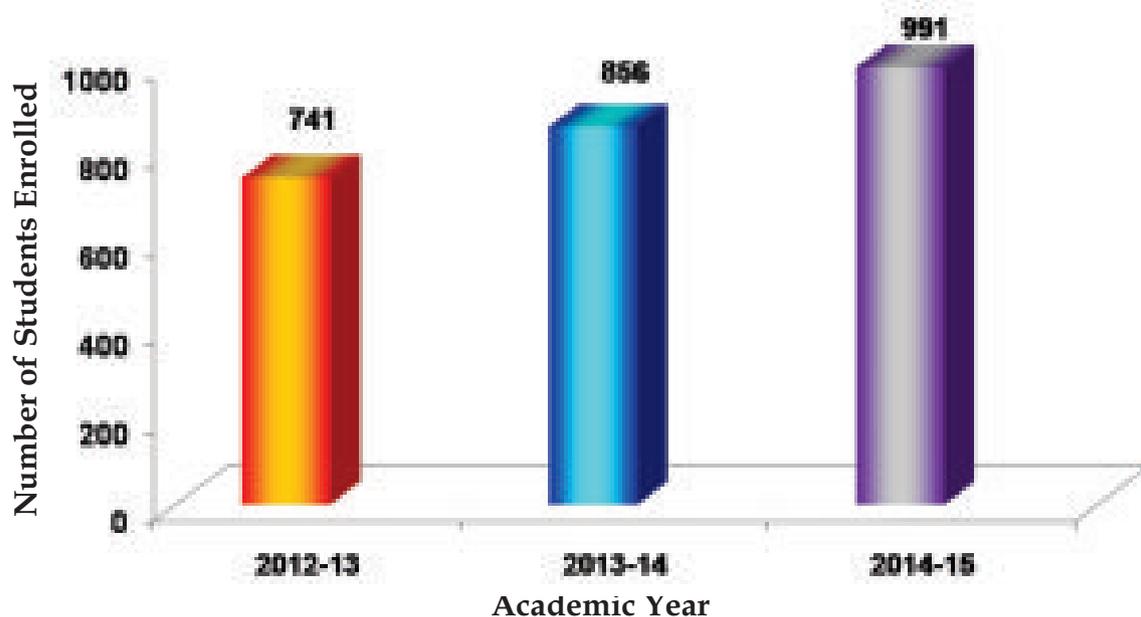


Figure 1: Students admitted in various constituent colleges and departments of MGMIHS

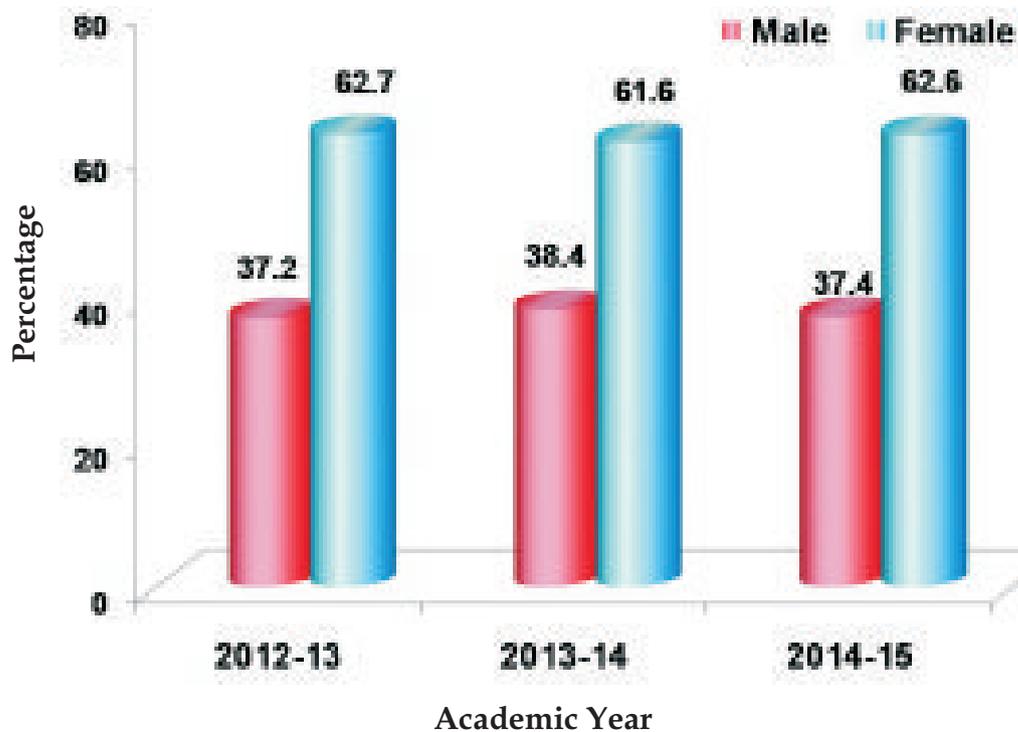


Figure 2: Percentage of male and female students taken admission at MGMIHS during last three Academic years.

Faculty and Supporting Staff

The faculty employed at MGMIHS meets the guidelines of Medical Council of India and other regulatory bodies, and are in excess so as to provide teaching in smaller groups and to help the slow learners. As given in the Table 8, about 927 faculty members are employed in medical colleges and 122 in university departments at both the campuses. Faculty exchange between the two campuses is particularly encouraged to learn from each other's experiences. The colleges are encouraged to invite experts from other institutions to deliver lectures on specific topics with a view to enhance the technical skills of faculty.

Table 7: Faculty employed at MGM Medical Colleges

Position	MGM Medical College Navi Mumbai	MGM Medical College Aurangabad	Total
Professor	64	45	109
Associate Professor	53	50	103
Assistant Professor	68	103	171
Tutor/Resident	316	205	521
Tutor	17	6	23
Total	518	409	927

Table 8: Faculty employed in MGM Institute's University Departments

Faculty	Biomedical Sciences	Physiotherapy	Nursing	Total
Professor	13	4	4	21
Associate Professor	4	9	6	19
Assistant Professor	16	19	8	43
Tutor	18	4	17	39
Total	51	36	35	122

The faculty is supported by about 919 paramedical and other staff members. The services such as; housekeeping and security were outsourced and are not counted on the rolls of the University.

Curriculum

The only constant thing is the change! With dynamic scenario of advances in medical field, the curriculum needs to be continuously updated. MGMIHS has in

place the vibrant academic structure of Board of Studies, Faculty of Medicine, Academic Council and Board of Management to review the curriculum offered for various subjects after the gap of every three year and approve changes, if any. Some of the salient features of curriculum inputs were: establishment of Skill Laboratories; introduction of Choice-based Credit System for BSc (Paramedical Courses); introduction of 'Environmental Studies' and 'Disaster Management' in BSc (Paramedical Sciences) and MSc (Medical) Courses; Pediatric & Neonatal Advanced Life Support Modules; Palliative Care; Rational Antibiotic Policy; and Lectures on History of Medicine. The syllabi of Anatomy, Psychiatry, Dermatology, Physiotherapy; Integrated Management of Neonatal and Childhood Illness, and 'WHO Program' taught in medical colleges were revised.

Skill Development Laboratories

The medical colleges have established skill laboratories for 'Adult Basic Life Support Education & Training' aimed at building competencies in students at all levels and specialities. These laboratories had used various strategies such as; models, mannequins, simulations, virtual patients for specific examinations, procedures, and skills by practice under observation. The laboratories provided ideal setting to practice clinical skills of history taking, physical examination, communication and interpersonal skills.

American Heart Association certified basic life support and advanced cardiac life support faculty had conducted training sessions for MBBS students, interns, postgraduates, residents and nursing staff. The training programs had used various training equipments including adult BLS manikins, pocket masks, bag mask ventilation device, child CPR manikin, infant CPR manikin, airway management trainer.

The course content comprised of basics of BLS, guidelines of CPR, mouth-to-mouth breathing, adult BLS with automated external defibrillator. Interactive sessions with case scenarios were incorporated for understanding and for handling during emergency situations.



Skill Laboratory



Student training in Skill Laboratory

Faculty Development Programs

MGMIHS encourages and supports the departments to organize Conferences, Workshops and CMEs to update faculty, residents and students on issues in medical context and professional skills. The University invites distinguished faculty from other institutions during capacity building activities. The University organised 80 such activities during the year: 47 at Navi Mumbai and 33 at Aurangabad.

The faculty and researchers were encouraged to participate in meetings held at MGMIHS and its constituent colleges and departments as well as organised by other institutions and registered organizations. The staff participated in 1,122 such events, included those who took part in more than one activity (Table 9).

Table 9: Participation of staff in conferences, seminars, workshops and symposia*

Sr. No.	Name of Institute		Total
1	MGM Medical College	State	318
		National	298
		International	307
2	MGM Institute's University Department of Biomedical Sciences	State	20
		National	99
		International	45
3	MGM Institute's University Department of Physiotherapy	State	9
		National	7
		International	3
4	MGM Institute's University Department of Nursing	State	11
		National	3
		International	2
Total			1122

* Includes those who had participated in more than one event. Participation in international conferences includes those held in India.

CMEs Organised

1. Essentials of Doctor Patient Communication Skills, 10th July 2014, Department of Psychiatry, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Rakesh Ghildiyal, Shaunak Ajinkya, Darpan Kaur, Shubhangi Dere, Yogita Solanke.

2. Oculoplasty, 20th July 2014, Department of Ophthalmology, MGM Medical College and Hospital, Aurangabad, Coordinators: Joytika Mishrikotkar, Shenal Thakre, Sarika Kadam.
3. Awareness on Breast Feeding, 1st-7th August 2014, Department of Child Health Nursing & Community Health Nursing, MGM Institute's University Department of Nursing, Navi Mumbai, Coordinators: Stella Money, Sindhu Thomas, Renuka Bhosle.
4. Rational Antibiotic Protocol, 17th August 2014, Department of Pediatrics, MGM Medical College and Hospital, Aurangabad, Coordinators: Anjali Kale, Jagnath Kakade, Siddiqui Mohd Saeed, Engade Madhuri.
5. Glaucoma and Retina Update, 24th August 2014, Department of Ophthalmology, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Naheed Abidi, Anjaneya Agashe, Shrikant Deshpande, Varshav Gore, Saurabh Srivastava, Pallavi Agarwal, Gayatri Kadam, Reshma Anand.
6. Suicide Prevention, 10th September 2014, Department of Psychiatry, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Rakesh Ghildiyal, Shaunak Ajinkya, Darpan Kaur, Shubhangi Dere.
7. Awareness on Alzheimer's Disease, 22nd September 2014, Department of Medical Surgical Nursing, MGM Institute's University Department of Nursing, Navi Mumbai, Coordinators: Prabha Dasila, Bharti Veer, Susan Jacob, Josmy Abraham.
8. Schizophrenia Caregivers Program, 6th October 2014, Department of Psychiatry, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Rakesh Ghildiyal, Shaunak Ajinkya, Darpan Kaur, Shubhangi Dere, Yogita Solanke.
9. New Age Psychiatry, 8th October 2014, Department of Psychiatry, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Rakesh Ghildiyal, Shaunak Ajinkya, Darpan Kaur, Shubhangi Dere, Yogita Solanke.
10. Deceased Donor Transplantation, 30th October 2014, Department of Nephrology, MGM Medical College, Aurangabad, Coordinators: Sudhir Kulkarni, Gadekar Kshitija, Ravindra Bhattu.
11. Overview of Acute Abdomen, 14th December 2014, Department of Obstetrics and Gynecology Collaboration with Raigad Obstetrics and Gynecological Society, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Bhanji Boricha, Shaifali Patil.

12. An Overview of Acute Abdomen, 29th December 2014, Department of Surgery, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Ashok Kalyanshetty, Dattaatay Bhusare, Jaishree Ghanekar, Natvarlal Vyas.
13. Medicine Update Diabetes Mellitus Program, 18th-25th January 2015, Department of Medicine, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Vaishali Shelar, Alaka Deshpande
14. Cardiology, 3rd January 2015, Department of Cardiology, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Vithal Chavan, Jaishree Ghanekar, Nawale, Jayant Karbhase, Ratan Rathod, Sandeep Rai, Amrit Kejriwal.
15. Poly Trauma Management & Today's Need and Multidisciplinary Approach, 14th January 2015, Department of Surgery, MGM Medical College and Hospital, Aurangabad, Coordinators: Pravin Suryawanshi, Girish Gumaste, Abdual Qayyum Khan, Tejinder Chhabda, Musande Bhaskar.
16. Acute Kidney Injury and Celebrating World Kidney Day, 15th March 2015, Department of Nephrology, MGM Medical College and Hospital, Aurangabad, Coordinators: Sudhir Kulkarni, Gadekar Kshitija, Ravindra Bhattu.
17. Diabetes Mellitus, 17th March 2015, Department of Medicine, MGM Medical College and Hospital, Navi Mumbai, Coordinators; Sandeep Rai, Jaishree Ghanekar, Umesh Deshpande.
18. Ophthalmology Update, 18th March 2015, Department of Ophthalmology, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Naheed Abidi, Anjaneya Agashe, Shrikant Deshpande, Varshav Gore, Saurabh Srivastava, Pallavi Agarwal, Gayatri Kada, Reshma Anand.
19. Communication Skills, 20th March 2015, MGM Institute's University Department of Nursing, Aurangabad, Coordinator: Rahul Deshmukh.
20. Critical Care, 28th March 2015, Department of Cardiovascular Thoracic Surgery and Anesthesiology, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Jayant Karbhase.
21. Nursing Care of Patients with Myocardial Infarction Valve Repair Angina, 29th March 2015, Department of Medical-Surgical Nursing, MGM Institute's University Department of Nursing, Mumbai Coordinators: Swati Mane, Shilpa Nair.

22. Nursing Care of Patients with Epilepsy Stroke Head Injury, 29th March 2015, Department of Medical-Surgical Nursing, MGM Institute's University Department of Nursing, Navi Mumbai Coordinators: Swati Mane, Divya Shaji.
23. Nursing Care of Patients with Pancreatitis Gastroenteritis Liver Cirrhosis, 30th March 2015, Department of Medical-Surgical Nursing, MGM Institute's University Department of Nursing, Navi Mumbai Coordinators: Swati Mane and Richa Sharma.
24. Nursing Care of Patients with Lower Respiratory Tract Infection Chronic Obstructive Pulmonary Disease Pneumonia, 30th March 2015, Department of Medical-Surgical Nursing, MGM Institute's University Department of Nursing, Navi Mumbai, Coordinators: Swati Mane, Renju Joshua.
25. An Update on Swine Flu, 2nd April 2015, Microbiology MGM Medical College and Hospital, Navi Mumbai, Coordinators: Anant Urhekar, Anahita Bhesania Hodiwala, Sharvari Samant.
26. Food Safety, 7th April 2015, MGM Institute's University Department of Nursing, Aurangabad, Coordinator: Rahul Deshmukh.
27. Awareness on Tuberculosis for Housekeeping Workers, 16th May 2015, Department of Child of Nursing, MGM Institute's University Department of Nursing, Navi Mumbai, Co-coordinator: Sunitha John.
28. Medication Safety: A Nursing Perspective, 22nd June 2015, MGM Institute's University Department of Nursing, Navi Mumbai, Coordinators: Mary Mathews, Rosamma Tomy.

Workshops Organised

1. Workshop on Productivity by Personal Mastery, 13th July 2014, MGM Medical College, Aurangabad, Coordinators: Ajit Shroff, Badrinarayan Somani, Aparna Kakkad.
2. Workshop on Center of Excellence for Minimal Access Surgery Training, 1st-2nd August 2014, MGM Medical College, Aurangabad, Coordinators: Pravin Suryawanshi, Girish Gumaste, Khan Abdual Qayyum, Chhabda Tejinder, Bhaskar Musande.
3. Workshop on Basic Course Work on Medical Education Training, 7th-9th August 2014, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Seema Anjenaya.
4. Workshop on Career Opportunities in Physiotherapy, 14th August 2014, MGM Institute's University Department of Physiotherapy, Aurangabad, Coordinator: Surendra Wani.

5. Workshop on Rational Antibiotic Protocol, 17th August 2014, MGM Medical College, Aurangabad, Coordinators: Anjali Kale, Jagnath Kakade, Siddiqui Mohd Saeed, Madhuri Engade.
6. Workshop on Basic Course Work on Medical Education Training, 29th September to 1st October 2014, MGM Medical College and Hospital, Aurangabad, Coordinators: Aruna Kharkar, Vasanti Kelkar, Moiz Khan.
7. Workshop on Stress Management Workshop Using Cognitive Behavior Therapy, 9th October 2014, MGM Medical College and Hospital, Aurangabad, Coordinators: Sanjeev Saoji, Arun Marwale, Manik Bhise.
8. Workshop on Chronic Obstructive Pulmonary Disease Day organized on the Occasion of World Chronic Obstructive Pulmonary Disease Day, 19th November 2014, MGM Medical College and Hospital, Navi Mumbai, Coordinators: Pradeep Potdar, Rakesh Ghildiyal.
9. Workshop on Cardio Pulmonary Resuscitation, 19th-20th November 2014, MGM Medical College and Hospital, Aurangabad, Coordinators: Shafaat Husain Talib, Anand Nikalje, Sanhita Kulkarni.
10. Workshop on Cardio Pulmonary Resuscitation, 24th - 25th November 2014, MGM Medical College and Hospital, Aurangabad, Coordinators: Shafaat Husain Talib, Anand Nikalje, Sanhita Kulkarni.
11. Workshop on Cardiology, 29th November 2014, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Vitthal Chavan.
12. Workshop on Cardio Pulmonary Resuscitation, 5th-6th December 2014, MGM Medical College and Hospital, Aurangabad, Coordinators: Shafaat Husain Talib, Anand Nikalje, Sanhita Kulkarni.
13. Workshop on Dermatosurgery, 7th December 2014, MGM Medical College and Hospital, Aurangabad, Coordinators: Avinash Yelikar, Jiten Kulkarni.
14. Workshop on Hazards of Smoking, 8th December 2014, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Pradeep Potdar.
15. Workshop on TheraBand, Ball and Balance, 10th-11th December 2014, MGM Institute's University Department of Physiotherapy, Aurangabad, Coordinator: Surendra Wani.
16. Workshop on Global Perspective on Medical Education and its Relevance to India, 6th January 2015, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Ravindra Inamdar.
17. Workshop on Essential Skills in Medical Education, 8th January 2015, Association for Medical Education in Europe and MGM Medical College

and Hospital, Aurangabad, Coordinators: Pandurang Jadhav, Ajit Shroff, Shafaat Husain Talib, Pravin Suryawanshi, Moiz Khan.

18. Workshop on Sleep Disorder for EEG and Sleep Technologist, 11th January 2015, Sleep Medicine Research Centre, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Aloke Banerjee.
19. Workshop on Parkinson Disease: Rehabilitation Strategies & Assistive Devices, 9th February 2015, MGM Institute's University Department of Physiotherapy, Aurangabad, Coordinator: Sibi Daniel.
20. Workshop on Neurodynamics, 10th-13th February 2015, MGM Institute's University Department of Physiotherapy, Aurangabad, Coordinator: Sibi Daniel.
21. Workshop on Vestibular Rehabilitation, 14th February 2015, MGM Institute's University Department of Physiotherapy, Aurangabad, Coordinator: Sibi Daniel.
22. Workshop on Neurological Approaches, 15th February 2015, MGM Institute's University Department of Physiotherapy, Aurangabad, Coordinator: Sibi Daniel.
23. Workshop on Stress Management, 14th March 2015, MGM Institute's University Department of Nursing, Aurangabad, Coordinator: Rahul Deshmukh.
24. Workshop on Census 2011; Data Dissemination, 18th March 2015, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Seema Anjenaya.
25. Workshop on Basic Course work on Medical Education Training, 17th-19th March 2015, MGM Medical College, Aurangabad, Coordinator: Satyaprakash Rane.
26. Workshop on Basic Course Work on Medical Education Training, 25th-27th March 2015, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Seema Anjenaya.
27. Workshop on Complex Anomalies of Cranio-Vertebral Junction at Neurosurgical Services, 2nd May 2015, MGM Medical College, Aurangabad, Coordinators: Ishtyaque Abdul Aziz Ansari, Girish Gadekar, Sameer Futane, Rajendra Shewale, Muqtadeer Ansari.
28. Workshop on Soft Skills: Building Blocks to Success, 5th-6th June 2015, MGM Institute's University Department of Nursing, Navi Mumbai, Coordinators: Prabha Dasila, Bharti Veer, Susan Jacob.

29. Workshop on Pediatric Advance Life Support, 20th-21st June 2015, MGM Medical College and Hospital, Navi Mumbai, Coordinator: Jeetendra Gavhane.

Globally Connected

Educational enhancements can neither take place within the four walls of institutes nor of nations. There has to be linkages across globe to learn the best and keep abreast of the latest. MGMIHS has a Centre with web streaming facilities to arrange webinars in number of areas. Workshops and CMEs conducted by Royal College of Physicians, UK, which were simultaneous Web streamed at MGMIHS are given below:

Table 10 : Web streaming

Sr. No.	Topics	Dates
1	Renal Medicine	12 - 13 September 2014
2	Neurology	3 October 2014
3	Diabetes and Endocrinology	29 October 2014
4	General Medicine: Clinical Cases & Conundrums	31 October 2014
5	Cardiology	6 November 2014
6	Gastroenterology	13 November 2014
7	54th St Andrew's Day Symposium: Updates on Acute Medicine	4 - 5 December 2014
8	Respiratory Medicine	12 March 2015
9	Care of the Elderly	27 March 2015
10	Palliative Care	30 April 2015
11	Obesity, a 21 st Century Epidemic?	5 June 2015.
12	Symposium on Infectious Diseases	12 June 2015

Sharpening the Saw: Training the Trainers

With the changing modern trends in medical education, it is necessary to keep abreast the medical teachers about innovative and effective teaching-learning methodologies. Keeping this in mind, the MGM Medical Colleges have established Medical Education Units (MEU) affiliated to Medical Council of India's Regional Centre; Seth G.S. Medical College & KEM Hospital, Mumbai.

MEUs regularly conduct training programs, workshops and CMEs for faculty and students. A number of MEU faculty have been awarded fellowships on "Foundation for Advancement of International Medical Education and Research" conducted by GSMC-FAIMER Regional Institute and University of Philadelphia, USA. The trained faculty further encourages and guides other faculty members for availing the fellowships.

MEU had conducted workshops on Medical Education Technology, Research Methodology, Teaching-Learning Methodologies, Competency-based Curriculum, E-learning, Microteaching, Basics in Statistics and Data Analysis. The participants were trained in various vital topics like; systems approach, curriculum development, adult learning, setting of MCQs, LAQs, SAQs, blue printing, internal assessment, feedback, competency-based curriculum, practical examination, taxonomy of learning, interactive teaching learning methods etc. Feedback received from the participants was positive and the sessions were interactive. The participants were given various exercises, role-plays.



Representative photographs of training sessions.

University Department of Biomedical Sciences

MGM Institute's University Department of Biomedical Sciences offers the following courses:

1. B.Sc. (Paramedical Sciences) in Operation Theatre and Anesthesia Technology, Cardiac Care Technology, Perfusion Technology, Medical Imaging Technology, Medical Laboratory Technology, Optometry and Dialysis Technology.
2. M.Sc. (Medical) courses in Anatomy, Physiology, Biochemistry, Microbiology, Pharmacology, Biotechnology and Genetics. Four new courses were introduced namely; Clinical Embryology, Molecular Biology, Clinical Nutrition and Masters in Public Health.
3. Ph.D. in Anatomy, Physiology, Biochemistry, Microbiology, Pharmacology, Biotechnology and Genetics.

The student response for these undergraduate and postgraduate courses has been found encouraging. At present, 306 students are enrolled for BSc (Paramedical), 69 for MSc and 120 for PhD degree courses in various disciplines. The paramedical students are provided extensive training in hospital-based services and are involved in patient care services.

The Department is actively involved in restructuring education at institute level through addition of modern teaching aids, path breaking innovative research, new extension activities and better skill-based courses. Meetings are held among students and faculty to get responses and feed-back from students about curriculum, teaching practices and aids, and hospital-based training. Parent-teacher meetings are conducted twice-a-year to discuss student performance including attendance and other social activities.

The innovative teaching practices introduced during the academic year include:

1. **Active learning:** The objective is to engage students in thinking, discussing and sharing information in the classroom. It includes problem solving skills, small group teaching and hands-on training. Students discuss, in small groups, recent development on the topic of the lecture in the form of journal clubs, seminars and tutorials.
2. **Wisely managed classroom methodology:** Classroom technology includes usage of computers, videoconferencing technology, LCD projectors with the objective of enhancing student's learning. The Department is actively involved in developing virtual classroom teaching.

3. **Refresher courses for teachers:** Innovative methods are not only for the students but also for continuous development of staff involved in teaching. Refresher courses were arranged regularly for teachers. They were sponsored to participate in workshops conducted by other institutions. The teachers were encouraged to organise and participate in national and international conferences.



Cath Lab



CVTS Operation Theatre



Dialysis Unit



Diagnostic Lab

Students getting training in hospital-based services.

Research Highlights

The Department has enhanced its emphasis and support for research in biomedical sciences. Emphasis has been on translation research. Dissertation is mandatory for MSc students prior to completion of two and three year-degree courses. The Department had, during the last three years, received substantial funding from national and international agencies. Major funding has been from Board of Research and Nuclear Sciences (BRNS), and Department of Science and Technology, Government of India. Highlights on some of the research projects and two patents approved during the year have been described in chapter on "Research and Innovations".

University Department of Physiotherapy: Marching from Strength to Agility

University Department of Physiotherapy contributes by fulfilling much felt need of competent physiotherapists through courses of Bachelor and Master of Physiotherapy Specialties: Musculoskeletal, Neuro, Cardio Pulmonary and Fitness, Community and Preventive Health Physiotherapy and PhD courses.

The Department had organized open day sessions for students seeking admission to graduate and postgraduate courses in physiotherapy to improve their understanding of course and physiotherapy profession at large. Their parents were invited to participate in such sessions. Physiotherapy curriculum revision was undertaken based on feedback from stakeholders on previous syllabus. The curriculum follows vertically and horizontally integrated teaching approaches and lays emphasis on evidence-based practices especially with regards to Master of Physiotherapy. Evidence-based learning was achieved in undergraduate program via research methodology and biostatistics incorporated right from second year of Bachelor of Physiotherapy (BPT) and with projects in final year and internship.

Learning methods used were video demonstration along with hands on demonstration of skills of manual therapy practical, movies or films on disability sector or eminent achievers with disability, live demonstration on cardiac and pulmonary therapeutic procedures and cardiac rehabilitation. Additionally, accomplished professors across various specialties at national and international level addressed and interacted with students throughout the year to enrich learning experiences. To highlight a few: Prof. Margareta Nordin, leading physiotherapist in spine biomechanics and Vice President of World Spine Care visited the department and delivered an oration titled 'Evidence for effective treatment of Low Back Pain and Transfer of Knowledge to Different Cultures'. Graduate and postgraduate students were benefitted from the vast experience and hands-on skill training from Honorary Prof. Sailakshmi Ganesan in neuro-developmental technique and proprioceptive neuromuscular facilitation to enhance skills required for treatment of children with developmental disorders. Prof. Robert Van Deursen, Cardiff University, UK and Prof. Claire Hiller, University of Sydney, Australia interacted with Master of Physiotherapy (MPT) and PhD students, and faculty members to enrich their understanding on clinical biomechanics and dance medicine respectively.

The agile University Department of Physiotherapy continues to evaluate and monitor fitness of student and staff members and train them at MGM Exercise Testing and Fitness Laboratory.

University Department of Nursing : 24X7 Caring Mission

University Department of Nursing conducts various nursing education courses such as; Basic B.Sc., Post Basic B.Sc., M.Sc. Nursing (Medical Surgical Nursing: Cardiovascular Thoracic Surgery), and Post Basic Diploma Programs in Critical Care Nursing, Cardiothoracic, Neonatal, Operation Room, Emergency and Disaster Management Nursing and Ph.D. Nursing.

Teaching learning methods offered included lectures, demonstration, discussion, textbook assignments, nutrition - cooking practical, brainstorming sessions, project work, small group teaching etc. E-Learning module on HIV/AIDS by Indian Nursing Council, New Delhi was successfully completed by four MSc nursing students and two faculty members. MSc nursing program (2 years duration) in medical and surgical nursing was started in September 2014. Communication skills, ethics, professionalism, medico legal and patient safety were incorporated in teaching from first to final year nursing curriculum. Student support activities such as; transport facility, health insurance, mentorship, counseling, career guidance, were conducted.

Various community-based activities organised such as; International Breast Feeding Week which included Rallies, Role play and Exhibition; Tree plantation drive at MGM Educational Campus; International day for girl child; International day of rural women; National pulse polio program at 14 centres of Panvel Taluka; School health program at Primary School, Wawanje; World AIDS Day in Ramabai Nagar, CBD Belapur; World Alzheimer day; Swatch Bharat Abhiyan; Blood donation camp; and World Heart Day. Such programs have contributed immensely in inculcating attitudes, knowledge and skills among students, which have ultimately paved way to serve patients and community as per their requirements.

Distinguished Visitors

1. Anirudha Malpani, Consultant Malpani Infertility Clinic, Colaba, Mumbai.
2. Anita Hazari, Plastic Surgeon, Spire Tunbridge Wells Hospital, Grinstead, UK.
3. Anuradha Sovani, Clinical Psychologist, Psychotherapist and Professor and Head, Department of Applied Psychologist, Mumbai University, Mumbai.
4. Arun Jamkar, Vice Chancellor, Maharashtra University of Health Science, Nasik.
5. Ashok Kumar Das, Senior Professor and Medical Superintendent, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry.
6. Bagade, Assistant Director, Health Services, Alibagh, Raigad.

7. Belle Monappa Hegde, Former Vice Chancellor, Manipal Academy of Higher Education, Manipal, Karnataka.
8. Chintamani, Professor, Department of Oncology Surgeon, Vardhman Mahavir Medical College and Safdarjang Hospital, New Delhi.
9. Deepak Pathkar, Head, Department of Radiology, Dr Balabhai Nanavati Hospital, MRI and PETCT Centre, Parel, Mumbai.
10. Gurumukh Sainani, Consultant Cardiologist, Peddar Road, Mumbai.
11. Indika Karunathilake, Director, Medical Education Development and Research Centre, Faculty of Medicine, University of Colombo, Sri Lanka.
12. Indira Hinduja, Gynecologist, Hinduja Hospital, Mumbai.
13. Jagannath Patil, President, Asia Pacific Quality Network, Deputy Adviser, National Assessment and Accreditation Council, NAAC, Nagarbhavi, Bangalore.
14. Janson Young, CEO, Nanosynth Materials and Sensors, Inc., University of Utah - Technology & Venture Commercialization Office, University of Utah, USA.
15. John Dent, AMEE International Relations Officer, Reader in Medical Education and Orthopedic Surgeon, Dundee, Scotland.
16. John Sandars, Director of Research, Academic Unit of Medical Education, University of Sheffield UK.
17. Kanak Rele, Founder-Director of Nalanda Dance Research Centre and Founder-Principal of the Nalanda Nritya Kala Mahavidyalaya, Mumbai.
18. Khalid Bin Abdulrahman, Professor of Family Medicine and Education, Saudi Arabia.
19. Kiran Challagundla, Consultant, Physiotherapist of Indian Badminton Team, Hyderabad.
20. L C Chain, Chair, Department of Pathology, Faculty of Medicine, University of Hong Kong, Hong Kong.
21. Lawrence Sherman, Director, Institute of Criminology, Wolfson Professor of Criminology, University of Cambridge, USA.
22. M B Jani, Professor and Head, Department of Physiology, Government Medical College, Badodara, Gujarat.
23. Madalena Patricio, Professor, Faculty of Medicine, University of Lisbon, Portugal, Europe.
24. Mahendra Yadav, Associated Professor, Department of Physiotherapy Gangtok Sikkim Manipal University, Gangtok.

25. Margareta Nordin, Vice President, World Spine Care and Research, New York University, USA.
26. Mrudula Bapat, Radiologist, Horizon Hospital, Thane, Mumbai.
27. Neena Khanna, Professor, Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi.
28. Nelson Stovar, President of Emerging Ecology, Professor of Kinesiology and Head, Department of Sports Sciences, Guildford College, UK.
29. Nivritti G Patil, Honorary Clinical Professor, Li Ka Shing Faculty of Medicine, Department of Surgery, University of Hong Kong, Hong Kong.
30. P S V Prasad, Consultant Orthopedics and Spine Surgeon, South End University Hospital, Essex UK.
31. Prem S Pais, Dean, St. John's Medical College, Head, Division of Clinical Research and Training, St. John's Research Institute, Koramangala, Bengaluru, Karnataka.
32. R D Lele, Hon. Chief Physician & Director, Department of Nuclear Medicine, Jaslok Hospital & Research Centre, Mumbai.
33. R R Shinde, Professor and Head Department of Preventive and Social Medicine, Seth GS Medical College and *KEM Hospital, Mumbai*.
34. Ravi Ramakantan, Director, Department of Radiology, Kokilaben Dhirubhai Ambani Hospital, Mumbai.
35. Ravindra Bapat, Former Vice Chancellor, MGM Institute of Health Sciences, Navi Mumbai.
36. Robert G Carroll, Professor of Physiology, Brody School of Medicine, East Carolina University, Greenville, UK.
37. Robert Van Deursen, Director, Research Center for Clinical Kinesiology, Cardiff University, UK.
38. Rokade, Deputy Director, Leprosy and TB Department, Raigad District, Thane.
39. Ronald Harden, Professor of Medical Education, University of Dundee, Scotland.
40. Rushi Deshpande, Consultant Nephrology and Renal Transplantation, Jaslok Hospital and Research Centre, Mumbai.
41. Sailakshmi Ganesan, Assistant Director, Clinical Services, Trimed Dr Esk's Centre of Integrative Medical Specialties Pvt. Ltd, Chennai.
42. Sharadchandra Pawar, Former Chief Minister of Maharashtra.

43. Shashank Devdatta Dalvi, Vice Chancellor, Pravara Institute of Medical Sciences, Deemed University Loni, Ahmednagar.
44. Shubha Chiplunkar, Director, Advanced Centre for Treatment, Research and Education in Cancer. Kharghar, Navi Mumbai
45. Smita Mahale Director, National Institute for Research in Reproductive Health, Mumbai.
46. Sowmya Parthasarathy, Consultant, Neuro Physiotherapy, Hyderabad.
47. Teerath Das Dogra, Vice Chancellor, Shree Guru Gobind Tricentenary University, Budhera, Gurgaon, Haryana.
48. Vajahat Hussain Talib, Director of Laboratory, Gentrac Diagnostic Laboratory, Noida, Uttar Pradesh.
49. Ved Prakash Mishra, Vice Chancellor, Datta Meghe Institute of Medical Sciences, Nagpur.
50. Waqar Naqvi, Professor of Physiotherapy, Qassim University, Saudi Arabia.

Friends Forever: MGM Central Medical Library

“A scholar is just a library's way of making another library”: Daniel Dennett

The MGM Central Medical Library assumes increasing importance to teaching and research. The library is attempting to preserve the record of medical knowledge and by means of mechanization provide more efficient services to physicians and scientists. The staffs spends considerable time in the Library. In fact, the Library is another home for them. The fully air-conditioned Library, located on the 2nd floor of MGM Medical College building, with carpet area of 25000 sq. ft., endeavors to offer health literature, library and information services to a wide spectrum of users consisting of students, teachers, research scholars and auxiliary health personnel involved in education, academics, patient care and research in various branches of health and allied sciences.



Library resources and their management

Acquisition of Books and Subscription to Journals

At the end of June 2015, the libraries at two medical colleges had 39,899 documents including 10,464 reference books (22,146 at Aurangabad and 17,753 at Navi Mumbai). In addition, 7666 copies of text and reference books were available in the area of Biomedicine (553), Nursing (5,661) and Physiotherapy (1,452). During the period under review, 1,732 new copies of books were acquired in the diverse field of health and allied sciences. A total of 365 (International: 166, National: 199) scholarly core periodical titles dealing in the area of health and allied sciences were subscribed. Almost 100 online journals (International: 25; National: 74) were subscribed.

E-Library

The Library is a well-equipped Virtual Learning Centre (E-Library), with over 50 internet connected computer terminals, each provided with e-mail facility and access to e-materials and e-resources. Besides internet/online facilities, the desk to access in various departments and multiuser access with regard to Library Management Software at E-Library has been set up. The Library's online public access catalogue helps the readers in searching the documents of their choice and their availability in central and departmental libraries within the campus. Web links have been provided for more than 500 e-documents, 15 e-databases and 5,589 e-journals for accessing the e-health literature/information, free of cost. About 13,520 e-journals are accessible at MGMMC, Aurangabad through MEDLINE database. About 80 books of Access Medicine database are accessible electronically at MGMMC, Navi Mumbai. These books contain the titles from the best minds in medicine, updated content, photos and illustrations, interactive self-assessment, case files and diagnostic tools and so on.

Bone Library

In 2014, a Bone Library was developed exclusively for undergraduates with a view to provide them an opportunity for borrowing of various parts of human bones for home reading. The Library acquired 4,418 disarticulated bones (axial and appendicular) and organized them in a systematic and helpful sequence illustrating their specific names in order to strengthen the storage and retrieval system.

Automation of Library Collection

One of the major achievements toward the establishment of E-Library has been the installing of multiuser client-server based Integrated Library Management Software package LibSys 4.0 in Unix environment. This has not only ensured high productivity because of minimal data entry requirements, maximum possible

integration of modules and powerful search and query facilities but has increased the efficiency of Library staff with better management controls. This software package is built around its own centralized bibliographic database based on ANSI Z39.50 format and supports almost all activities relating to acquisition, cataloguing, circulation and serials, and at the same time user-friendly WEB/GUI Client OPAC interface. Almost all Library staff has been trained for operation, management and administration of software package. Entire collection (books and periodicals) of Library has been computerized using LibSys. It provides various search points such as; title/series, author, classificatory language, subject and so on. It also provides information on journals subscribed or received on gratis/exchange including details of last issue received and current holdings can be seen. It provides access of journals according to alphabetical order by their name and broad subjects.



Human Bone Bank at Library

Website of Central Medical Library

An exclusive website for the Library was launched in 2014. The site was hyperlinked to a wide range of information resources, services and policies. It provided information on organization of Library collection, acquisition policy, Library committee and eligibility to use the Library facilities and so on. More than 172 copies of theses, 531 e-books and 480 peer-reviewed papers were published. In addition, web links to a number of e-resources and prominent health science institutions/ universities in the country and their libraries were added. All issues of MGM Journal of Medical Sciences (MGMJMS) and MGM News published so far have been linked with website in order to make them electronically accessible throughout the world. The website is updated regularly.

WHO Literature at MGM Hospital

The Library has been designated by WHO Press (WHP), World Health Organization (WHO), Geneva, Switzerland as its own Network of Reference Libraries for WHO publications. The Library has been receiving copies of WHO information products on complimentary basis. The copies of WHO journals, health report and non-serial publications and titles in the Technical Report series are received, free of cost. These publications have been organized in helpful sequence in a separate book rack with a view to provide maximum visibility to Library users including general public. Besides, a Library has been established in MGM Hospital where copies of WHO information products have been displayed for the use of patients and their relatives as well as general public.

MGM Publications

MGMIHS is committed to creativity, innovation and excellence in every sphere of its working. In this endeavor, the University had launched quarterly peer-reviewed scientific journal “MGM Journal of Medical Sciences (MGMJMS)” to encourage investigators to publish their research findings for wider dissemination with the aim of applying those for the benefit of the society. The journal covers full spectrum of the specialities in biomedical research. The journal aims to publish articles arising out of original research, specialized topics, review articles, editorials and description of new diagnostic and therapeutic technique and technologies. In addition, the journal includes pictorial reviews, letters to the editor, book reviews and notices of meetings and courses. A section is devoted exclusively to young researchers and students in order to encourage them for publishing their innovative ideas and research findings. In fact, it is a student-friendly journal. Its first issue was released in January 2014 and since then published regularly.

The MGMJMS has been indexed in various indexing services such as WHOIMSEAR, EBSCO, ProQuest, Ulrich, HINARI, Global Index Medicus, CiteFactor, SIS, Google Scholar, Genamics JournalSeek, Index Copernicus and OAJI. Efforts are being made to get it indexed in Indian Science Index, PubMed, EMBASE and Biological Abstracts.

MGMIHS publishes its in-house newsletter “MGM NEWS” to create awareness about various activities on-going in the campus, highlight the accomplishments of staff including significant achievements and awards, important information from other institutions of common interest to our faculty and staff.



MGM publications.

"A customer is the most important visitor on our premises.
He is not dependent on us. We are dependent on him.
He is not an interruption in our work. He is the purpose of it.
He is not an outsider in our business. He is part of it.
We are not doing him a favour by serving him.
He is doing us a favour by giving us an opportunity to do so."

• *Mahatma Gandhi*

CLINICAL TRAINING AND HEALTHCARE SERVICES

Dr (Lt Gen) Kuldip R. Salgotra
Medical Superintendent
MGM Medical College and Hospital
Navi Mumbai

Dr Badrinarayan K. Somani
Medical Superintendent
MGM Medical College and Hospital
Aurangabad

Good Health For All people is the main goal of medical education. This is the overall mission of MGMIHS Trust and its University and institutions. MGMIHS undertakes to promote medical education, and prepare physicians having highest clinical skills to provide patient care, and aptitude for scientific research and teaching. While the class room teaching empowers them with comprehensive knowledge, the hospitals of MGMIHS support clinical education and training to students, residents and postgraduates to deliver medical care to patients. The hospitals support clinical education and training to nurses, physiotherapists and other health professionals. Commitment to innovative research, both experimental and clinical, which leads to scientific advances and improvement of public health, is an integral part of patient care and teaching. The hospitals provide a broad range of services including training of medical and paramedical students, illness-prevention programs, comprehensive care, and the highly complex care associated with academic medical centres.

MGM Hospitals continue to have strong presence in the community where a team of physicians, nurses and health educators create awareness about healthy life style, breast feeding, personal hygiene for prevention of vaginal infections, as well as organise camps to offer free services such as; eye check-up, cervical cancer screening, monitoring of blood pressure, hemoglobin levels, and many more.

Since the hospitals are the vital part of teaching and clinical care, the management ensures that their performance is evaluated through an accreditation process by an independent regulatory body. It helps to maintain quality services, patient-centered care and accountability. National Assessment and Accreditation Council, Government of India has graded the University with its medical colleges and hospitals with Grade 'A'. As a post-accreditation quality sustenance measure, an Internal Quality Assurance Cell (IQAC) has been established. IQAC is, in fact, a formal mechanism adopted by the management to monitor and evaluate quality of services provided by the medical colleges and hospitals apart from a powerful tool and impetus to excel in their function.

As not-for-profit hospitals, revenue is strategically invested in facilities, technology and other resources to continue providing world-class care. The growth of the hospitals relies on sound fiscal management and private philanthropy.

Over the years, MGM hospitals have risen to the challenge of becoming a comprehensive health sciences university through excellence and continued growth. Yet we see it as our duty to strive to be even better. Our greatest accolade is the education provided for future health care professionals. The trust we earn from our community for quality health care services and the research pursued for evidence-base decision making both in academic and healthcare frontiers. A few accomplishments in respect of teaching hospitals have been illustrated succinctly in succeeding paras.

MGM Hospitals

MGM Hospitals at Navi Mumbai and Aurangabad have two important roles: to provide high quality patient-care to the communities at an affordable cost; and to facilitate training in clinical and professional skills of over 1000 graduate, post graduate, doctoral and post-doctoral students who join various streams of medical, nursing, physiotherapy and allied health science courses of MGMIHS every year. MGM Hospitals with an installed bed capacity of about 1833, including about 133 critical care beds, have been fulfilling these dual roles exceedingly well ever since their inception. Year after year, the hospitals are growing at a healthy rate, both qualitatively and quantitatively, synchronously with the Medical Colleges and the University, of which they are integral constituents. The two teaching hospitals attract and retain the best specialists and super specialist physicians and surgeons to provide the best level of care.

MGMIHS Trust has two more tertiary care hospitals in the neighborhood of Medical College at Navi Mumbai. These hospitals have wide variety of sophisticated equipments, facilities and clinical expertise. Students are immensely benefitted as at times they receive part of their clinical training at those affiliated hospitals.

Hospital Admissions and Services

The two teaching hospitals of MGMIHS are multispecialty tertiary care hospitals. They offer patient care services round the clock. The basic specialty services include Medicine, Surgery, Pediatrics, Orthopedics, Obstetrics & Gynecology, ENT, Respiratory Medicine, Dermatology, and Psychiatry. The super-specialty services cover Cardiovascular Thoracic Surgery (CVTS), Cardiology, Urology, Pediatric Surgery, Neurology, Endocrinology, Neurosurgery, Nephrology, Plastic Surgery, and Interventional Pain Management.

OPD Services

Almost 8.67 lakh patients had availed the OPD services. A large number of patients were referred by neighboring nursing homes and private physicians and practitioners for delivery of time-sensitive critical care with serious illnesses, injuries and requiring specialized services. A gradual increase in the number of patients availing services was evident. As more health care is shifting to the outpatient setting, MGMIHS hospitals are increasing the capacity and accessibility of non-hospital-based medical care in communities. In fact, MGM hospitals have become first choice for financially constraint population of Maharashtra.

About 70% of the patients had attended Medicine, Surgery, Obstetrics and Gynecology, Orthopedic, Ophthalmology and Pediatric OPDs (Figure 3). Maximum patients had attended General Surgery OPDs (about 13.2%) in two hospitals.

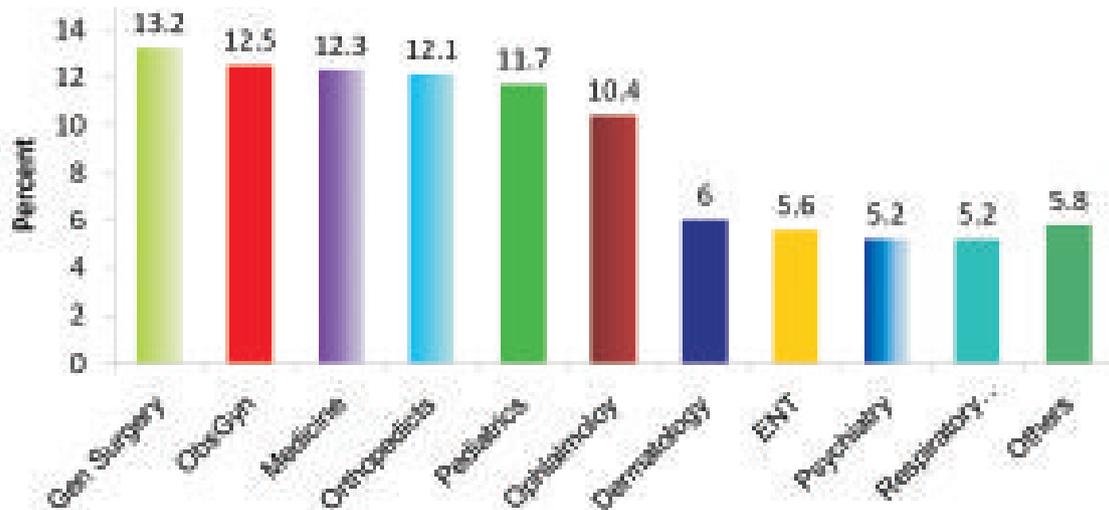


Figure 3 : Percentage of distribution of patients availed OPD services in different departments.

About 1.03 lakh patients attended the super speciality OPDs. The attendance in Urology OPDs was maximum, 18.6% (Figure 4). These statistics reveal the quality of services offered as well as preferred choice of patients for health care service provider.

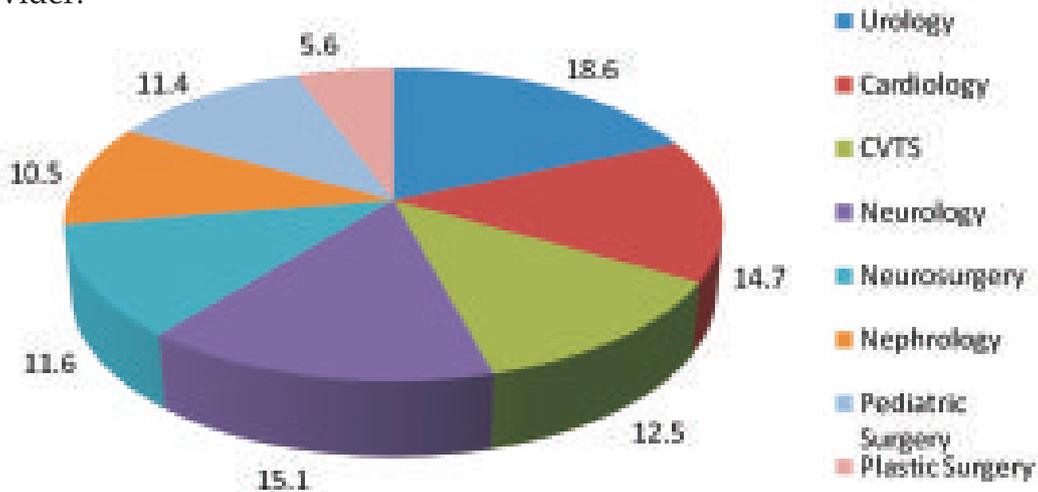


Figure 4 : Percentage of distribution of 1.03 lac patients availed OPD services of super speciality departments of MGM Hospitals.

IPD Services

About 81,761 patients were admitted in various wards of MGM Hospitals. Admission in Surgery was maximum (about 21%), followed by Medicine (18.8%), Obstetrics and Gynecology (9.8%), Pediatrics (9.7%), Orthopedics (9.4%) and Ophthalmology (7.2%). IPD patients of super-speciality services were over 15,920, maximum being in nephrology (21.1%) and cardiology (21.0%).

Surgeries Performed

The hospitals have well equipped surgical suites for minor and complex surgeries. Operation Theatres (OTs) are located with close proximity to all ICUs, Cath lab, Central Sterile Services Department and Generic Pharmacy. Two hospitals have 33 functional OTs with most modern facilities and hygienic conditions. Four modular OTs are used primarily for cardiothoracic, neuro, and joint replacement surgeries. The OT complex has pre-operative rooms with adequate numbers of beds. The hospitals are known for innovations in cardiac surgeries, knee and hip replacement; neuro- and trauma surgeries.

The two hospitals had performed about 21,531 major surgeries, including 6,254 super-speciality operations. Most of the surgeries performed (about 88%) were in the Departments of General Surgery, Orthopedics, Obstetrics and Gynecology, Ophthalmology, and ENT (Figure 5).

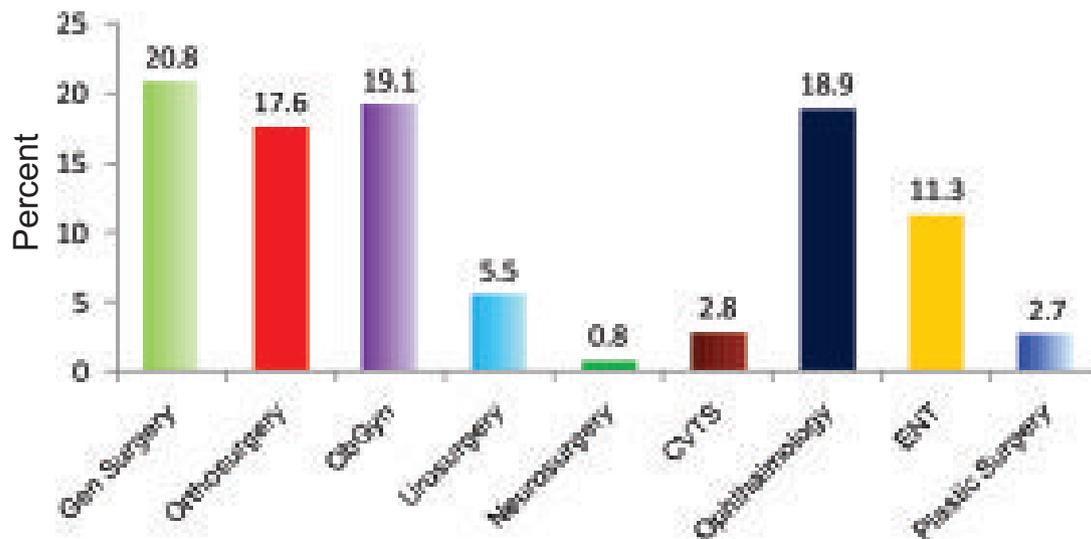


Figure 5 : Percentage share of surgeries performed by various departments in two MGM Hospitals.

Cardio-vascular Surgeries: Cardiology and CVTS Departments provided a complete continuum of cardiac care, including cardiac catheterization and open heart surgery. The CVTS Department had performed surgeries including Coronary Artery Bypass Graft, Valve Repair and Replacement. The Cardiology Department had performed 825 interventional procedures including Coronary angiography, Coronary Angioplasty, Balloon Valvuloplasty (BMV/BPV/ BAV), Permanent Pace Maker Implantation, Device Closure of Congenital Intracardiac Shunts PDA, ASD, VSD, Peripheral Angiography & Angioplasty, 2D Echo with Color Doppler, Trans Esophageal Echocardiography, Stress Test (Computrized Tread Mill Test) and Holter Monitoring.



Facilities at Cardiology and CVTS Departments include Cath Lab, Modular OT, 2-D Echo Cardiograph and Doppler, Treadmill.

Neurosurgery: Department of Neurosurgery established in 2013 at MGM Hospital, Kamothe, has shown remarkable growth in OPD, IPD and surgeries, including all emergency services which were offered round the clock. Leica M-40 Operating Neurosurgery Microscope procured was used for most of the neurosurgery operations.

The Department had performed 180 surgeries during 2014-15 whereas 129 were conducted in previous year. The surgeries performed included Craniotomies for Head Injuries: Extra Dural hematoma, Acute subdural hematoma, Intra cerebral hematoma and Depressed fracture skull; Burr holes for Chronic subdural hematoma; Craniotomies for Brain tumours: Supra tentorial tumours, Infra tentorial tumours, Astrocytomas, Meningiomas, Acoustic tumours and Intraventricular tumours; Transpenoidal route pituitary tumour excision; Skull base surgery; Surgery for Aneurysms; Surgery for arterio venus malformations; Ventriculo peritoneal shunt for hydrocephalus; Spinal fusion procedures for spinal trauma and Disc degenerative diseases; Anterior cervical micro disectomy; Decompressive cervical laminectomy; Surgery for arnold Chari malformations; Lumbar laminectomy and Disectomy; and Surgery for meningomyecoele.

The Department has started Outreach OPD Services at Dr. Babasheb Ambedkar Municipal Hospital at Khoploi and Sub-District Hospital, Karjat.



Neurosurgery in progress.

Orthopedic Surgery: It is ranked highest, 22.7% of all surgeries performed, amongst all other branches of surgeries in terms of work load both OPD and IPDs. Indoor occupancy was almost 100%. As mentioned earlier, most of the cases reported were victims of accidents on the highway who required life and limb saving surgeries. Subsequent treatment for extremities, pelvis and spine trauma were planned and executed in most scientific, modern and befitting way. Department of Orthopedics had catered to hip, knee, shoulder replacement and revision joint surgeries. Fixation of spine trauma and complex deformity correction e.g. scoliosis, Kyphosis, spondylosis was undertaken routinely. Fixation of pelvic and acetabular complex fractures was undertaken where it was warranted.

Casualty Department and Trauma Centre

Casualty Department and Trauma Centre are the face of the hospital. These facilities were geared-up and well-equipped to provide prompt services to most critically ill and accidental cases in the region. The expansion of emergency medical services (EMS) reduced patient waiting time and provided quicker access to lab and imaging services.

The Casualty Department in each hospital has 20 beds to receive and stabilize critically ill patients and life threatening emergencies. The Department attached with EMS ward was to handle the unexpectedly large emergencies. A Labor Room and a minor OT are attached. Over the year, 65,290 emergency medicine cases were attended, of which about 7,850 were admitted.

Diagnostic Laboratories

It is well appreciated that the health care system is no longer a simple process of examining the patient and giving prescriptions. The diagnostic laboratories bridge the gap between patient's complaint and his treatment. Credibility of medical laboratories is paramount to health and safety of the patients relying on testing services provided by these labs.

The central diagnostic laboratories at MGM Hospitals, Navi Mumbai and Aurangabad, are NABL accredited as per ISO 15189:2012 guidelines. In the year 2014, the scope of accreditations was expanded to include hormonal studies and electrolytes during reassessment. The laboratories participated in internal and external quality control programs to ensure accuracy of reports.

The Central Laboratory Services have departments such as; Clinical Biochemistry; Hematology; Microbiology; Clinical Pathology; and Immunology. Each department has qualified and trained staff, and state-of-the-art technologies. These departments, in two hospitals had performed over 11.18 lakh tests (Figure 6). Some of the new tests included are PSA, hs CRP, Iron studies, AFP and quantitative analysis of G6PD. The laboratory combined the sophisticated testing capabilities like HPLC chromatogram on D10 (Gold standard) for screening of hemoglobinopathies with routine testing procedures. The facilities were augmented with purchase of additional equipments including Fully Automatic Hematology Analyser and Clinical Biochemistry Autoanalyser.

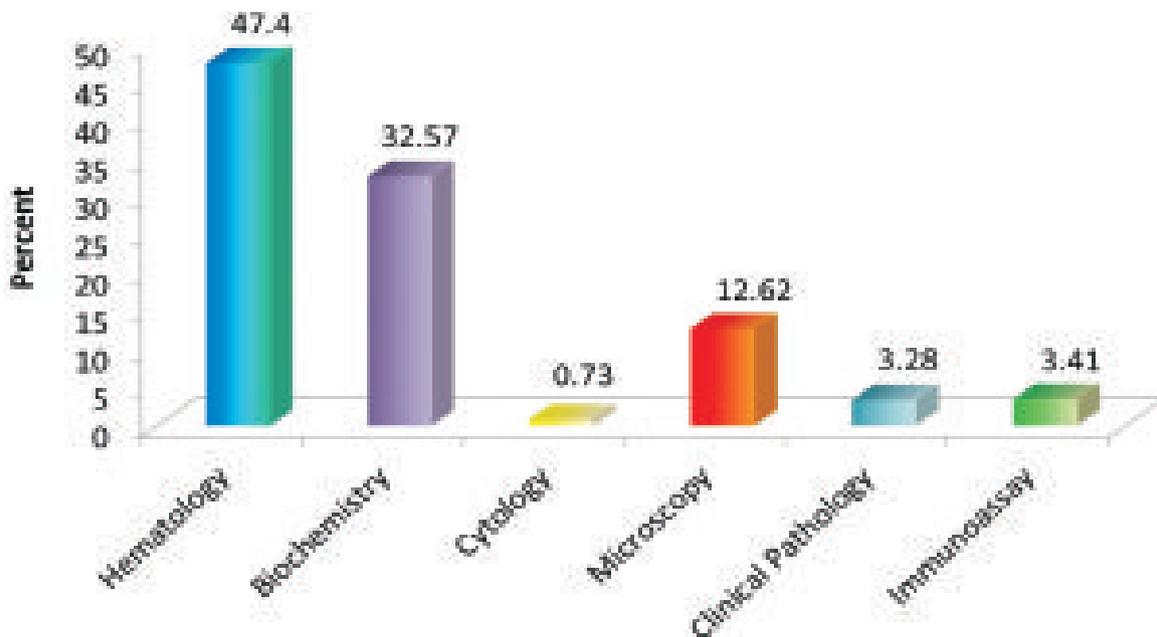


Figure 6: Percentage of tests performed in departments of Central Diagnostic Laboratories at two MGM Hospitals.



Fully Automatic Hematology Analyser (XN 1000) and Clinical Biochemistry Autoanalyser (AU 480), procured during the year.

Radiology and Radiodiagnosis

As in the case of above mentioned diagnostic facilities, the Department of Radiodiagnosis has a vital role to play in several departments of a tertiary care hospital. MGM Hospitals have facilities for Conventional Radiology, Mammography, Digital Radiography and Fluoroscopy, Ultrasonography and Colour Doppler, Computerised Tomography, Magnetic Resonance Imaging, and Interventional Radiology. The intelligent usage of equipment manned by skilled personnel at MGM hospitals provides large variety and depth of information which facilitate diagnosis and treatment of complex diseases. The Department provided hands-on-training to several paramedical staff. MBBS students were sensitized and exposed to the imaging techniques and their application by series of lecturers and observer ship.



Some of the diagnostic facilities at Department of Radiodiagnosis

Blood Bank

The Blood Bank at the two hospitals are accredited by NABL, and they play a vital role to provide blood and blood components to large number of patients undergoing major surgeries and those accidental cases who arrive at Trauma Centre and have lost a great deal of blood from the injury to save their lives. It is highly creditable that the hospital at Navi Mumbai had met the requirement of blood for 6,525 patients (95%) and only for 363 patients (5%) blood had to be outsourced from other hospitals.

To meet the requirements of large volumes of blood and its components, the MGM Hospitals jointly with the Community Medicine Departments conducted Blood Donation Camps. The two hospitals had conducted almost 100 camps and collected blood from over 6,248 volunteers. The hospitals had organised special events on World Blood Donor Day (on 14th June) to create awareness about blood donation, and encourage people particularly the young to donate blood.

Intensive Care Units

MGM Hospitals at Navi Mumbai and Aurangabad have 133-bedded ICU facilities for critically ill patients. Each bed has cardiac monitor connected to central monitoring system, central oxygen & suction, and facility for ventilator. ICU is equipped with multi-parameter monitors, ventilators, defibrillators, and facility for dialysis.

The recently established Pediatric Intensive Care Unit; with all modern gadgets like cardiac monitors, infusion pumps, syringe pumps, portable in-house x-ray etc; is a blessing particularly for the masses of Raigad District. About 2,597 patients were admitted in the ICU at MGM Hospital, Kamothe, and 2733 at MGM Hospital, Aurangabad.

Dialysis Facilities

The recently expanded and modernized Dialysis Centre provided services to 6,541 renal-failure patients out of which about 80% were covered under Rajeev Gandhi Jeevandayee Arogya Yojana.

Sleep Medicine and Research Centre

MGM Sleep Medicine and Research Centre established jointly with the co-operation of Pennsylvania University, USA is a boon to those having sleep-related disorders. The Centre conducts overnight and daytime sleep studies to help diagnose a wide range of sleep disorders, from insomnia and sleep apnoea to snoring, narcolepsy, night terrors and sleepwalking. The services offered by the Centre include: Attended Polysomnography with and without PAP titration;

Attended Multiple Sleep Latency Test/Maintenance of Wakefulness Test; and Unattended Home sleep study. About 412 patients had attended the Sleep Medicine OPD at MGM Hospital, Kamothe of which procedures were performed on 81 during the academic year.



MGM Sleep Medicine and Research Centre.

Healthcare Infection Control Measures

At MGM hospitals patient safety and quality care are of utmost importance. The quality of services is critically monitored by tracking the quality indicators which assess performance of a process, determine quality of services, highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time. Some of the quality indicators monitored regularly is: healthcare associated infections including ventilator-associated pneumonia (VAP), catheter-associated urinary tract infections (CAUTI), central line associated blood stream infection (CLABSI), surgical site infection (SSI); pressure ulcer; average length of hospital stay; and mortality. As shown in Figure 7, a significant decrease in the infection rate was observed during the academic year. The percentage of mortality had decreased from 2.07% in the first half of the year to 1.56% during the second half.

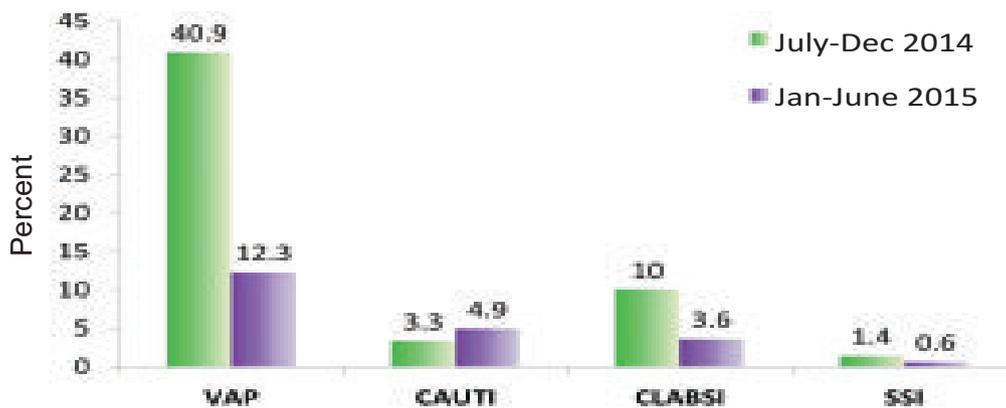


Figure 7: Healthcare associated infections at MGM Hospitals.
Figure depicts percentage change in second half of the academic year in relation to that of first half.

Interventional Pain Management Clinic

Interventional Pain Management Clinic at MGM Hospital, Navi Mumbai is a super-specialty clinic for treating patients with chronic pain. Apart from fibromyalgia and cancer patients, potential beneficiaries are those suffering from chronic knee, shoulder, back, neck, facial and chronic post surgical pain. Treatment involved pharmacotherapy and a wide array of interventional pain procedures but not limited to fluoroscopic and USG guided selective neurotomies (Radio frequency), fluoroscopic and USG guided sympathetic plexus blocks. These included: celiac plexus block, satellite ganglion block, T2-3 sympathectomy, superior hypo gastric plexus block, ganglion impar block. USG and fluoroscopically guided intra-articular injections, percutaneous manual and automated discectomy, vertebroplasty, and prolotherapy and regeneration therapy for joints.

Prosthetics and Orthotics

The concept of helping the people with disability by providing artificial limbs and splints was the core thought that led to the establishment of Department of Prosthetics and Orthotics. Some of the clinical achievements of the department included: successful fitment of 1500 orthotic cases ranging from ankle foot orthoses, leaf spring ankle foot orthoses, knee ankle foot orthoses, hip- knee- ankle foot orthoses for lower extremity deformities; cranial helmets for cerebral palsy children, with a tendency of falling back; cock-up splints, resting pan splints, finger splints for burns, post surgical contractures, hemiplegics, cerebral palsy children etc.

Successful fitment with activities of daily living and gait training were imparted to 50 prosthetic cases, ranging from below knee, above knee, hip disarticulation amputation; below elbow and above elbow amputations, partial hand and foot amputations. Wheelchair modifications were done to enable the patient's independent mobility. The Knee gaiters at different levels of orthoses helped the paraplegics in meeting their physiological needs of respiration. The Department successfully rehabilitated burn contracture patients with pressure garments, with silicone linings and subsequent orthotic interventions with silicone patch lining. Recognising the facilities established and the services offered, Government of Maharashtra has empaneled the Department under Rajeev Gandhi Jeevandayee Arogya Yojana. In fact, this is the only prosthetic-orthotic unit empanelled in the entire Raigad District.

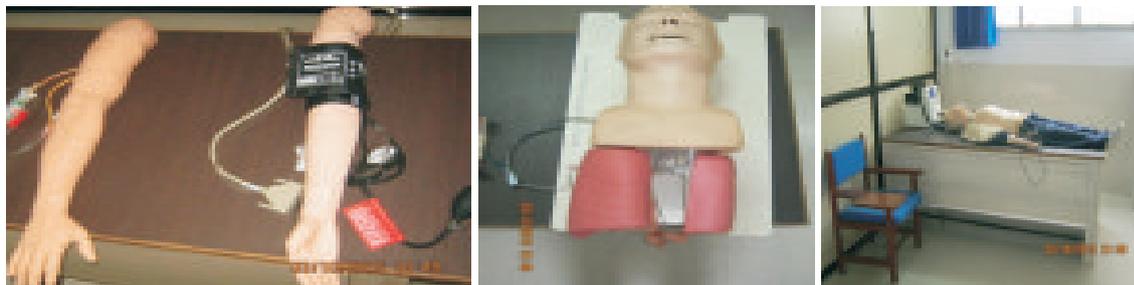
Skill Lab

MGM Hospitals have established new skill labs equipped with advanced simulation Mannequins which facilitates skill training and skill reinforcement to medical and paramedical staffs. The lab had conducted the training programs as Basic Life Support, Advanced Cardiac Life Support, Airway Management,

Central Line Insertion, Intravenous Cannulation, Defibrillator Demonstration, Needle Decompression, Emergency Cricothyrotomy and Interosseous (I/O) Access. The Lab conducted American Heart Association Certified basic and advanced cardiac life support courses.



Artificial limbs and Orthotic and Prosthetic workshop.



Figures display various basic and advanced skill trainers and simulation training.

University Department of Physiotherapy

MGM Institute's University Department of Physiotherapy offers services to patients with musculoskeletal, neurological, cardiothoracic and pulmonary ailments. In addition to clinical services offered to 3 tertiary care hospitals, department caters to the healthcare needs of people at community level with a focus on preventive health, women's health, geriatrics and pediatric conditions.

On an average, every month, around 450 patients had received physiotherapy at the Out Patients Department, 255 received intensive physiotherapy in ICU and wards; and another 286 mothers had received prenatal and postnatal care at the Mother and Child Care Hospital, Kalamboli. Specialized neurological and cardiac rehabilitation services were provided to 40 patients on outpatient basis. More than 1,000 patients per month were benefitted by clinical services offered by the Department.

The support group activities offered comprehensive care and encouragement to people with chronic neurological disorders like; Stroke and Parkinson's disease. The number of whom has risen from 20 patients last year to 40 patients this year.

The extension services were provided to decrease care burden to various patient groups who required life-long physiotherapy management such as; spinal cord injury inmates at Sharan Paraplegic Home and physically challenged children with developmental disorders at Ashray Special School who underwent neurological rehabilitation directed towards achieving functional independence.

In an attempt to promote health and fitness right from school level, the department reached out to socio-economically deprived students of Chickale Adivasi Ashram Shala (n=568). Keeping in view local health care needs, camps were organised for people of nearby villages: Navade & Asudgaon.

University Department of Nursing

MGM Institute's University Department of Nursing renders clinical services to MGM Medical College Hospitals and teaching of graduate and postgraduate students. Basic and advanced nursing care to patients admitted in different hospital departments primarily focus on; Preparing and assisting for major and minor surgical procedures in the Operation Theatre; Nursing assessment and care of patients after surgery in the recovery room; Advanced nursing care of critically ill patients in MICU, SICU, CCU, PICU and NICU; Assisting in handling medical and surgical emergencies in Emergency Department and other critical areas; Conducting deliveries and assisting for caesarean sections in the obstetrical units; Holistic patient care in general medical and surgical wards; Guiding and educating the patients at the outpatient departments; and Referring patients from community who require hospital services.

The department was approved by Indian Nursing Council, New Delhi and Maharashtra Nursing Council, Mumbai to start post basic diploma courses in five speciality areas like Critical Care Nursing, Operation Room Nursing, Neonatal Nursing, Cardio Thoracic Nursing, Emergency and Disaster Nursing to enhance excellence in nursing knowledge and practice of nurses. The admission to these courses will start from the academic year 2016-17.

The department gave high priority to human resource development through well structured training activities. Regular meetings were conducted with nursing administrators, faculty members and head nurse to find out ground level difficulties and search for smooth operative strategies.

Rajeev Gandhi Jeevandayee Arogya Yojana

MGM Hospital was empanelled for Rajeev Gandhi Jeevandayee Arogya Yojana (RGJAY) during July 2012. During 2014-2015 academic years, the hospital was awarded Grade 'A1' in RGJAY by NABH Accreditation Assessment. This followed the compliance of stringent requirements related to expertise; qualified physicians and surgeons, recognised by Medical Council of India, in various



Nursing Care at MGM Hospital

specialities; infrastructure including post-operative wards and ICUs; and diagnostic facilities. The MGM hospital at Navi Mumbai had treated 2,670 patients under the scheme of which 2,172 (81%) were approved under RGJAY. The scheme entails around 971 surgeries, therapies; procedures along with 121 follow up packages in 30 identified specialized categories. A significant increase in the number of people availing services under RGJAY during 2012-2015 at the hospital was observed (Figure 8). Patients below Poverty Line (BPL) and Above Poverty Line (APL) families (excluding White Card Holders as defined by Civil Supplies Department) were immensely benefitted.

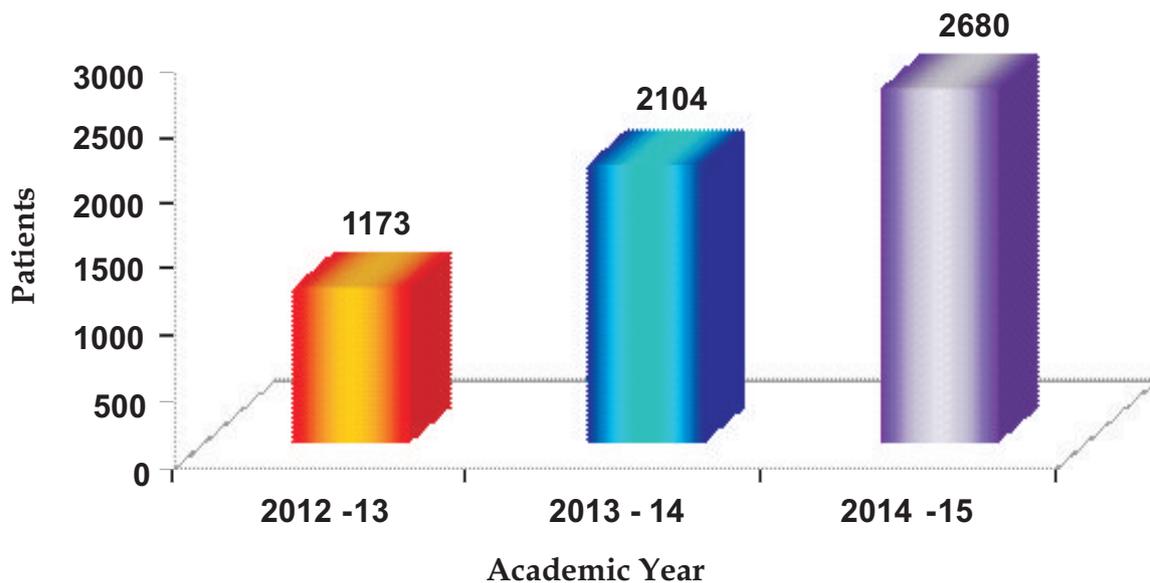


Figure 8: Preauthorization in Rajeev Gandhi Jeevandayee Arogya Yojana during three academic years.

Hospital Committees

MGM Hospitals have a variety of organizational structures and committees to provide healthcare services. These hospitals represent a challenging form of human organization and firm leadership. Diverse skills and background of work forces, complex organizational structures, and the delicate nature of the services are required for hospitals to provide the best health care services. The hospital administration has therefore involved various committees in order to help and guide in the provision of healthcare services.

The committees are key multi-disciplinary hospital team with clinical risk/quality improvement and medical advisory roles in ensuring safe practices. The responsibilities of the committees are commensurate with the specific functions. Broadly, the Committees promote evidence-based best practice communication and education by providing continuing professional education, monitoring performance by clinical audit and peer review. The Committees meet at regular intervals as and when required to discuss issues for providing suggestions and corrective measures. The Chairperson of each Committee submits its report to the Internal Quality Assurance Cell.

Some of the hospital committees are: (i) Blood Transfusion Committee; (ii) Code Blue Review Committee; (iii) Credentials and Privilege Committee; (iv) Grievance Redressal Committee; (v) Ethics Committee; (vi) Infection Control Committee; (vii) Pharmacy and Therapeutic Committee; (viii) Quality Assurance Committee; (ix) Hospital Safety Committee; (x) Medical Record Committee; (xi) Mortality meet Committee; (xii) Medicine and Allied Committee; (xiii) Surgery and Allied Committee; (xiv) Cardiovascular and Thoracic Surgery Committee; (xv) Radiation Safety Committee; (xvi) Sentinel Events Committee; (xvii) Brain Death Certification Committee; and (xviii) Medical Audit Committee.

Pharmacy

FDA licensed 24-hour in-house pharmacy, run by the hospital, is a boon for the patients. The Pharmacy caters to the needs of patients for medicines, supplies and surgical items, at discounted rates. A separate generic pharmacy caters for charity and RGJAY patients.

**RESEARCH
AND
INNOVATION**

Chander P. Puri

*Pro Vice Chancellor (Research)
MGM Institute of Health Sciences
Navi Mumbai*

The evidence-based decision making, whether it relates to policy-making, improving the education system or clinical practice, is almost mandatory in academic institutions. It is a process of lifelong self directed learning in which the professional has the curiosity to identify important information and tools to enhance the impact of services.

In the teaching profession, a teacher through professional knowledge, experience and effective communication skills teaches in a classroom. However, critical to this process is the teacher's ability to implement new strategies proven effective to improve performance outcomes including inspiring, motivating and engaging students. This cannot be accomplished unless the teacher is well informed of the recent research findings and committed to implement those in classroom. Eventually, it is the research blended with knowledge and other teaching attributes which enables teachers to be effective in their profession and enable institutions to serve students best.

Similarly, the evidence-based medicine involves integrating clinical expertise with the best available clinical evidence derived from systematic research. Clinical research can be looked upon as a broad term that includes basic-oriented research, disease-oriented research with animal models, i.e. translational research, patient-oriented research and outcome research. For everyone involved in this research area, the important thing is that the whole spectrum of research is essential, from basic, through translational to patient-oriented research and back again. It is essential to align the biomedical research enterprise with national needs - bringing together government, academia and industry to build up strict principles, and that the outcomes of funding be measurable and address training, scientific consequences, technology creation, and economic benefit.

To be a top ranking medical institute in the country, it is essential for the university to support its faculty and researchers to pursue quality research. The larger the university faculty dedicated to research, the better would be the research productivity shown by the university. The management appreciates that it requires long periods to move from discovery to competitive product delivery for which long-term, sustainable funding is essential.

Research programs which are scientist-driven and those thrust areas which are identified by faculty jointly with the members of the advisory committees are encouraged at the university. Some of the major areas of research are: Development of affordable diagnostics for tuberculosis, and multidrug resistant tuberculosis; Nanotechnology and bio-nanotechnology to develop biosensors; Identification of predictive biomarkers and drug discovery; and Therapeutic potential of embryonic and hematopoietic stem cells. A brief report on ongoing research projects and research outcome is presented in this section of the Annual Report.

Research: Strength and Strategic Advantage

The strength and strategic advantages to pursue research at MGMIHS are summarized in Table 11.

Table 11: Strength and strategic advantage to pursue research

- Supportive MGM Trustees with strong conviction that research provides new knowledge and intellectual stimulation that are vitally linked to educational process, and have reaffirmed their commitment to support research.
- Scientific Advisory Committee: It includes eminent scientists from various disciplines and institutes as its members.
- Clinical Ethics Committee, registered with Drug Controller General of India.
- Institutional Experimental Animal Ethics Committee, registered with CPCSEA, Government of India.
- Multidisciplinary expertise to allow trans-disciplinary collaboration.
- Own network in rural sector to address health issues.
- Clinical material required for biomedical and clinical research available in campus to allow translational research.
- Student force: Research an essential requirement for postgraduate degree.
- Sufficient scope to allow expansion and diversification.

Research Programs

At MGMIHS and its colleges and departments two distinct approaches are used to encourage and support research namely; Scientist-driven Programs: Develop research programs that are built upon the current technical strengths and that are derived from the infrastructure already created at MGMIHS; and

Thrust Areas of Research: Identified jointly with Scientific Advisory Committee, technical strengths and the infrastructure matching the needs of the identified thrust areas established.

Both undergraduate and postgraduate students are encouraged and guided during research process. For postgraduate students a dissertation is a mandatory prior to award of degree. Most of the funding for research projects is from: University primarily for purchase of major equipment, fellowship and support of central research laboratories; award winning research grants from national and international agencies; contract research for industry; and commercialization of services such as; diagnostic services including indigenization of technologies.

As described in Table 12, of the 824 research projects, 240 were completed and most of these were short-term projects (1 to 2 year duration) of postgraduates. Maximum funding for these projects was provided by respective colleges or departments where the students were enrolled. Most of the financial support from MGMIHS was for strengthening the centralised research facilities, to acquire expensive equipment and to provide research fellowships.

Table 12: Ongoing and completed research projects

Name of Institute	Projects	MGMIHS Navi Mumbai	MGMIHS Aurangabad	Total
MGM Medical College	Ongoing	218	196	414
	Completed	85	62	147
University Department of Biomedical Sciences	Ongoing	59	21	80
	Completed	32	23	55
University Department of Physiotherapy	Ongoing	21	19	40
	Completed	20	14	34
University Department of Nursing	Ongoing	50	-	50
	Completed	4	-	4
Total		489	335	824

* Includes those pursued by postgraduate students as a part of MD, MS and MSc degree programs.

Projects Approved Under Short-term Studentship Program of ICMR for MBBS Students

To promote interest and aptitude for research among medical undergraduates, a number of MBBS students were encouraged to apply for research grant under ICMR-initiated Short Term Studentship Program. The main objective of this program is to provide an opportunity to undergraduate medical students to familiarize themselves with research methodology and techniques by being associated for a short duration with their seniors on ongoing research program or by undertaking independent projects. It was expected that this may serve as an incentive for them to take up research as a career in future. Senior faculty in the concerned department had mentored the students and helped them formulate a research project. The following 11 projects submitted by MBBS students were approved under this program:

1. Chhabra Harpeet Kaur, MBBS, IInd Year Student. Impact of structured counseling on choice of contraceptive method among post-partum women. Mentor: Dr. Ipseeta Ray, Professor, Department of Pharmacology, MGM Medical College, Navi Mumbai.
2. Gill Rupinder Deep Kaur, MBBS, IInd Year Student, Neonatal screening for G6PD, 17-OHP and TSH levels over a period of 2 months. Mentor: Dr. Reeta Dhar, Professor and Head, Department of Pathology, MGM Medical College, Navi Mumbai.
3. Kakumani Kiranmayi Venkata, MBBS, IIIrd Year Student. Assessment of compliance to treatment of diabetes and hypertension among previously diagnosed patients from rural community of Raigad District of Maharashtra. Mentor: Dr. Prasad Waingankar, Associate Professor, Department of Community Medicine, MGM Medical College, Navi Mumbai.
4. Kenkare Prabha Ganapati, MBBS, IIIrd Year Student. A case control study on the prevalence of sensorineural hearing loss in type 2 diabetics. Mentor: Dr. Vaishali Sanjay Sangole, Associate Professor, Department of ENT, MGM Medical College, Navi Mumbai.
5. Motiwala Mariyam Aliasagar, MBBS, IInd Year Student. Proliferation marker Ki-67 in breast cancer and its premalignant lesions: Its prognostic utility. Mentor: Dr. Shilpi Shau, Associate Professor, Department of Pathology, MGM Medical College, Navi Mumbai.
6. Samant Saurabhi Mohan, MBBS, IIIrd Year Students. Vacuum assisted wound healing: Can it prove to be a cost-effective management? Mentor: Dr. Bhakti Shridhar Sarang, Assistant Professor, Department of Surgery, MGM Medical College, Navi Mumbai.
7. Sharma Shweta Rakesh, MBBS, Ist Year Student. A cross-sectional study of exercise response of respiratory parameters, and their correlation with body mass index and lean body mass. Mentor: Dr. Yashoda R Kattimani, Assistant Professor, Department of Physiology, MGM Medical College, Navi Mumbai.
8. Sharma Sapna, MBBS, IIIrd Year Student. Assessment of quality of life in children with thalassemia and their caregivers. Mentor: Dr. Bageshree Seth. Professor, Department of Pediatrics, MGM Medical College, Navi Mumbai.
9. Thingna Aalia Riaz, MBBS, IInd Year Student. To assess the impact of behavioural change communication on adolescent reproductive and sexual health. Mentor: Dr. Pradeep Nivruti Sawardekar, Professor, Department of Community Medicine, MGM Medical College, Navi Mumbai.

10. Abhishek Shahapurkar, MBBS IVth Year Students. Prevalence of voiding dysfunction in school children between 5 to 12 years and study of its awareness among school staff and parents. Mentor: Dr. Sudhir G Kulkarni, Professor and Head, Department of Nephrology, MGM Medical College, Aurangabad.
11. Saaduddin Shaikh, MBBS IVth Year Students. Study of prevalence and trends of hypertension among school children in Aurangabad City. Mentor: Dr. Saeed Siddiqui, Professor, Department of Paediatric, MGM Medical College, Aurangabad.

PhD Degree Program

About 135 students have been pursuing PhD degree course in various subjects. Thirty seven students were registered during 2014-15 (Figure 9). Five students were awarded PhD degree during the 5th Convocation of MGMIHS held in June 2015.

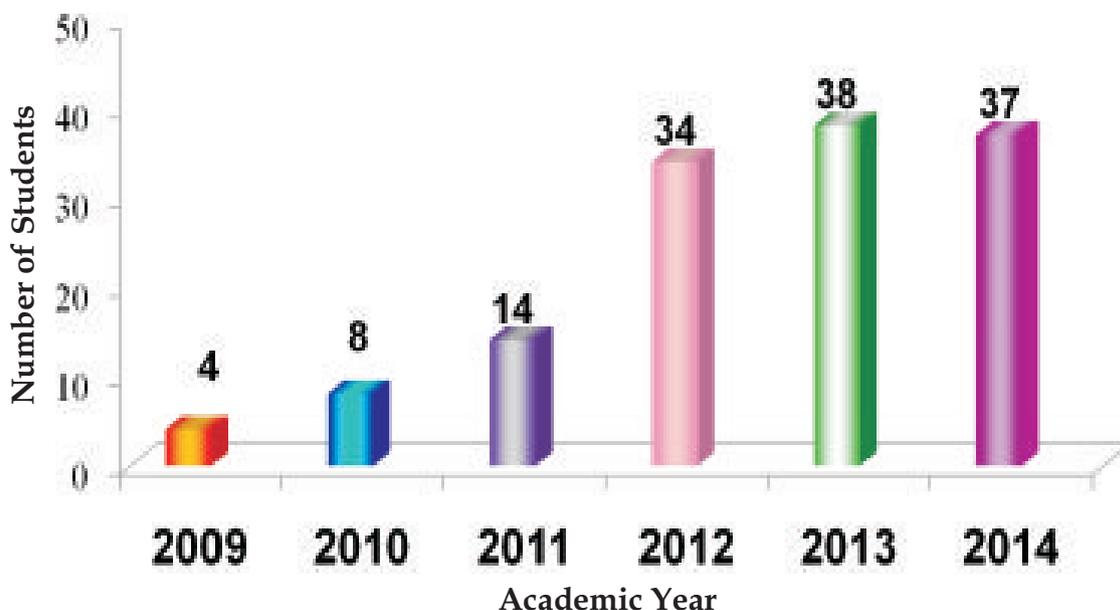


Figure 9: Students registered for Ph.D. Degree program

Research Publications

The number of publications in indexed peer reviewed national and international scientific journals had seen an appreciable increase during 2014-15 as compared to the previous year. The staff had published 216 research papers (Figure 10). In addition, 194 papers were presented at various national and international conferences.

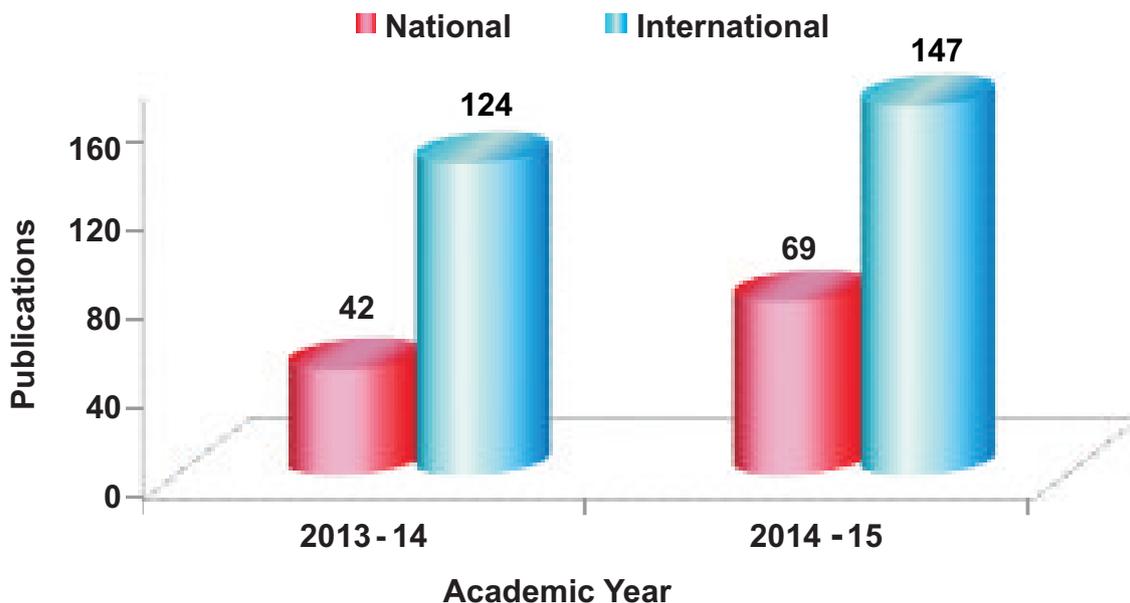


Figure 10: Publications indexed in peer-reviewed scientific journals.

Patents Filed

MGMIHS OMICS Research Center is an innovation centre actively engaged in research and training. Center is accelerating the basic and applied research in the area of molecular diagnostics, drug discovery and green technology. Using various domains of OMICS, the center is provides unique platform for discovery research. To boost the diagnostics program, centre has successfully established a number of biological systems for simple and green synthesis of bioactive nanoparticles. Generation of multiple nanoparticles through single biological route is a major achievement of the center. Under the drug discovery program, research has led to establish the several spice plant derived pancreatic lipase inhibitor that can be a source of anti-obesity molecule. Discovery of the new source of proteome-based pancreatic lipase inhibitor from food plant is yet another major achievement. The center had filed four Indian patents in the area of drug discovery and nanoparticles for diagnostic and medical applications published recently.

1. **Title of invention:** Preparation comprising a pancreatic lipase inhibitory fraction an antiobesity principle obtained from dietary spice *Mesua ferrea* (Application No.1949/MUM/2015 A, Date of filing of Application: 18/05/2015, Publication Date: 05/06/2015).

Applicant: MGM Institute of Health Sciences

Inventors: Raman Prasad Yadav, Sudhirchandra Nanasaheb Kadam, Sveeta Vishnu Mhatre and Amita Anant Bhagit.

Abstract: The present invention discloses herbal preparation/compositions comprising methanolic extract/fractions of *Mesua ferrea* having pancreatic lipase inhibitory activity, useful for the treatment/management of obesity and associated conditions. The invention further relates to process for preparing such extracts and fractions comprising pancreatic lipase inhibitory activity.

2. **Title of invention:** Method for the synthesis of bifunctional cerium oxide nanoparticle with enhanced antioxidant and carbonic anhydrase inhibitory activity (Application No.1948/MUM/2015A, Date of filing of Application: 18/05/2015, Publication Date: 05/06/2015).

Applicant: MGM Institute of Health Sciences

Inventors: Raman Prasad Yadav, Sudhirchandra Nanasaheb Kadam, Amita Anant Bhagit and Sveeta Vishnu Mhatre

Abstract: The present invention discloses a method for synthesis of cerium oxide nanoparticles (CeO_2NP) with highly efficient anti-oxidant property and carbonic anhydrase inhibitory activity by subjecting the cerium oxide solution to aqueous extract of *Cicer arietinum* plants or proteome of *Cicer arietinum*. These bifunctional cerium nanoparticles thus produced find potential applications in various domains of biomedical applications especially in ocular disease.

Central Research Laboratory, and MGMIHS OMICS Research Center

MGMIHS has established centralised research facilities including MGMIHS OMICS Research Center to provide state-of-the-art facilities to pursue research in diverse areas. These facilities are available round-the-clock to all research scholars and faculty. The Center provides training in diverse areas.

Using various domains of OMICS such as; genomics, proteomics and computational biology, the center provides unique and exploratory platform for discovery research. Center is accelerates basic and applied research.

The vision of the Center is primarily to develop affordable diagnostics, and prophylactic disease management. The major goals are: understanding of disease progression and discovery of novel and predictive biomarkers; customization and green synthesis of nanoparticles and their engineering for development of sensitive diagnostic; development of affordable and rapid molecular diagnostics including predictive diagnostics; recognition and recruitment of biomarker as drug target and mechanism-based drug discovery mainly based on peptides and small natural molecules; understanding of disease etiology and drug resistance and mechanism based process for drug resistance reversal; to create referral centre for predictive diagnostics; to provide training in the area of proteomics,

bioprocess innovation and patenting; and foster national and international collaborations.

The facilities for protein purification and characterization; diagnosis of tuberculosis using GeneXpert, low temperature storage of biological material and many more were incorporated.



MGMIHS OMICS Research Center

Highlights of Research Projects

Potent Pancreatic Lipase Inhibitor from Food Plants and Development of Safer Anti-obesity Formulation

Raman P. Yadav, Sveeta Mhatre and Amita Bhagit

*MGMIHS OMICS Research Center, Central Research Laboratory,
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Navi Mumbai 410209*



Obesity is a global health concern, widely recognized as the largest and fastest growing public health problem in developing and developed world, associated with high morbidity and mortality. A number of synthetic drugs have come in the market. However, they have not made any significant impact on obesity management. Several drugs were identified and even approved to treat obesity but most of them were discontinued because of adverse effects.

Now the use of natural molecules is gaining renewed interest as potential source of new anti-obesity drugs. In recent year pancreatic lipase, a principal lipolytic enzyme secreted by the pancreas, has gained importance for anti-obesity target.

Although pancreatic lipase has been considered as a good target for anti-obesity management, the drug discovery and development has not been explored.

Natural products provide an ample scope for the discovery of pancreatic lipase (PL) inhibitors that can possibly be developed into anti-obesity clinical products. Currently, safe management of obesity is still largely unexplored by developing successful and targeted natural products. Therefore, search for a new, potent and safe anti-obesity formulation particularly from food plants would provide an excellent new strategy in obesity management. The formative variance of natural products combined with the fact, that they were elaborated within the living systems provides, a more sustainable choice to completely synthetic molecules. Spices exhibited properties, that are beneficial to health, could be used as an alternative and/or complementary strategy in managing risk factors and associated co-morbidities of obesity. Therefore, project focuses on the pancreatic lipase inhibitor from food plant i.e. spices and its potential in development of safer anti-obesity agent.

In view of search of potential pancreatic lipase inhibitor as an anti-obesity agent, various assays were established for the determination of pancreatic lipase activity using synthetic and natural substrate, assay to determine IC_{50} value of the PL inhibitors, reversibility irreversibility assay, and assay to study effect of pH on pancreatic lipase inhibition, thin layer chromatography method for the identification of pancreatic lipase inhibitory band etc.

Extensive screening program for the search of novel pancreatic lipase inhibitory molecules from food plants mainly spices were carried out. Figure 11 displays some of the spice derived materials used for the screening of pancreatic lipase inhibitory activity. Spice plant MGM OMICS S10 extract was selected for detailed studies as it showed potential pancreatic lipase inhibitory activity.



Figure 11: Spice plant derived materials MGM OMICS S-4, S-10, S-15 and S-19 used for screening of pancreatic lipase inhibitory activity.

Ic₅₀ value of MGM OMICS S-10 plant extract with pancreatic lipase was determined. It looks very promising for further work and exploration towards development of antiobesity molecule. As the pancreatic lipase act in the duodenum site of action of inhibitor, this pancreatic lipase inhibitory extract was assessed for their reversibility/irreversibility to address the issue of uncontrolled dilution of pancreatic lipase inhibitor during inhibition of lipase.

It was observed that this spice based pancreatic lipase inhibitory extract MGM OMICS S-10 retains its activity after dialysis. pH plays an important role in the functioning of natural molecule, hence the effect of pH on inhibitor potency during inhibition of pancreatic lipase was studied. The spice based pancreatic lipase inhibitory MGM OMICS S-10 extract retained its inhibitory activity at lower and higher pH with variation in percent inhibition suggesting its potential for designing and development of anti obesity agent.

Research is under progress to purify active principle as pancreatic lipase inhibitory molecule from MGM OMICS S-10 extract for further work including molecular characterization, toxicity, multi-functionality of lipase inhibitory molecule, formulation of the ant obesity molecule for animal study etc. The discovery and designation of new, potent and safer anti-obesity molecule particularly from food plants and its formulation would provide an exceptional good strategy in obesity management and associated conditions in reference to the existing complications.

Developing Natural Alternatives to Synthetic DPP-4 Inhibitors for Diabetes with Metabolic Syndrome

Ipseeta Ray¹, Rajesh Suman², Ujwala Maheshwari³ and YA Deshmukh⁴

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Kamothe, Navi Mumbai 410209*



Type II diabetic patients may have several cardiovascular disease (CVD) risk factors like insulin resistance, hyperinsulinemia, hypertension, dyslipidemia and obesity, present in varying combinations. The clustering of these risk factors together is known as metabolic syndrome. While each of its individual components confers an increased risk of cardiovascular-related complications or death, this risk is more pronounced when the syndrome itself is present along with diabetics. Therefore, a single anti-diabetic drug like the dipeptidyl peptidase (DPP-4) inhibitors, having beneficial effects on the multiple CVD risk factors present in metabolic syndrome, may be useful in this subset of diabetic patients.

The marketed synthetic DPP-4 inhibitor, Sitagliptan has been reported to cause unacceptable adverse effects like pancreatitis and pancreatic cancer. In this

scenario, research to identify newer DPP 4 inhibitors that favourably modify various CVD and metabolic risk factors, but are without unacceptable adverse effects of the synthetic DPP 4 inhibitors, is warranted. Therefore, development of new class of natural DPP-4 Inhibitors like Berberine and Mangiferin that work in concert with body's own defence mechanism, having fewer side effects is the need of the hour.

Till date, there are no experimental models of metabolic syndrome in combination with diabetes. Efforts will be directed to develop and standardize such a unique animal model, useful to evaluate the efficacy of natural DPP-4 Inhibitors alone and in combination with metformin, for comparison with the standard therapy, metformin alone. The research outcomes of this project will play a vital role in elucidating the unknown molecular mechanism of the DPP-4 inhibitors.

The study will help in developing a unique animal model of diabetes co-existing with metabolic syndrome useful for screening of drugs beneficial in this condition. There have been no efficacy and safety studies to explore the therapeutic potential of DPP-4 inhibitors in the setting of diabetes with metabolic syndrome. The study will throw some light on the potential and safety of these plant products as a substitute or as an efficient add-on therapy with conventional molecules. Moreover, the cellular effects of Berberine, Mangiferin on pancreatic cell regeneration, preservation, apoptosis, endothelial function, vascular reactivity, atherosclerosis and obesity has also not been delineated. These aspects can be elucidated in the study.

DPP-4 based therapeutics may represent novel anti-diabetic drug, the cardio-metabolic actions of which may translate into demonstrable therapeutic benefits in diabetes with metabolic syndrome. Research outcomes of this study may play a vital role in the development of natural indigenous DPP-4 inhibitors for the pharmaceutical industry. These natural alternatives to synthetic DPP-4 Inhibitors may be a boon in developing countries like, India and South East Asian Nations as the available synthetic DPP-4 inhibitors have undesirable adverse effects, and costly.

Impact of Structured Counseling on Choice of Contraceptive Method among Post-partum Women

**Harpreet Kaur Chhabra¹, Ipseeta Ray², Nimain C Mohanty³,
Pratima Thamke⁴ and YA Deshmukh⁵**

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The use of contraceptive method is generally depressed immediately after childbirth and during postpartum period because of the dependence of postpartum women on less reliable contraceptive practices such as; breast feeding, withdrawal and fertility-based awareness techniques. Studies suggest that only about one quarter of women with a baby younger than six month old is protected by lactational amenorrhea method as they are not exclusively breast feeding. Perhaps the most important concern is that contraceptive use is no more than 17% among women immediately and within six months postpartum, around 33% between 6-12 months after delivery. Most women are at risk of unintended pregnancy during postpartum and extended postpartum period. To address this issue, efforts should be directed to educate postpartum women regarding contraception and healthy-pregnancy spacing. Counseling and sharing information on various available contraceptives can provide postpartum women with information they need to make an informed decision about contraception.

The study aimed to evaluate the role of structured contraceptive counseling on the decision-making process among postpartum women and the changes brought about in contraceptive choice and selection post counseling. Other objectives of the study were to determine the women's reasons behind the selection of a particular contraceptive method.

One hundred and seventeen postpartum women in the age group of 18-35 years, requesting contraception, were enrolled in the study. Structured contraception counseling was provided using a standardized protocol with balanced and comprehensive education material on the available hormonal and non-hormonal contraceptive methods. Questionnaires with information on the women's pre- and post-counseling contraceptive choice, her perceptions, and the reasons behind her post-counseling decision were filled by the participating women.

Maximum women enrolled for the study were in the age group of 21-25 years. In pre-counseling, 36% postpartum women selected a contraceptive method, 23.1% a non-hormonal method and 12.8% a hormonal method. After structured contraception counseling 92.25% of women chose a contraceptive method. There was a significant difference in the women's choice of contraceptive method in the pre- and post-counseling sessions. [Progesterone Only Pills (POP): 5.1% vs. 38.46%, ($p < 0.001$); injectable depot medroxy progesterone acetate (DMPA): 2.56% vs. 21.356%, ($p < 0.01$) and intrauterine device (IUD): 10.28% vs. 23.92%, ($p < 0.001$). 38.46% chose a POP, 21.36% injectable-DMPA and 23.9% the IUD (Figures 12 and 13).

In brief, the study showed that POPs are the most frequently preferred contraceptive method among post-partum women followed by injection of DMPA and then IUD. "Structured contraception counseling" using standardized protocol, resulted in significant improvements in selection of contraceptive methods by post-partum women. The study highlights the importance of utilizing

the postpartum period to initiate contraceptive use among reproductive aged women, in order to decrease the risk of unintended pregnancy. Ideally, counselling should begin early in the antenatal period and include provider initiated discussions. With a little time and effort on the part of the physician, the patients can be guided to decide on an effective and appropriate method of contraception.

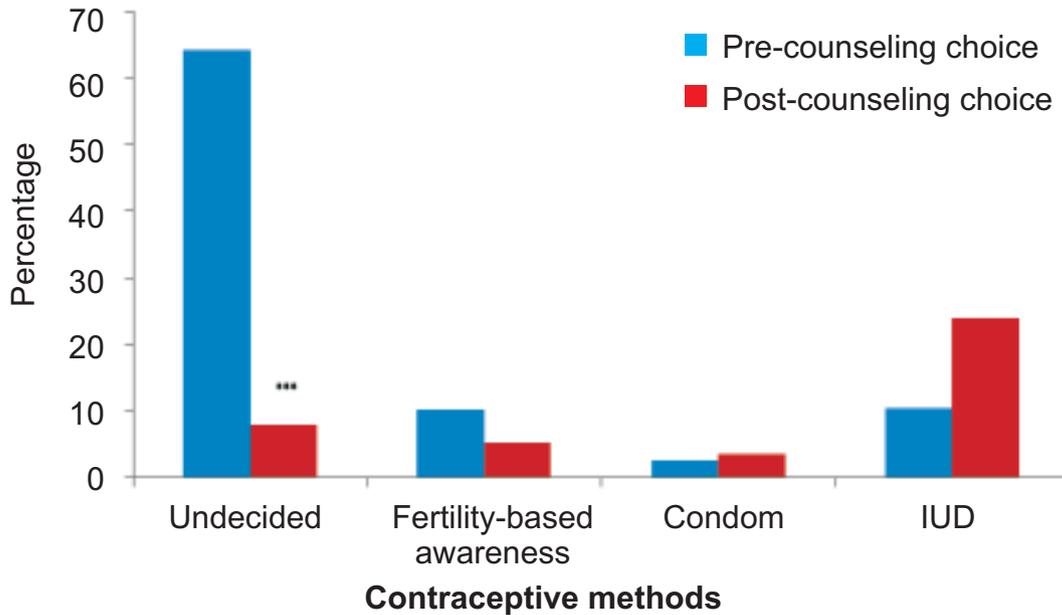


Figure 12 : Women's pre- and post-counseling contraceptive choice of non-hormonal contraceptive methods. IUD: Intrauterine device. * $p > 0.001$ Differences between pre and post-counseling is statistically significant (P value < 0.001 , Mc Nemar's test).**

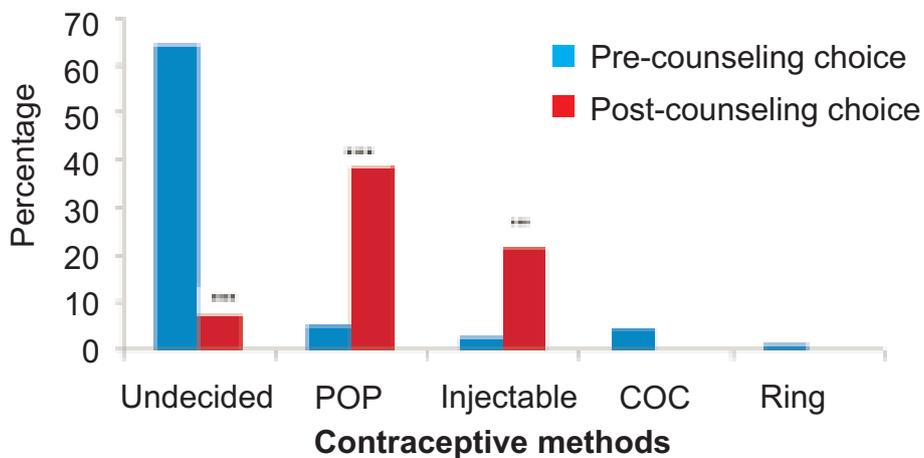


Figure 13 : Women's pre- and post-counseling contraceptive choice of hormonal contraceptive methods: Contraceptive pill, DMPA and POP. Differences between the pre- and post counseling statistically significant (P value < 0.001 , Mc Nemar's test).

Optimization of Procurement Technology, Transportation, Processing, Biological Safety Control, Storage and Accounting Cord Blood Stem Cells Placenta and Wharton's Jelly

Oleksandr Kukharchuk, Andrii Kukharchuk, Padma Priya, Oleksandr Lenkov and Viltor Duzar



MGM Medical College and Hospital, MGM Institute of Health Sciences, and EmProCell Clinical Research Pvt. Ltd. Navi Mumbai 410209.

This study focuses on harvesting of a population of rapidly proliferating human cells from the connective tissue of the umbilical cord (UC), Wharton's jelly, and placenta; the culture of such cells in oestrogenic, chondrogenic, adipogenic, hematopoietic and myogenic conditions; the demonstration of a high percentage of cells within these populations that are immunologically incompetent, as shown by their lack of cell surface histocompatibility antigens; and the ability of these cells to be used as a source of multipotent progenitor cells for various cell-based therapies (Figure 14).

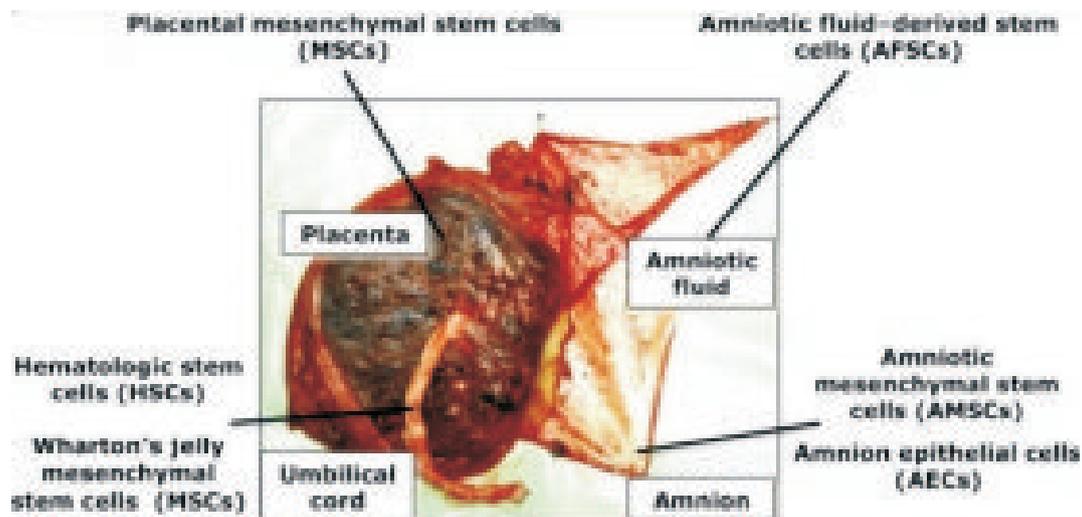


Figure 14: Progenitor cells in placenta and cord tissue.

Wharton's jelly (WJ) was first described by Thomas Wharton, who published his treatise *Adenographia* in 1656 (Wharton T W. *Adenographia*. Translated by Freer S. in 1996, Oxford, U.K.: Oxford University Press, 1656; 242-248). It has subsequently been defined as a gelatinous, loose mucous connective tissue composed of cells dispersed in an amorphous ground substance composed of proteoglycans, including hyaluronic acid, and different types of collagens (Figure 15).

The present study provides an extract of WJ, as a source of a rapidly proliferating cell population comprising human progenitor cells including osteoprogenitor

cells, as well as immuno-incompetent cells. For purposes of this description, the extracted cell population can be referred to as human umbilical cord perivascular (HUCPV) cells. The HUCPV cell population constitutes a rich source of multipotent progenitor cells that are unique in their phenotype, particularly as revealed by the variety of cell subpopulations contained therein. Also for purposes of this description, the perivascular zone of the Wharton's jelly from which the present cells are extracted can be referred to as perivascular tissue (Figure 16).



Figure 15: Wharton's jelly (Cyst)

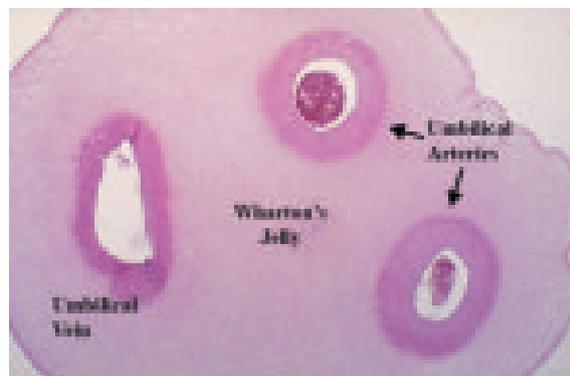


Figure 16 : The perivascular zone of the Wharton's jelly

To extract such perivascular cells from human umbilical cord, in a preferred embodiment, care is taken during the extraction process to avoid extracting cells of the umbilical cord blood, epithelial cells or endothelial cells of the UC, and cells derived from the vascular structure of the cord, where vascular structure is defined as the tunicae intima, media and adventia of arterial or venous vessels. Obtaining an extract that is essentially free of these unwanted cells can be achieved by careful flushing and washing of the umbilical cord prior to dissection, followed by careful dissection of the vessels from within the cord. The vessels can be carefully pulled away from the surrounding cord tissue in case, the perivascular tissue is excised with the vessels.

It will be appreciated that, with care being taken to avoid extracting these unwanted cells, they may still be present to a small extent in the resulting extract. This is acceptable provided they occur at a frequency too low to interfere with the observed results presented herein, i.e., observation of cell colonies derived from mesenchymal and specifically mesodermal origin, frequency and rapidity of formation of CFU-F, CFU-O and CFU-A, and characterization of HLA phenotypes observed in the cultured population.

The tissue that lies within the perivascular zone is the WJ proximal to the external wall of the umbilical vasculature, and lies typically within a zone extending to about 3 mm from the external wall of the vessels. Suitably, the target extraction

zone can lie within about 2 mm, e.g., about 1 mm from the external wall of any one of the three vessels. The extraction of WJ from this region can be readily achieved using the special technique. In this technique the vessels are used as a carrier for the WJ, and the vessels per se are used as the substrate from which the progenitor cells are extracted.

Thus, in embodiments of the study, cord vessels bearing a thin coating of perivascular tissue are excised either surgically or manually from fresh umbilical cord that has been washed thoroughly to remove essentially all cord blood contaminants. The vessels bearing the proximal perivascular tissue, or sections thereof, are then incubated at about 37° C in an extraction medium such as phosphate buffered saline (PBS) containing an enzyme suitable for digesting the collagen matrix of the perivascular tissue in which the desired cells reside. For this purpose, digestion with a collagenase is suitable, at a concentration within the range from about 0.1 mg/mL to 10.0 mg/mL or more, e.g., 0.5 mg/mL.

The enzyme type, concentration and incubation time can vary, and alternative extraction conditions can be determined readily simply by monitoring yield of cell phenotype and population under the chosen conditions. For instance, a higher collagenase concentration of 4 mg/mL (e.g., 1-4 mg/mL) is also suitable over a shorter digestion period of about 3 hours (e.g., 1-5 hours). During the extraction, the ends of the vessels are tied, or clipped, off and can be suspended above the extraction medium to avoid contamination by agents contained within the vessel. It will thus be appreciated that the present Wharton's jelly extract is essentially free from cord blood cells, umbilical cord epithelial cells, vessel endothelial cells and vessel smooth muscle cells.

After about 24 hours in the 0.5 mg/mL collagenase extraction medium, e.g., 12-36 hours, such as 18-24 hours, or after about 3 hours in the 4.0 mg/mL collagenase extraction medium, the vessels are removed, leaving a perivascular tissue extract that contains human progenitor cells. These cells are expanded under conditions standard for expansion of progenitor cells. The cells can, for instance, be selected on polystyrene to select for adherent cells, such as in polystyrene dishes or flasks and then maintained in a suitable culturing medium.

The cells and cell populations of the present study can be obtained by extraction from WJ of human umbilical cord. Unlike the prior art, and in accordance with the present study, such cells are extracted from the WJ that is associated with, i.e., proximal to, the exterior wall of the umbilical vasculature. The Wharton's jelly that is associated with or very near to the external surface of the cord vasculature lies within a region termed the perivascular zone, and typically remains associated with the vasculature when the vessels are excised from the cord, as is done for instance either to extract Wharton's jelly from the cord, or to extract the vessels from the cord and associated Wharton's jelly. It has remarkably been found that

the Wharton's jelly within this perivascular zone, and which has typically been discarded in prior art practice, is a rich source of progenitor cells having the characteristics herein described. Accordingly, the present study exploits the tissue from this perivascular zone of the Wharton's jelly as a source for useful human progenitor cells.

Exploration of Squatting Activity from Childhood to Late Adulthood

Rajani Mullerpatan, Bela Agarwal, Meera Thanawala, Shreya Sahastrabudhe and Robert van Deusen

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Most activities of daily living necessitate simultaneous coordinated interaction of numerous muscle groups. Squat is considered one of the best exercises for improving quality of life because of its ability to recruit multiple muscle groups in a single manoeuvre. It is a posture where the weight of the body is on the feet and the knees are bent either fully as in deep squat or partially. The squatting movement has close specificity to many everyday tasks and hobbies. It is possible to squat with one leg and assume another position (such as kneeling) with the other leg. Among Chinese, Southeast Asian, and Eastern European adults, squatting often takes the place of sitting or standing. Young children squat instinctively as a continuous movement from standing up whenever they want to lower themselves to ground level. Squatting is utilized in a variety of sport activities and functional activities like birthing positions to promote natural childbirth movement and defecation.

As we know the importance of squatting it becomes essential to study various aspects of the activity. Hence a project was conceptualized to determine critical events of squatting activity, biological age at attainment of these critical events, age at which squatting activity matures by observing 50 children from age of six months till nine months hence by videotaping their activity. To determine strategies used at hip, knee and ankle joint while squatting, data will be analyzed to obtain temporal parameters such as average duration, velocity, time taken to complete ascent and descent and the strategies adopted at hip and ankle joint.

Though squatting is a beneficial activity it places significant demand on cardiovascular, pulmonary and musculoskeletal systems. Hence cardio-pulmonary function and lower limb muscle activity in different squat positions were studied to determine most and least strenuous squatting position. Ninety healthy females performed 3 trials of 9 different squat positions. EMG data was

quantified using Biograph Infiniti equipment and software (version 6.0.4) from Vastus Lateralis, gastrocnemius and gluteus maximus bilaterally. Oxygen consumption was recorded by Fitmate Pro (COSMED, Italy).

The primary variable for EMG study was maximum amplitude of muscle contraction and oxygen consumption for cardio-respiratory function. Mean amplitude and median frequency mean were considered as secondary EMG variables and heart rate and respiratory rate were secondary variables for cardio-pulmonary function. Other temporal parameters included duration of the squat, time of ascent and time of descent (Figure 17).

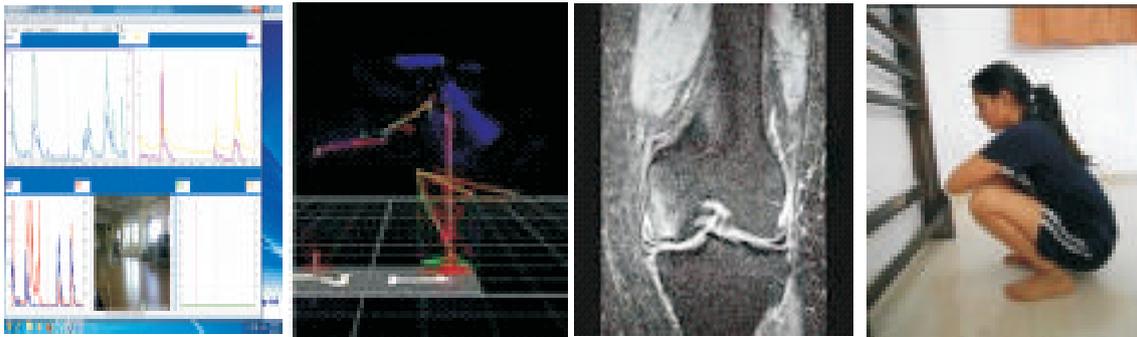


Figure 17 : Depiction of EMG activity, biomechanical analysis, MRI of knee and squatting intervention.

Data analysis revealed that parallel squat without support was the most strenuous squat in terms of energy expenditure. Unsupported full squat with heel on the ground was the most strenuous in terms of lower limb muscle activity and second most strenuous in terms of energy expenditure. The least strenuous squat was supported partial squat (knee flexion 300). Knee flexion angle was an important factor for determination of higher activation of the muscles.

A third project in continuum will determine effect of squatting on articular cartilage of knee by exploring relationship between structural characteristics, potential biomarkers, biomechanical characteristics of loading response of articular cartilage and squatting activity in healthy adults and established OA knee. Structural characteristics will be assessed using articular cartilage thickness/ volume obtained by magnetic resonance imaging MRI .

Presence of inflammatory and excretory by-products will be studied by using an established biomarker of OA ie serum Cartilage Oligomeric Matrix Protein (sCOMP). Non invasive methods of assessing levels of secretory phospholipaseA₂ and antioxidant activity in sweat produced locally will be used to identify potential biomarkers for early identification of OA. Peak tibio - femoral compressive force and joint reaction force reflecting on biomechanical properties of the joint will be procured via digital video camera and force plate system.

Magnitude of squatting exposure will be quantified by categorizing participants into 3 groups – Group A- Non squatters (NS)-people who do not squat at all or have not squatted in the past 10 years , Group B – Activity of daily living squatters (ADLS) – people who squat for activities of daily living and Group C- Activity of daily living and occupational squatters(ADLOS) – people who squat for activities of daily living and occupational activities.

In Phase 2, squatting activity will be used as an intervention in the non squatters followed by a second assessment after one year. Results obtained will enable prescription of squatting which is a load bearing activity that strengthens muscles using body weight, improves proprioception of the joint leading to enhanced postural control and reduction in risk of fall in the elderly.

Effect of intervention will reveal whether squatting exercises are beneficial to health of the articular cartilage, an important precursor to development of OA. Identification of presence of easily obtainable biomarker by non invasive methods could prove to be a powerful tool for early identification of inflammatory processes leading to development of clinical OA.

Evaluation of Physical Activity Profile, Life Style Quotient and Health-related Fitness in Children, Adolescents and Adults

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In the era of globalization, developing countries like India face major threats from the rising tide of lifestyle related disorders leading to noncommunicable diseases (NCDs). According to WHO statistics for 2011, NCDs including cardiovascular disease, cancer and diabetes account for 53% of all deaths in India. Early recognition and evaluation of causative factors of NCDs becomes an urgent need of the hour. Modifiable risk factors such as dietary habits, physical activity levels, tobacco alcohol abuse and high stress levels precipitate the development of physiological risk factors like obesity, raised blood pressure, altered blood glucose profile and dyslipidemia.

Physical inactivity is the fourth leading risk factor for global mortality and causes 6% of all deaths. Higher levels of physical activity can decrease incidence of NCDs by almost 25% thus potentially reducing the economic burden. Benefits of regular physical activity of moderate intensity, such as walking, cycling, or doing sports, has significant benefits for health, at all ages. Effects of physical inactivity are

observed in people across all strata of society. Being aware of rising health concerns in children and women who may not be utilizing health care facilities either due to unavailability or lack of information, a project was undertaken to evaluate physical fitness of children of Adivasi Ashram Shala, Chikle and women from areas around Navi Mumbai .

Health related fitness testing included various components like anthropometric measurements, evaluation of flexibility, balance, muscle strength and endurance and cardiopulmonary endurance testing. In Phase 1 of the study 542 children and 80 women were assessed for above parameters (Figure 18). In Phase 2 of the project identification and analysis of poor performance in various components of fitness in these children and women will be performed. Regular annual check-up will enable plotting of growth charts of children for various health fitness components and understanding the dynamics of factors affecting development. In Phase 3, interventional programs to address to their needs will be implemented in cognizance with physical education requirements of the school. Women will be offered tailor made programs. By becoming more active throughout the day in relatively simple ways; women and children can easily achieve the recommended activity levels.



Figure 18 : Assessment of health-related fitness components in children and women. Assessment of hand grip (Left), lower limb endurance (Middle) and cardiopulmonary endurance (Right).

Hence, at a population level, regular screening of physical activity and physical fitness levels using evidence-based evaluation methods will enable early diagnosis and management for health care promotion in vulnerable people across all strata of society.

Polymorphisms of Fucosyltransferase-2 (FUT2) Gene and its Association with Prevalent Genotypes of Rotavirus in Navi Mumbai

Nimain C. Mohanty¹, Nitin N. Kadam², D.S. Joshi³,
Mansee Thakur⁴ and Kshitija C. Rane⁵



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Rotavirus infection is fatal in children less than 5 years of age. It is the prime cause of acute gastroenteritis. Worldwide, nearly 453,000 children die each year due to rotavirus infection of which about 98,621 die in India. Association of blood groups with infectious diseases is very obvious as these antigens are into secretions and get adsorbed and most of the body cells, adherent to cell surface they can act as receptor for pathogen's surface protein. Lewis blood group system classifies individual on the basis of expression of Lewis (Le) glycoproteins on the surface of red blood cells, endothelium, and kidney, genitourinary and gastrointestinal epithelium. There are 2 main antigens Lewis a and b expressing three common phenotypes: Le(a+b-), Le(a-b+), and Le(a-b-) the expression of Lewis epitopes on the erythrocytes is dependent on adsorption from plasma of Lewis-bearing glycolipids. The Lewis antigen system is intimately associated with the secretor system and ABO blood group system biochemically, though the genetic loci are not linked.

Fucosyltransferase 2 and fucosyltransferase 3 are the enzymes involved in biochemical pathway. Genes for these enzymes are mapped to chromosome 19 p13.3 (FUT3 or Lewis gene) and 19q13.3, (FUT2 or secretor gene). Both genes are expressed in glandular epithelia and have dominant alleles (Le and Se, respectively) coding for enzymes with fucosyltransferase activity and recessive alleles (le and se, respectively) that are not functional. H type-1 and Lewisb antigens have been reported to bind VP8* from major human rotavirus genotypes P[4], P[6] and P[8], while □VP8* from a rarer P[14] rotavirus recognizes A-type HBGAs. However, the role and significance of HBGA receptors in rotavirus pathogenesis remains uncertain. In an array screen of >600 glycans, VP8* P[11] showed specific binding to glycans with the Gal1-4GlcNAc motif, which forms the core structure of type II glycans and is the precursor of H type II HBGA.

The FUT2 gene regulates fucosylation of H antigen substrate to form Lewis b antigen. The gene is conserved through evolution and is composed of 2 exons and 1 intron. Exon 2 is open reading frame for transcription and protein expression. Any mutation or polymorphism causing disruption of active site may lead to low

or no expression of the enzyme hence respective expression of Lebaantigen. Subcellular enzyme is localized to Golgi apparatus. There are 55 known polymorphisms of fut2 gene as per very recent study. Certain of them are pathogenic and if biallelic can confer non-secretor status to the individual, such a person cannot secrete ABO and Lewis antigens in exocrine secretions. Haplotyping studies performed by institute of biological evolution, Spain showed positive selection force for the FUT2 gene.

This study performed at MGMIHS and Department of Paediatrics, from Nov'2013 to May'2015 showed promising results for association of HBGA with rotavirus infection. Both stool and blood samples were collected from the patients for analysis. The blood sample of the same patient was used for Lewis typing and extraction of host DNA. Electropherotyping was chosen for screening as ELISA was less sensitive comparatively. Positive samples were processed for strain typing by Reverse transcription PCR multiplexing. Phenotyping and genotyping for secretor status was done hemagglutination for Lewis antigen and sequencing of fut2 gene respectively.

Out of 233 samples, 36 are positive to rotavirus infection by electropherotyping which is 100% sensitive nucleic acid based test. Positive patients were checked for their secretor status and all of them were secretor except a single patient, MGMVG217, who was weak secretor. Repeat stool sample collected on 3rd day of persistent symptomatic diarrhoea showed presence of segmented RNA.

Secretor individual expresses fucosyltransferase enzyme hence shows presence of Lewis antigen in saliva, tears, mucosa as well as on the surface of epithelial tissue cells. Non-secretor individuals with no or less enzymatic activity of fucosyltransferase-2 do not secrete blood group antigens in body secretions. Secretor individuals are highly susceptible to infection of Rotavirus and Norovirus. The FUT3 gene regulates expression of Lewis antigens but FUT2 gene regulates secretion of these antigens. Rotaviruses have been shown to be interacting with Lewis antigen, Lewis specifically found on gastro enteric epithelial cells. Open reading frame of the gene spanning 1272bp of exon 2 is amplified with sense and antisense primers.

The sample VG 217 showed 428 G? A mutation leading to formation of inactive enzyme. Electropherogram is showing G as well as A nucleotide at position 568 of chromatogram. This confirms heterozygosity at position 428 of the fut2 gene. Chromatogram has been shown. Certain novel as well as previously reported SNPs was obtained which will be analyzed further using bioinformatic interphase.

The result show that: (i) frequency of Rotavirus infection in Navi Mumbai area is 14.55% (32/220); (ii) frequency of Rotavirus infection in Navi Mumbai area is

1.89% (1/53); (iii) 25% (7/28) of individuals are not active secretors hence may show lower or no expression of HBGAs (human blood group antigens) on tissues other than blood; and (iv) G428A is one of the significant mutations and has been found to be prevalent in population under study.

Candidate loci of fut2 gene specific for non-secretor status will be identified with frequency of each. Haplotypes will be studied to evaluate expression and activity of enzyme. Current incidence of Rotavirus and Norovirus diarrhoea in the suburban areas of Navi Mumbai and their strain diversity will be available. The prevalence of serotypes and genotypes in the region will help to understand whether the efficacy of currently available rotavirus vaccines (as low as around 50%) as compared to earlier (above 85%) a decade back, could be due to the possible genetic drifts.

Studies on the Mechanism of Action of Homeopathic Drugs on Osteoporosis using Zebra Fish Model

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Homeopathic system of medicine was discovered by Dr. Samuel Hahnemann more than 200 years back based on the principle of simillimum, meaning a symptom produced by a substance in normal subject gets cured by the same substance in a patient. In his experiments, he went on diluting the substance in a specific manner, called potentization, in the ratio of 1 to 100 (or 1 to 50000) in a specific manner, so that with every dilution the mass of the substance goes on reducing by 100 (or 50000 as the case may be). Thus the concentration reaches 10^{-24} by the time potency reaches 12. At this dilution the probability of finding the substance is almost zero as per Avogadro law. This led to the common understanding of absence of any starting material in the homeopathic drug preparations and the observed effect has been dubbed as placebo effect.

Experiments conducted in the past have led to several hypotheses evidencing pharmacological action of these medicines. Hydrogen bonding memorization and nanoparticle existence are the important ones having high degree of research relevance and potential. Board of Research in Nuclear Sciences, Department of Atomic Energy, Government of India has sanctioned (sanction no. is 34/14/08/2014-BRNS/0136") a research proposal to the authors for revalidating the Nano-Particle Hypothesis.

We have conducted experiments on metal based homeopathic medicines, such as Argentum Metallicum, Aurum Metallicum, Plumbum Metallicum, Stannum and Zinkum Metallicum in potencies of 6, 30 and 200. Transmission Electron Microscopy has revealed presence of nanoparticles in the above preparations. Elemental analysis by Inductive Coupled Plasmon Atomic Emission Spectroscopy (ICPAES) has shown presence of respective metals in some of the preparations with trace impurities of other metals.

Simultaneously studies have been initiated to elucidate the molecular mechanisms and pathogenesis of homeopathic formulations. Zebra Fish has been used in the past as a useful model system for many biomedical and genetic studies. In-line a "Zebra Fish Lab" has been established in Department of Biotechnology, MGMIHS, for carrying out such studies.

The overall approach behind this study is to determine efficacy of homeopathic drugs and whether these drugs can be used along with of allopathic medicines to treat osteoporosis. Evaluation of the different staining protocols for bone, cartilage and angiogenesis has been standardized. Preliminary studies have shown that administration of one of these medicines (double blind trial) has sedative activity. Homeopathic medicines based on organic materials such as Sepia and Calcarea Carb has shown marked changes in the behavioural pattern. These studies are likely to initiate application of scientific research methodology in the evaluation of homoeopathic treatment.

Evaluation of Multi-sized Nanoparticle Associated Reproductive Toxicity in Male and Female Zebrafish (*Danio rerio*)

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Nanotechnology is rapidly growing with nanoparticles being utilized in wide range of commercial products worldwide. Gold nanoparticles (GNPs) have demonstrated high stability and versatility in scaffolds for drug delivery. This can be attributed to their unique size, chemical and physical properties. They provide a multifunctional platform which serves in diagnosis of diseases, selective delivery of therapeutic agents, sensitization of cells and tissues for treatment regimens, monitoring and guiding surgical procedures, and preferentially administering electromagnetic radiation to disease sites. However, there is

paucity of data available on reproductive toxicity of nanoparticles; particularly in GNPs. Therefore, the aim of this study is to devise new methods and validate existing techniques that can be applied for assessment of safety of GNPs. project.

Although higher mammal systems have been used as a model in *in vivo* studies, the lower vertebrate zebra fish (*Danio rerio*) has gained tremendous attention. Zebra fish is popular as a model of vertebrate development because its embryos transparency and 70% homology between zebra fish and human genome.

The present study aims to investigate the reproductive toxicity by understanding the underlying mechanism of size dependent action of GNPs on fertility and reproduction. The adult fish of both sexes were orally administered GNPs of two different sizes of 15 nm and 45 nm diameter, at a selected dose for different time exposures.

The present study has shown a novel, reliable technique for oral dosing of test substance in adult zebras. To evaluate the effectiveness of the protocol, bioaccumulation of gold content was estimated using Inductive Coupled Plasmon-Mass Spectroscopy (ICP-MS). This was performed in reproductive organs at the end of the study which showed size and sex dependent pattern of bioaccumulation (Figure 19).

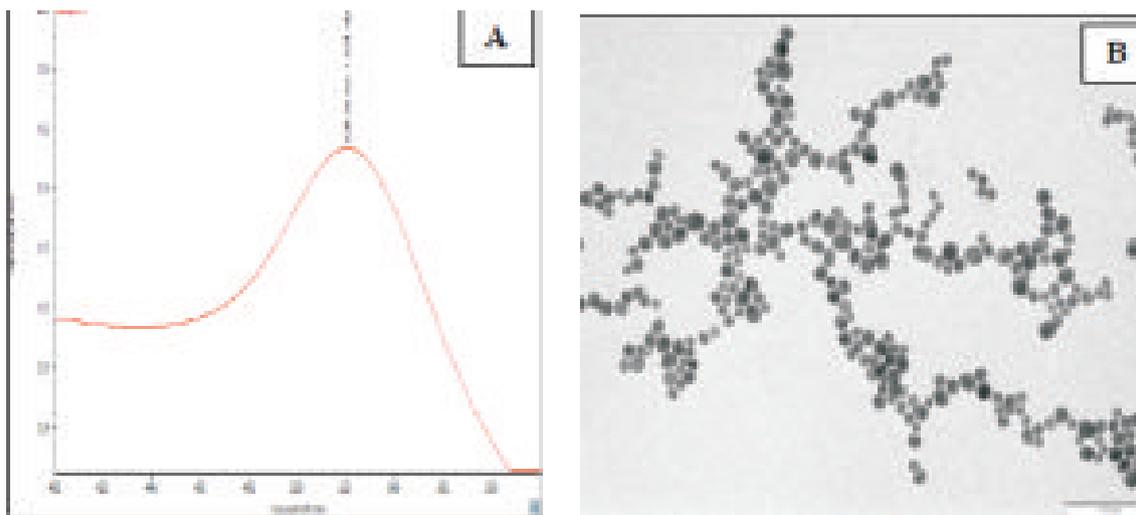


Figure 19: Characterization of chemically synthesized GNPs using UV/Vis spectro-photometer and transmission electron microscopy. A: UV/Vis spectrum of GNP's with maxima at 520nm & TEM micrographs of gold nanoparticles of average diameter 15 nm.

Studies on histopathology were carried out to investigate cellular morphological changes in gonads (Figure 20). Further, the study focuses on to investigate genotoxicity and effects on fertility and reproduction. This will be followed by more detailed investigation based on ultra structural studies.

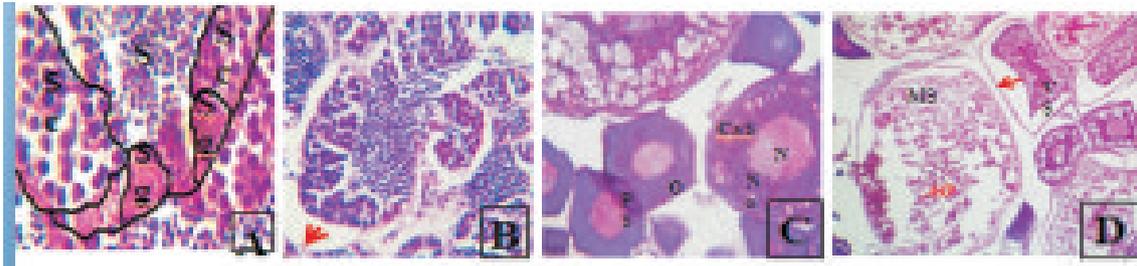


Figure 20: Histopathological analysis of Zebra fish testes of control (A) and treated (B) groups. Different spermatogenic populations lined within the seminiferous tubules. Sg-spermatogonia, Sc-seprmatocytes and S-mature sperms B. Empty spaces and detachment of spermatogenic cysts from the tubule lining marked by red arrow heads in treated. C & D Histopathological analysis of zebra fish ovaries. (C) Oocytes at different stages of development in control group. O-ooplasm, No-nucleolus, N-nucleus, PS-primary stage, CaS-cortical alveoli stage, L-lipid granules, Y-yolk, VS-vitellogenic stage, ZR-zona radiate and MS-mature stage. (D) In addition, membrane detachments are observed for vitellogenic and mature stage oocytes marked by red arrow heads in treated female ZF.

Development of Micro-biosensor for Diagnosis of *Mycobacterium Tuberculosis*

D.S. Joshi, Mansee Thakur and Girish Pai and V.K. Suri

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Mycobacterium tuberculosis (MTB) is an ancient pathogen that is infecting human beings for thousands of years. Despite modern methods of diagnostics and availability of antibiotics, its widespread transmission continues. Globally one-third of the population is infected with Tubercular bacilli. TB is one of the leading causes of mortality in India; it kills almost two persons every three minutes. Conventional methods of diagnosis of TB lack sensitivity, and culture-based diagnosis takes weeks. Delayed diagnosis thus could result more widespread transmission of this airborne disease. To curtail the burden of disease due to TB it is essential to have simple, sensitive and affordable methods, preferably portable devices such as micro biosensor for rapid diagnosis.

Rapid developments in recent times in the field of micro-nanotechnologies, it is possible to develop such devices. Our group has developed such a device using these technologies and some innovative micro engineering techniques for this

purpose. This is basically based on nucleic acid hybridization reaction between probes that can recognize TB specific complementary sequences from clinical samples. This project is being pursued in collaboration with BARC, IIIT Delhi and BITS Pillani Goa. Florescence based detection is based on hybridization reaction between nanoparticle tagged synthetic single standard probe and oligonucleotides obtained from the clinical sample.

Hybridization reaction is carried out in a novel micro-trench confirmation with probe DNA along with special fluorescence dye highly specific to the double stranded DNA molecules (Figure 22). The HRM fluorescent dyes have been developed to interact specifically and only with double stranded regions of DNA. They also have high Quantum Efficiency. Thus, if the clinical sample contains MTB, then single stranded DNA extracted from these bacilli will hybridize with corresponding complementary probe DNA on the microdots and emit intense fluorescence. The detection of such positive hybridization reaction can thus be monitored microscopically. In our work carried out so far we have optimized the length and sequences of oligonucleotides that can be used for such devices. We have also tested various fluorochromes for optimizing the intensity of signal.

The preliminary prototype of the device has been designed and tested. Prototype of the biosensor has also tested. An Indian patent is being filed for this device, based on nuclear hybridization reaction, jointly by BARC, MGMIHS and BITS Pilani.

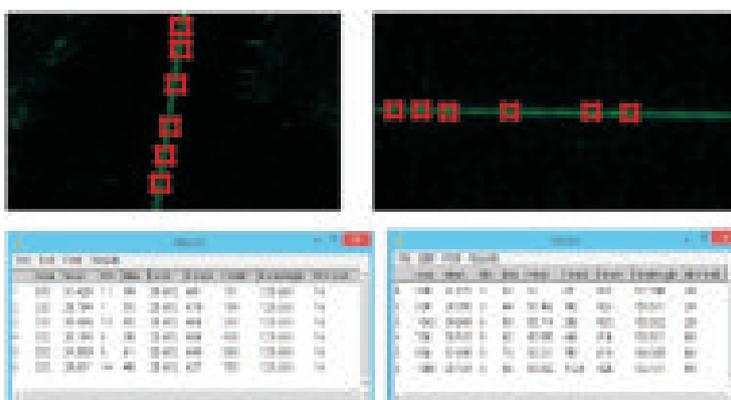


Figure 22: Hybridization process corresponding to gold coating of nm and GNP suspension.

Although biosensor is useful for quick and sensitive detection of MTB it cannot distinguish it from Multi Drug resistant TB (MDR-TB). Increasing incidence of MDR-MTB has added a sinister dimension to containment efforts of TMTB. For more comprehensive program of TB diagnostics (both MTB & MDR MTB) our group is working in collaboration with BARC on developing Lab-on-Chip devices which will be affordable, simple to operate and could be deployed in rural settings.

Research Awards

The following students and faculty members received awards on account of their research manuscripts adjudged best in national and international conferences and seminars.



Mr. Sano Zachariah: 4th Year MBBS Student, MGM Medical College and Hospital, Aurangabad. First Prize for Oral Presentation at National Level Undergraduate and Postgraduate Medical Research Conference, 22-23 August 2014, Pune.



Ms. Samrudhi Madkaikar, Mr. Chinmay Kinjawadekar: 4th Year MBBS Students, MGM Medical College and Hospital, Aurangabad. Third Prize for Oral Presentation at National Level Undergraduate and Postgraduate Medical Research Conference, 22-23 August 2014, Pune.



Mr. Rohit Jacob: MBBS Student, MGM Medical College and Hospital, Aurangabad. Best Paper Presentation Award at National Level Undergraduate and Postgraduate Medical Research Conference, 22-23 August 2014, Pune.



Dr. Pankhuri Kothari: MD Student, Department of Pediatric, MGM Medical College and Hospital, Navi Mumbai. Second Prize for Best Paper Presentation at 1st National Conference of Indian Society of Pediatric Gastroenterology, Hepatology and Nutrition, 19-21 September 2014, Kochi, Kerala.



Dr. Snehal Patil: Assistant Professor, Department of Microbiology, MGM Medical College and Hospital, Navi Mumbai. Second Prize for Poster Presentation, at XX Maharashtra Chapter Conference of Indian Association of Medical Microbiologists, 20-21 September 2014, Nagpur.



Dr. Bela Agarwal: Associate Professor, MGM Institute's University Department of Physiotherapy, Navi Mumbai. Best Paper Presentation Award at International Conference of Indian Association of Cerebral Palsy, 11-12 October 2014, Thane.



Dr. Pooja Agarwal: MD Student, Department of Dermatology, MGM Medical College and Hospital, Navi Mumbai. Best Long Case Presentation at Indian Association of Dermatology, Venereologists and Leprologists CME, 11 November 2014, Navi Mumbai.



Ms. Monal Shah: Assistant Professor, MGM Institute's University Department of Physiotherapy, Navi Mumbai. Best Paper Presentation at National Conference of Growth Development and Behavioral Paediatrics, 5-7 December 2014, Navi Mumbai.



Ms. Shruti Shah: Assistant Professor, MGM Institute's University Department of Physiotherapy, Navi Mumbai. Best Paper Presentation at National Conference of Growth Development and Behavioral Pediatrics, 5-7 December 2014, Navi Mumbai.



Dr. Suvarna Magar: Assistant Professor, Department of Pediatrics, MGM Medical College and Hospital, Aurangabad. Best Paper Presentation at International Convention on Challenges in Medical Education, 9-11 January 2015, Aurangabad.



Dr. Shahnaz Khan: MD Student, Department of Dermatology, MGM Medical College and Hospital, Navi Mumbai. Second Prize for Best Poster Presentation at Skin Allergy Meeting, 11 January 2015, Mumbai.



Dr. Rishikesh Wadke: Assistant Professor, Department of Community Medicine, MGM Medical College and Hospital, Navi Mumbai. Best Oral Presentation at Maharashtra Indian Public Health Association and Indian Association of Preventive and Social Medicine, 30-31 January 2015, Pune.



Dr. Kiran Mali: MD Student, Department of Community Medicine, MGM Medical College and Hospital, Navi Mumbai. Best Paper Presentation at Maharashtra Indian Public Health Association and Indian Association of Preventive and Social Medicine, 30-31 January 2015, Pune.



Dr. Radha Taralekar: MD Student, Department of Community Medicine, MGM Medical College and Hospital, Navi Mumbai. Best Paper Presented at Maharashtra Indian Public Health Association and Indian Association of Preventive and Social Medicine, 30-31 January 2015, Pune..



Ms. Chitra Prabhakaran: 4th Year B.Sc Nursing Student, MGM Institute's University Department of Nursing Best Bedside Nurse Award during Lamp Lighting Ceremony on 21 February 2015, Navi Mumbai.



Ms. Sinju Mathew: 3rd Year B.Sc Nursing Student, MGM Institute's University Department of Nursing Best Bedside Nurse Award during Lamp Lighting Ceremony on 21 February 2015, Navi Mumbai.



Mr. Ajay Khadka: 2nd Year B.Sc Nursing Student, MGM Institute's University Department of Nursing Best Bedside Nurse Award during Lamp Lighting Ceremony on 21 February 2015, Navi Mumbai.



Ms. Reshma Regi: 1st Year B.Sc Nursing Student, MGM Institute's University Department of Nursing Best Bedside Nurse Award during Lamp Lighting Ceremony on 21 February 2015, Navi Mumbai.



Ms. Shweta Sharma: 3rd Year MBBS Student, MGM Medical College and Hospital, Navi Mumbai. Second Prize for Best Poster Presentation at D Y Patil University, School of Medicine, Enlighten CME's and Workshops, 26-27 February 2015, Navi Mumbai.



Mr. Soham Ranade: 3rd Year MBBS Student, MGM Medical College and Hospital Navi Mumbai. Third Prize for Quiz Competition at D Y Patil University, School of Medicine, Enlighten CME's and Workshops, 26-27 February 2015, Navi Mumbai.



Ms. Juilee Mhatre: 3rd Year MBBS Student, MGM Medical College and Hospital, Navi Mumbai. Third Prize for Quiz Competition at D Y Patil University, School of Medicine, Enlighten CME's and Workshops, 26-27 February 2015, Navi Mumbai.



Mr. Ajay Doshi: 3rd Year MBBS Student, MGM Medical College and Hospital, Navi Mumbai. Third Prize for Quiz Competition at D Y Patil University, School of Medicine, Enlighten CME's and Workshops, 26-27 February 2015, Navi Mumbai.



Ms. Ashwini Patankar: 3rd Year MBBS Student, MGM Medical College and Hospital, Navi Mumbai. Third Prize for Quiz Competition at D Y Patil University, School of Medicine, Enlighten CME's and Workshops, 26-27 February 2015, Navi Mumbai.



Dr. Karishma Hemmady: Assistant Professor, Department of Dermatology, MGM Medical College and Hospital Navi Mumbai. Best Paper Presented Award at 13th Annual Conference of Association of Cutaneous Surgeons, 9-11 April 2015, Kolkatta.

Conferences Organised

1. Maharashtra State Critical Care Medicine Conference, organized by MGM Medical College and Hospital, Aurangabad, 18-19 September 2014, Co-ordinators: Anand Nikalje, Samidh Patel.
2. 45th Annual Conference of Indian Psychiatric Society, Western Zonal Branch Aurangabad, organized by Department of Psychiatry, MGM Medical College and Hospital, Aurangabad, 11-12 October 2014, Co-ordinators: Sanjeev Saoji, Arun Marwale, Manik Bhise.
3. 13th National Conference on Growth, Development and Behaviour Paediatrics, organized by MGM Medical College and Hospital, Navi Mumbai, and Indian Academy of Paediatrics, Raigad Branch, Navi Mumbai, 5-7 December 2014, Co-ordinators: Hemant Gangolia, Rajendra Chandorkar, Vijay Kamale.
4. International Convention on Challenges in Medical Education, organized by MGM Medical College and Hospital, Aurangabad, 9-11 January 2015, Co-ordinators: Ajit Shroff, Pravin Suryawanshi, Moiz Khan and Pandurang Jadhav.
5. Infertility to Maternity Conference, organized by MGM Medical College and Hospital, Aurangabad with Jointly Indian Society for Assisted Reproduction, 27-29 March 2015, Co-ordinators: Swati Shiradkar, Rajendra Boldhane.
6. PLEXUS-2015 Quest for Knowledge, National Medical Research Conference Bridging the Gap: Education and Profession, organized by MGM Medical College and Hospital, Aurangabad, 10-12 April 2015, Co-ordinators: Rohit Jacob, Rituraj Pendkar.
7. Organ Donation and Cadaver Transplant, organized by MGM Institute's University Department of Nursing, and MGM Medical College and Hospital, Aurangabad, Jointly with Aurangabad Nephrology Society, 7 May 2015, Co-ordinator: Rahul Deshmukh.

Publications in Peer Reviewed Indexed Scientific Journals

1. Agarwal B, Chowdhry M, Mullerpatan R. Effect of Movement Therapy on Academic Stress in Physiotherapy Students. *MGM Journal of Medical Sciences* 2014;1(4): 189-192.
2. Anand D, Jadhav P, Ali Reza S, Jadhav R. Papillary carcinoma of breast: A rare entity. *Global Journal of Research Analysis* 2014;3(11): 75-77.
3. Ansari I, Futane SS, Ansari A. Endoscopic cure for post: Traumatic pneumocephalus: When air hits the brain, treatment may not be the same. *Neurological Society of India* 2014;62(4): 459-460.
4. Arora M, Renu. Role of multi detector CT in early diagnosis of thoracic aortic aneurysm. *International Journal of Medicine and Allied Health Sciences* 2015;5(1): 402-405.
5. Arpitha S, Athale N, Hegde S, Ghanekar J. Prognostic significance of hyponatremia on admission in elderly patients. *International Journal of Medicine and Allied Health Sciences* 2015;5(1): 399- 401.
6. Bansal VP, Patwardhan NS, Damale AS, Bansal MP. Evaluation of nested polymerase chain reaction for the diagnosis of pulmonary tuberculosis. *Indian Medical Gazette* 2014;148(7):259-263.
7. Bansal VP, Patwardhan NS. Evaluation of nested polymerase chain reaction for the diagnosis of pulmonary and extrapulmonary tuberculosis. *International Journal of Health Sciences Research* 2014;4(8): 64-71.
8. Bhaire R, Mankar M, Goel R, Anjenaya S, Sawardekar P, Thatkar P, Guja R. To assess the knowledge of Rajiv Gandhi Jeevandayee Arogya Yojana (RGJAY) among medical interns at tertiary care hospital in Raigad district, Maharashtra. *International Journal of Recent Trends in Science and Technology* 2014;13(2): 279-282.
9. Bhakare PS, Phatale SR, Vinchurkar A. Study of auditroy reaction time in autism. *International Journal of Recent Trends in Science and Technology* 2015;15(1): 56-58.
10. Bhalla N, Tambe S, Zawar V, Joshi R, Jerajani H. Localized purpuric lesions in a case of classical pityriasis rosea. *Indian Journal of Dermatology Venereology Leprology* 2014;80(6): 551-553.
11. Bhivate VR, Kharate RP, Narpatsingh U, Gaikwad JR. Morphological anatomy of splenic artery and its clinical implication. *Indian Journal of Anatomy* 2014;3(3): 175-181.

12. Bhivate VR, Roshan S, Kharate RP, Pandey N. Study of diameter, length, tortuosity of splenic artery and its branches with its clinical implications. *Journal of Research in Medical and Dental Science* 2014; 2(4): 22-26.
13. Bhosle DS, Bhagat AH, Patil AD, Bobde JA, Bhagat AA. Effects of a fixed - dose combination of sitagliptin and metformin versus respective monotherapies in newly diagnosed type 2 diabetic subjects. *International Journal of Diabetes in Developing Countries* 2015; 1-5.
14. Bindu SM, Joshi S. Cutaneous sarcoidosis: A rare case report. *International Journal of Medical Research Health Sciences* 2014; 3(3): 779-781.
15. Bindu SM, Mahajan MS. Xanthogranulomatous oophoritis: A case report with review of literature. *International Journal of Health and Allied Sciences* 2014; 3(3): 187-189.
16. Binu S, Garate A, Setia MS. Using a "tag team" approach to care for critically ill patients. *Nursing*. 2015; 45(5): 61-63.
17. Borde MK, Lalan HN, Mohanty Ray I, Goud TSK. Health awareness and popularity of allopathic ayurvedic and homeopathic systems of medicine among Navi Mumbai population. *World Journal of Pharmacy and Pharmaceutical Sciences* 2014; 3(9): 783-788.
18. Borkar DB, Dhar R, Punjabi N. Squamous cell carcinoma of the renal pelvis associated with renal stones: A case report. *International Journal of Scientific Research* 2014; 3(12): 213-215.
19. Kudumula CR. Regulatory noncoding RNAs in cardiovascular disease: Shedding light on dark matter. *Journal of Cardiovascular Disease* 2014; 10(10): 1-7.
20. Chaudhary P, Shivalli S, Jaybhay D, Deshmukh S, Saraf S, Pandey B. Diacerein vis-a-vis etoricoxib for osteoarthritis of knee: Results of a quasi experimental study. *International Journal of Basic and Applied Medical Sciences* 2015; 5(2): 116-122.
21. Chopade AB, Ali RS, Jadhav R, Yadav V. Pilonidal sinus over a rare site. *International Journal of Scientific Research* 2015; 4(2): 184-185.
22. Chougule P, Silotry N, Chavan L. Variation in branching pattern of coronary arteries. *International Journal of Scientific Research* 2014; 3(8): 270-273.
23. Chowdary L, Rangdal S, Nagendra S, Yaligod V, Rudrappa GH. Study of long term functional outcome after repaired volar cut wrist. *Journal of Evolution of Medical and Dental Sciences* 2015; 4(9): 1501-1508.
24. Dabhade S, Uchadadia S, Bedekar J, Kejriwal A. Isolated tubercular splenic

- abscess. *International Journal Medicine and Allied Health Sciences* 2014; 3(3):275-278.
25. Dedhia A, Tambe S, Jadhav R, Bhatt K, Jerajani H. Unusual location of glomus tumour on the right ring finger. *Journal of Cutaneous and Aesthetic Surgery* 2014;7(3): 179-181.
 26. Deora K, Bhalchandra MH, Mulay VM. Early diagnosis of dengue: Need of the hour. *National Journal of Medical Sciences* 2015;4(1): 60-65.
 27. Deshpande S, Agashe A, Loomba A, Dhiware N. Step by step dacryocystorhinostomy for beginners: An expert's view. *Journal of Clinical Ophthalmology and Research* 2014; 2(3): 161-165.
 28. Deshpande S, Deshpande M, Dhiware N. Unusual occurrence of central serous retinopathy (CSR) after head injury. *Egyptian Retinal Journal* 2014; 2(3):111-113.
 29. Devadiga GS, Thomas V M P, Shetty S, Setia M S. Is non-woven fabric a useful method of packaging instruments for operation theatres in resource constrained settings. *Indian Journal of Medical Microbiology* 2015; 33(2): 243-247.
 30. Dewan S, Dhar R. Buffy coat: A clue to the diagnosis of hairy cell leukemia. *International Journal of Scientific Research* 2014; 3(10): 302-303.
 31. Dhar R, Borkar D B, Punjabi N. Myoepithelioma of the parotid gland-rare tumor. *International Journal of Scientific Research* 2014; 3(12): 216-218.
 32. Dhar R, Maheshwari U, Chopra R. Malignant phyllodes tumor: A rare presentation. *International Journal of Scientific Research* 2014; 3(10): 365-367.
 33. Dhar R, Maheshwari U, Sahu S, Walia A. Kimmelstiel Wilson syndrome: A case report. *International Journal of Scientific Research* 2015; 4(3): 214-215.
 34. Dhar R, Sahu S, Jadhav P, Gajaria P. Primary adenocarcinoma of the ureter & pelvis: A rare case report. *Journal of Recent Scientific Research* 2015; 4(5): 3-4.
 35. Dhar R, Sahu S, Roychoudhury A. Thymoma: A rare case report. *International Journal of Scientific Research* 2014; 3(10): 348-350.
 36. Garudkar S, Kulkarni SG, Gulwe VS. Study of clinical profile and prognostic factors of acute kidney injury in tertiary referral centre in Marathwada. *Journal of Dental and Medical Sciences* 2014; 13(12): 66-77.
 37. Gavhane J, Thamke R, Pandey A, Sherdiwala F, Yadav R, Kadam N. Recent advances in diagnosis of malaria. *New Indian Journal of Pediatrics* 2015; 4(2): 98-107.

38. Ghodke BV, Ray IM, Ghildiyal R, Shounak A, Deshmukh YA. Effect of selective serotonin reuptake inhibitors on psychomotor function in patients of depression: A comparative study of sertraline and fluoxetine. *MGM Journal of Medical Sciences* 2015; 2(2): 72-77.
39. Ghodke BV, Ray Mohanty I, Wagh AR, Deshmukh YA. Perception and attitudes of medical students toward communication, chronic disease and death. *International Journal of Basic and Clinical Pharmacology* 2014; 3(5): 854-859.
40. Gulwe VS, Ukadgaonkar AN, Dalvi VR, Sanap S, Mogal V. Rare presentation of SLE-convulsion without stroke before the appearance of malar rash: A case study. *International Journal Scientific Research* 2014; 3(10): 671-674.
41. Gulwe VS, Dalvi VR, Pawar V, Pagar B, Patil R, Ahire P. Unusual presentation of herpes simplex encephalitis: A case study. *Journal of Dental and Medical Sciences* 2014; 13(11): 1-5.
42. Gulwe VS, Gaffar S, Dalvi VR, Pawar V, Ahire P. Serum sodium derangement in bowel preparation with polyethylene glycol (PEGLEC) prior to elective colonoscopy: A case report. *Indian Journal of Basic and Applied Medical Research* 2014; 3(4): 384-385.
43. Gupta S, Sahu S, Kamaal M. Extragonadal germ cell tumor in inguinal region: A rare case report. *International Journal of Scientific Research* 2014; 3(12): 194-196.
44. Gupta SK, Dongare S, Mathur R, Ray Mohanty I, Srivastab S, Mathur S, Nag TC. Genistein ameliorates cardiac inflammation and oxidative stress in streptozotocin-induced diabetic cardiomyopathy in rats. *International Journal of Molecular and Cellular Biochemistry* 2015; 408(1): 63-72.
45. Gursale A, Gursale A. Corpus callosum dysgenesis: A case report. *Journal of Evolution of Medical and Dental Sciences* 2015; 4(44): 7714-7717.
46. Hatolkar VS, Phadke Y, Hazari N R. Effect of chronic hyperglycemia on intraocular pressure in patients with diabetes mellitus. *International Journal of Recent Trends in Science and Technology* 2014; 13(1): 111-113.
47. Hiremagalore R, Kubba Bansal S, Jerajani H. Immunofluorescence mapping in inherited epidermolysis bullosa: A study of 86 cases from India. *British Journal of Dermatology* 2015; 172(2): 384-391.
48. Hodiwala A, Koli A. Bacterial vaginosis. *International Journal of Current Microbiology and Applied Sciences* 2015; 4(6): 530-538.
49. Hodiwala A, Kore A, Bisht K. A study of prevalence HIV and HCV infection and their co-infection in patients in a Tertiary Care Hospital in Navi

- Mumbai. American International Journal of Contemporary Science 2015; 2(1): 86-89.
50. Holkar S, Makhija S. Alteration in anthropometric measurements before and after yogic exercises in patients of hypertension with obesity. International Journal of Health Sciences and Research 2015; 5(4): 159-164.
 51. Holkar S, Makhija S. Alteration in blood glucose levels and lipid profile before and after yogic exercises in diabetes patients. Journal of Diabetes and Health, Photon 2015; 108: 277-283.
 52. Holkar S, Makhija S. Alteration in blood glucose levels before and after yogic exercises in diabetes patients. Biomedicine 2015; 35(2): 167-172.
 53. Holkar S, Makhija S. Alteration in lipid profile before and after yogic exercises in patients of type II diabetes. International Journal of Health Sciences and Research 2015; 5(6): 286-290.
 54. Ingale A, Deore D, Singh G. A study on incidence of microalbuminuria in tobacco chewers in relation with or without metabolic syndrome. International Journal of Medicine and Allied Health Sciences 2014; 4(3): 393-396.
 55. Jadhav TS, Badade ZG, Vyas NL, Ingale A, More K, Pande B, Pramitkumar. Effect of SMOF lipid emulsion on pro inflammatory cytokines and oxidative stress markers in sepsis patient. Indian Journal of Applied Research 2014; 4(9): 253-256.
 56. Jain A, Gupta S, Maheshwari U, Mehra R. Distribution of Abo & Rhesus blood groups. International Journal of Scientific Research 2015; 4(2): 228-230.
 57. Jain S, Kadam A, Holkar D. Caecal volvulus a rare presentation of acute intestinal obstruction in a 22 year old female. Journal of Dental and Medical Sciences 2014; 13(12): 104-107.
 58. Jain SK, Satani S, Gursale A, Khandewal S, Dandona S. Bilateral persistent hyperplastic primary vitreous. International Journal of Medicine and Allied Health Sciences 2014; 4(2): 362-365.
 59. Jain SK, Satani S, Khandewal S, Dandona S, Gursale A. Right sided congenital diaphragmatic defect with liver hernia: A case report. International Archives of Integrated Medicine 2014; 1(4): 75-79.
 60. Javsén C, Deshmukh YA, Yadav RP. High performance liquid chromatographic method for determination of mometasone furoate in human plasma. International Journal of Pharmacy and Pharmaceutical Sciences 2015; 4(2): 653-657.
 61. Jindal SR, Chavade P, Jerajani HR. Late onset palmar angiokeratoma

- circumscriptum: An unusual presentation. *Indian Dermatology Journal* 2014;5(3): 320-322.
62. Johar SK, Bhosle D, Jaybhaye D, Sheikh A. To study the comparative effects of nebivolol and metoprolol on lipid profile in patients of essential hypertension. *International Journal of Basic & Clinical Pharmacology* 2015; 4(3): 574-578.
 63. Joseph SD, Bellare B, Vernon H. Cultural adaptation, reliability, and validity of neck disability index in Indian rural population: a marathi version study. *Spine (Phila Pa 1976)* 2015; 40(2): E 68-E 76.
 64. Joshi S, Mahajan M, Bindu S, Vare A, Muly S. Tuberculous epiglottitis: A rare case report. *International Journal of Health Sciences Research* 2014; 4(7): 289-293.
 65. Joshi S, Shivkumar, Ingale A. Study on metabolic syndrome in young tobacco chewers. *International Journal of Medicine and Allied Health Sciences* 2014; 4(3): 386-392.
 66. Junagade B, Mukherjee A. Study of the normal and variant branching pattern of the aortic arch: The clinical and embryological significance. *Global Journal for Research Analysis* 2015; 4(5): 141-143.
 67. Junagade B, Mukherjee A. The morphometric study of the normal and variant branching pattern of the aortic arch by cadaveric dissection. *International Journal of Medical Research and Review* 2015; 3(5): 461-469.
 68. Kadam RV, Mishra SK, Deshmukh AG, Mukhi LS. A case of bilateral tibial hemimelia type IV and V with bilateral subdural hygroma and atrial septal defect. *MGM Journal Medical Sciences* 2015; 2(1): 52-55.
 69. Kale AV, Haseeb M, Reddy SC, Khan S, Golwalkar A, Khaled MB. Clinical profile and outcome of dengue fever from a Tertiary Care Centre at Aurangabad, Maharashtra India: An observational study. *Journal of Dental and Medical Sciences* 2014; 13(9): 14-19.
 70. Kale AV, Jaybhaye D, Bonde V. Neonatal sepsis: An update. *Iranian Journal of Neonatology* 2014; 4(4): 39-51.
 71. Kale AV, Magar S, Golwalkar A. Hallervorden spatiz disease-pantothenate kinase associated neurodegeneration: A case report. *International Journal of Current Medical and Applied Sciences* 2014; 4(3): 95-97.
 72. Kale S, Gumber R, Mahajan M, Muly S. Identifying errors involving clinical laboratory: A 1 year study. *International Journal of Health Sciences Research* 2014; 4(8): 48-53.

73. Kamble V, Bhatia T, Patil S. Cystic hygroma with hydrops fetalis: A rare case report. *International Journal of Reproduction Contraception Obstetrics and Gynecology* 2014; 3(3): 847-850.
74. Kar H, Hodiwala AB, Batazoo A. A study of Co-Infection of HBV in HIV patients. *Indian Journal of Applied Research* 2014; 4(8): 507-509.
75. Karki S, Suman RK, Ray Mohanty I, Mohanty N C, Deshmukh Y A. Assessment of impact of environmental causative factors on severity of asthma in children. *MGM Journal of Medical Sciences* 2014; 1(4): 151-155.
76. Karwande V, Reddy B, Patil WR. Pulmonary manifestation of malaria. *International Medicine and Allied Health Sciences* 2014; 4(3): 376-380.
77. Kattimani Y, Balasubramaniam P. Effect of exercise on heart rate variability in young medical students: *International Journal of Physiology* 2015; (3)1: 69-74.
78. Kaur D, Ajinkya S, Ghildiyal R. Pathway to psychiatric care. *MGM Journal of Medical Sciences* 2014; 1(3): 132-133.
79. Kaur H, Ray Mohanty I, Mohanty NC. Thamke P, Deshmukh Y A. Impact of structured counseling on choice of contraceptive method among postpartum women. *The Journal of Obstetrics and Gynecology of India* 2015; 1-2.
80. Kayad P, Jadhav K, Biswas TK, Mehta V. Clinical study of hypertension in elderly with special reference to risk factors and end organ damage. *International Journal of Medicine and Allied Health Sciences* 2014; 4(3): 372-375.
81. Khan AQ, Patil A, Pawar P. Role of hyperbilirubinemia as a diagnostic predictor of appendicular perforation. *International Journal of Sciences Research* 2014; 3(12): 1007-1010.
82. Khan AQ, Rathod M, Patil A, Chamle G, Gill A. Case report: Huge mucinous cyst adenoma of ovary. *Journal of Evolution of Medical and Dental Sciences* 2014; 3(69): 14866-14869.
83. Khan MM, Shaikh ST, Shroff AG. A study of knowledge and practices of contraception in urban slum community, Mumbai. *International Journal Current Medical and Applied Sciences* 2014; 3(2): 35-41.
84. Kharate R, Kharate B, Pandey N, Bhivate V, Roshan S. Comparison of anthropometric measurement in normal subjects with subjects having diabetes mellitus and hypertension. *International Journal of General Medicine and Pharmacy* 2014; 3(4): 51-64.
85. Khodke PV, Badade ZG, Vyas NL, More KM. Analysis of gastric juice in acid peptic diseases. *Journal of Krishna Institute of Medical Sciences University* 2015; 1(4): 77-87.

86. Kulkarni G, Mohanty NC, Ray Mohanty I, Jadhav P, Boricha BG. Survey of reason for discontinuation from in vitro fertilization treatment among couples attending infertility clinic. *Journal Human Reproductive Sciences* 2014;7(4): 249-254.
87. Kunde PB, Adsul BB. Impact of behavior change communication (B.C.C.) on the risk factors of type 2 diabetes: An interventional study among high risk adults *International Journal of Current Medical and Applied Sciences* 2015; 6(1): 13-16.
88. Mahajan MS, Bindu SM, Taksali R, Kale AV, Mulay SS. Coexistence of hashimoto's thyroiditis with papillary carcinoma thyroid: A rare case report with review of literature. *International Journal of Medical Research Health Sciences* 2014;3(3): 696-699.
89. Maheshwari U, Gajaria P, Samant P, Kadam S, Hoogar MB. A rare case report of hereditary elliptocytosis with hemoglobin D trait. *International Journal of Recent Scientific Research* 2015; 6(5): 3856-3858.
90. Maheshwari U, Sharma S, Patro P, Kadam SN, Patel R, Dhar R. EDTA induced platelet agglutination (EIPA): A curious case report and review. *International Journal of Recent Scientific Research* 2014;5(12): 2244-2246.
91. Mandhana VS, Shroff GA, Panse AA, Gulnikar S. Morphometry of placenta in pregnancy induced hypertension. *International Journal of Recent Trends in Science and Technology* 2014; 12(1): 86-90.
92. Mane R, Shinde C. A Morphometric study of superior mesenteric artery and its implication in laparoscopic surgery. *International Journal of Medical Research and Review* 2015;3(4): 372-377.
93. Mane R, Shinde C. Morphometric study of inferior mesenteric artery & its branches. *Indian Journal of Applied Research* 2015;5(4): 580-582.
94. Mane R, Shinde C. The pattern of distribution of inferior mesenteric artery: A cadaveric study. *Global Journal for Research Analysis* 2015;4(4): 1-3.
95. Math MV, Kattimani Y, Walawalkar SR, Khadkikar RM, Inamdar RS. Asymptomatic postural orthostatic tachycardia: A case report. *International Journal of Physiology* 2014;2(2): 68-70.
96. Mehta UK, Geeta KN, Gaikwad M, Chavan L. Posterior arch anomalies of atlas and its clinical significance. *International Journal of Medical Research and Review* 2014;2(4): 361-366.
97. Mohanty NC, Agrawal N, Kadam NN, Shamim A, Thakur M. Types of rotavirus causing acute diarrhea among children in western India: Their

- demographic pattern and disease severity. *MGM Journal of Medical Sciences* 2014;1(3):105-111.
98. Mohanty NC, Dutt R. Diagnosis and management of chronic constipation. *New Indian Journal of Pediatric* 2015;4(2): 88-97.
 99. Mohanty NC, Kadam NN, Kamale V, Ray Mohanty I. Item analysis and validation of MCQs in paediatrics for final MBBS examination. *Journal of Community Health Management* 2014;1(1):12-16.
 100. Mohite MA, Gavhane J. Current concepts in management of dengue infection. *Indian Journal of Pediatrics* 2014;3(3):127-131.
 101. Moksha J, John R. Clinical study of sensory and pain threshold values of upper limb nerves in diabetes mellitus patients. *International Journal of Diabetes in Developing Countries* 2015;1-2.
 102. Mol M, Mukherjee A, Shroff G. Histogenesis of suprarenal gland in fetuses of different gestational ages. *International Journal of Scientific Research* 2014;3(8):265-267.
 103. More K, Badade ZG, Narshetty JG, Mukhejee S. Association of sperm DNA integrity and nitric oxide in infertile men with abnormal semen quality. *Indian Journal of Applied Research* 2015;5(6):758-760.
 104. Mukhia R, Mukherjee A, Sabnis A. Morphological and morphometric study of human foetal spleen at different gestational age. *Global Journal for Research Analysis* 2015;4(4):1-2.
 105. Mulay S, Mulay SS, Prasad DV, Patil A. Recent trends in management of osteoporosis. *International Journal of Health Sciences and Research* 2015;5(7):430-435.
 106. Mulay SD, Mulay SS, Kulkarni DR. Primary malignant giant cell tumour of femur. *International Journal of Healthcare and Biomedical Research* 2015;3(2):46-69.
 107. Nakle M, Gattani PL. Role of accredited social health activist (ASHA) in promoting maternal health services: A cross sectional study in rural areas of Aurangabad city. *International Journal of Scientific Research* 2015;4(6):179-183.
 108. Nayak MM, Potdar PV, Thakker HS. Tuberculous pericardial calcification. *Journal of Evolution of Medical and Dental Sciences* 2014;3(74):15614-15616.
 109. Nikalje A, Bajaj M, Tribhuwan A, Pawar V, Dalvi V, Moghal V. Unusual cause of ventricular tachycardia: A case study. *International Journal of Health Sciences & Research*, 2015;5(1):340-343.

110. Nimmagadda H, Mukherjee A. Microscopic evaluation of the fetal heart growth at various stages of gestation by histological and immunohistochemical studies. *International Journal of Pharmaceutical and Medical Research* 2015; 3(2): 1-6.
111. Pachpute S, Pachpute P, Pai C. Role of a Parasite lactate dehydrogenase: Based immunochromatographic antigen detection assay for the detection of malarial parasites in human blood samples. *International Journal of Current Microbiology and Applied Sciences* 2015; 4(3): 98-107.
112. Pahuja N, Tambekar M, Dhar R, Borkar DB. Significance of cell pattern approach in fine needle aspiration cytology of thyroid lesions. *International Journal of Advanced Research* 2014; 2(10): 1092-1101.
113. Pai G, Dayal N, Shettigar CD, Patil P, Thankur M. Microwave assisted biosynthesis of silver nanoparticles by aqueous extract of ocimum sanctum (Tulsi). *MGM Journal Medical Science* 2014; 1(3): 117-120.
114. Patel S M, Jadhav PR, Vieira A. Association of OSTA index with bone mineral density and its comparison with calcaneal quantitative ultrasound for the prediction of low BMD in peri-menopausal Indian women. *International Journal of Research and Medical Science* 2014; 2(4): 1495-1499.
115. Patil AD, Ghodke BV, Patil SA. Attenuation of hemodynamic response to laryngoscopy and endotracheal intubation- A comparative study of fentanyl and esmolol. *World Journal of Pharmacy and Pharmaceutical Sciences* 2014; 3(9): 460-472.
116. Patil K, Sonawane M, Rathod P, Gaikwad M. A case report of high division of superficial brachial artery, its embryological basis and clinical significance. *The Journal of Anatomy* 2014; 114: 177-181.
117. Patil K, Sonawane M, Rathod P, Gaikwad M. A case report of superficial brachial artery with its embryological basis and clinical significance. *Research Journal Pharmaceutical Biological and Chemical Sciences* 2014; 5(5): 247-252.
118. Patil P, Mathur P, Shinde C. In natural conception heterotopic pregnancy at 19 weeks Gestation: A case report. *Indian Journal of Applied Research* 2015; 5(4): 862-863.
119. Patil S, Phatale S. Auditory and visual reaction time : A tool for early detection of neuropathy in diabetics. *International Journal of Health Sciences and Research* 2015; 5(4): 141-146.
120. Paul NS, Yadav RP. Biosynthesis of silver nanoparticles using plant seeds and their antimicrobial activity. *Asian Journal of Biomedical and Pharmaceutical Sciences* 2015; 5(45): 26-28.

121. Paul NS, Sharma R, Yadav R. Biological synthesis of antimicrobial silver nanoparticles by phaseolus vulgaris seed extract. *MGM Journal Medical Sciences* 2015; 2(1):1-6.
122. Paul NS, Yadav RP. Green chemistry: An approach for synthesis of silver nanoparticles and their antimicrobial activity. *Journal of Medical and Pharmaceutical Innovation* 2014; 1(5): 10-14.
123. Pusukuru R, Mehrotra A, Balachandran N, Ghanekar J. Absolute leucocyte count as a laboratory tool to monitor disease progression in HIV. *International Journal of Medicine and Allied Health Sciences* 2015; 5(1):416-418.
124. Rachakonda L, Rawate S, Ruiwale S. Clinical study of antepartum haemorrhage. *International Journal of Recent Trends in Science and Technology* 2014; 12(3): 581-588.
125. Rachakonda L, Rawate S, Shiradkar S. Teenage pregnancy. *International Journal of Current Medical and Applied Sciences* 2014; 4(2): 59-63.
126. Rajiwate F, Kalyanshetti A, Jadhav A. Boerhaave's syndrome: A case report. *International Journal of Scientific Research* 2014; 3(12): 243-244.
127. Raksha, Urhekar AD, Singh G. Pilot study on identification of aspergillus species and its antifungal drug sensitivity testing by disc diffusion method. *International Journal of Current Microbiology and Applied Sciences* 2014; 3(12): 555-562.
128. Ramakrishnan R, Shrivastava S, Patel A, Agashe A. Fibrous dysplasia of bone causing unilateral proptosis. *Medical Journal of Dr D Y Patil University* 2015; 8(2): 237-240.
129. Raul KM, Tungikar S, Soni N, Deshpande S, Raundal S, Study of serum phosphorus levels and its correlation with clinical profile in patients with diabetic ketoacidosis. *IOSR Journal of Dental and Medical Sciences* 2015; 14(5): 1-10.
130. Relwani NR, Saoji AV, Kulkarni M, Kasturwar N, Zade R, Wadke R. Revealing unmet need for contraception among married women in an urban slum of Nagpur. *International Journal of Medical Sciences and Public Health* 2015; 4(8): 1136-1140.
131. Rohatgi S, Basavaraj KH. Metabolic and cardiovascular comorbidities in psoriasis: Revisited. *MGM Journal Medical Sciences* 2015; 2(1): 25-38.
132. Rohatgi S, Jindal S, Jerajani HR. Impetigo herpetiformis: A dermatologist's headache and an obstetrician's nightmare. *Indian Journal of Clinical Practice* 2015; 25(12): 1131-1134.

133. Rohatgi S, Lathia T. The curious case of prolactin hormone. *Indian Journal Dermatology* 2015;60(3):310.
134. Sabnis A. Variant attachment of bicipital aponeurosis and presence of supernumerary extensor tendon for middle finger: A case report. *International Journal of Scientific Research* 2014;3(12):238-240.
135. Saha KK, Kaushal RP, Kumar A, Deval M, Saha KK, Kaul SK. Intraaortic balloon pump boon for off-pump coronary artery bypass grafting. *Asian Cardiovascular and Thoracic Annals* 2015;23(3):267-270.
136. Sahu S, Agarwal A, Dhar R. Benign fibrous histiocytoma, rare presentation: A case Report. *International Journal of Recent Scientific Research* 2015; 6(5): 3962-3964.
137. Sahu S, Dhar R, Patel R. Intralobar pulmonary sequestration masquerading as lung abscess: A rare paediatric presentation. *International Journal of Science Research*, 2015: 4(1): 1638-1640.
138. Sahu S, Dhar R, Singh K. Placenta increta in a clinically diagnosed placenta accreta: A case report. *IJSR International Journal of Scientific Research* 2014; 3(12):292-293.
139. Sahu S, Maheshwari U, Dhar R, Patel R. Two interesting cases in the spleen: A less studied organ. *IJSR Journal of Scientific Research* 2014;3(12):1-3.
140. Sai D, Katalam S, Ray Mohanty I, Jindal JD, Deshmukh YA. Comparative assessment of self medication practices among undergraduate medical and engineering students. *Journal of Community Health Management* 2014; 1(1): 23-29.
141. Salunke P, Patra DP, Futane S, Nada R. Olfactory region schwannoma: Excision with preservation of olfaction. *Journal of Neurosciences and Rural Practice* 2014;5(3):281-283.
142. Salunke P, Futane S, Sharma M, Sahoo S, Kovilapu U, Khandewal NK. Pseudofacets or supernumerary facets in congenital atlanto-axial dislocation: boon or bane?. *European Spine Journal* 2015;24(1):80-87.
143. Salve SB, Dase RK, Jadhav VS, Mahajan SM, Adchitre SA. A study on awareness and behavior of adolescents towards road traffic accidents. *International Journal of Current Medical and Applied Sciences* 2014; 4(1):33-40.
144. Samant S, Marathe N, Vaishampain A, Shouche Y. Detection of NDM -1 in multi drug resistant gram negative clinical isolates from a tertiary care hospital in Navi Mumbai, India. *International Journal of Current Microbiology and Applied Sciences* 2015;4(3):20-29.

145. Sanjeev S, Anjenaya S, Thatkar P. Knowledge and practices about menstruation among adolescent girls in an urban slum of Belapur, Navi Mumbai. *International Journal of Medicine and Allied Health Sciences* 2014; 4(2): 344-348.
146. Siddiqui SS, Jaybhaye DL, Kale A, Kakade J, Engade M, Haseeb M. Efficacy and safety of intravenous iron sucrose therapy in a group of children with iron deficiency anemia. *International Journal of Contemporary Pediatrics* 2015; 2(1): 12-16.
147. Sebastine C, Athale N, Ghanekar J, Hegde S. Anterior circulation stroke following snakebite: A rare presentation. *MGM Journal of Medical Sciences* 2014; 1(3): 143-145.
148. Senapaty S, Rath B. Biochemical effect of telmisartan versus ramipril in experimental diabetic nephropathy. *International Journal Health Sciences Research* 2015; 5(5): 195-202.
149. Senapaty S, Yadav RP, Paul N, Chavan R. Evaluation of *in vitro* pancreatic lipase inhibitory activity of fenugreek seeds extracts. *International Journal Pharmaceutical Sciences and Health Care* 2014; 4(4): 1-7.
150. Seth B, Gavhane J, Revathi N, Setia MS. Haemolytic anaemia - initial presentation of wilson disease. *Indian Journal of Basic and Applied Medical Research* 2015; 4(3): 498-500.
151. Shah M, Paranjape S, Six minute walk test as a clinical parameter to assess the sub maximal exercise capacity in non obese and obese healthy young Indian population. *International Journal of Applied Exercise Physiology* 2015; 4(1): 9-17.
152. Shah ZA, Deshmukh A, Jadhav S, Deshmukh H, Kasat S. Prevalence of sputum smear positive for acid fast bacilli in urban and rural population with cough more than 3 weeks in a tertiary care centre. *International Journal of Current Medical and Applied Sciences* 2014; 2(3): 6-9.
153. Shamim A, Afzal K, Ali SM. Safety and efficacy of isotonic (0.9%) vs. hypotonic (0.18%) saline as maintenance intravenous fluid in children: A randomized controlled trial. *Journal of Indian Pediatrics* 2014; 51: 969-974.
154. Shamim A, Mohanty NC, Madan N. Obesity and its complications among suburban school children. *Indian Journal of Pediatrics* 2015; 52: 519.
155. Sharma S, Deshmukh YA, Mandavi R, Salve U. Study of drug utilization pattern in the gynecology OPD of a tertiary care centre. *World Journal of Pharmacy and Pharmaceutical Sciences* 2014; 3(12): 916-923.
156. Sharma S, Maheshwari U, Gajara P, Dhar R, Kadam SN. Filariasis in bone

- marrow aspiration of a child with pyrexia of unknown organ: A case report. *Journal of Dental and Medical Sciences* 2014; 13(12): 1-3.
157. Sharma S, Maheshwari U, Singh K, Haemophagocytic lymphohistiocytosis - A report of two cases and review of literature. *International Journal of Scientific Research* 2015; 4(2): 178 - 180.
 158. Shenoi A, Kadam V, Ghanekar J. Effect of smoking on serum lipid levels: A hospital based study. *MGM Journal of Medical Sciences* 2015; 2(1): 13-15.
 159. Shetty T, Tambekar M, Kamaal M, Borkar DB, Dhar R. Hidden metastasis of squamous cell carcinoma in a case of leprosy. *International Journal of Scientific Research* 2015; 4(2): 192-194.
 160. Shinde C, Mane R. A cadaveric study on anatomical variations of the median nerve formation: Embryological and clinical co-relations. *International Journal of Scientific Research* 2015; 4(4): 288-290.
 161. Shinde C, Mane R. Median nerve as a nerve of anterior compartment of arm with its variant formation. *International Journal of Anatomy and Research* 2015; 3(2): 1008-1010.
 162. Shinde C, Patil P, Mane R. Endometrial thickness by USG as a guideline for the treatment of dysfunctional uterine bleeding premenopausal women. *International Journal of Medical Research and Review* 2015; 3(3): 263-267.
 163. Shrivastava S, Ramakrishnan R, Agrawal A, Loomba A, Patel C. Angiographic guided sclerotherapy as a treatment modality of an orbital mass. *Journal of Clinical Ophthalmology and Research* 2015; 3(2): 98-100.
 164. Shroff GA, Mandhana VS, Nawal A. Correlation of hand and foot length and stature in both sexes in central India. *International Journal of Scientific Research* 2015 4(6): 426-428.
 165. Shroff GA, Gulanikar S, Nawal A, Mandhana VS. Muticystic kidney-dilemma. *Indian Journal of Research* 2015; 4(6): 384-386.
 166. Shroff GA, Mandhana VS, Kadam S. Correlation of hand and middle finger length and stature in both sexes of college students in central India for use in ergonomics. *Global Journal for Research Analysis* 2015; 4(5): 342-344.
 167. Shroff GA, Mandhana VS. Role of Hand and Foot Length and its Correlation of both Sexes in Ergonomics. *Indian Journal of Anatomy* 2015; 4(2): 69-72.
 168. Singh A, Chopade A, Ali RS, Jadhav R. A rare case of post auricular arterio-venous malformation. *Journal of Scientific Research* 2015; 4(4): 279.

169. Singh A, Kumar KR, Rao SP. A rare case of extranasopharyngeal angiofibroma. *International Journal of Medicine and Allied Health Sciences* 2014;4(3):381-382.
170. Singh G, Raksha, Mukhia RK, Urhekar AD. Laboratory surfaces can act as a source for transmission of infection? *World Journal of Pharmaceutical Research* 2014;3(4):926-932
171. Singh G, Urhekar AD, Maheshwari U, Samant P, Raksha. Malarial infection: Effects on electrolytes parameteres. *Asian Academic Research Journal of Multidisciplinary* 2015;1(32):211-220.
172. Singh G, Urhekar AD, Maheshwari U, Sharma S, Raksha. Prevalence of malaria in a tertiary care in Navi Mumbai, India. *Journal of Bacteriology and Parasitology* 2015;6(2):1-4.
173. Singh G, Urhekar AD, Maheshwari U, Sharma S. Effects of malarial parasitic infections on human blood cells. *International Journal of Current Microbiology and Applied Sciences* 2014;3(12):622-632.
174. Singh G, Urhekar AD, Raksha. A Study on correlation of Malaria Infection with A, B, O, RH Blood group System. *Journal of parasitology and Vector Biology* 2015;7(4):67-73.
175. Singh G, Urhekar AD, Singh R. In vitro antimalarial drug sensitivity testing for plasmodium falciparum and plasmodium vivax. *IOSR Journal of Dental and Medical Sciences* 2015;14(4):49-55.
176. Singh G, Urhekar AD, Raksha. Vitro cultivation of plasmodium falciparum. *International Journal of Medical and Applied Sciences* 2015.4(1):159-165.
177. Singh G, Urhekar AD, Singh R, Maheshwari U, Samant P. Alteration in biochemical parameters in malaria patients. Plasmodium falciparum VS. Plasmodium vivax. *Journal of Microbiology and Antimicrobial Agents* 2015;1(1):13-15.
178. Singh G, Urhekar AD, Singh R, Thakur M. Polymerase chain reaction for detection and speciation of malarial parasites. *International Journal of Medicine and Medical Sciences* 2015;48(1):1671-1676.
179. Singh H, Sainath, Rai S. Prevalence of depression in diabetic. *International Journal of Medicine and Allied Health Sciences* 2014;4(3):383-385.
180. Someshwar S, Jerajani HR. Bullous impetigo. *Indian Pediatrics* 2014; 51(3):243.
181. Someshwar S, Jerajani HR. Pseudokaposi's sarcoma. *Indian Dermatology Online Journal* 2014;5(3):340-342.

182. Srivastava P, Someshwar S, Jerajani HR. Nicolau's syndrome. *Journal of Indian Pediatric* 2015; 52(4): 356.
183. Suman R K, Mohanty Ray I, Deshmukh Y A. The concepts of drug utilization study. *World Journal of Pharmacy and Pharmaceutical Sciences* 2014; 3(10): 352-363.
184. Suman RK, Mohanty Ray I, Mohanty NC , Kumar Mukhia R, Deshmukh YA. Assessment of usage of antibiotic and their pattern of antibiotic sensitivity test among childhood fever. *International Journal of Pharmacy and Pharmaceutical Sciences* 2014; 6(7): 296-299.
185. Suman RK, Borde MK, Mohanty Ray I, Deshmukh YA. Antidiabetic activity of gymnema sylvestre leaves extract on streptozotocin induced experimental diabetic rats. *Indo American Journal of Pharmaceutical Research* 2015; 5(5): 2054-2060.
186. Suman RK, Gore V, Ray IM Israni N, Deshmukh YA. Drug usage pattern for cataract in ophthalmology outpatient department of tertiary care hospital. *Indo-American Journal of Pharmaceutical Research* 2014; 4(12): 5844-5849.
187. Suman RK, Gore VS, Mohanty Ray I, Israni N, Deshmukh YA. Prescribing pattern of drugs used for treatment of conjunctivitis in ophthalmology outpatient department of tertiary care hospital. *International Journal of Health Sciences and Research* 2015; 5(3): 194- 199.
188. Suman RK, Kumar R, Garje YA, Wagh AR, Mohanty Ray I. Drug usage patterns in ENT out patients department of teaching hospital. *International Journal of Scientific Research* 2014; 3(7): 341-343.
189. Suman RK, Mohanty NC, Mohanty Ray I, Deshmukh YA. The study of drug usage patterns in pediatric patients at MGM Hospital, Navi Mumbai. *World Journal of Pharmaceutical Research* 2014; 3(4): 734-743.
190. Suman RK, Mohanty Ray I, Gore VS, Israni N, Deshmukh YA. Prescribing patterns of antimicrobial usage in ophthalmology out patients department at tertiary care teaching hospital. *International Journal Basic and Clinical Pharmacology* 2015; 4(2): 290-293.
191. Suman RK, Mohanty Ray I, Kumar R, Deshmukh YA. Prescribing pattern of drugs used in tonsillitis patients of otorhinolaryngology department of tertiary care hospital. *World Journal of Pharmaceutical Research* 2014; 3(7): 850-855.
192. Suman RK, Mohanty Ray I, Mane V, Deshmukh YA. Assessment of antimicrobial properties of hydroalcoholic extract of morinda citrifolia. *World Journal of Pharmaceutical Research* 2015; 4(4): 542-547.

193. Surve R, Dase R, Pawar K, Jadhav V, Shah A, Shrivastava N, Shah R, Zohra T. Assessment of stress level among medical students of MGM Medical College and Hospital Aurnagabad. *International Journal of Current Medical and Applied Sciences* 2015;5(3): 156-160.
194. Talib SH, Dase R, Dalvi V, Keshavkumar M. The role of microalbuminuria for assessment of atherogenicity in prediabetics. *IOSR Journal of Dental and Medical Sciences* 2015;14(2): 21-24.
195. Talib SH, Kulkarni SG, Gulwe VS, Mogal V. Role of iron deficiency anemia in patients with chronic kidney disease. *IOSR Journal of Dental and Medical Sciences* 2015;14(5): 102-105.
196. Talib SH, Malani RG, Raul KM, Kharche JM, Majjari KC, Mannikar VA. Contralateral hyperhidrosis after cerebellar infarct and ischemia in vertebrobasilar artery territory: A case report. *IOSR Journal of Dental and Medical Sciences* 2014;13(9): 26-28.
197. Tambe SA, Chalvade P, Jerajani H, Singhania P, Arbinder S. Pseudoverrucous papules and nodules (PPN) in association with female epispadias and bifid clitoris: a rare presentation. *European Journal of Pediatric Dermatology* 2014;24(2): 74-77.
198. Tambe S, Someshwar S, Deshia A, Jadhav R, Bhatt K, Jerajani H. An asymptomatic swelling on the neck. *Indian Journal of Dermatology, Venereology and Leprology* 2015;81(2): 221-223.
199. Tambe SA, Bhoje M, Jerajani HR. Giant cell tumor of the tendon sheath mimicking a plexiform neurofibroma. *Indian Dermatology Online Journal* 2015;6(3): 201-203.
200. Thakur M, Gupta H, Singh D, Mohanty Ray I, Maheswari U, Vanage G, Joshi DS. Histopathological and ultra structural effects of nanoparticles on rat testis following 90 days (Chronic study) of repeated oral administration. *Journal Nanobiotechnology* 2014;12(42): 1-13.
201. Thatte S, Gulanikar AD, Garg P. Clinico pathological study of Xeroderma Pigmentosa with ocular involvement. *Indian Journal of Clinical and Experimental Ophthalmology* 2015;1(2): 95-99.
202. Thingna A, Sawardekar P, Anjenaya S, Mankar M, Gujar R, Kamble S. To assess the impact of behavior change communication in adolescent girls in tribal areas of Panvel Taluka Dist Raigad in relation to nutrition. *International Journal of Medicine and Allied Health Sciences* 2015: 6(1): 419-426.

203. Toshniwal J, Chawlani R, Bang M, Kale S. Infectious Ulcerative colitis resulting in incomplete Reiters Syndrome. *Endoscopy* 2015; 47(S01): E229-E230.
204. Uchadadia S, Patel Y, Ingale A. Association between abdominal obesity and albuminuria as well as body mass index and albuminuria in adults with diabetes. *International Journal of Medicine and Allied Health Sciences* 2014; 2(2): 231-236.
205. Vaishnav DM, Holkar S, Hivre M. Serum bilirubin as a marker of oxidative stress in patients with hypertension. *International Journal of Health Sciences and Research* 2015; 5(5): 190-194.
206. Vaishnav DM. Evaluation of ascitic fluid cholesterol level in differentiating malignancy related ascites from cirrhosis or infection related ascites. *International Journal of Recent Trends in Science and Technology* 2015; 15(2): 266-267.
207. Vaishnav DM. Study of serum ascites albumin gradient in classifying ascites with portal hypertension and ascites without portal hypertension. *International Journal of Recent Trends in Science and Technology* 2015; 15(2): 271-272.
208. Vieira A, Chaudhary A, Diwedi A, Vaibhav. Proximal humerus nonunion operated with fibular strut allograft and locking plate. *MGM Journal Medical Sciences* 2015; 2(1): 50-51.
209. Waingakar P, Anjenaya S, Taralekar R, Thatkar P. An assessment of computer literacy among students of a private medical college in Navi Mumbai. *MGM Journal of Medical Sciences* 2014; 1(4): 156-162.
210. Walawalkar SR. A study of variation in heart rate variability with change in posture in young adult Indian females. *International Journal of Physiology* 2014; 2(2): 90-94.
211. Walwhal M, Mogal V, Dalvi V, Sanap S, Rathi A, Non atrial fibrillation related central retinal artery occlusion (CRAO) in hyperthyroidism: A case report. *International Journal of Medical Research and Review* 2015; 3(1): 121-126.
212. Walwhal M, Mogal V, Dalvi V, Sonawane M, Gole P, Patil S. Pancreatic tuberculosis: A case report. *Journal of Medical Sciences and Clinical Research* 2015; 3(1): 3609-3615.
213. Wani S, Mullerpatan R. Prevalence of shoulder dysfunction among Indian people with type II diabetes. *International Journal of Diabetes in Developing Countries* 2015; 35(3): 386.

214. Wawhal M, Garudkar S, Mogal W. Early minimal change chronic pancreatitis or imaging negative chronic pancreatitis. *Journal of Dental and Medical Sciences* 2014;13(12):78-79.
215. Wawhal M, Mogal V, Patil P, Kakde R, Sonawane M, Gole P. Idiopathic intracranial hypertension: A case report and a brief review of literature. *Journal of Dental and Medical Sciences* 2014;13(12):55-57.
216. Wawhal M, Mogal V, Patil P, Sonawane M, Gole P, Sarfaraz M. Typical discoid lupus erythromatosus: A case report and a brief review of the literature. *International Journal of Science and Research* 2015;4(1):1025-1027.

Book Chapters

1. Jarajani HR, Tambe S. Coming back to methotrexate. In: Aggarwal KK. (ed.) *Interesting cases in dermatology*. New Delhi: IJCP Publication Limited; 2014. p. 35-39.
2. Rawte S. Deshpande SS. Antepartum haemorrhage I: Placenta previa, placenta accreta, and vasa previa. In: Daflapurkar SB. (ed.) *High risk cases in obstetrics*. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2014. p. 263-288.
3. Rawte S. Gadappa SN. Antepartum hemorrhage II: Placental abruption. In: Daflapurkar SB. (ed.) *High risk cases in obstetrics*. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2014. p. 289-313.
4. Rawte S. Shiradkar S. Gynecological cancers in pregnancy. In: Daflapurkar SB. (ed.) *High risk cases in obstetrics*. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2014. p. 314-336.
5. Behere PB, Bhise MC, Behere AP. Suicide studies in India. In: Malhotra S, Chakrabarti S. (eds.) *Developments in psychiatry in India: Clinical, research and policy perspectives*. New Delhi: Springer; 2015. p. 201-212.
6. Tambe S. Jerajani H. Pregnancy and skin diseases. In: Deshpande A. (ed.) *Pregnancy medicine*. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2015. p. 170-182.
7. Verschoore M. Jerajani HR. Skin aging and antiaging cosmetics. In: Chakaravarthi S, Verschoore M, Battie C. (eds.) *Basic science for modern cosmetic dermatology*. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2015. p. 148-161.
8. Rai S. Rai M. Agarwal V. Stress management by yoga. In: Upadhyay R. (ed.) *Medicine update-2015* Mumbai: Association of physician of India; 2015. p.1088-1090.

Books Published

1. Deshpande A. Clinics in neurology. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2014. 236p. (9789351522171).
2. Singh G. Malariology: A handbook of malaria. Kolkata: 24 by 7 Publishing; 2014. 238p. (ISBN: 9789384882006).
3. Suman RK, Deshmukh Y, Mohanty Ray I. Pharmacotherapy, cost analysis and prescribing patterns of glaucoma: Treatment of glaucoma & equally helps in selection of suitable drug. Germany: LAP Lambert Academic Publishing; 2014. 79p. (ISBN: 9783659161186).
4. Deshpande A. Pregnancy in medicine. New Delhi: Jaypee Brothers Medical Publishers Private Limited; 2015. 230p. (9789351524687).
5. Singh G. Medical laboratory technology (experimental book for routine diagnostic tests). New Delhi: UDH Publishers & Distributors Private Limited; 2015. xviii, 234p. (ISBN: 9789382122340).
6. Suman RK, Mohanty Ray I, Deshmukh Y. Laboratory techniques for pharmacology. Germany: LAP Lambert Academic Publishing; 2015. 196p. (ISBN: 9783659426155)

**“The best way to find yourself
Is to lose yourself in the service of others.”**

Mahatma Gandhi

COMMUNITY OUTREACH PROGRAMS

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About 70 per cent Indians live in rural areas with limited resources and health care support. Recognizing this, MGMIHS accords highest priority to expand and offer services to the community in rural sector. The focus on community outreach programs has been to educate and train the medical and paramedical staff to address the health needs of underserved and rural population; and to provide services by way of enhancing awareness, health check-up camps and health care services which make significant impact on local, underserved communities. Outreach programs focus on promoting emotional, behavioral, self-esteem and empowerment along with physical wellness.

To accomplish these goals, medical and paramedical staff actively works on various projects with community involvement. Even as a part of the educational requirement, the students are posted in rural health centers to run clinics. This enhances medical education by bringing knowledge learned in classroom to life, contributing to communities, and providing a solid foundation for professional altruism. Such initiatives by MGMIHS are helping by providing promotive, preventive, curative and rehabilitative services along with interpreting the dynamics of community behavior.

The Departments of Community Medicine of both medical colleges are coordinators of various outreach programs. The activities include:

Outreach Camps

The Department of Community Medicine, Navi Mumbai organized 284 camps benefitting 10,365 people. National Rural Health Mission Camp, and Rajeev Gandhi and other Multi Diagnostic Camps were conducted in Raigad District. These camps had provided preventive, promotive, diagnostic and referral services to the community. Some of the camps related to: Ophthalmic screening for cataract operation services; Geriatrics organized in coordination with Bayti Old Age Home, Panvel; and 16 Blood donation camps where 6,395 people donated blood voluntarily.



NRHM Camp at Kashele, with focus on Healthy baby - Healthy Mother.

The Department of Community Medicine, Aurangabad had organized some of the camps, tracked the health status and treatment of family members in adopted villages by family folder scheme through its undergraduate students, catering to three adopted primary health centers by fixing day specialist visits at RHTC, Ellora. The Department organized visits to Anganwadi schools for health check-ups, multi-diagnostic camps in collaboration with local, national and international agencies like; Municipal Corporations, Zilla Parishads, Government of India, Government of Maharashtra, Lok Shikshan Prasarak Mandal, Workhardt Limited and National Institute of Mental Health and Neurosciences, Bangalore.



Multidiagnostic camp in field areas of Aurangabad.



Plastic Surgery Camp organised by MGM Medical College, Aurangabad.

National Health Programmes

World Health Day; World TB Day; World AIDS Day; Breast Feeding Week; Healthy Baby Healthy Mother; and Swachh Bharat Abhiyan were celebrated as Special Day during the year. Apart from creating awareness, the activities on imparting training to medical, paramedical staff and community members in different villages like Tara, Barapada, Kalhe, Banghanwadi, Dolghar, Kalamboli and Asudgaon were undertaken. The Department organized School Health

Program at Ramanagar. About 164 students were examined of which 72 had dental problems, 38 were anaemic, 18 had ear diseases and 4 other illnesses.



Enhancing male involvement to promote Breast Feeding, during International Breastfeeding Week Celebration 2014, Belapur



Walkathon organised on World Heart Day at Navi Mumbai

Services through Rural and Urban Health Centers

The Department of Community Medicine had conducted many out-reach activities through the Rural Health Center, Tara, and Urban Health Center, Belapur. The Urban Health & Training Centers, jointly with the Department of Community Medicine, MGM Medical College, Navi Mumbai, had conducted health check-ups. About 3947 OPD patients were provided free health check-ups, 1223 patients were seen by specialists and 421 patients were referral cases. About 592 investigations were done without charging to the patients. An average of 35 to 40 patients attended the specialist OPD twice a month. Under the Research-cum-Service Project on Anaemia, 837 women between 15 to 45 years of age and 606 children under the age of 14 years were examined. About 65 percent were found anaemic and were provided treatment free of cost.

Health Education and Awareness

The University Department of Nursing, Navi Mumbai conducted various community-based activities like; International Breast Feeding Week Celebration by organizing rallies, role play and exhibition; Tree Plantation Drive at MGM Educational Campus on 15th August 2014; International Day for Girls Child on 1st October, 2014; International Day of Rural Women on 15th October, 2014; Pulse Polio Program from 16th November to 21st December 2014 at 14 centers at Panvel Taluka; School Health Program from 17th November to 18th November 2014 at Primary School Wawanje; World Aids Day in Ramabai Nagar, CBD Belapur on 1st December 2014; and World Alzheimer's Day on 22nd September 2014; Cleanliness

Drive as a part of Swachh Bharat Abhiyan was organized on 1st September, 2014 with a view to create awareness regarding environmental cleanliness; Blood Donation Camp in two sessions on 27th June and 11th July 2014; and World Heart Day on 29th September 2014.



Cleanliness drive as a part of 'Swachh Bharat Abhiyaan', on 1st September 2014.



Creating awareness about HIV/AIDS and its prevention, on World AIDS Day, at CBD Belapur.

Referrals

In order to cater to the needs of poor and needy sick patients under the Tertiary Health Care Program, MGM Medical College and Hospital, Navi Mumbai runs daily bus services to bring sick patients from Mumbra, Karjat, Khopoli, Kamothe and Kalamboli areas to provide them the necessary health care facilities free of cost and arranges to transport back the patients from where they were picked up.

Adoption of Communities and Villages

MGM Medical Colleges and Hospitals have adopted villages in the adjoining rural areas and near the hospitals to provide free medical facilities to needy and poor. The colleges also tracked the health status and treatment of family members under the Family Folder Scheme through its undergraduate students.

Tie-up with NGOs

Students and faculties are encouraged to pursue community-based research so as to find out the real population demand for health care needs. In addition, various other activities were pursued in collaboration with the State Government, Municipal Corporation, NGO's. Sarva Shiksha Abhiyan, organizing Blood Donation Camps, visits to Aanganwadi, School Health Check up, organizing Multi diagnostic Camps in collaboration with local national and international agencies like; Municipal Corporations, Zilla Parishads, Government of India,

Government of Maharashtra, Lok Shikshan Prasarak Mandal, Workhardt Limited and NIMHANS, Bangalore.

Support during Disaster's and Calamities: Extended hand with the other departments for carrying out speciality camps in other districts of Maharashtra during crisis like situations of floods and disasters.

Multi Speciality Multi Diagnostic Camps

MGMIHS and its hospitals extended services and support to meet the health needs of underserved urban and peri-urban community. The hospitals provided promotive, preventive, curative and rehabilitative services. It was accomplished by organizing health education camps for health problems in community; educating mothers about antenatal, natal and neonatal home base care, through trained self help groups in rural and urban slums; school health check-up camps in schools in adopted villages; educating school children about hygiene, healthy habits, nutrition and life values during school health examination; extending specialization services for various morbid status of community through multi diagnostic and treatment camps in rural areas; ophthalmic screening camps in rural; and cervical screening and creating awareness about prevention of cervical cancer.

About 33 camps were organised during the year. Medical services were provided to 18,367 patients from rural sector. A few camps were organised jointly with local Municipal Corporation, NGOs and industry.

Early Clinical Exposure

MBBS students were taken into crowdie corridors of OPDs and imposing atmosphere of wards in order to help them to acclimatize and connect to clinical settings. Students learned some aspects of medicine in community setting. They interacted with patients and their families. The Department of Community Medicine conducted many outreach activities through the rural and urban health centres. There was collaboration with the State Government, Municipal Corporation, and NGOS for carrying out various community-based outreach activities.

Students had been able to get an opportunity to observe and participate in speciality camps, which involved in providing preventive, promotive, diagnostic and referral services to community in management of disasters and accidents. Camps with the following themes were conducted: School Health Check-up, Blood Donation, Geriatric Care, National Rural Health Mission, and RGJAY and Anganwadi check-up camps.



MBBS students getting acquainted to health care services at Rural Health Centers.

Outreach Activities

MGM Medical Colleges and University Departments organised programs to create awareness on: Breast feeding, Health talk on nutrition for pregnant and lactating mothers, Care for girl child and rural women, General health check-up of children, Anaemia detection among adolescent girls; Gynecological assessment for women, Health talk on personal hygiene to adolescent girls, Health awareness for school going children, HIV infection and prevention, Substance abuse, Life style diseases and their prevention, Prevention and early detection of cancer, Prevention and treatment of tuberculosis, and Advantages of controlling population. The other outreach activities were: Road safety week, Health check up for auto rickshaw drivers, Blood donation camp, Medical health check up camp, Medical health check up camp for senior citizen and children, and Immunization program in the community.



Road Safety Week Celebration, 12th Jan 2015 at UHTC Belapur

The IEC activities included: Guest lectures on control of hospital infection, Adult immunization and bio medical waste management from the faculty members; IEC activities on asthma and thalasemia; Awareness about monsoon diseases, Vector Borne Diseases and Vector Control measures.



International Day for Girl Child, celebrated on 1st October 2014, at slum areas of CBD Belapur.

University Department of Physiotherapy

The University Department of Physiotherapy had organized the following community camps:

- i. A camp organized on 30th July 2014 at Navade Village, where 47 people having problems with backache, cancanal spur, osteoarthritis of knee, periarthrities shoulder, quadriplegia, diplegia, choreoathetosis, Down's syndrome, bilateral club foot, urinary incontinence and some other ailments received the services.



Physiotherapists providing services at Navade Village Camp, on 30th July 2014

- ii. The camp organized on 29th December 2014 at Asudgaon Village provided services to school girls and teachers from 50 villages. In addition, the awareness and physiotherapy services on degenerative conditions, respiratory tract infections, hearing impairment, disarticulation, mental retardation, dysmenorrhoea, urinary incontinence and uterine prolapsed conditions, children with cerebral palsy, delayed development were provided.



Awareness drive among girl students and teachers about healthy life style organised at Asudgaon Village on 29th December 2014.

- iii. The camp organized on 21st June 2015 at Vashi provided health care services to 120 participants. Patients with degenerative conditions, dyspnea, chest pain, cough, quadriplegia, diplegia, choreoathetosis, Down's syndrome, urinary incontinence and uterine prolapsed conditions were identified and treated.



Camp to provide health care services at Vashi, on 21st June 2015.

- iv. The camp, conducted on 20 and 21 July 2015, had evaluated bone mineral density of 153 participants. Subjects with back pain, knee pain, heel pain, multiple joints pain were identified and treated.

**Before you do anything,
stop and recall the face of the poorest
most helpless destitute person you have seen
and ask yourself,
Is what I am about to do
going to help himfi**

- **Mahatma Gandhi**

WELFARE PROGRAMS AND SOCIAL RESPONSIBILITIES

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It is now over 33 years since MGM Trust was established with a vision to provide quality education; affordable health care services; promote research and innovation; and serve the community. The Trust had made the first humble beginning during 1982 and since then, a chain of schools and colleges in Engineering, Medicine, Architecture, Nursing, Physiotherapy, Management, Computer Science and Information Technology, Bioinformatics and Biotechnology, Fine Arts and Journalism stand testimony to the endeavors of the Trust to promote education. The philanthropic approach and to provide social charities are the guiding principles of the pioneers, who had founded these not-for-profit institutions. The health, education and welfare needs of the poor and underprivileged are of particular concern.

The students from financially constraint families are the main beneficiaries of the welfare programs. They are provided affordable fee structure and some helped to secure study loans from banks for which MGMIHS stands surety. At MGM Medical Colleges, Navi Mumbai and Aurangabad, financial assistance in the form of free ships in tuition, hostel and mess fees are awarded to deserving students. There are “Book Bank” and “Bone Bank” wherein needy students are loaned out books and other learning materials for longer period than that available through the Library. During the year 2014-15, deserving students from medical colleges were awarded freeships of almost five million rupees.

Welfare Programs

MGMIHS and its institutions have established Prevention of Sexual Harassment Committee to safeguard the students and employees particularly the ladies from any possible harassment in the campus and to educate and train them to face unforeseen eventualities. The Department of Psychiatry regularly conducts workshops and CMEs on healthy-life style and to counsel students prior to examination. Such programs have received enthusiastic response from the students as reflected with their participation. Day Care Centre for infants and children available at the campus are important components of such welfare programs and highly appreciated by married students and working mothers.

The other major welfare program is to assist people whose quality of life would be improved by providing healthcare services, but who lack the financial capacity and do not qualify for timely intervention within the public hospital system. A large number of patients coming to MGM Hospitals are provided services either free or at highly subsidized rates. MGM Hospitals are approved for Rajeev Gandhi Jeevandayee Arogya Yojana under which patients and some of the staff members and their families get quality medical care free-of-cost. The FDA licensed 24-hour in-house pharmacy, run by the hospital, is another boon for the patients. The

pharmacy caters to the needs of patients for medicines, supplies and surgical items. The medicines are provided at discounted rates.

Student Welfare and Developmental Activities

The University offers many opportunities for the promotion of overall development of students. The welfare programs are aimed to provide an environment so that the students derive sense of enjoyment and satisfaction while learning and feel safe and comfortable. The programs inculcate a sense of personal dignity and worth and feeling of belonging to the wider community.

Some of the welfare programs include: Tracking the progression to regularly monitor the performance of students; Extra-coaching to prepare students for competitive examinations; Counseling and career guidance; Gender sensitization programs; Student activities including social get together and many more. All members of staff have a continuing role in student welfare. The colleges organise debates, discussions, essay competitions, scientific exhibitions, cultural events and many more. In fact, such programs are organised by the students themselves, while the teachers are the facilitators.

The University has completely banned ragging of students in Departments, Hostels and the entire campus. To curb and prevent ragging, the directions of Honourable Supreme Court of India and the State Government are fully complied with.

More than 35 students from various colleges had participated in State and University Level Sport events and 101 at National level. Similarly, about 112 students participated in cultural programs held at National and State levels.

Parents Teachers' Meeting

The University realizes that through this shared responsibility, it would be students to reach out to engage families in meaningful ways, and, similarly, families do their part to support actively their children's learning and development. The activity would pave the way to parents and educators both enter into conferences with shared expectations and an increased ability to work together to improve children's educational outcomes.

Grievance Redressal

A Centralized Students Grievance Redressal Committee has been formulated to redress the grievances and complaints of the students. It has become a reality through this committee to create healthy working atmosphere amongst staff, students & parents. This cell helps Students to record their complaints and solve their problems related to academics, resources and personal grievances. As a

result of this mechanism, the institute has pleasant ambient atmosphere and good work culture with in-built goodwill and mutual understanding among the students.

Scientific Visits and Excursions

Scientific Visits and Excursions tours are arranged for prospective students who are extensively involved in scientific research. Highlights of the tour include faculty, facilities, research, and the student experience in the biological, natural, and physical sciences while touching on MGM's legacy of scientific discovery. These tours include a visit to research facilities available in the University and its colleges and departments, as well as Bhabha Atomic Research Centre, ACTREC etc.

Days of National Importance

The University observes days like; 15th August, 26th January and 1st May, etc. to raise awareness of an issue, commemorate a group or event, and to evoke a feeling of patriotic pride and create a sense of bonding of togetherness. On 05th September, which happens to be the birthday of Dr. Sarvepalli Radhakrishnan, the second President of India, was celebrated to highlight the role of a teacher who plays to shape and mould a students' future and to make him / her a useful and peace loving citizen aware of his duties to his / her parents, society and the country at large.

Environmentally Conscious

The University fully believes that each and every one can do their part to conserve the environment in their own unique way. It is recognized that if we start with eco-friendly ways as individuals, by investing in ventures that support the environment, we can then build communities that prioritize the earth's well being as well.

The University fully supports the “Save Water Campaign” due to the state reeling under drought, delivering water conservation messages to stop the wastage of water and spreading the importance of water conservation techniques like; rain water harvesting etc. It actively pursues tree plantation drive within the campus. It is imbibed culture to plant saplings and trees for a greener environment.

Sports Champions

MGM Institute's University Department of Physiotherapy is proud to share students' glorious achievements in sports in 2015. It had organized its 1st Olympics on the occasion of 33rd Foundation Day from 14th to 16th December 2015 at Aurangabad. Undergraduate physiotherapy students (21 girls, 17 boys)

were encouraged to participate. Students toiled hard and with intense self-cum-peer training won two trophies as Runners Up in 'Sports Championship' and 'Extra-curricular Championship'. Besides, they bagged several gold, silver and bronze medals in debate, throw ball, running, chess, table tennis, short put and long jump.

A contingent of 51 students from MGM Medical Colleges had actively participated in the "Pulse Inter-collegiate Event" organized by All India Institute of Medical Sciences, New Delhi. They had represented in sports like; football, table tennis, carom board, chess, and badminton and dance competition and had won several awards and medals. The event included paper presentation competition in which Mr Ajay Dodeja from MGM Medical College, Aurangabad had won the first prize.

The students were encouraged to participate in various Intra- and Inter-college curricular activities at Zonal and national levels. The students took active part in debates and quizzes organized in their respective colleges.

Motivated by such remarkable achievements within MGMIHS, students from their colleges and departments have pledged to participate at state and national level sport programs which had provided them an opportunity to serve as Health Ambassadors for their Departments, and the University.

CELEBRATION OF ACHIEVEMENTS

Dr Nimain C. Mohanty

Professor

Department of Pediatrics

MGM Medical College

Navi Mumbai

Dr Pravin R. Suryawanshi

Professor and Head

Department of Surgery

MGM Medical College

Aurangabad

Fifth Convocation

MGMIHS celebrated its 5th convocation on 27th June 2015 at the MGM Medical College, Aurangabad. It was a proud day for the University, witnessing 564 students in Medical, Nursing, Physiotherapy and Allied Health Courses being conferred degrees. The number of students who were awarded degree this year was more compared to previous years. This speaks volumes of augmentation in popularity and acceptance of courses offered by MGMIHS. It was a privilege of the attendees to witness that the successful students were congratulated by luminaries and awarded their deserving degrees.

Hon'ble Vice Chancellor Dr. Sudhir Kadam while highlighting the accomplishments of the University during previous academic years, emphasized that the medical education received in the formative years plays a very critical role in shaping up clinical skills of young medical graduates; success in medical profession heavily relies on receptivity to learn continuously; and health is a nation-building strategy. The students and scholars who pass out from the medical colleges are India's investment capital for building a healthy future for India and rest of the world. And we at the University participate in this responsibility and ensure that the students graduating from our University are indeed the best.



Dignitaries during the opening of 5th Convocation of MGMIHS.

Another distinguishing highlight of the convocation was honourable Shri. Sharadchandraji Pawar graced the occasion as the Chief Guest for the event. Shri Pawar was conferred with Honorary Degree of Doctor of Science for his contributions to promote education in the country.

It was an occasion where the team of doctors, nurses, faculty and health administrators at MGMIHS were recognized for their untiring efforts in nurturing and inspiring the students into responsible torch-bearers of health care service to mankind. No wonder that the world recognizes the unique combination of doctor-teachers-doctors as the noblest amongst all noble professions serving the human beings throughout the world. It is literally these two responsible shoulders that determine the destiny of a healthy nation.



Hon'ble Vice Chancellor Dr. Kadam highlighting the achievements of University and it's constituent colleges and departments.



Hon'ble Shri Pawar delivering the Convocation Address



Recipients of Degrees in Jubilant moods.

International Conference on Medical Education

MGM Medical College, Aurangabad organised an International Convention on Challenges in Medical Education from 9-11 January 2015. Over 600 delegates from all over India and abroad had participated in the convention. A rich scientific program, participation of highly accomplished academicians and scientists and lively discussion during the meeting including interactive workshops made the event memorable and a scientific treat. Thanks to a team of highly committed faculty at MGM Medical College, Aurangabad, including Doctors Shroff, Talib, Suryawanshi, and Khan, for their thoughtful planning and meticulous execution of the event. Dr. P.M. Jadhav was the driving force behind the convention.



Workshop on Medical Education.



Hon'ble Chancellor Dr. Narayankhedkar Lighting the lamp along with dignitaries.



Delegates engrossed in conference.

Prof. Ronald M Harden, Postgraduate Dean, and Director, Centre for Medical Education, University of Dundee, Scotland who has wide interest in undergraduate, postgraduate and continuing medical education and is committed to develop the new approaches to curriculum planning and to teaching and learning, had inaugurated the Conference, conducted workshops on medical education and delivered a number of lectures during the meeting. Sixty participants took part in ESME Course and John Dent, Pat Lilley, Madalena Patricio, and Nivritti Patil acted as facilitators.



On return Dr. Ronald Harden in his Blog - India Adventures said "the huge enthusiasm for medical education we experienced earlier this month in India impressed me most".

International speakers included Robert Carrol and Lawrence Sherman from the USA and Khalid Bin Abdulrahaman from Saudi Arabia, in addition to the AMEE team. Dr. RD Lele from Mumbai enunciated about the importance of computers in medical education. He emphasized that microelectronics and computers are being used in every aspect of modern medicine. He has been instrumental, much in his early work, in encouraging the use of computers in medicine.

Centre of Human Movement Science

It was a matter of pride to see the University Department of Physiotherapy at Navi Mumbai establishing a MGM Centre of Human Movement Science. The Centre was established in collaboration with Indian Institute of Technology Bombay and International Society of Biomechanics, USA to address an urgent

need to integrate clinical biomechanics in Indian healthcare. Following an intense training session of physiotherapists and engineers, the Centre is now open for movement analysis testing for patients, training of health care professionals and engineers in clinical biomechanics and interdisciplinary research projects. The Centre is now actively engaged in interdisciplinary collaborative research projects to focus on health care needs of India.

To name a few ongoing projects in the current year-in collaboration with BETiC, IITB, the Centre is involved in designing an indigenous device for plantar tissue stiffness measurement for its application in people with reduced foot sensations such as diabetes, leprosy etc. DBT has recently sponsored a project to develop a powered trans-tibial prosthesis in collaboration with IITB.



MGM Medical College Adjudged the Best

MGM Medical College and Hospital, Navi Mumbai was adjudged the best Medical Institute in the western region of our country. The Jury for LOKMAT National Education Leadership Awards selected MGMIHS based on stringent criteria of teaching, research, patient care and community services. The award is in recognition of leadership of an educational institute and acknowledgement of dedicated efforts of its faculty, staff and students to excel in academic pursuits.



Dr Shibban K. Kaul and Dr Chander P. Puri receiving the LOKMAT National Education Leadership Award on behalf of MGMIHS.

Medals and Awards for Outstanding Performance

To recognise and honor the students for their outstanding academic achievement the University has instituted a number of awards including Chancellor's Medal. The awards were conferred during the Convocation of the University in the august presence of students, parents, faculty and invitees. Final year undergraduates, postgraduates completing their program of study and/or research were considered for various awards. The recipients of awards at the fifth convocation were:



Dr. Sameer Vasant Chaudhari: MGM Medical College and Hospital, Navi Mumbai (Batch 2012-2015). Chancellor's Medal for securing Highest Marks in MD (Pharmacology).



Dr. Anurag Singh: MGM Medical College and Hospital, Aurangabad (Batch 2012-15). Chancellor's Medal for securing Highest Marks in MD (Radiology).



Ms. Anupama Janardhanan: MGM Medical College and Hospital, Aurangabad (Batch 2009-14). Chancellor's Medal for Best Graduate Student in MBBS.



Ms. Shrutika Dilip Parab: MGM Institute's University Department of Physiotherapy, Navi Mumbai (Batch 2010-2014). Chancellor's Medal for Best Graduate Student in B.P.Th.



Ms. Radha Subramaniam: MGM Institute's University Department of Biomedical Sciences, Navi Mumbai (Batch 2012-2014). Chancellor's Medal for Best Graduate Student in M.Sc. (Medical).



Ms. Arshiya Maruf Afzal: MGM Institute's University Department of Biomedical Sciences, Navi Mumbai (Batch 2011-2014). Chancellor's Medal for Best Graduate Student in B.Sc. (Allied Health Science).



Ms. Anusha Aniyam Thomas: MGM Institute's University Department of Nursing, Navi Mumbai (Batch 2010-2014). Chancellor's Medal for Best Graduate Student in Nursing.



Ms. Bharati Sudhir Karlekar: MGM Institute's University Department of Health Management Studies, Navi Mumbai (Batch 2012-2014). Chancellor's Medal for Best Graduate Student in Hospital Management.



Ms. Minal Dattatraya Kanhere: MGM Medical College and Hospital, Navi Mumbai (Batch 2009-2014). Gold Medal for Securing Highest Marks in General Medicine, and Pediatrics, in MBBS



Zain Nisar Ansari: MGM Medical College and Hospital, Aurangabad (Batch 2009-2014). Gold Medal for Securing Highest Marks in General Surgery, in MBBS



Rumani Imaan Shakil Ahmed: MGM Medical College and Hospital, Navi Mumbai (Batch 2009-2014). Gold Medal for Securing Highest Marks Obstetrics and Gynecology in MBBS.

**“If I cannot do great things,
I can do small things in a great way”.**

Martin Luther King Jr.

ACADEMIC EXCELLENCE: 2020

Dr Pandurang M. Jadhav

*Vice Chairman, MGM Trust
MGM Medical College
Aurangabad*

Dr Chander P. Puri

*Pro Vice Chancellor (Research)
MGM Institute of Health Sciences
Navi Mumbai*

Intent in Academic Excellence

It is the intent of MGMIHS to be among the top academic health universities in India by 2020 as judged by its clinical reputation, research acumen, and the quality and unique features of its educational programs. MGMIHS is committed to make significant contributions to the betterment of lives of people through disease prevention, treatment and cure. Our research, which focuses on finding better, safer and affordable ways of diagnosing, treating and preventing diseases, is a critical component of academic programs. Accreditation of the University with Grade "A" by the National Assessment and Accreditation Council of the University Grants Commission is testimony to the highest standards of academic programs in all colleges and departments of the University.

The focus of all ongoing academic programs including clinical training is to ensure that the students after graduating from the Departments and Colleges of this University have the skills to deliver quality health care to all sections of the society with compassion and benevolence, without prejudice or discrimination. While achieving academic excellence is intricately linked with the vision and mission of the University, the other motivational factors which make it mandatory to offer the best academic programs include changing nature of higher education with new academic information emerging every day. There is a competitive spirit among academic institutions to provide more effective ways of teaching. Other initiatives include integration of students' teaching-learning activities, regulation of their moral conduct and accountability. It is the credibility of an institute which attracts students as well as illustrious faculty from length and breadth of the country.

Mission Statement

MGMIHS is committed to improve quality of life, both at individual and community levels, by imparting quality medical education to tomorrow's doctors and medical scientists by way of advancing knowledge in all fields of health sciences through meaningful and ethical research.

Hon'ble Vice Chancellor, MGMIHS, opined that it was essential that a comprehensive and integrated approach is followed in achieving the objectives. Accordingly, the year 2015-16 should be observed as the "Year of Academic Excellence" and all of us should strive for World Accreditation and Assessment Certification.

For the MGMIHS, this mission is guided by the following values: **Excellence** - in research, education and clinical work, **Collaboration** - with the medical colleges and other research institutions worldwide, **Diversity**- in all its forms from

students, faculty, areas of research to collaborative partners- as a means to a higher quality of Health Care For All, **Innovation** - and translation of new knowledge and new approaches to disease and health care delivery, **Integrity and Commitment** - to the people we work with as patients, research subjects, and students, faculty and staff and **Hope** for our patients and supporters by striving towards cures, diagnosis and prevention for diseases that have plagued humankind for millennia.

Vision Statement

By the year 2020, MGMIHS aims to be one of the premier institutes in Medical Education and Research. Students graduating from the Institute will have required skills to deliver quality health care to all sections of society and serve with compassion and benevolence, without prejudice and discrimination, at an affordable cost. As a Research Centre, it shall focus on finding better, safer and affordable ways of diagnosing, treating and preventing diseases. In doing so, it shall maintain highest ethical standards.

MGMIHS aspires to enhance its national and international visibility as a major research oriented medical college, which is deeply connected to the fabric of a thriving multicultural city and state. The institute is driven towards finding solutions to urban and rural diseases and their prevention, and to the biomedical adaptations needed to pursue optimal health and well-being of its patients. MGMIHS aspires to be distinguished by expertise and committed to both rural and urban health solutions locally and worldwide.

We hope to become a leader in producing physicians, scientists and educators who understand the intricate complexity between culture, society and health needs which are required to work successfully with individuals and communities towards disease prevention, treatment and cure.

Planning Process

To translate the vision of MGMIHS to be a top-ranking Centre of Excellence in Medical Education and Research by 2020, the Vice Chancellor during the year initiated a series of measures; asking the faculty and students to revisit various components of academics including teachers, students, management, curriculum and its development, modernizing the assessment and evaluation system in a student-friendly and transparent manner. This strategic plan was developed over a year by way of holding multiple meetings with leading health administrators and planners of the colleges, focus groups, smaller planning groups, multiple presentations to the faculty with feedback and through meetings and a retreat between the faculty and the medical center administration.

He emphasized that a program demonstrates excellence through a collectivity of excellence in all components and stakeholders. Accordingly, the constituent colleges and departments of MGMIHS should: (i) bring out the current practices in the above mentioned parts of academics, identify the limitations of ongoing practices and in doing so consider the requirements of the regulatory bodies, global challenges and opportunities; (ii) suggest measures to improve academic performance in each of the above-identified areas thereby rationalizing the need; (iii) highlight as to what will be the added advantages when new programs and strategies are adopted; (iv) define the road map for implementation of new programs, including the intellectual, infrastructure and financial needs; and finally (v) how responsibilities will be shared by all to complete the document in a targeted time frame.

Critical Factors Determining Academic Excellence

The Teacher

Outstanding teachers are the fundamental drivers of academic excellence. Surveys have shown that the quality of faculty and their commitment, devotion, dedication and inspiring nature ranks first in the list of 10 factors in achieving institutional excellence. They have to be self-motivated, avid reader and should keep abreast with latest developments taken in their field so that they are able to teach the curriculum in a comprehensive manner. In addition, the teachers are expected to advice and counsel students about career options and at times help students in coping up with their personal problems that can affect their performance. It is important that through their innovative initiatives, teachers create excitement in the exploration of ideas and solution of significant and real problems. The teachers, therefore, have to serve as mentors and role models, ensuring that the students graduating from the University have desired competencies to excel in their profession as well as vision to plan the future.

It is, therefore, essential that highly competent and strongly motivated teachers are recruited by a panel of expert faculty. It is pertinent to recognize that not all teachers are passionate about teaching and they do not begin their careers with a full complement of attributes which a good teacher is expected to have. Since such skills are normally not provided during academic years, the freshly employed teachers are provided with structured and comprehensive training, covering all aspects of academic activities. Medical Education Department should be strengthened to share responsibilities of organizing CMEs, Workshops, Conferences, e-learning and other refresher courses.

As learning opportunities are an integral part of education, all teachers are provided training through continuous skill development programs conducted by

MET Cell Unit of MGMIHS. Well-structured training programs on curriculum such as; designing, assessment and evaluation system, mentoring and counseling of slow learners are addressed. Teachers are provided with ample opportunities and support to encourage innovation and creativity through state-of-the-art research and generous grants. Teachers spend considerable time with students to allow easier and plenty of teaching opportunities in an uninhibited environment. Teachers are encouraged and kept motivated through awards, promotions and research grants as appreciation for their outstanding performance. Self-appraisals and annual confidential reports help in grading the faculty for conferring awards. Students are encouraged to assess their teachers through anonymous feedback mode.

Curriculum

Studies have shown that, on a ranking of 1 to 10, the curriculum taught in schools is the second most important factor for achieving institutional excellence. At MGMIHS, therefore, curriculum is structured in a way that it is not only comprehensive but also imparts knowledge, imbibes critical thinking, inspires and motivates students to solve need-based problems and face global challenges. It also intends to inculcate and sustain interest and enthusiasm among students for lifelong learning and passion for providing the best health care to every individual as well as the community. A format of combination of lecture-based teaching which is primarily learner-focused such as problem-based learning, competency-based learning and outcome-based learning are followed. The advantages and limitations of each format are critically balanced and adopted ensuring advantages outplay the limitations.

To achieve and sustain the academic excellence, the measures which have been ensured, are: (i) Teaching arranged in small groups: In situations with large number of students where lecture-based teaching is an unavoidable necessity, the teachers consistently keep students involved and encouraged to ask questions and seek clarifications. Supplementary discussion sessions, seminars and lab-based demonstrations, each with small number of students per batch, are organized and coordinated by teachers. Here, the students are more interactive and encouraged to exchange their views. (ii) Introduced problem-based learning (PBL) and competency-based learning after the initial lecture-based teaching. Comprehensive factual subject information conveyed by the teacher in a direct logical manner during the lecture facilitates discussion and working on real-life problems and activities during PBL, where teachers act more as facilitators. Such teaching formats through lecture-based teaching and PBL help students develop comprehensive subject knowledge, learn skills of critical thinking, problem-solving and team spirit. (iii) The curriculum for the competency-based education

has been structured on the basis of competencies to be developed in the students through medical knowledge, patient care or communication skills. Since the medical colleges have to work within the framework of Medical Council of India, complete switching over to competency-based curriculum may necessitate change in policies including the rigid time frame and the evaluation system. (iv) Clinical training through state-of-the-art Simulation Skills Laboratories has been integrated with other teaching practices, as it mimics real-life situations and helps in situations where patient safety is paramount. (v) Introduced curriculum changes that prepare students for innovative academic and research opportunities so that they adopt better with changing practice of medicine.

The Student

Student-centric success culture has been the guiding principle to formulate all programs and policies to promote excellence in learning and teaching practices at MGMIHS. The aim is to provide an environment whereby a student can excel in scholastic activities, demonstrate superior learning and develop intellectual capacities and skills that prepare them for service to their community. While the role and responsibilities of the University in this endeavour are well-defined and accepted, it is reemphasized that a student at the same time is a responsible individual and has the potential to use effectively the facilities, guidance and counselling available in the campus. It is stressed that the ultimate outcome of the student's education lies greatly within the student. The role of the advisor is ancillary. Some of the important roles and responsibilities of students to help University achieve academic excellence are: (i) the medical students have an aptitude to be a medical doctor and serve the people. Lack of interest and aptitude to become doctor can be a great impediment in transforming into a competent clinical physician; (ii) high performing and deserving students are provided with scholarship or financial support; (iii) developing infrastructure in the institutions that aids students as learners; (iv) students are made aware of the institutional policies and programs, accepting responsibility for the decisions made. The attitudes and behaviours of the students are determinants of their performance and therefore linked to reward and recognition; and (v) students are made to remain motivated at all levels and work most diligently under close mentorship and guidance of their teachers so that they do not fall prey to bad habits such as smoking, alcohol and drugs.

Assessment and Evaluation

As part of the MGMIHS's commitment to academic excellence and a primary objective of realizing its Vision 2020, the University accords high priority to assessment and evaluation system. In fact, assessment is viewed as a tool to improve the educational experiences and learning outcomes of students. Our

evaluation methods incorporated in the system not only help assess the performance of students, but also that of faculty, teaching practices, course evaluation and even governance and fund management.

The University firmly believes that the entire process of assessment and accreditation by independent institutions is , as it helps in evaluating the performance as well as to know the strengths and opportunities to move confidently into the challenging future.

Some of the strategies to improve performance through assessment and evaluation system include: (1) Integration of constant feedback system along with the formal 'Internal assessment' to make it a formative assessment system. (2) Inviting eminent experts and senior teachers from centers of excellence to set question papers assess written papers and conduct practical/clinical examinations in summative assessments. (3) Obtain feedback from examiners and other visitors and circulate among all concerned departments for improving the teaching-learning process and infrastructure facilities. (4) Analysis of examination results is undertaken every time to provide feedback and identify necessary remedial measures. (5) Item analysis of questions to enrich the University question bank. (6) Provide feedback to students on their performance and simultaneously taking their feedback on the examination process for fine tuning the system in a transparent and student-friendly manner. (7) Declaring University results within 1 week from completion of examination process. (8) Recommending students for awards and Chancellor's medals, based on their performance and excellence in research. (9) Computerization of the examination evaluation process.

Governance

The MGMIHS has strong conviction to provide highest standards of education which is essential considering its vision that the students graduating from its colleges have the required skills to deliver quality health care to all sections of the society. The University realizes that in this competitive environment and global demands, it has to attract capable and illustrious faculty and students. Therefore, much importance is attached to the goals for achieving academic excellence.

Some of the guiding factors are: (i) Frame and implement rules conducive to good teaching-learning environment and research; (ii) Encourage, support and reward team effort; (iii) Recognition and rewards for outstanding performers; (iv) Promote mutual trust, transparency and ethics; (v) Ensure well-being and professional growth of the staff; (vi) Discipline in performing roles and responsibilities; (vii) Inculcate the culture of creativity, innovation and best practices; (viii) Competency-based learning and teaching to cope up with rapidly emerging information and to acquire the most current knowledge; (ix) Making

education system more affordable, without compromising the standards or ethics; and (x) Ensure accountability for all operational processes, decision making, actions and partnerships at all levels.

Marching towards Academic Excellence

MGMIHS is committed to the implementation of goals set forth in its strategic plan. The plan as a dynamic roadmap that creates objective, measurable action steps within which strategic management decisions and resource allocations will be made. Given limited resources, all efforts will be directed towards initiatives within the strategic focus areas and support translational research. Through the clear articulation of strategic plan, it is hoped to inspire commitment and dedication to fulfill the vision through faculty, students, leadership, and partnerships. We continue to work towards a strong national reputation and recognition as the Health Institute committed to education, research and patient care.