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Vision
To be the best multi-super specialty hospital in India

Mission

<table>
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<tr>
<th>Care</th>
<th>Innovation</th>
<th>Manage Lives</th>
<th>Save Lives</th>
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<tbody>
<tr>
<td>To provide superior quality health Care using Innovation to Manage lives and Save lives.</td>
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Values

- Patient's well-being: It will be our topmost priority
- Adopt and encourage ethical practices
- Comply with all applicable laws and regulations
- Provide a safe and comfortable working environment to employees and associates
- Embrace technology and innovation in the delivery of healthcare
- Provide socially responsible and safe healthcare

Care Institute of Medical Sciences (CIMS) is a 150-bed multi-super speciality eco friendly green hospital located in Ahmedabad, Gujarat, India on Science City Road with a 175-bed expansion plan in progress and an aim to be 300 plus bed hospital by 2016.

In its third year since inception, CIMS has established itself to be a centre of medical excellence in extremely spacious surroundings and state-of-the-art Green building supported by one of the best medical teams and backed with cutting-edge technology. Care, compassion and courtesy is the mantra underlying patient care at CIMS.

760 full-time and visiting consultants, over 1000 employee with a ratio of 5 employees per bed (one of the highest in India) devote their full energies to ensure that every patient has the best outcome and experience.
Dear Colleague,

On behalf of the CIMS family, I am pleased to present the second edition of our annual scientific audit CIMS Outcomes 2012 for all our medical colleagues in India and abroad.

Since the first edition of the book a year ago, we are proud to have added two feathers in our cap; the NABH accreditation of our hospital and the NABL accreditation of our pathology laboratory. Entire quality assurance team, CIMS staff as well as pathology department needs to be congratulated.

After Outcomes 2010-2011 extending the framework of process measures, volume measures and clinical outcomes, 2012 edition covers most of our invasive, interventional, critical care specialties, and departments such as CIMS KIDS, Endoscopy, ENT, Gastrointestinal, GI & Bariatric Surgery, General Surgery, Gynecology, Neonatal & Pediatric, Nephrology, Neurology, Oncology, Oncosurgery, Orthopedic, Pain Management, Pathology, Pediatric Surgery, Plastic Surgery, Radiology, Spine Surgery, Thoracic Surgery, Trauma, Urology, Vascular Surgery and various subspecialties of Internal Medicine and Surgery. It focuses on every category, every quality measure, and every aspect which improves patient care at CIMS, making it the best health care experience for the patient.

This year, we have focused on Appropriateness of Care. Of all the reasons for paying attention to patient satisfaction, only one that transcends correctness, accountability, or accreditation standards is — Appropriateness of Care. We, at CIMS, are proud to inform that we do some of the lowest % of our angiographies converted to angioplasties. Also, our approach to appropriateness between angioplasty & bypass surgery is one of the most balanced in the country with an equal number of our patients being offered the both, subsequently resulting in a higher number of open heart surgeries. We perform angioplasties on 20 % of our coronary angiographies, which is one of the lowest conversion rate in the country (compared to 30-40 % elsewhere), confirming our ethical standards. The outcomes and ethical appropriateness of care presented in this book are not our final destination; but is a continuous journey to provide the best and right care to each patients who walks into our care at CIMS.
The success of CIMS lies with its magnificent doctors and associates. I would like to "deeply bow" to my associates and directors namely Dr. Milan Chag, Dr. Anish Chandarana, Dr. Ajay Naik, Dr. Satya Gupta, Dr. Urmil Shah, Dr. Hemang Baxi, and Dr. Dhiren Shah who have made CIMS become a success. If you see them around, do bow to them as I do, as it is they who have supported in establishing CIMS cardiovascular division as an outstanding monument of healthcare in such a short span of time. I also appreciate immensely Dr. Dhaval Naik, Dr. Gunvant Patel, Dr. Shaunak Shah, Dr. Kashyap Sheth, Dr. Dipesh Shah, Dr. Srujal Shah all of whom who have worked together as outstanding partners to me as well as to society for last many years. Newer doctors working in various department both visiting as well as full time also need to the admired.

While a number of specific case studies about techniques or strategies used to improve patient care have been included, we present only some outstanding cases as an example. This book is directed to all who wish to improve the patient’s experience and evaluation of care and who are willing to put some sweat equity into the effort. I suspect that this passion of mine will be very apparent throughout the book!

It is again the hard work and the effort of our 'knowledge team' under the able guidance and leadership of Dr. Parloop Bhatt and Ms. Preeta Chag. I also appreciate the help of over 20 members of our various quality control and communication team especially Ms. Komal Shah and Mr. Sanjay Gohel who made this book possible.

On behalf of CIMS Family and Board of Directors
Sincerely,

Dr. Keyur Parikh
Chairman
Care Institute of Medical Sciences
Ahmedabad
Email: keyur.parikh@cims.me
Accreditations

National Accreditation Board for Hospitals & Healthcare Providers

Certificate of Accreditation

Care Institute of Medical Sciences (CIMS)
CIMS Hospital, Science City Road
Near Shukan Mall, Sola
Ahmedabad - 380050

has been assessed and found to comply with NABH Accreditation requirements. This certificate is valid for the Scope as specified in the annexure subject to continued compliance with the accreditation requirements.

Valid from: February 01, 2013
Valid thru: January 31, 2016

Certificate No.
H-2013-0166

Chief Executive Officer
Chairman

National Accreditation Board for Hospitals & Healthcare Providers, 2nd Floor, IBM Bhawan, Indraprastha Marg, New Delhi 110 002, India
Phone: +91-11-2337637, 2337638, 2337657 Fax: +91-11-2337621 • Email: info@nabh.co • Website: www.nabh.co
Accreditations

National Accreditation Board for Testing and Calibration Laboratories
Department of Science & Technology, India

CERTIFICATE OF ACCREDITATION

CIMS (CARE INSTITUTE OF MEDICAL SCIENCES) PATHOLOGY

has been assessed and accredited in accordance with the standard

ISO 15189:2007
"Medical Laboratories - Particular requirements for quality and competence"

for its facilities at

Ground Floor, CIMS Hospital, Near Shukan Mall, Off Science City Road, Sola, Ahmedabad

in the field of

MEDICAL TESTING

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Certificate Number M-0500
Issue Date 13/12/2012
Valid Until 12/12/2014

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL

Soma Nath
Convener

Anil Relia
Director

Dr T. Ramesh
Chairman
Board of Directors

Dr. Milan Chag
Managing Director

Dr. Anish Chandarana
Executive Director

Dr. Hemang Baxi
Director

Dr. Urmil Shah
Director

Dr. Ajay Naik
Director

Dr. Satya Gupta
Director

Dr. Dhiren Shah
Director

Dr. Ashit Jain
Director, USA

Mr. Kirti Patel
Director, UK

Dr. Kamlesh Pandya
Director, USA

Dr. (Prof.) Dilip Mavlankar
Director, India
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<td>Access, Assessment and Continuity of Care</td>
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<tr>
<td>CVC</td>
<td>Central Venous Catheter</td>
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<td>D and C</td>
<td>Dilatation and Curettage</td>
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<td>DC shock</td>
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<td>International Classification Of Diseases - 9 Injury Severity Score</td>
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<td>NABL</td>
<td>National Accreditation Board for Testing and Calibration Laboratory</td>
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<td>NRL</td>
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<td>NSTEMI</td>
<td>Non ST-segment Elevated Myocardial Infarction</td>
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<td>NT Pro BNP</td>
<td>N-terminal Pronatriuretic Peptide</td>
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<tr>
<td>ORIF</td>
<td>Open Reduction and Internal Fixation</td>
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<td>OT</td>
<td>Operation Theatre</td>
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<td>Pulmonary Artery</td>
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<td>Paroxysmal Atrial Fibrillation</td>
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<td>PAP</td>
<td>Pulmonary Alveolar Proteinosis</td>
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<td>PAS</td>
<td>Periodic Acid Schiff</td>
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<td>PCA</td>
<td>Patient Controlled Analgesia</td>
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<td>PCI</td>
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<td>Patent Ductus Arteriosus</td>
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<td>PE</td>
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<td>Pulmonary Function Test</td>
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<td>Patient and Guest Relation Officer</td>
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<td>POD</td>
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<td>PSV</td>
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<td>PTA</td>
<td>Percutaneous Transluminal Angioplasty</td>
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<td>Posterior Tibial Artery</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>-----------</td>
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<tr>
<td>PTCA</td>
<td>Percutaneous Transluminal Coronary Angioplasty</td>
</tr>
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<td>Polytetrafluoroethylene</td>
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<tr>
<td>PTPS</td>
<td>Post Traumatic Psycho Shock</td>
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<td>QCI</td>
<td>Quality Council of India</td>
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<td>QoL</td>
<td>Quality of Life</td>
</tr>
<tr>
<td>RA</td>
<td>Right Atrium</td>
</tr>
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<td>RAAS</td>
<td>Renin Angiotensin Aldosteron System</td>
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<td>RCA</td>
<td>Right Coronary Artery</td>
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<td>RCT</td>
<td>Root Canal Treatment</td>
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<td>Radio Frequency Ablation</td>
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<td>ROM</td>
<td>Responsibility of Management</td>
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<td>RPA</td>
<td>Right Pulmonary Artery</td>
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<td>RR</td>
<td>Respiratory Rate</td>
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<td>Ryle’s Tube</td>
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<td>RTA</td>
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<td>RTS</td>
<td>Revised Trauma Score</td>
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<td>RT-PCR</td>
<td>Reverse Transcription Polymerase Chain Reaction</td>
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<td>Right Ventricle</td>
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<td>RVOT</td>
<td>Right Ventricular Outflow Tract</td>
</tr>
<tr>
<td>SAH</td>
<td>Sub Arachnoid Hemorrhage</td>
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<td>SBP</td>
<td>Systolic Blood Pressure</td>
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<tr>
<td>SBRT</td>
<td>Stereotactic Body Radiotherapy</td>
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<td>SCA</td>
<td>Sudden Cardiac Arrest</td>
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<td>SDH</td>
<td>Sub Dural Hematoma</td>
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<tr>
<td>SGOT</td>
<td>Serum Glutamic-Oxaloacetic Transaminase</td>
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<td>SICU</td>
<td>Surgical Intensive Care Unit</td>
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<td>SLEHD</td>
<td>Sustained Low Efficiency Hemo-Dialysis</td>
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<td>SMA</td>
<td>Superior Mesenteric Artery</td>
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<tr>
<td>SRR</td>
<td>Survival Risk Ratio</td>
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<td>SRS</td>
<td>Stereotactic Radiosurgery</td>
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<td>SSI</td>
<td>Surgical Site Infection</td>
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<td>STEMI</td>
<td>ST Segment Elevation Myocardial Infarction</td>
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<tr>
<td>SVC</td>
<td>Superior Vena Cava</td>
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<td>SVD</td>
<td>Single Vessel Disease</td>
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<td>SVR</td>
<td>Systemic Vascular Resistance</td>
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<tr>
<td>SYNTAX</td>
<td>Synergy between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery</td>
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<td>TAPVC</td>
<td>Total Anomalous Pulmonary Venous Connection</td>
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<td>TC</td>
<td>Total Count</td>
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<td>TEE</td>
<td>Transesophageal Echocardiogram</td>
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<td>TEVAR</td>
<td>Thoracic EndoVascular Aortic Repair</td>
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<td>Total Hip Replacement</td>
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<td>TIBC</td>
<td>Total Iron-Binding Capacity</td>
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<td>Target Lesion Revascularization</td>
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<td>TMT</td>
<td>Tread Mill Test</td>
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<tr>
<td>TPI</td>
<td>Temporary Pacemaker Implantation</td>
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<td>TR</td>
<td>Tricuspid Regurgitation</td>
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<td>TURBT</td>
<td>Trans-Urethral Resection of Bladder Tumour</td>
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<td>TURP</td>
<td>Trans-Urethral Resection of Prostate</td>
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<td>Triple Vessel Disease</td>
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<td>URS</td>
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<td>USFDA</td>
<td>United States Food and Drug Administration</td>
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<td>USG</td>
<td>Ultrasonography</td>
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<td>UTI</td>
<td>Urinary Tract Infection</td>
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<tr>
<td>VAP</td>
<td>Ventilator Associated Pneumonia</td>
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<td>VDRL</td>
<td>Venereal Disease Research Laboratory</td>
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<td>VF</td>
<td>Ventricular Failure</td>
</tr>
<tr>
<td>VIU</td>
<td>Visual Internal Urethrotomy</td>
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<tr>
<td>VMAT</td>
<td>Volumetric Modulated Arc Therapy</td>
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<td>VP Shunt</td>
<td>Ventriculo Peritoneal Shunt</td>
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<td>VSD</td>
<td>Ventricular Septal Defect</td>
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<td>Ventricular Tachycardia</td>
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<tr>
<td>VVD</td>
<td>AV Dual Chamber Synchronous Pacemaker</td>
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<tr>
<td>VVI</td>
<td>Ventricular Demand Pacemaker</td>
</tr>
<tr>
<td>VVIRDual Sensor</td>
<td>Ventricular Demand Rate Responsive</td>
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</table>
To complete its mission of a multi-super specialty hospital, CIMS is geared to introduce a new service, **The Radiation Oncology Center** by end of November 2013 launching a full fledged CIMS Cancer Center (CCC).

It will commission the latest model of Linear Accelerator, Versa HD, from Elekta, the first of its kind in Asia and one of the first in the World. Versa HD gives clinicians the flexibility to deliver conventional therapies to treat a wide range of tumors throughout the body, besides enabling treatment of highly complex cancers that require extreme targeting precision.

- Integrated with Elekta’s recently-launched Agility 160-leaf multileaf collimator (MLC)
- Versa HD provides highly conformal beam shaping – a critical requirement for maximizing the dose to the target, preserving surrounding healthy tissues.
- Importantly, this high targeting accuracy is available over a large field-of-view, permitting delivery of high-definition (HD) beams to a wide spectrum of complex targets.
- Capable of delivering radiation doses three times faster as compared to generation Elekta linear accelerators
- Versa HD harnesses the ultra-fast leaf speeds of Agility MLC.
- With this groundbreaking combination, clinicians at CIMS, for the first time, will have full advantage of higher dose rate delivery with sophisticated therapies, including stereotactic radiosurgery (SRS), stereotactic body radiotherapy (SBRT) and volumetric modulated arc therapy (VMAT)
- This state-of-the-art radiotherapy facility will also mean more effective targeting of tumors, less damage to surrounding tissue and less risk of complications.
### Departmental Overview 2011* 2012

<table>
<thead>
<tr>
<th>Category</th>
<th>2011</th>
<th>2012</th>
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<td>Total Procedures and Surgeries</td>
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<td><strong>Cardiac Procedures and Surgeries</strong></td>
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<td>Electrophysiology (EP Study)</td>
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<td>383</td>
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<td>Electrophysiology Study</td>
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<td>212</td>
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<td>Radio Frequency Ablation</td>
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<td>Pace Makers</td>
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<td>Defibrillators</td>
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<td><strong>Non Cardiac Procedures and Surgeries</strong></td>
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<td>Orthopedic</td>
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<td>Procedures</td>
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<td>Oncology - Onco Surgery</td>
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<td>General</td>
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<td>Pediatric - Pediatric Surgery</td>
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<td>Plastic - Reconstructive</td>
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<td>Pulmonary Medicine</td>
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<td>1845</td>
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*Corrected figures since the publication of outcomes 2010-11
CIMS Cardiology is manned by a committed team of experienced cardiologists with one of the largest group practice in Asia providing comprehensive quality care. Backed by the collective experience and technical expertise, the department performs over 600-700 coronary procedures a month making it one of the leading cardiac centre of the world treating every kind of heart and blood vessel disorder, from common to complex conditions.

**Different Cardiac Procedures at CIMS Hospital**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric Catheterization</td>
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<td>122</td>
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<tr>
<td>Device Implants</td>
<td>113</td>
<td>131</td>
</tr>
<tr>
<td>Electrophysiology Study and RF Ablation</td>
<td>376</td>
<td>383</td>
</tr>
<tr>
<td>PCI/PTCA</td>
<td>1298</td>
<td>1519</td>
</tr>
<tr>
<td>Coronary Angiography</td>
<td>3834</td>
<td>4554</td>
</tr>
</tbody>
</table>

**Total Cardiac Procedures and Surgeries**

*Amongst the highest in private sector in Western India*
Coronary Revascularization- Appropriateness of use

The increasing prevalence of coronary artery disease (CAD), continued advances in surgical and percutaneous techniques for revascularization and concomitant medical therapy for CAD, and the costs of revascularization have resulted in heightened interest regarding the appropriate use of coronary revascularization which improves patients clinical outcome.

Appropriate use criteria are based on current understanding of the technical capabilities and potential patient benefits of the procedures examined. Aim of these criteria is to allow assessment of utilization patterns for a test or procedure. The indications for coronary revascularization were developed considering some common variables such as:

◆ The clinical presentation (e.g., acute coronary syndrome, stable angina)
◆ Severity of angina (asymptomatic, Canadian Cardiovascular Society [CCS] Class I, II, III, or IV)
◆ Extent of ischemia on noninvasive testing and the presence or absence of other prognostic factors such as congestive heart failure, depressed left ventricular function, or diabetes
◆ Extent of medical therapy
◆ Extent of anatomic disease (1, 2, 3 vessel disease, with or without proximal LAD or left main coronary disease).

Use of coronary revascularization for patients with ACS and/or ischemia is appropriate.
In contrast, revascularisation of asymptomatic patients or patients with low-risk findings on non invasive testing and minimal medical therapy are viewed less favorable.

In particular, the updated criteria address the following two areas:
1. Re-evaluation of the indications for the treatment of multivessel CAD with symptoms by percutaneous coronary intervention (PCI) and coronary artery bypass graft (CABG) as a result of data from the SYNTAX trial, which came out after the original AUC were published
2. Coronary revascularization is appropriate when the expected benefits, in terms of survival or health outcomes (symptoms, functional status, and/or quality of life) exceed the expected negative consequences of the procedure

The technical panel scored each indication on a scale from 1 to 9 as follows:
◆ **Median Score 7 to 9** : Appropriate procedure for specific indication (procedure is generally acceptable and is a reasonable approach for the indication).
◆ **Median Score 4 to 6** : Uncertain for specific indication (procedure may be generally acceptable and may be a reasonable approach for the indication). Uncertainty implies that more research and/or patient information is needed to classify the indication definitively.
◆ **Median Score 1 to 3** : Inappropriate procedure for that indication (procedure is not generally acceptable and is not a reasonable approach for the indication).
Appropriate use ratings for revascularisation in Acute Coronary Syndromes

UA/NSTEMI

Low-Risk Features
U

Intermediate/High-Risk Features
A

Primary Reperfusion

STEMI

Thrombolytic Therapy

Asymptomatic: no HF, no recurrent ischemic symptoms and unstable ventricular arrhythmia
A

Asymptomatic: no HF, persistent ischemia, hemodynamic or electrical instability present
A

Severe HF, persistent ischemia, hemodynamic or electrical instability present

< 12 hrs
A

> 12 hrs

Asymptomatic: no hemodynamic instability and electrical instability

I

Normal LVEF with 1- vessel CAD
U

Depressed LVEF with 3- vessel CAD
A

Index Hospitalization

Successful reperfusion with Lytic or PCI

Revascularization of non culprit vessel(s)
I

Post Index Hospitalization

Symptoms of recurrent myocardial ischemia and/or high risk findings on noninvasive stress testing performed after index hospitalization
A

Revascularization of non culprit vessel(s) A
Method of revascularization of multi coronary artery disease

<table>
<thead>
<tr>
<th>Condition</th>
<th>CABG</th>
<th>PCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-vessel CAD with proximal LAD stenosis</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Three vessel CAD with low CAD burden (i.e. three focal stenosis, low SYNTAX score)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Three vessel CAD with intermediate to high CAD burden (i.e. multiple diffuse lesions, presence of CTO, or high SYNTAX score)</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>Isolated left main stenosis</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>Left main stenosis and additional CAD with low CAD burden (i.e. one to two vessel additional involvement, low SYNTAX score)</td>
<td>A</td>
<td>U</td>
</tr>
<tr>
<td>Left main stenosis and additional CAD with intermediate to high CAD burden (i.e. three vessel involvement, presence of CTO, or high SYNTAX score)</td>
<td>A</td>
<td>I</td>
</tr>
</tbody>
</table>

Noninvasive Risk Stratification

High-risk (>3% annual mortality rate)
1. Severe resting left ventricular dysfunction (LVEF < 35%)
2. High-risk treadmill score (score ≤ -11)
3. Severe exercise left ventricular dysfunction (exercise LVEF < 35%)
4. Stress-induced large perfusion defect (particularly if anterior)
5. Stress-induced multiple perfusion defects of moderate size
6. Large, fixed perfusion defect with LV dilation or increased lung uptake (thallium-201)
7. Stress-induced moderate perfusion defect with LV dilation or increased lung uptake (thallium-201)
8. Echocardiographic wall motion abnormality (involving > 2 segments) developing at low dose of dobutamine (≤ 10 mg/kg/min) or at a low heart rate (< 120 beats/min)
9. Stress echocardiographic evidence of extensive ischemia

Intermediate-risk (1% to 3% annual mortality rate)
1. Mild/moderate resting left ventricular dysfunction (LVEF 35% to 49%)
2. Intermediate-risk treadmill score (score between -11 and < 5)
3. Stress-induced moderate perfusion defect without LV dilation or increased lung intake (thallium-201)
4. Limited stress echocardiographic ischemia with a wall motion abnormality only at higher doses of dobutamine involving less than or equal to 2 segments

Low-risk (<1% annual mortality rate)
1. Low-risk treadmill score (score ≥ 5)
2. Normal or small myocardial perfusion defect at rest or with stress*
3. Normal stress echocardiographic wall motion or no change of limited resting wall motion abnormalities during stress*

*Patients with these findings will probably not be at low risk in the presence of either a high-risk treadmill score or severe resting left ventricular dysfunction (LVEF < 35%).
Appropriateness of Coronary Intervention and Angioplasty at CIMS

Use of radial artery for access predominates at CIMS. Though the procedure may take slightly longer and radiation exposure to the cardiologist is slightly higher, the radial access site has less vascular complications to the patient than the femoral approach. In addition, it allows for earlier ambulation and is particularly efficacious in the obese.

Various Risk Factors Among Patients Undergoing PCI (Angioplasty)

Procedural Approach for Angioplasty

- **Radial**: 1388 (91.38%)
  - 2011 (N=1298)
  - 2012 (N=1519)
- **Femoral**: 125 (9.63%) and 131 (8.62%)

Dr. Urmil Shah
As compared to 2011, in 2012 there was 34.53% increase in PCI in the age group of 51-60.

Proportion of male patients undergoing catheterization was higher as compared to females in 2012 as compared to 2011.
CIMS is a regional, national and international referral centre for percutaneous coronary intervention.

Prevalence of hypertension and diabetes was higher among patients undergoing angiography in 2012 as compared to 2011.

Proportion of male patients in the age group of 51-60 years undergoing angiography was higher than females in 2012.

Rotablator system for hard calcified lesions
CIMS does some of the largest number of primary angioplasties amongst any centers in India.

Widespread adoption of primary Percutaneous Coronary Intervention (PCI) at CIMS represents a major advance in the management of Acute Myocardial Infarction (AMI) resulting in a significant reduction in early and late mortality compared with pharmacologic reperfusion therapy.

**Door to Balloon Time**

The ACC/AHA practice guidelines recommend PCI (Angioplasty) balloon inflation within 90 minutes of arrival in the emergency department for patients with ST-Elevation Myocardial Infarction (STEMI). Early reperfusion reduces the risk of morbidity and mortality. At CIMS, we achieve this in less than 50 minutes on an average.
Restenosis after angioplasty and stent implantation has been historically considered the most significant problem in coronary interventional treatment. Drug Eluting Stent (DES) have dramatically reduced the rates of restenosis and Target Lesion Revascularization (TLR) compared with Bare Metal Stent (BMS). A low rate of In-Stent Restenosis (ISR) exists after DES.

Proportion of patients having zotarolimus stent as well as everolimus was higher in 2012 as compared to 2011. Zotarolimus and everolimus are second generation drug eluting stents with anti-proliferative agent which is released from a thin coating of a biocompatible fluoro polymer on a flexible cobalt–chromium stent frame with thin struts. 3rd generation bioabsorbable stents are widely used at CIMS in 2013 on regular basis.
Case Presentation: A 62 year old male patient, was admitted to CIMS hospital with complaints of breathlessness for last three months.

Diagnosis and Management: After angiography report, intervention was advised for total occluded distal Left Circumflex Artery (LCX), critical multiple diffuse lesions in Left Anterior Descending (LAD), and 80% proximal Right Coronary Artery (RCA) lesion. Successful stenting with DES to RCA lesion was done in first stage. Since LAD showed 3 sequential lesions (Figure 1) extending into distal part, latest technique of Bioresorbable Vascular Scaffold (BVS) was implanted. This prevented life long antiplatelet therapy, no metal inside the artery, broader options available if any surgery or procedures to be required in future, and arterial remodeling to natural status in that area. Successful PTCA with stenting of LAD was done using total 3 overlapping BVS.

Outcome: Patient’s post-operative hospital course was uneventful. Patient was haemodynamically stable at the time of discharge.

Case Presentation:
A 18 year old male patient, operated for Percutaneous Nephrolithotomy (PCNL), had post PCNL recurrent hematuria.

Diagnosis and Management:
CT-angiography revealed large perinephric hematoma with segmental branch of right renal artery having pseudoaneurysm with rupture. Patient's hemoglobin was 8.0 gm % even after 2 packed cell volume (PCV) transfusions. In view of frank hematuria and rapidly dropping hemoglobin levels, emergency coil embolization of culprit segmented artery was done successfully.

Outcome:
Patient stabilized immediately and hematuria stopped totally.

Discussion:
The reported incidence of renal pseudoaneurysm following PCNL is 0.6 – 2.5%. Hemorrhage is one of the common complications and may occur at any point during the clinical course beginning with the nephrostomy puncture. Angiography with embolization is an effective modality for massive bleeding after PCNL. Many substances can be employed for embolization like Ethanol; gel foam particles; microcoil; detachable balloons; N-butyl-2- cyanoacrylate. We used microcoil for the treatment as it is easily available, cost-effective and has no long-term side effects.
A Young patient with Acquired Rheumatic Heart Disease and Congenital LongQT Syndrome

Case Presentation: A 30 year old female presented with complaints of breathlessness with dry cough, generalized weakness, on and off since 1 month. Patient was admitted to CIMS for Balloon Mitral Valvoplasty (BMV).

Diagnosis and Management: Echo suggested severe mitral stenosis with moderate Pulmonary Hypertension (PH). Resting ECG showed long QT syndrome (Type-I), so patient was treated with IV MgSO4 and temporary pacing was done. Balloon Mitral Valvoplasty was suggested. While patient was being prepared for BMV, she had Sudden Cardiac Arrest (SCA) which was revived with resuscitation. Patient had 3 episodes of Ventricular Tachycardia (VT, Torsade de Pointes) and two episodes of cardiac arrest which were reverted with DC shock and CPR. BMV was performed successfully thereafter (fig-1). Post operative echo suggested no significant Mitral Regurgitation (MR). During ICU stay, patient had multiple episodes of VT (Torsade de Pointes). Hence AICD was planned, implanted successfully.

Outcome: This is a very rare case of combination of Rheumatic Heart Disease (RHD) and LQTS which was successfully managed with BMV and dual chamber AICD (fig -2 and fig.-3).

IVUS Guided - PCI of Complicated Isolated Left Main Coronary Artery Disease with Low SYNTAX Score

Case Presentation: A 42 year old, male patient with smoking habit, presented with complaints of chest pain on exertion for last 2-3 months.

Diagnosis and Management: Exercise stress ECG showed ST depression in multiple leads with angina. Treatment was started with dual anti-platelet therapy, high dose of statin besides other required treatment. CAG revealed 60-70 % luminal narrowing of mid region of Left Main Coronary Artery (LMCA). PTCA followed by stenting was done under Intravascular Ultrasound (IVUS) guidance for this complicated isolated LMCA disease with low SYNTAX score. The patient was discharged after 48 hours.

Outcome: He was prescribed antiplatelets, and statins on discharge as a measure of appropriateness of care at the time of discharge.
Renal Denervation (Pending DCGI approval)
The Symplicity™ renal denervation system uses a technique called Renal Denervation (RDN) to selectively calm hyperactive renal nerves. This causes a reduction in the kidneys’ production of hormones that raises blood pressure and protects the heart, kidneys and blood vessels from further damage. The Symplicity renal denervation system provides doctors an innovative treatment option for uncontrolled hypertension that offers several benefits including:
- Significant reduction in blood pressure
- Safe, short treatment that does not require general anesthesia
- Fast recovery time with minimal complications

RDN therapy using the Symplicity renal denervation system accomplishes the same results as nonselective sympathectomy—effectively lowering blood pressure. However, it is performed with a safer, less invasive and more selective technique that carries a much lower incidence of potential complications and side effects. The Symplicity™ renal denervation system demonstrates promising results and has been featured at prominent medical conferences and in international medical journals. Clinical research shows that renal denervation with the Symplicity™ renal denervation system can provide safe, superior, and sustained reductions in blood pressure levels for patients with uncontrolled blood pressure with multiple antihypertensive medications. This research includes the Symplicity HTN-11 and Symplicity HTN-22 clinical trials.

The Symplicity renal denervation system has an unmatched safety record. In both the Symplicity HTN-1 and HTN-2 clinical trials, there have been:
- No serious device or procedure-related events
- No evidence of vascular injury/stenosis at the treatment site via imaging at 6 months
- No orthostatic or electrolyte disturbances
- Sustained renal function (eGFR and creatinine)

SUSTAINED REDUCTIONS IN BP THROUGH 3 YEARS
Symplicity HTN-1 was a series of pilot studies involving 153 patients at 19 centers in Australia, Europe, and the US. In these studies, patients achieved a mean blood pressure change of -22/-10 mm Hg at 6 months, and a change of -31/-16 mm Hg for those patients that have reached their 3-year follow-up. Patients who have reached 3 year follow-up in the Symplicity HTN-1 study have shown a sustained reduction in blood pressure.

**Fractional Flow Reserve (FFR)**

- Fractional flow reserve (FFR) is a physiologic parameter which can be measured easily during the intervention procedure and can assess the functional significance of coronary stenosis.
- FFR-guided revascularization strategy is reported to be more effective than angiography-guided strategy in patients with coronary artery disease.
- Coronary stenosis with $\text{FFR} \leq 0.80$ can be considered to be “significant.”

**Benefits**

- FFR is a specific index for the epicardial stenosis and therefore better indicates as to what degree a patient can be helped by revascularization.
- FFR is independent of changes in heart rate, blood pressure, and contractility.
- FFR takes into account the contribution of the collateral flow.
- FFR can be applied in multivessel disease and for serial lesions within one vessel.
- FFR evaluates optimum stent deployment.

**Rotablator**

**At CIMS, Rotablator is used when:**

- The plaque is felt to be too difficult to flatten against the artery wall with just PTCA.
- The plaque appears to have a large amount of calcium present in it and does not move easily.
- The plaque is too long or starts where the artery begins.
- The artery has too much plaque, which needs to be removed before another procedure.
- The artery is felt to be small for other procedures.
- A PTCA and/or stent has been done before and the lesion has reclosed.

**Intravascular Ultrasound (IVUS)**

Cardiologists at CIMS observe images inside the heart and coronary arteries to assist in diagnosis. IVUS offers a tomographic, 360-degree view of the arterial wall from the inside, allowing a more complete and accurate assessment than is possible with angiography.
CIMS Cardiac Rhythm Disorders

CIMS has established a unique Cardiac Arrhythmia Management Centre which provides customized catheter-based treatment that incorporates comprehensive state-of-the-art technology to effectively cure arrhythmias.

CIMS offers:
1) Electrophysiology Studies (EPS)
2) Radiofrequency Ablation (RFA)
3) 3-Dimensional Mapping and Ablation
4) Pacemaker Therapy
5) Implantable Cardioverter Defibrillator (ICD)
6) Biventricular Pacing (CRT and CRT-D)

Number of EP study and RF Ablation were higher in 2012 as compared to 2011.

Goals of EP achieved at CIMS include:
- A complete accurate diagnosis of an arrhythmia (supraventricular or ventricular tachyarrhythmia or a bradyarrhythmia)
- Establish the etiology for syncope (bradyarrhythmia or tachyarrhythmia) especially in patients with structural heart disease
- Evaluate prognosis
- Stratification for risk of sudden cardiac death
- Acquire data regarding indications for therapy (e.g. permanent pacemaker or defibrillator implantation)
- Guide antiarrhythmic drug therapy
- Evaluate the feasibility or outcome of nonpharmacological therapy: e.g. transcatheter radiofrequency ablation, antiarrhythmic surgery, or implantable cardioverter/defibrillator therapy

(CRT-Cardiac Resynchronization therapy, ICD- Implantable Cardioverter Defibrillators, CRT-D- Cardiac Resynchronization Therapy-Defibrillator)
At CIMS, patient with EF<35% were evaluated for risk of sudden cardiac death and a need for ICD. All patients implanted with defibrillators were followed up. These patients have successfully survived sudden cardiac arrest episodes due to VT/VF.

At CIMS,

- **Electrophysiologists and neurologists work collaboratively to evaluate patients with unexplained loss of consciousness (syncope).** Evaluation includes blood volume studies, tilt table testing, hemodynamic testing, heart rate variability and autonomic reflex testing.
- **CIMS is in the process of initiating an innovative approach of remote monitoring to keep track of patients health regardless of their condition.** Remote monitoring of implanted patients is associated with increased longevity and decreased need for in-person follow-up.

(VVI- Ventricular Demand Pacemaker, DDDR-Dual Chamber Pacemaker, VVD- AV Dual Chamber Synchronous Pacemaker, VVIR-Dual Sensor Ventricular Demand Rate Responsive AAIR - Artificial Pacemaker)

(CRT-D implantation)

**Pacemaker Implantation 2012**

<table>
<thead>
<tr>
<th>Pacemaker Type</th>
<th>Number of Patients</th>
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<tbody>
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<td>VVI</td>
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<tr>
<td>DDDR</td>
<td>27</td>
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<td>VDD</td>
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<tr>
<td>VVIR</td>
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<tr>
<td>AAIR</td>
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**EP Study**

<table>
<thead>
<tr>
<th>Type</th>
<th>2011(N=376)</th>
<th>2012(N=383)</th>
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</thead>
<tbody>
<tr>
<td>EP study</td>
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<td>180</td>
</tr>
<tr>
<td>RFA</td>
<td>212</td>
<td>171</td>
</tr>
</tbody>
</table>

Dr. Ajay Naik
Case Presentation: A 68 year old gentleman, with procedural history of Aortic Valve Replacement (9 years ago), Coronary Artery Bypass Graft (7 years ago) and subdural hematoma (4 year ago) was admitted to CIMS. He had persistent Congestive Heart Failure, NYHA class III with repeated episodes of ventricular tachycardia, had undergone cardiac resynchronization therapy device (Biventricular Pacemaker + Defibrillator) implantation 6 months ago at another center.

Diagnosis and Management: The patient was extremely sick, suffering from CAD, old anterior wall myocardial infarction, severe LV dysfunction LVEF about 25 %, ventricular tachycardia, CRT-Device pocket infection with pseudomonas. As the clinical profile suggests, the prognosis of the patient was quite poor.

Dual chamber temporary pacing electrode was deployed via jugular vein. R2 defibrillator patches were attached to manage ventricular tachyarrhythmias. Antibiotic therapy was initiated. Device re-implantation was performed on the right infraclaviular region. Implantation parameters for Right Atrial Lead were RA Threshold-0.5 V at 0.5 ms PW, Resistance-330 ohms, P wave- 2.2mV; Right Ventricular Lead RV Threshold-0.3 mV@ 0.5 ms, Resistance-440 ohms at 5.0 V, R wave-11.7 mV; and Left Ventricular Lead LV Threshold-3.5 V at 0.5 ms, Resistance-730 ohms at 5.0 V, R wave-11.7 mV. The patient tolerated the procedure well and there were no complications.

Outcome: LVEF had improved to 35%. There was no evidence of infective process.
CIMS Cardiac Surgery team comprises of skilled and experienced surgeons, anaesthetists and perfusionists who are highly committed to patient centered care.

Management Strategies for CABG Patients To Reduce Mortality and Morbidity:
- Pre-operative complete evaluation of the patient
- To Continue aspirin till the date of Surgery
- Peri-operative trans-oesophageal evaluation of all patients
- Doing maximum number of Off pump CABGs for better and faster recovery
- To use maximum number of arterial grafts
- Continuous cardiac output and hemodynamic monitoring in the ICU
- Fast-tracking protocols in ICU for early mobilization and recovery
- Post-operative physiotherapy and dietary counseling and advising
- Psychotherapy evaluation and management during post-operative period

At CIMS, in 95% isolated CABG's patients internal memory artery is grafted.
- In 18-20% patients total arterial bypass graft were successfully performed - a high risk procedure.
At CIMS, 661 isolated CABG procedures have been performed in 2012.

At CIMS Hospital, bypass surgery may be performed in combination with other heart surgeries, when necessary, such as valve surgery, aortic aneurysm surgery or surgery to treat atrial fibrillation (an irregular heart beat). 

The greatest risk is correlated with the urgency of operation, advanced age, LV ejection fraction, renal dysfunction and peripheral vascular disease.

Variables that are related to mortality include:

- Coronary angioplasty during index admission
- Recent Myocardial Infarction (MI)
- History of severe and stable angina
- Ventricular arrhythmias
- Congestive heart failure or mitral regurgitation
- Comorbidities such as diabetes, hypertension, obesity, age >75, smoking.

Patients with LV systolic dysfunction (predominantly mild to moderate in severity) had better survival with CABG than with medical therapy alone.

At CIMS clinic, mortality rates for patients, who had CABG plus other procedures with CABG was around 3% which is lower than expected rate, despite the fact that nearly all patients were sick and most of them had severe LV dysfunction.

Majority patients undergoing CABG surgery at CIMS were in age group of 61-70 year.

The observed (O) overall mortality (1.8%) was lower than the expected (E) mortality (2%) resulting in low O/E mortality ratio (0.9%).
**Case Presentation:** A 68 year old male patient, known case of diabetes, hypothyroidism and pituitary macroadenoma, had complaints of chest pain on exertion.

**Diagnosis and Management:** CAG and 2D Echo of patient revealed, CAD-TVD, mild inferior wall MI, mild MR, LVEF: 50-55 %. Pre operative examinations were normal except Serum cortisol level-\(0.4 \mu\) gm (low). Neurologist and endocrinologist were referred and after their clearance, beating heart CABG was done. During surgery, patient started developing hypotension with normal ECG. Patient was shifted to ICU with slightly high inotropic support but inotropic support requirement went on increasing. Arterial Blood Gas (ABG) acidosis kept increasing and lactic acidosis went upto 14.2. Cardiac output and Systemic Vascular Resistance (SVR) were measured. Intra-aortic Balloon Pump (IABP) was inserted but no improvement was observed. Sugar levels were very high inspite of insulin infusion, hence loading dose of hydrocortisone and dexamethasone were given. Sustained Low Efficiency Haemodialysis (SLEHD) was planned for lactic acidosis. After 6-8 hr of dialysis and Inj. Effocorlin IV TDS, patient gradually started improving; ABG became normal and overall haemodynamic condition improved. Inotropes were gradually tapered and IABP was removed. Patient was extubated and overall post operative recovery was uneventful. Only abnormal laboratory reports post operatively were high WBC counts.

**Outcome:** Repeat CBC showed Hb – 11.2, platelet - 124,000, TC – 21190, DC – 92/06/01/01

**Conclusion:** Patient had pituitary apoplexy postoperative leading to severe vasodilatation and low cardiac output. A variety of clinical symptoms associated with pituitary apoplexy have been described including headache, lethargy, confusion, obtundation, Addisonian crisis, unilateral ptosis, myosis, hemiparesis, visual field deficits and ophthalmoplegia.
At CIMS, a total number of 339 patients were successfully treated for heart failure.

AT CIMS, Process measures for "heart failure" patients include:
- LVEF assessment (outpatient setting)
- Symptom and activity assessment
- Symptom management
- Patient self-care education
- Beta-blocker therapy for LVSD
- ACE inhibitor or ARB therapy for LVSD
- Counseling about ICD implantation for patients with LVSD receiving combination medical therapy
- Post discharge appointment for HF patients
- Patient education about lifestyle, physical activity, diet, and medications is an important component of providing quality care for patients with HF.

Heart failure was higher in age group of less than 40 year followed by 51-60 year.

Male patients with heart failure were higher compared to females in 2012.
Case presentation: A 68-year old female patient, normotensive, non-diabetic, had complaints of breathlessness on mild exertion, orthopnea, since 15 days which had aggravated since few days. Patient was admitted at CIMS Hospital for further evaluation and coronary work up.

Diagnosis and Management: On admission, patient was in cardiogenic shock and was managed conservatively. On pre CAG investigations she had altered renal function (Creatinine = 3.5). CAG was done which was suggestive of CAD, Acute Inferior Wall Myocardial Infarction (IWMI), cardiogenic shock, acute renal dysfuction, post MI VSD. Patient was advised for CABG with VSD closure. 2D echo was done on 11/01/2013, which was suggestive of LVEF: 50%, large post muscular VSD with left to right shunt, severe Tricuspid Regurgitation (TR) and severe Pulmonary Artery Hypertension (PAH). IABP was inserted preoperatively and patient was stabilized. Patient’s lab parameters were abnormal; serum creatinine 3.5, prothrombine 4.5 (INR), platelet counts - 90,000, serum KP - 5.6 mcq/lt. With this parameters patient was considered in high risk. Patient was operated in emergency for CABG with post MI VSD closure. CABG with VSD closer was done using PTFE patch. Intra-operative transesophageal echo was done. LV posterior wall near crux was thin friable & RV in that area was friable. Inlet muscular VSD of 20mm size with L-> R shunt and sever PAH with normal LV systolic function. Aneurysmal post LV wall near base. There was infarct at crux region with thin myocardium there. VSD was as large as 2 cm size in sub-mitral region with serpiginous tract into RV. RV septal and inferior wall was very friable and inflamed and divided into two plane. Repair of the VSD was done by exclusion technique, with a double patch sandwich technique with glue in between. Post operative 2D Echo showed no leak.

Outcome: Post operatively, patient was shifted to SICU with high inotropic support and on IABP support. She was extubated after 2 days and IABP was removed after 3 days of surgery. Patient was discharged on 28/01/2013.

Discussion: Post infarction rupture of the interventricular septum is a potentially fatal complication of acute myocardial infarction. It occurs in only 1-2% of patients with acute MI, and it causes early death in about 5% of post-MI patients. The most frequent complications of acquired VSD are rapidly progressing: congestive heart failure, cardiogenic shock, hemorrhage, pulmonary edema, renal insufficiency and eventual multiple organ failure; with these complications, mortality approaches 50%. Despite intervention, operative mortality for post-MI VSD repair remains high (from 20% to 40% by several studies); however, patients that survive in the short-term usually have favorable long-term outcomes.
Cardiac Valve Disorders treated at CIMS include:
- Mitral Valve Replacement and Repair (MVR)
- Aortic Valve Replacement (AVR)
- Double Valve Replacement (DVR)

Patients from USA, UK, Kenya, Tanzania, Uganda, Tajikistan, Zimbabwe, Nigeria, Bangladesh, etc. come for Cardiac Surgery at CIMS hospital.

Prevalence of mitral stenosis and regurgitation were higher in females, while aortic stenosis and regurgitation were higher in males.
Majority of valve replacement procedure at CIMS involves bio prostheses (biology tissue valves). Newer generation bioprostheses are preferred for most aortic and mitral valve procedures because they are durable and help most patients avoid lifelong anticoagulant therapy after surgery and its associated complications.

Mitral Valve Repairs for LV dysfunction are done on a regular basis.

Patient who had isolated valve replacement had fewer complications than expected.

In all mitral valve patients, left atrial electrocautery maze and LA ligation is done.

Valve repair, rather than replacement, is associated with better survival, improved lifestyle, better preservation of heart function and lower risk of stroke and infection (endocarditis) with no need of anticoagulation therapy. CV surgery Team at CIMS is a pioneer and does high volume valve repair surgeries.
Case Presentation: A 38 year old female developed a sudden onset of giddiness, multiple episodes of vomiting and slurring of speech at home which progressed rapidly to left hemiplegia and was admitted to CIMS.

Diagnosis: 2D echocardiography revealed ascending aortic dissection with severe aortic regurgitation. Multiline CT angiography of aorta revealed dissection flap in aorta (Stanford type-A ;De Bakey type-I) arising from the aortic root extending up to the bifurcation of aorta. The dissection was extending into brachiocephalic artery, both subclavian arteries, right common carotid artery with complete occlusion of right Internal carotid artery. CT scan of brain revealed Lacunar infarct in right caudate nucleus.

Surgical Management: There was an impending rupture of ascending aorta contained just within the adventitia. Ascending aorta and total aortic arch replacement was done using femoral cannulation and cardiopulmonary bypass with profound hypothermia. Brief period (38 min) of total circulatory arrest with antegrade cerebral perfusion for an open ended distal anastomosis was used. Native aortic valve was spared after fixing the dissection flap in the aortic root. All the arch vessels were reimplanted as an island after stabilizing the dissection flap.

Outcome: No significant postoperative bleeding developed. Patient followed commands on the first post-operative day but unfortunately the neurological condition deteriorated on second post-operative day. CT scan of brain revealed progression of stroke on the right side.

Discussion: In Acute Type-A aortic dissection, 100% patients presenting with coma and 76.2% presenting with stroke will not survive with just medical management. However the mortality with surgical management is 27% for patients with preoperative stroke and 44% for those with preoperative coma. Also successful surgical repair increases the chances of post-operative brain injury reversal very much which in turn increases the chances of survival.
CIMS is the first official centre to launch a fully equipped MICS program in Ahmedabad and Gujarat.

**MICS Surgeries at CIMS**
1. ASD
2. Mitral valve repair / replacement
3. Aortic valve replacement
4. Selected cases of CABG
5. Hybrid CABG

At CIMS, of the total 36 patients, majority of patients underwent 'Off-pump' MICS surgery.

### Age Distribution of MICS Patients

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2011 (N=39)</th>
<th>2012 (N=36)</th>
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<tbody>
<tr>
<td>Less than 40</td>
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<td>9</td>
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<tr>
<td>41-50</td>
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<td>51-60</td>
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<td>61-70</td>
<td>4</td>
<td>3</td>
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<tr>
<td>greater than 70</td>
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### Gender Distribution of MICS Patients

<table>
<thead>
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<th>Gender</th>
<th>2011 (N=39)</th>
<th>2012 (N=36)</th>
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<tbody>
<tr>
<td>Males</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>Females</td>
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<td>15</td>
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### In Hospital Morbidity Rate in 2012

<table>
<thead>
<tr>
<th>Morbidity</th>
<th>2011 (N=39)</th>
<th>2012 (N=36)</th>
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<tbody>
<tr>
<td>Re-operation for Bleeding</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Re-procedure</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Stroke</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Dialysis</td>
<td>5</td>
<td>5</td>
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</tbody>
</table>

Inspite of high morbidity patient load, only in 2 % patients deep sternal wound infection was observed.
◆ As compared to 2011 (n = 55) more vascular surgeries were performed in 2012 (n = 73) treating peripheral arterial occlusion disease, aortic aneurysms, varicose veins, diabetic foot infection, deep vein thrombosis and pulmonary embolism.

◆ With state-of-the-art operating rooms, cathlabs, ICUs and the latest technologies at CIMS, surgeons have been successful in achieving excellent outcomes in all the avenues of vascular diseases.

◆ CIMS team of vascular surgeon and interventional cardiologists perform a variety of procedures to treat patients with peripheral artery conditions. They are skilled at angioplasty, atherectomy, stenting, thrombectomy and thrombolysis.

◆ CIMS vascular surgeons strive to use autologous vein grafts.

### Vascular Procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>2011 (N=55)</th>
<th>2012 (N=73)</th>
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<td>Varicose Vein</td>
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<tr>
<td>Carotid Angioplasty</td>
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<td>13</td>
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<tr>
<td>Limb Vessel Angioplasty</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Renal plasty</td>
<td>0</td>
<td>25</td>
</tr>
</tbody>
</table>

The use of vascular surgery reduces patient morbidity and mortality.

**Aortic Aneurysm**
At CIMS, we manage aortic aneurysm (thoracic and abdominal) using open surgical repair and minimally invasive endovascular repair (EVAR and TEVAR) with high success rate.

**Varicose Veins and Chronic Venous Diseases**
The most complex venous ulcers and varicose veins are managed at CIMS with most advanced RF ablation, foam sclerotherapy and compression treatment.

We do CDT (thrombolysis) for acute massive DVT and **venous stenting** for PTS (Post Thrombotic Syndrome).
**Diabetic Foot Clinic**
- Diabetic Foot Infections (DFI) are quite common in Gujarat and thousands of patients lose their limbs due to failure to revascularize or optimal podiatric care.
- Infra Genicular (Tibial) Angioplasties as well as bypasses using saphenous vein up to ankle are performed.
- CIMS is proud to salvage many limbs with focused treatment strategies.

**A-V Access Surgeries**
- At CIMS, Arterio Venous Fistula (AV fistula) creation for the CKD patients for permanent dialysis is done.
- CIMS Vascular team have done basilic vein transposition and A-V grafting successfully for patients having failed fistulas or poor venous conduits.
- CIMS follows fistula first initiative.
- Having the best nephrologists of Ahmedabad as a part of CIMS team, scientific and high quality care is given to the patients.

**Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE)**
With an excellent back up of Intensivists and Cardiologists, experts are geared up to manage and save lives of patients suffering from Pulmonary Embolism.
- Experts believe in early Catheter Directed Thrombolysis (CDT) whenever suitable to prevent 'Post Thrombotic Syndrome' and its lifelong sequel. CIMS endovascular surgeons place IVC filters in highly selected patients having contraindications or complications with anticoagulation or free floating thrombus in IVC.
- At CIMS, venous plasties and stenting for treatment of post thrombotic syndrome and non healing venous ulcers is conducted with good outcomes.
**Case Presentation:** This is a case of acute type B dissection in a 62 year old smoker; complicated by severe Superior mesenteric artery (SMA) and a celiac artery mal perfusion with Michigan Static (S) type compromise. After initial stabilization, CT angiogram and DSA were performed which confirmed clinical diagnosis.

**Management:** Patient was kept on “Whit and Pulmar” regimen (IV B blocker plus SNP) for initial three days and then taken up for final definitive staged hybrid repair. Stage-I - Carotid to Carotid Bypass using dacron graft, Stage-II - TEVAR using Medtronic Valiant Stentgraft [38mm × 38mm × 150mm] were performed. Having deployed the stent graft, check angiogram confirmed sealing of dissection tear and patient’s innominate artery, totally expanded true lumen of aorta upto bifurcation and opened up celiac and superior mesenteric artery. CSF (Cerebrospinal fluid) drainage, steroids and neuro protective agents were used for brain and spinal cord protection. Right ventricular pacing through femoral vein was used for accurate deployment of the stent graft. Right CFA was suture repaired and patient was shifted for elective monitoring.

**Outcome:** Patient made excellent recovery in form of relieved abdominal angina, controlled BP, relieved back pain without any neurological deficit. Patient needs follow up for aortic dimensions and blood pressure control. To our knowledge this is the first case of complicated acute type B Aortic dissection treated successfully using staged hybrid repair (Carotid-carotid bypass followed by TEVAR thoracic endovascular aneurism repair).
Below the Knee Intervention for Chronic Limb Ischemia (CLI) in Diabetics

**Case Presentation:** A 65 year old gentleman having persistent left foot rest pain and a chronic non healing ulcer was evaluated at CIMS hospital.

**Diagnosis and Management:** Angiography showed multiple calcified stenotic lesions in proximal ATA, distal PTA and a short segment occlusion in distal ATA. Antegrade left femoral puncture was done. Lesions crossed with dedicated CTO wire Vin 18 and lesions were treated using 2 x100 mm tibial balloons with prolonged inflation time of 1 minute at 14 atm pressure. ATA lesions were also treated and planter arch circulation was completed.

**Outcome:** Post procedure patient was kept on high dose lipid lowering medicines and dual antiplatelet therapy. Pain at rest was relieved and ulcer healed over 2 week's periods. Follow up is required.

**Successful Management of the Most Challenging Venous Ulcers at CIMS Vein Clinic**

**Case Presentation:** We present a case of grade 6 venous disease in a 50 year old male having non healing ulcer over gaiters area. Despite consulting almost 30 doctors, wound remained unhealed.

**Diagnosis and Management:** Patient was evaluated and found to have leg perforator incompetency on venous Doppler. USG guided micro foam sclero therapy was performed and compression stockings were given. The ulcer healed within 1 month span with excellent patient satisfaction.

At CIMS vascular surgery division, we have the latest RF ablation device and micro foam therapy technique. We have treated the most complex venous ulcers with a 100% success rate.

**Outcome:** The challenging venous ulcer was managed successfully.
At CIMS, Cardiothoracic surgeons perform different types of surgeries which reveals their expertise and skills.

**Guidelines followed for Thoracic Surgery**
- High antibiotic levels at the site of incision for the duration of the operation, are essential for effective prophylaxis.
- Antibiotic prophylaxis administered too early or too late increases the risk of SSI. Studies suggest that antibiotics are most effective when given $\leq 30$ minutes before skin is incised.
- The pragmatic approach is to administer prophylaxis towards the end of induction and ensure that surgery starts within 30 minutes of this time wherever possible.
- It is important that antibiotics are fully administered prior to tourniquet inflation.
- Patient's who experience major blood loss (greater than 1500ml) should have fluid resuscitation, followed by re-dosing with the recommended prophylaxis regimen for that operation.
- For operations lasting $> 4$ hours, re-dosing may be necessary.
- For surgical site infection flucloxacillin, vancomycin IV and PLUS IV are given.
Key features of Neonatal and Pediatric Critical Care Unit

- Highly qualified intensive care team to treat critical neonates and children
- State-of-the-art 12 bedded advanced neonatology setup, well equipped with conventional as well as high frequency oscillatory ventilation (HFOV-SLE 5000) with facility of Nitric Oxide (NO) delivery
- Multi-disciplinary intervention program with facilities like in-house pediatric surgery, pediatric cardiology and pediatric cardiac surgery, fibreoptic bronchoscopy, post trauma care
- 24x7 emergency support and pediatric transport team equipped with pediatric ventilators
CIMS Neonatal and Pediatric Critical Care

Pediatric Cardiac Catheterization Procedures (N=122)

- RVOT device closure: 1
- Balloon atrial septostomy: 2
- Balloon aortic valvoplasty: 4
- VSD device closure: 4
- Coarctation dilation: 11
- Balloon pulmonary valvoplasty: 13
- Diagnostic studies: 17
- ASD device closure: 31
- PDA device closure: 39

Pediatric Cardiac Surgeries 2012 (N=110)

- VSD closure: 23
- Tetrology repair: 32
- ASD closure: 21
- PDA closure: 7
- TAPVC repair: 4
- Glenn: 4
- Coarctation repair: 4
- Arterial switch: 3
- PA band: 2
- BT shunt: 2
- Valve replacement: 2
- Supravalvar AS: 1
- RV-PA conduit: 1
- Pericardiectomy: 1
- Subaortic Membrane Resection: 1
- Fontan: 1
- Senning’s: 1
**Case Presentation:** A 4 day old baby boy was brought from Bhavnagar with life threatening cyanosis (bluebaby) and right heart failure.

**Diagnosis and Management:** 2D echo of patient was suggestive of Persistence Pulmonary Hypertension (PPHN), right ventricular hypertrophy with negligible forward flow per pulmonary valve to lungs. Child was unable to maintain his vitals even on ventilator with 100% Fio2. Child showed symptoms of bradycardia and cardiac failure. Sildenafil citrate was given but there was no response. There were multiple episodes of cardiac compromise and child was in severe cardiogenic shock state. There was a team approach of managing the kid with life saving and novel tool-Nitric oxide therapy. The child started responding well gradually and nitric oxide was weaned off over next 3 days after coming to minimal dose of 5 ppm. Serial ECHO showed marked improvement and child was successfully weaned off from ventilator after 6 days. With 13 days of total hospital stay the child was discharged.

**Outcome:** Nitric Oxide therapy was a life saving therapeutic tool. This exemplifies perfect multi disciplinary care of CIMS starting from safe Neonatal transport in ambulance from 200 km away from Ahmedabad to state-of-the-art unit offering life saving Nitric oxide therapy by a team of well experience expert; which is not available in more than 4 to 5 centres in entire Gujarat as per our information.

**Cases of Extremely Premature Babies Weighing merely 900 gm**

During this academic year; we served the best of care to two premature delivered babies (newborn); Nature has made them new born at just 7 months of intrauterine age(premature births). They were placed on highly sophisticated neonatal ICU (NICU) for about 1.5 month preterm care including life support on ventilator due to their immature lungs and immature organ system. With premature delivery, child A at 7 months of delivery weighed 850 gm while child B weighed 890 gm. At 8-9 months age, both are doing well.
Surgery of Anomalous Origin of Left Coronary Artery from Pulmonary Artery (ALCAPA)

Case Presentation: A 3 month old baby girl, weighing 5 kg was referred to CIMS with history of repeated respiratory tract infections.

Diagnosis and Management: X-ray of chest showed gross cardiomegaly (fig.1), 2-D Echo showed dilated left ventricle with severe LV dysfunction (EF 15%), severe mitral regurgitation and anomalous origin of left coronary artery from pulmonary artery (fig -2).

Cardiomegaly: Patient underwent ALCAPA repair: The left coronary artery was explanted from pulmonary artery and was translocated to ascending aorta. The defect was filled with autologous pericardial patch. Patient was weaned off cardiopulmonary bypass with left atrial pressure of 9 mm Hg. Peri operative Echo showed smooth flow in left coronary artery. After 48 hours, delayed sternal closure was done. The child was extubated on the sixth post operative day. Inotropes were gradually tapered.

Outcome and Medication: At discharge Echo showed mild MR with LVEF of 25 % and smooth flow into left coronary artery. The child was discharged with diuretics and ACE inhibitors.

Discussion: ALCAPA is a rare congenital cardiac anomaly in which the left coronary originates from pulmonary artery instead of aorta. It carries a very high mortality if left untreated.

Catheter Interventional Management of Post Operative Chylothorax in Complex Congenital Heart Disease

Case Presentation: A 5 year old boy, with Complex Congenital Heart Disease (CHD) Criss-cross AV connection, large ventricular septal defect, double outlet right ventricle and pulmonary stenosis underwent open heart surgery (Bidirectional Glenn Shunt (fig.1) + Atrial Septectomy + Tricuspid valve repair) at CIMS. Three months later, patient presented with history of respiratory infection with onset of distress since few days.

Diagnosis and Management: On investigation, he was found to have right pleural effusion. Intercostal drainage of pleural fluid revealed Chylothorax. Patient was initially managed with low fat diet, decongestives and Octreotide infusion and cardiac catheterization was planned. Cardiac catheterization revealed high Glenn pressures (mean 20-24 mmHg) due to high pulmonary artery pressures which by temporary obstruction with balloon catheter showed fall in mean pressure (14-15 mmHg) to normal. As high output of Chylothorax persisted despite above mentioned measures, Right Ventricular Outflow Tract (RVOT) device closure was done through internal jugular vein approach using 14 mm Amplatzer muscular VSD device.

Outcome: The drain output reduced over few days and ICD was removed on 7th post procedure day.

Discussion: Novel application of standard procedure works wonders at times. For this patient, CIMS team successfully avoided second surgery (MPA ligation)by occluding RVOT through percuteneous route.
CIMS Pulmonary Medicine Department is managed by senior and eminent pulmonologists. They are well versed with all modern techniques in their field including Fiber Optic Bronchoscopy, Pulmonary Function Testing including DLCO Sleep study, fiberoptic pleuroscopy and allergy testing.

**Following diseases are diagnosed and treated at CIMS hospital:**
- Bronchial asthma including difficult to treat asthma
- COPD and advanced COPD
- Interstitial lung diseases
- Respiratory allergic diseases
- Tuberculosis and drug resistant tuberculosis
- Lung tumors
- Snoring and sleep disorders (snoring is hazardous and should not be ignored)
- Non resolving and recurrent pleural effusion
- Critical care for critically ill pulmonary patients

Following facilities are available at CIMS hospital:
- Video fiber-optic bronchoscopy (diagnostic and therapeutic procedure)
- Pulmonary Function Test (PFT) including Diffusing Capacity of Lung Carbon Monoxide (DLCO)
- Sleep laboratory (one of the best sleep lab with highly trained sleep specialist and pulmonologist)
- Allergy Testing

**Sleep Lab**
CIMS Sleep Laboratory fills the vacuum for a world class sleep disorder lab in Gujarat. It is the latest and most sophisticated sleep lab in Gujarat with dedicated suite room allocated in the hospital for comfort of patients.

Dr. Amit Patel
Dr. Nitesh Shah
Who needs a sleep study?
All individuals who snore at night and have one of the following symptoms
◆ Excessive loud snoring  ◆ Disturbed night sleep  ◆ Daytime sleepiness
◆ Choking in sleep  ◆ Lack of concentration  ◆ Loss of memory
◆ Irritability  ◆ Depression  ◆ Sexual dysfunction
◆ Breathlessness that wakes you from sleep
◆ Patient with uncontrolled hypertension, heart diseases, CV stroke with loud snoring

Pulmonary Function Tests
◆ Pulmonary function tests are a group of procedures that measure the function of the lungs, revealing problems in the way a patient breathes.
◆ The tests can determine the cause of shortness of breath and help in differential diagnosis of lung diseases, such as asthma, COPD or interstitial lung disease.
◆ The tests are also performed before any major lung surgery to make sure the person is not disabled by having a reduced lung capacity.
◆ CIMS PFT lab has facility to conduct DLCO, which is an integral tool to measure extent of problem in interstitial lung disease.

Pulmonary Alveolar Proteinosis

Case Presentation: A 35 year old male non-smoker patient with no pre morbid condition came to CIMS with complaints of dry cough and breathlessness on exertion since 1 year. Patient was working in a warehouse.
Diagnosis and Management: X-ray of chest showed bilateral fluffy opacities. HRCT thorax showed crazy paving pattern bilaterally (fig 1). Hematology was normal; previously was treated with antibiotics but showed no improvement. So pulmonary alveolar proteinosis was suspected. To confirm the diagnosis bronchoscopy and transbronchial biopsy was done. Histopathological examination showed deposition of periodic acid schiff (PAS) stain positive lipoproteineous material in alveoli, confirming pulmonary alveolar proteinosis (PAP). For treatment of PAP, both lungs were lavaged one after another with isotonic normal saline until remaining fluid was clear, requiring 20-50 litres of saline and 4-8 hours, while one lung being ventilated.
Outcome: Patient's post operative hospital course was uneventful and post lavage CT scan and X-ray showed significant improvement.
CIMS Critical Care Unit

- Equipped with state-of-the-art technology ICU, latest ventilators, infusion pumps, monitors, bed side warmers, defibrillators, bed side echo and availability of dialysis facilities
- Offers a healing environment to the sick
- Practices evidence based medicine to ensure good outcomes
- Experts manage an array of highly complex multisystem medical and surgical condition.
- Our success rates are at par with the best institutions in the world.
- Concept of Green ICU followed

At CIMS, CCU Process Measures Include:

1. Avoid excessive use of antibiotics
2. Judicious monitoring of fluid and inotrope therapy
3. Avoid excess sedation
4. Avoid too liberal blood transfusion

Responsibilities of CIMS Critical Care Physician/Director

1. Creating guidance for granting of specific privilege in the ICU
2. Developing ICU programs, policies, rules and regulations
3. Developing recommendations about the need for continuous educational programs that are consistent with the type of service offered by critical care and developing performance improvement activities
4. Managing physician staff members adherence to medical laws and other hospital policies, sound principles of clinical practice regulation that promote patient safety

ICU/GICU Admission

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<tr>
<td>2012</td>
<td>918</td>
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Total admission rate increased by 40% in 2012.

Admission in Medical ICU in 2012 (N=918)

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<td>Mar</td>
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Bedside Procedures in Medical ICU

<table>
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<tr>
<td>CVC</td>
<td>150</td>
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<tr>
<td>DLEC and bedside</td>
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<tr>
<td>Dialysis</td>
<td>100</td>
</tr>
<tr>
<td>ICD</td>
<td>10</td>
</tr>
<tr>
<td>Lumbar Puncture</td>
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<tr>
<td>A-line</td>
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</tr>
<tr>
<td>Pericardiocentesis</td>
<td>20</td>
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<tr>
<td>Pleural Tap</td>
<td>10</td>
</tr>
<tr>
<td>IABP</td>
<td>8</td>
</tr>
</tbody>
</table>

(CVC-Central Venous Catheter, ICD- Implantable Cardioverter Defibrillator, DLEC- Dialysis Catheter, IABP- Intra Aortic Balloon Pump)
Case Presentation: A 56 year old gentleman, premorbidly healthy, except heavy smoking habit, was admitted at district level hospital with H/o fever and shivering 7 days before presentation. His fever improved with local treatment only to reappear with cough and expectoration, generalized weakness, tremulousness, got rapidly worsened in form of dyspnoea, desaturation with O₂ support-requiring mechanical ventilator support within 12 hr of hospitalisation, planned for transfer with calculated risk considering limited further supportive facilities available at that center.

Diagnosis and Management: Patient was shifted to CIMS hospital - on arrival he was unresponsive under effect of sedative and paralytic agents with PaO₂ 81.5 (100% fio₂, 14 PEEP) with lung compliance of 30-32 ml/cm H₂O, was hemodynamically stable. He was continued with sedation paralysis-controlled ventilation (Low Tidal Volume Ventilation Strategy-restricting Pplat to ≤ 30 cm H₂O), antibiotics, antivirals, stress ulcer prophylaxis, DVT prophylaxis, pressure sore prophylaxis, enteral feeding through nasogastric tube. All possible sepsis screening culture was sent before antibiotics was initiated and invasive hemodynamic monitoring was done. X-ray of chest was s/o of B/L diffuse infiltrate s/o severe ARDS. His RT-PCR for H1N1 was negative. Next day, his PO₂ 69.5( on 70 % fio₂, 14 PEEP) pH 7.20,PCO₂ 73.2. Recruitment maneuver was done after hypovolemia correction, in view of poor gas exchange/lung compliance 28ml/cmH₂O. Over next 48 hours his FiO₂ support came down to 55 %, PEEP - 10. After stopping sedation, he had vigorous coughing-biting of endotracheal tube - requiring intermittent sedation to facilitate oxygenation and ventilation. He was also continued with RT feeding, closed ET suctioning. He remained febrile but hemodynamically stable, could not be made fully conscious-need ing sedation for intermittent agitation and difficult to ventilate state, hence early tracheostomy- on day 5- was done, antibiotics were escalated empirically and then administered a/c to sensitivity for Klebsiella and Acinetobacter pneumonia. As he was not in a normal conscious state (agitated delirium) with reduced both lower limb movement, CT brain and CSF study were done and were within normal limits. He was continued with antipsychotics (sedation-completely stopped), RT feeding and physical therapy. His febrile state, leucocytosis, radiological and oxygenation index improved over next one week. He was weaned from ventilator support by intermittent PSV mode ventilation and T piece. His conscious level gradually normalized and he was started on semisolids orally. His tracheostomy was decannulated on day 15 of arrival to CIMS hospital. He was transferred back to same hospital with minimal oxygen support. As per last telephonic discussion, he had recovered much better and had a good weight gain.
Severe Myocarditis due to Legionella Pneumonia Infection

Case Presentation:
A 23 year old female had complaints of high grade fever, abdominal discomfort since 2-3 days. Serum Widal test was done showed titre of 1:320. The patient was started on Inj.Ceftriaxone 2gm iv b.d. by the treating physician. Patient became afebrile on day 3 and discharged home on day 7.

After day 4 of discharge she started feeling breathless and taken back to physician who started her on oxygen support and CXR was done which showed bilateral fluffy infiltrates. Patient had tachypnea, tachycardia though afebrile. Her oxygen saturation was 85% on 8 litres. As the patient was getting worse with increasing breathing difficulty she was shifted to CIMS hospital.

Diagnosis and Management:
Patient was extremely breathless, not able to speak, desaturating even on Non Re-Breather Mask (NRBM) with 15 ltrs; immediately put on Non-Invasive Ventilator (NIV) support with 100% Fio2. Samples were immediately sent for blood cultures, other laboratory parameters and for ABG. She was started on injectable azithromycin, vancomycin and cefepime in appropriate doses to cover atypical bacteria, resistant Pneumococcus and methicillin-resistant Staphylococcus aureus (MRSA) and salmonella respectively. We sent her Pneumoslide panel which is used to detect respiratory viruses and atypical bacterial infections.

Her first arrival ABG showed pH-7.56, PCO2-28, PO2-56, HCO3-21. Her other laboratory parameters were Hb-9.7, TC-13290 with 81% neutrophils, PC-114000. Her QBC for Malarial parasites and DENGUE IgM antibody and NS-1 antigen were negative. Serum sodium-139, serum pottasium-3.34, serum urea16.45 and serum creatinine-0.75. SGPT-99.04, urine r/m and stool r/m were negative. She had NT-Pro BNP levels at 7723(very high). Her CXR showed bilateral extensive fluffy opacities. 2DEcho showed severe global
hypokinesia, LVEF -25%, severe Tricuspid Regurgitation, mild Mitral Regurgitation and thickened myocardium along with moderate bilateral pleural infusion. Next day her legionella pneumonia titre came significantly Positive.

Oral digoxin, carvedilol, epleranone, perindopril and IV furosemide and dobutamine infusion according to cardiologist advice were started. Cefepime and Vancomycin were stopped when the blood c/s came sterile. We added Moxifloxacin for double coverage of Legionella. Patient slowly started improving and came off NIV support on day 4. She complained of epigastric discomfort on and off, her USG abdomen was non significant except mild ascites but her serum lipase levels were 1305(high). We managed her conservatively with modified diet.

**Outcome:**
On day 7 she was discharged with oral antibiotics(azithromycin and moxifloxacin) and anti heart failure drugs. Her repeat 2D Echo showed significant improvement in terms of minimal hypokinesia, LVEF-45-50%, No MR, TR. Her SGPT -70 and serum lipase was 113.

Patient came for follow up after 14 days of antibiotics and she was perfectly normal and had started working back.

**Discussion:**
In conclusion, clinical findings and low sensitivity and specificity of tests like WIDAL can mislead the clinician if not followed with confirmatory tests like blood culture for typhoid. Again we would emphasize on using antibiotics judiciously covering all possible organisms at the same time deescalating and narrowing the spectrum once c/s reports are back. NIV still remains treatment of choice for cardiac dysfunction related respiratory failure to avoid invasive ventilation and thus avoiding its complications like VAP, VILI, Barotrauma etc. Atypical infections like legionella can cause multiorgan dysfunction with major organ involvement like heart, lung, pancreas and requires adequate therapy. This may misguide even an experienced doctor also.
CIMS runs state-of-the-art joint replacement department at the Orthopedic unit which takes care from admission to rehabilitation. CIMS Hospital had 5 fold rise in orthopedic procedures from 2011 with predominantly total knee replacements.

CIMS Orthopedic surgery team includes experienced Joint Replacement Surgeons, Plastic Surgeons, Intensivist, Anaesthesiologist which conduct complicated procedures with excellent outcomes.

The orthopedic surgeons of CIMS use techniques like tendon sparing incision which aids in faster recovery. Patient walks on the same day of surgery. Knee is bend up to 90° without pain the next day. Patient is taught stairs climbing and toilet training on second post operative day. **Patient is discharged on 4th day.**
Guidelines for Total Knee Replacement

- Severe pain and disability with accompanying radiological changes in the knee are almost always the indications for the operation.
- Orthopedic Assessment
  - A medical history, when the surgeon gathers information about general health
  - Physical examination with assessment of knee movement, stability and strength, followed by an X-ray.
  - Occasionally blood tests and magnetic resonance imaging (MRI) may be required to clarify the diagnosis
  - Smoking habit, if any
- Pre-Operative Evaluation is done by physiotherapist
- Knee replacement is performed under a general or epidural spinal anaesthesia, which numbs the lower limbs.
- Careful tissue handling and attention to haemostasis
- Minimising post-operative pain, nausea and vomiting
- Avoidance of fluid overload, hypothermia
- Use of multi-modal analgesia
- Limited use of tourniquets
- Tranexamic acid to minimise blood loss
- For recovery, optional Physiotherapy and rehabilitation therapy is given to patients, with many patients not opting for the same.

Goals of Total Knee Replacement

- Postoperative pain relief and wound care
- Early mobilisation from Day 1
- Restoration of knee range of motion
- Functional muscular recovery
- Maintain a healthy body weight to reduce stress on the new joint
- Discharge in 3-5 days

Newer Procedures in 2012 at CIMS

- 12 Elbow Fixation
- 4 Multiple Trauma
- 4 Pelvic Girdle Surgery
- 18 Carpel Tunnel Release

Gender Distribution of Orthopedic Patients

- 2011 (N=99): 53 Males, 46 Females
- 2012 (N=502): 303 Males, 199 Females

Age Distribution of Orthopedic Patients

- 2011 (N=99): 12 < 30, 85 30-60, 54 > 60
- 2012 (N=502): 190 < 30, 227 30-60, 190 > 60
Case Presentation: A 63 year old male patient known case of hypertension, presented with complaints of pain in right knee for last 8 to 10 years with inability to walk without support and instability in left ankle area since 2 months.

Diagnosis and Management: Patient gave vague history of trauma in left ankle before 2 months and was treated by local doctor but investigation was not done. When patient came to CIMS hospital, he was not able to walk.

Complete tendo achilles rupture on left side and severe osteoarthritis of the right knee was confirmed by X-ray and sonographic investigations. This was an unusual case of osteoarthritis and soft tissue injury together, in different limbs. Simultaneous operation for total knee replacement (TKR) requiring supine position and tendo achilles reconstruction (interposition plantaris tendon graft with gastrosoleus turnover flap was done) which requires prone position were performed.

Outcome: Patient gradually improved after the operation. Patient’s overall hospital course was uneventful.
Case Presentation: A 59 year old female patient, known case of osteoclastoma, operated before 30 year, presented with complaints of pain while walking, redness and swelling at right knee.

Diagnosis and Management: Tumor excision was done and cement was placed before 30 years. Knee X-ray of patient showed osteoarthritis of knee and MRI did not show recurrence of tumor. Advised for TKR. On exploration of knee, it was found that articular cartilage breakage had been caused by the cement which led to osteoarthritis. Instead of simple prosthesis, a novel approach of Custom Made Prosthesis of lower end of femur was applied. TKR was performed successfully. Post operative X-ray of knee showed knee prosthesis with cementing normal knee joint space.

Outcome: At 3 months post surgery, patient is pain free and has a $0^\circ$ range of movement from $0^\circ$ to $120^\circ$. 

Fig. 1 X-Ray of Tumour 30 years before
Fig. 2 Pre Operative X-ray
Fig. 3A
Fig. 3B
Fig. 3C
During Procedure
Fig. 4A Post Operative X-ray (AP View)
Fig. 4B Post Operative X-ray (Lateral view)
CIMS Trauma center provides an organized and systemic approach to the care of the injured patients. Optimal trauma care requires system oriented approach that integrates field and hospital element which CIMS is already offering.

**Goals achieved at CIMS Trauma Centre**
- To assist in improving the care of the injured patient by providing emergency consultation and comprehensive trauma care under one roof according to Resources for Optimal Care of the Injured Patient
- To assist in the ongoing assessment of trauma patients for Optimal Care of the Injured Patient for appropriateness, timeliness, and efficient management

<table>
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<tr>
<th>Department</th>
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</tr>
<tr>
<td>Total</td>
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</table>

Main cause of trauma was road traffic accidents (RTA).

Proportions of males admitted at CIMS Trauma centre were higher as compared to females.

Young patients (21-30 age) were admitted to CIMS Trauma centre because of road traffic accidents.
To determine the line of treatment, the trauma severity scores include injury severity score and revised trauma score.

**Post Discharge Care at CIMS:**

**Occupational therapy:** CIMS has state-of-the-art physiotherapy centre and team of expert physiotherapists who not only help in improving functional status of the patients but also for his improved Quality of Life (QoL). It aims at maximizing the functional potential of an individual following a disease/dysfunction after injury.

**H2H care (Hospital to Home care):** CIMS provides very efficient hospital to home care to patients. A doctor is sent to the residence of the patient for taking vitals and blood sugar in follow up after 1 week to 10 days. Patient is asked for any complaints along with physical examination. He communicates with treating consultant.
Case of Injury due to Iron Road Penetration over Left Side of Neck with Massive Hemorrhage

Case Presentation: A 9 year old child fell down while playing, and had penetrating injury due to iron rod over left side of neck, had massive hemorrhage from wound. He was taken to local hospital where they tried to control the bleeding by applying multiple hemostatic forceps but could not do successfully and with prior intimation was shifted to CIMS accompanied with anaesthetic and surgeon. Our trauma team was ready for further treatment.

Diagnosis and management: During transfer he had cardiac arrest before 10 minutes of arrival and was given CPR. On presentation, he was unconscious, GCS-E1M4VT, pupil dilate + 4mm and NRL(non reacting to light) as CPR was given. After CPR, P=160/min SBP: 60 mm Hg, on ionotropic support of dopamine and noradrenaline. Central and arterial line were inserted and normal sinus rhythm regained, with ventilator support. X-ray of chest was suggestive of no hemothorax or pneumothorax. The child was operated immediately. Left common carotid artery and left intra jugular vein were dissected; avulsion of left superior thyroid artery at its origin, transaction of left facial artery rent in left internal jugular vein was repaired primarily. Patient was given multiple blood component (12 products), IV fluids, Inj.vit.K, Inj. Tranexemic acid and other supportive care. He was kept on ventilator support. Ionotropic support was tapered and stopped. Blood parameters came to normal levels. He regained consciousness after 14 hours and was extubated. Patient was not having any neurological deficit inspite of long CPR in ambulance and in ER of CIMS trauma centre along with torrential external bleeding. He was mobilized independently. Post operative colour doppler suggested normal flow in LCCA, LECA, LICA and left IJV.

Outcome: Patient came with poor haemodynamics and in cardiac arrest with extuberent external bleeding. An effective CPR along with aggressive resuscitation and invasive monitoring was done in ER. Timely intimation before transferring such patient allowed us to activate whole trauma team, ER department, operation theatre staff and blood bank. This event was managed successfully because of team work and the bold decision to go ahead by trauma surgeon inspite of very poor prognosis. Discharge medications included antibiotics, antacids and analgesics.
Minimal Invasive Surgery Hernia Repair

Under this surgery laparoscope with television monitor is used to push back hernia at its place with the help of a surgical mesh. Recovery is faster with minimally-invasive hernia repair than with open hernia repair. The technique leaves only small scars, and may cause less pain than open hernia repair.

Advantages of Minimal Invasive Surgery Hernia Repair

- Causes less pain than an open hernia repair
- Allow the patient to return to work and to a normal lifestyle more quickly
- Allows easier repair of double (bilateral) inguinal hernias
- Reduce the chances of a ventral hernia re-occurring, and possible complications

Dr. Chirag Thakkar

Age Distribution of GI Surgery Patients

Gender Distribution of GI Surgery Patients

Patient Outcomes Gastrointestinal Surgery at 1 year (N = 94)
Case presentation: A 34 year old male patient, non diabetic, known case of hypertension since 5 years, on regular medication, having history of severe weight gain in last 6-7 months (117 kg pre-operative) was admitted for treatment at CIMS.

Diagnosis and management: Following consultation was advised for gastric sleeve bariatric surgery. Patient was admitted to CIMS hospital for further management. Ultrasonography of pelvis and abdomen showed diffused fatty infiltrative liver. Patient was operated for Sleeve gastrectomy.

Outcome: Patient's post operative hospital stay was uneventful. At the time of discharge, patient was haemodynamically stable. Now, patient's weight is 89 kg after 4 months of procedure.
Endoscopy Services at CIMS:
- Olympus Colonoscope is used to examine Large Bowel i.e. Colon, Rectum (large intestine).
- Ultramodern endoscopy from Olympus–Gastro scope for Upper GI tract i.e. Oesophagoscopy
- Gastroscopy and Duodenoscopy
- Colonoscopy
- ERCP to evaluate bile duct and pancreatic ducts
- Capsule Endoscopy for small intestinal diseases
- Removal of tumors like polyps from stomach, duodenum, large intestine
- Removal of stones from bile duct
- Stent placement in food pipe, bile duct and pancreatic duct
- Management of acute upper and lower GI hemorrhage (bleeding)

Endoscopy at CIMS
CIMS Endoscopy is a state-of-the-art facility equipped with the latest endoscopic, monitoring, and infection control equipment. Staffed by experienced Gastroenterologists, Surgeons, Respiriologists, and endoscopy nurses. CIMS is committed to deliver expert endoscopic care in a timely, safe, and patient friendly manner. We provide acute care 24 hours a day, 7 days a week, to manage life threatening illnesses as well as screening procedures for diagnostic and preventive purposes.

Endoscopy Includes
- Investigate causes of digestive pathologies like abdominal pain and gastrointestinal bleeding
- Diagnose digestive diseases and conditions such as anemia, bleeding, inflammation, diarrhea or cancers of the digestive system
- Treat certain digestive system problems such as difficulty in swallowing caused by a narrow esophagus, or to remove polyps; to remove foreign objects, etc.

Different Endoscopic Procedures

<table>
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<tr>
<th>Procedure</th>
<th>2011 (N=248)</th>
<th>2012 (N=342)</th>
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<tr>
<td>Naso Pharnago Laryngoscopy</td>
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At CIMS, state-of-the-art surgical and microsurgical techniques are employed to diagnose, treat and alleviate pain and disability caused by neurological problems. Procedures like Spine Trauma, Head Injuries, Polytrauma, Spine Surgery, Brain tumour surgery, Disk replacement surgery, Endovascular Neurosurgery are routinely performed.

**Technological Excellence at CIMS**
- Moller Wedel operating microscope with stereo co-observer and camera system
- Craniotome
- LED OT light
- Inbuilt OT cameras for direct relay and transmission of cases in auditorium

**CIMS Neurosurgery Principle**
“Minimally invasive surgery for a focused exposure in the region of brain, spine or skull base resulting in limited manipulations and disturbance to surrounding normal neural tissues along with accelerated recovery time.” - CIMS

**Paediatric Neurosurgery**
- Hydrocephalus: Endoscopic ventriculostomy, shunt surgery
- Pediatric brain and spine tumor surgery
- Spinal dysraphism and tethered cord surgery
- Craniosynostosis correction
- Occipito cervical decompression for chiari malformation

At CIMS, highly qualified and skilled team of neurosurgeons along with an efficient team of anaesthesiologists, nurses and medical staff perform different surgeries of neurology.
Brain Surgery Services

- Cranial trauma
- Brain tumor surgery
- Microscopic/ endoscopic transnasal pituitary tumor excision
- Neuro Vascular lesions: Aneurysm, AVM
- Stroke surgery: brain hemorrhage, carotid endarterectomy
- Stereotactic surgery
- Cranioplasty
- Epilepsy surgery

Skull Base Surgery Services

- Skull base tumor excision: acoustic neuromas, chordomas
- Cerebro spinal fluid leaks
- Craniofacial deformallities
- Cranial base osteomyelitis
- Micro vascular decompression for trigeminal neuralgia, hemifacial spasm

Death rate and re-admission rates in patients after neurosurgery were not more than 5.69% and 7.32% respectively.

Patient Outcomes Neurology at 1 Year (N=27)

- No Re-admission: 88.9 (24)
- Re-admission: 3.7 (1)
- Death: 7.4 (2)
Brain Abscess in Patient with Tetralogy of Fallot

Case Presentation: A 27 year old male patient was admitted at CIMS hospital with complaints of left upper and lower limb hemiplegia, persistent headache, vomiting since last 20 days. Patient was initially evaluated elsewhere and diagnosed to have right parietal brain abscess for which burr hole and tapping of brain abscess was done before 4 weeks and patient was on continuous antibiotics since then. Diagnosis and Management: MRI brain (fig. 1) revealed large right temporo-parietal abscess with thick capsule enhancement. Echocardiogram revealed feature suggestive of tetralogy of fallot. In view of known cardiac pathology responsible for brain abscess and no response to tapping and antibiotic medication it was decided to do craniotomy and abscess evacuation with removal of total abscess wall to give maximum possible neurological recovery. The same was done after 3 days of admission with the team of neurosurgeon, neuroanaesthetist and cardiologist. Outcome: Post operative CT brain (Fig.2) showed total evacuation of abscess without any mass effect and midline shift. Left hemiplegia started improving and the patient was discharge in stable condition. Discussion: Cerebral abscess is a serious infection of the brain parenchyma. Un-operated cyanotic congenital heart disease (CCHD) is an important predisposing factor for brain abscess, accounting for 25-46% of cases.

Brain Aneurysm Clipping

Case Presentation: A 50 year old male patient presented with complaints of severe headache since last 10 days with vomiting and giddiness. Diagnosis and Management: CT scan of the brain angio was suggestive of fusiform aneurysm (fig. 1) arising from terminal ICA at the part of origin of right middle cerebral artery (MCA) and anterior cerebral artery (ACA). Patient was operated for right pterional craniotomy and clipping of right ICA bifurcation aneurysm under general anesthesia. Post operative CT brain (fig. 2) revealed resolution of SAH with clipping in situ. Medication at Discharge: At the time of discharge patient was prescribed with anticonvulsant, antihypertensives and analgesics.
Minimally Invasive Spine Surgery (MISS)
Out of total 80 spine surgeries performed on patients, 41 were males and 39 were females. In addition, majority of patients were of 30-60 age group. Lumbar spine surgeries outnumbered cervical and dorsal surgeries.

Advantages of MISS
◆ Less invasive than conventional discectomy procedures
◆ Causes less muscle damage than open discectomy
◆ Results in less back pain
◆ Has less operative blood loss
◆ Shortens the hospital stay
◆ Can also be used in recurrent disc herniations

Common techniques for decompression
◆ Discectomy-Microscopic
◆ Spinal decompression
◆ Laminotomy or laminectomy
◆ Foraminotomy or foraminectomy
◆ Osteophyte removal
◆ Corpectomy
◆ Spinal pedical fixation
◆ Bone grafting
◆ Inter body fixation
◆ Support by rods and cage

Outcomes of Spine Surgery 2011 (N=19)

Gender Distribution of Patients of Spine Surgery

Age Distribution of Patients of Spine Surgery

Different Surgeries of Spine
Minimally invasive surgery aims to provide equivalent or better results than conventional surgery, with the advantage of reduced morbidity due to less invasive exposure. Anterior cervical microforaminotomy is one such procedure. It also aims to preserve motion at the operated level and hopefully avoid disc degeneration at the adjacent levels secondary to reduced movement after fusion.

**Procedure:** Skin marking of the appropriate level was performed after induction of anesthesia. A standard anterolateral cervical skin crease incision and approach to the spine were used. However, the incision was made on the side of the lesion for unilateral pathology. The longer colli was retracted as far as possible. A 5-mm hole was then made using a round burr on the high speed drill (fig. - 1a and 1b). This began at the superior part of the unco-vertebral joint and the trajectomy of drilling is shown in fig. - 2. The posterior longitudinal ligament was opened and the decompression was completed with the bones. Haematosis from the foraminotomy was obtained using gelatin sponge. The wound was closed with subcuticular monocryl with wound drainage. A surgical collar was not used and the patients were mobilized the day after surgery and discharged on the post operative day. Postoperatively, radiating pain subsided completely and patient was mobilized after 3 hours of surgery and discharged on 2nd day.

**Case Presentation:** 32 year old male presented with severe left upper limb L6 radiculopathy since 4 to 6 weeks. Treatment with analgesics, steroids and physiotherapy showed no improvement. MRI cervical spine (fig. 3a and 3b) showed L5-6 left side foramina disc with compression of exiting nerve root. L5-6 left side anterior cervical microforaminotomy was conducted.
Balloon Kyphoplasty for Osteoporotic Compression Fractures

**Fractures** : Balloon Kyphoplasty is a minimally invasive surgery for utilization of vertebral compression fractures. The incidence of osteoporotic fractures is increasing due to rising life span and osteoporotic and/or panic individuals in the population.

**Indications:**
1. Osteoporotic vertebral compression fractures not responding to standard conservative treatment for more than 4-6 weeks duration
2. Progressive increase in pain, disability and radiologically documented worsening on follow-up
3. A vascular necrosis of vertebral body (cleft phenomenon)

**Investigations:** X-ray of the spine, standing lateral view in flexion and extension should be taken. CT scan with 3D, saggital and coronal reconstructions is helpful in assessing the complex vertebral fracture. Thin reconstructed sections showed the fracture and integrity of the posterior vertebral wall. MRI can show positive prognostic sign with bone marrow edema or endplate edema.

**Procedure:** 'C' arm fluoroscopic guidance is used throughout the procedure. Fig.1 is showing Balloon kyphoplasty in a thoracolumbar vertebral compression fracture (A). The instruments are inserted through a transpedicular bilateral approach following meticulous placement of (B) the K-(guide)-wires. The balloon is inflated and the applied pressure reduces the compression fracture, and forms (C) a cavity that is filled with (D) bone cement. Following injection and hardening of cement, the instruments are removed and the previous end plate angulations and kyphosis are restored. In well selected cases kyphoplasty can produce excellent pain relief and is one of the most gratifying procedures. It prevents progressive deformity in the spine and improves the quality of life in the elderly patients with compromised health due to other medical problems.

**Case Presentation:** 24 year male patient had a fall from height. X-ray and MRI revealed L1 decompression fracture (fig. - 2). Patient underwent balloon kyphoplasty. Intra operative lateral 'C ' arm (fig. - 3a and 3b) shows cement concentrated in anterior column to give good support. Post –operative, the patient was discharged after 2 days.
CIMS has a dedicated treatment program for prostate cancer skills and facilities to carry out laparoscopic (keyhole) surgery. CIMS urologists perform minimally invasive surgical procedures resulting in shorter hospital stays, less discomfort and bleeding, and a shorter recovery period including regular activities and less time away from work.

### New Urological Surgeries Performed in 2012

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<tr>
<th>Name of Surgery</th>
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<td>HOLEP</td>
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### Technological Excellence at CIMS

- Storz HD Laparoscopy and urology instrument
- LED OT lights
- 4th generation Harmonic and tissue sealing system for precise advanced laparoscopic surgery with minimal blood loss and tissue trauma
- Inbuilt OT cameras for direct relay and transmission of cases in auditorium
- Laser availability
- Round-the-clock availability of experienced surgeons to manage abdominal emergencies such as acute abdominal pain, GI bleeding or trauma
- Experienced nursing staff, medical officers and infrastructure, high tech ICU set-ups for high risk and major operative procedures
- Reliable back-up of good surgical ICU facilities
**Case Presentation:** A 65 year old non-diabetic, female, presented with complaints of high grade fever (continuous) with rigor, anorexia, nausea, diffuse abdominal pain, breathlessness and burning micturation since last 15 days.

**Diagnosis and Management:** Patient was diagnosed as a case of septicemia. CT scan of abdomen was done which showed retro-peritoneal abscess with left pyelonephrosis due to upper uretaric stricture with stone. Laboratory investigations showed she was having high total leucocyte count, with hypoprotienemia and high serum creatinine level. She was treated with antibiotics and referred to urologist.

Patient was posted for emergency surgery and laproscopic drainage of retro-peritoneal abscess and percutaneous drainage of pyelonephrosis was done and approximately 1 liter of pus was drained. Patient was in ICCU on ventilator for 7 days and she recovered fully. Post operative hospital course of patient was uneventful and patient's symptoms improved with supportive treatment. Patient was discharged on 15th post operative day with antibiotics and readmitted after 15 days for planned elective Nephrectomy for nonfunctioning left kidney. Post operative period was uneventful.

**Outcome:** On follow-up patient was asymptomatic with normal serum creatinine levels.
Combined (a number of body parts)
Oral (mouth)
Mandible (jaw) and
And
Neck
Dissection (cutting)
Operation (surgical procedure)
COMANDO surgeries are performed at CIMS.

At CIMS, a significant reduction in recurrence and mortality is seen in various oncology patients.

Tests that examine the mouth and throat are used to detect, diagnose, and stage lip and oral cavity cancer.
- Physical exam of the lips and oral cavity
- Endoscopy
- X-rays of the head, neck, and chest
- Biopsy
- MRI (magnetic resonance imaging)
- CT scan (CAT scan)
- Exfoliative cytology
- Barium swallow
- PET scan (positron emission tomography scan)
CIMS follows Guidelines for Breast Cancer

- Women of age 40 and older should have a mammogram every year and should continue to do so for as long as they are in good health.
- Non-operative breast cancer diagnosis is achieved by triple assessment, (clinical and radiological assessment followed by core biopsy and/or fine needle aspiration). Whilst core biopsy is preferable due to the additional information it can provide, there may be circumstances where only a fine needle aspiration is possible.
- Neoadjuvant chemotherapy is used for the treatment of primary breast cancer.
- Surgical treatment of patients with breast cancer is carried out by surgeons with special interest and training in breast disease.
- Follow up is stratified according to disease risk. Patients are given information regarding their personal follow up programme (clinical and imaging).
- High risk patients are followed up more closely with joint care by surgeons and oncologists according to agreed local protocols.
A Case of Male Breast Cancer

Background: When we talk about breast cancer we mean it is female breast cancer. But cancer of breast can occur to male also. The incidence of male breast cancer is 1 in 1000.

Sign and Symptoms: Usually patient presents with swelling and pain in breast. In cases of male breast cancer, clinically it present as gynaecomastia and lump in breast.

Diagnosis and Management: Routine investigation like Chest X-ray, mamography and sonography are done. Fine needle aspiration cytology gives us diagnosis in most cases. If cytology is negative then either lumpectomy and/or frozen section of breast evaluation should be done. After confirmation of diagnosis, surgery is planned. Modified radical mastectomy is recommended. After final histopathological report patient is advised chemo-radiotherapy.

Discussion: In comparison to female breast cancer, male breast cancer has poor prognosis. Early diagnosis, awareness about disease and proper complete treatment gives excellent results. Photo shows intraoperative scar which is not ideal as somebody has done lumpectomy instead of final needle aspiration cytology (FNAC). Second photo shows specimen after surgery of MRM.
Proportion of male patients undergoing general surgery was higher as compared to females in 2012.
A total number of 35 plastic surgeries were performed at CIMS in 2012.

At CIMS, out of total 35 plastic surgeries performed, 28 patients were males and 7 were females. In addition, 22 patients were of age of 60 year or less, which was higher as compared to 2011.

**Criteria for hospitalization;**
- Greater than 15% burns in an adult
- Greater than 10% burns in a child
- Any burn in the very young, the elderly or the infirm
- Any full thickness burn
- Burns of special regions: face, hands, feet, perineum
- Circumferential burns
- Inhalation injury
- Associated trauma or significant pre-burn illness: e.g. diabetes

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- Circumferential burns
- Inhalation injury
- Associated trauma or significant pre-burn illness: e.g. diabetes

CIMS follows WHO guidelines for Burns Care

Number of patients undergoing burn surgery was higher in 2012.
Case Presentation: A 28 year old female patient, presented with alleged history of RTA, having reverse side swap injury. Patient had crush injury of right upper limb with open elbow joint with right brachial artery avulsed, along with avulsion of biceps and brachialis muscle at its insertion with proximal forearm flexor muscle avulsion with open elbow joint and capsular tear with active bleeding, no sensation, pulsation and movement in distal forearm. She had injury over right dorsum of right wrist and hand with less of skin and soft tissues, comminuted fractures of metacarpals and tendon injury.

Diagnosis and Management: CT angiography of right upper limb suggested complete block with no flow in distal brachial artery. Reconstructive surgery for limb salvage was done. Debridement of devitalized muscles, repair of capsule of elbow joint and fixation with ST pin, interposition great saphenous vein graft and anastomosis for right brachial artery with muscle repair were done and raw area was covered with primary skin grafting by the team of trauma surgeon, plastic and reconstructive surgeon, and orthopedic surgeon. Once right forearm and upper limb regained complete vascularity, groin flap was done to cover dorsum of right wrist after 6 days of initial surgery to preserve exposed tendons and bones. Groin flap was detached after 3 weeks and gradually started regaining sensation and movement of all fingers, wrist and partial movement of right elbow joint.
CIMS Gynaecology and Obstetrics provides multidisciplinary services for women’s health. Our team of experienced gynecologists along with round-the-clock medical and paramedical staff provide tender care to pregnant females and gynaec patients. Most importantly, patient receives personalized, state of-the-art care in a confidential setting comfortably discuss the needs.

**Gynecology services include:**
- High-risk pregnancy
- Infertility
- Urogynecology
- Gynecologic cancer screening and treatment
- Pelvic pain
- Menopause counselling
- Women's mental health needs
- Women's wellness and exercise
- Wellness exams
- Pap smear
- Preventive gynecology
- Contraceptive choices
- Management of birth control options
- Chronic pelvic pain
- Pre and post menopause
- Fetal Echocardiography
- Advanced Laparoscopic and Hysteroscopic surgery
- Menorrhagia
- 3-D USG and color doppler
Pregnant Woman with Hemiplegia Developed Breathlessness and Anasarca in Early Third Trimester Operated for Lower Segment Caesarian Section on 36th week of Pregnancy

Case Presentation: A 36 year old hemiplegic, pregnant woman had eventless, normal pregnancy till 7th month. At 7th month, the patient developed anasarca and severe breathlessness. Cardiac, pulmonary, physician and neurophysician evaluations were normal. At 36 weeks of foetal maturity, the mother developed orthopnea and severe cough suggestive of an infective pathology or cardiac overload and was brought to CIMS hospital for further management.

Diagnosis and Management: Colour Doppler and USG to evaluate the foetal maturity, showed 37 weeks maturity. With worsening respiration in the mother at 37 weeks maturity LSCS was done. In transverse incision the baby was delivered while the mother was continuously wheezing and on oxygen. The baby's immediate Apgar was 9 but somehow within an hour went into cyanosis and tachypnea. Bilateral lung pathology was diagnosed and lung surfactant was given while the infant was on ventilator. The mother developed severe distension of abdomen and respiratory embarrassment within 24 hours and was nebulised and treated for paralytic ileus. Problems were resolved in 36 hours.

Outcome: The mother started handling the child on the 5th day.
CIMS goals:
- To discover new insights into the pathophysiology of otalaryngological diseases
- To invent new technological application designed to optimize therapy of challenging clinical problems as well as to overcome disabilities brought on by illness

Micro Laryngeal Surgery for Vocal Cord Polyps
These are benign lesions of the larynx, usually located on the edge of the vocal cords, which prevent the vocal cords from meeting in the midline. Polyps can interfere with voice production and may produce a hoarse, breathy voice that tires easily. These may respond to conservative medical therapy and intensive speech therapy. If the lesion fails to respond, meticulous microsurgery may be indicated.

Causes of Vocal Cord Polyps:
- Laryngitis sicca
- Malignant lesions
- Presbylarynx
- Laryngeal dystonia, or spasmodic dysphonia (SD)
- Microlaryngeal surgery aims in precision removal of these growths and restores the original voice.

This surgery is endoscopic in nature as no skin incision is made. Work is done through special endoscopes introduced via the mouth. An operating microscope with high power magnification, video recording is used for the actual surgery. The same technique is used in tissue augmentation of vocal cords, excision of early T1 cancers.
CIMS Pain Management

CIMS approach is to free the patients from every painful sensation in the most painless manner.

CIMS Pain management team specialise in the evaluation, diagnosis, and treatment of persistent pain by eliminating the pain at its origin.

CIMS now focuses on new approaches to the management of acute perioperative pain, on ways to improve the risk/benefit profile of various agents, enhance the consistency of pain control, address the individual variability in responses to pain and analgesics, and avoid periods of ineffective pain relief (analgesic gaps).

For acute Pain Management, CIMS uses:
- Preemptive analgesia
- Patient controlled analgesia with PCA pump
- Continuous epidural analgesia
- Transdermal fentanyl patch + Transdermal buphrenorphine patch
- Multi modal analgesia (Combination of regional analgesia)

At CIMS we are also looking for chronic pain management (without surgery) for patients suffering from chronic conditions like back pain, neck pain, sciatica, trigeminal neuralgia, post herpetic neuralgia, post spine surgery pain syndrome and many chronic pain conditions. CIMS pain management team approach these conditions with various new methods.

At CIMS, we do very high end procedures like:
- Selective nerve root blocks
- Radio frequency ablation
- Facet joint block
- Trigeminal RF ablation
- Cervical procedure
- Disk procedures (Nucleoplasty, IDET)
- Spinal cord stimulator
- Intra-thecal drug delivery system
- Vertebroplasty and khyphoplasty
- Cancer Pain, Acupuncture, Low level laser therapy
**We excel in providing dental treatment to patients with serious cardiac disease like:**

- Valvular Heart Disease (with ACC/AHA Guidelines)
- Heart failure
- Arrhythmias and Implanted Pacemaker
- Implanted Coronary Stents and on Antiplatelet/ Anticoagulant treatment

- Procedures to these patients are done under continuous cardiac/ NIBP and SPO2 monitoring on dental chair only.
- Backup support of Cardiologist / Intensivist/ Physician
- Day care / Indoor facilities for medically compromised and seriously ill patients
- **Facility of general anaesthesia on dental chair only**
- Comprehensive care (24 X 7) to Trauma patients
- Total care for NRI and overseas patients by special International Patient's Department

**We improve the quality of life with Dental IMPLANTS**

- Improved aesthetics
- Preserve facial structure
- Improved chewing function and confidence
- Improved dental hygiene
- Replace a whole missing tooth (root)
- Avoid the need to prepare adjacent teeth, since a conventional bridge is not used
The recently NABL accredited Pathology Department at CIMS is well-equipped to carry out the latest tests on patients and assist clinicians in evaluation and diagnosis of diseases. The tests carried out within the department aid in the evaluation and treatment of virtually every patient admitted within the hospital or outpatients who form a very integral part of our hospital. Aided by state-of-the-art fully automated instruments and highly skilled HPC registered biomedical scientists under constant supervision of consultant pathologist with a high quality assurance, CIMS Pathology provides near-perfect pathology services to all patients.

The Pathology Department provides a range of services including:

- Biochemistry, Immunoassay and Hormonal assay, Hematology and Clinical Pathology, Histopathology and Cytology
- Along with highly specialized tests, all the routine tests like hemoglobin, complete blood count, blood group, blood sugar, cholesterol, lipid profile, thyroid function tests, liver function tests, renal function tests, test for malaria, dengue, urine, stool, pap smear, PSA, etc. are also available in different packages.
- Services are available for indoor as well as outdoor patients.
- Facilities for home visit available round the clock for all.

Microbiology

The Department is well equipped for conducting clinical trials and research projects for all consultants. Experienced Microbiologists are available for regular patient interactions. With services available round the clock, CIMS microbiology stands strong to support the clinician. CIMS Microbiology also offers state-of-the-art molecular microbiology with the high end fully automated gene sequencer.
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<td>◆ Free T4</td>
<td>172</td>
<td>269</td>
</tr>
<tr>
<td>◆ PTH</td>
<td>66</td>
<td>109</td>
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<tr>
<td>◆ Cortisol</td>
<td>36</td>
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# Pathology Investigation Volumes

<table>
<thead>
<tr>
<th>Collagen Markers</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Antinuclear Antibody</td>
<td>98</td>
<td>123</td>
</tr>
<tr>
<td>Antinuclear Antibody Profile</td>
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<table>
<thead>
<tr>
<th>Septicemic Markers</th>
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<tbody>
<tr>
<td>Procalcitonine</td>
<td>177</td>
<td>277</td>
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<tr>
<td>C-reactive Protein</td>
<td>1157</td>
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<table>
<thead>
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<th>Tumour Markers</th>
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<tbody>
<tr>
<td>Prostate Specific Antigen (PSA)</td>
<td>413</td>
<td>1022</td>
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<tr>
<td>Carcinoembryonic Antigen</td>
<td>54</td>
<td>78</td>
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<tr>
<td>CA125</td>
<td>19</td>
<td>30</td>
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<tr>
<td>CA19.9</td>
<td>12</td>
<td>26</td>
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<td>CA15.3</td>
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<table>
<thead>
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<th>Bone Markers</th>
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<tbody>
<tr>
<td>Rheumatoid Arthritis</td>
<td>82</td>
<td>189</td>
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<tr>
<td>Uric Acid</td>
<td>901</td>
<td>1258</td>
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<tr>
<td>Vitamin D3 (250H)</td>
<td>77</td>
<td>339</td>
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<tr>
<td>Calcium</td>
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<td>1603</td>
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<table>
<thead>
<tr>
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<tr>
<td>CBC</td>
<td>20807</td>
<td>28849</td>
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<tr>
<td>Hb Electrophoresis</td>
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<td>29</td>
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<tr>
<td>G6PD</td>
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<td>61</td>
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<tr>
<td>TIBC</td>
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<tr>
<td>Retic</td>
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<td>102</td>
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<tr>
<td>Ferritin</td>
<td>72</td>
<td>134</td>
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<tr>
<td>Iron</td>
<td>66</td>
<td>141</td>
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<tr>
<td>Vitamin B12</td>
<td>680</td>
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<table>
<thead>
<tr>
<th>Allergy Profile</th>
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<tbody>
<tr>
<td>Absolute Eosinophil Count</td>
<td>32</td>
<td>68</td>
</tr>
<tr>
<td>Immunoglobulin E (IgE)</td>
<td>26</td>
<td>86</td>
</tr>
<tr>
<td>Test of Allergens</td>
<td>14</td>
<td>27</td>
</tr>
</tbody>
</table>
Radiology and imaging plays a vital role in determining diagnosis and subsequent planning of treatment. Radiology and imaging help surgeons immensely to plan all aspect of surgery in advance.

Department of Radiology and Imaging at CIMS hospital offers services of:

- Digital X-ray
- IITV
- Ultrasonography
- Colour Doppler
- Mammography
- Computerized Tomography Scan (CT Scan)
- Interventional procedures like tapping, biopsy, aspirations

**CT Scan:**
Before any contrast CT Scan, patient is advised to refrain from consuming solids and liquids for at least 3-4 hours, preferably.
Mammography
Current guidelines of American Cancer Society (ACS), American Medical Association (AMA) and American College of Radiology (ACR) recommend screening mammography every year for women above 40 year of age.


Ultra Sonography and Doppler
USG helps in identifying various pathologies inside body. Trans vaginal USG and Trans rectal USG helps in diagnosis and detailed evaluation of pathology. Doppler study is useful for detecting blockages in blood vessels.

Computerised Tomography Scan (16 slice CT scan)
- CT angiography studies offer non-invasive, Out Patient (OPD) angiographic procedure.
- Identifying internal injuries such as liver, spleen contusion/ laceration etc. CT scan can also be used for guiding biopsy.
- 3D CT scan is very helpful in evaluation of fractures in different parts of body, e.g. fracture in pelvic bone, acetabulum.

CT Coronary Calcium Scoring
CT coronary calcium scan is a non-invasive way to detect presence, location and extent of calcified plaque in the coronary arteries—the vessels that supply oxygen containing blood to the heart muscle.

CT coronary calcium scoring gives the following important information:
1. The presence or absence of calcium in coronary arteries. This indirectly suggests presence or absence of cholesterol and fat deposition in arteries.
2. The degree of the calcium in coronary arteries. Higher the amount of calcium, more severe is the disease.
3. The probability of a heart attack in future.
### Total Number of Hemodialysis

<table>
<thead>
<tr>
<th>Year</th>
<th>2011 (N = 1860)</th>
<th>2012 (N = 2381)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemodialysis</td>
<td>1842</td>
<td>2368</td>
</tr>
<tr>
<td>Plasma</td>
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<td>13</td>
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### Total Number of Hemodialysis

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Hemodialysis</td>
<td>1842</td>
<td>2368</td>
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### Total Number of Dialysis

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<tr>
<th>Year</th>
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<tbody>
<tr>
<td>OPD</td>
<td>1511</td>
<td>1571</td>
</tr>
<tr>
<td>IPD</td>
<td>349</td>
<td>810</td>
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### Plasma Exchanges

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Plasma Exchanges</td>
<td>18</td>
<td>13</td>
</tr>
</tbody>
</table>
CIMS Physiotherapy and Rehabilitation centre is equipped with latest equipments and has qualified physical therapist team to give higher standards of services.

**Services**: CIMS Hospital provides comprehensive IPD and OPD Physiotherapy and Rehabilitative services as:

**REHABILITATION**
- Cardiac and Pulmonary Rehabilitation
- Orthopedic / Musculoskeletal Rehabilitation
- Neurological Rehabilitation
- Post Surgery Rehabilitation

**PHYSIOTHERAPY**
- Physiotherapy in Geriatrics (Above 60 years)
- Physiotherapy in Obstetrics and Gynecology
- Physiotherapy for Sports Injuries
- Physiotherapy for Pediatrics
- Obesity Management
- Pain Management
- Nutritional Counseling
- Yoga Sessions

**MANUAL THERAPY AND ELECTROTHERAPY**
- Manipulations and Mobilization Techniques
- Biomechanical Assessments
- Orthotic Prosthetic Exercises
- Electrotherapy Modalities like Short wave diathermy, Ultrasound, Interferential therapy, Electrical stimulation, TENS, Wax therapy, Tractions, Moist Pack, etc.

**NUTRITION** CIMS dietician takes care of patient's condition and tailor it according to pathological conditions prescribed by doctors. At CIMS, diets are classified into basically four types: **a) Clear liquid diet** in which milk, thick soups and thick juices are avoided; **b) Full liquid diet** in which all types of juices, milk and milk products, soups are included; **c) Soft diet** which contains very soft food and is easily digestible for the patient; **d) Full diet** which consists of balancing nutrients consisting of cereals, pulses, fruits, green vegetables and limited amount of sugar and oil. Over all, CIMS provides low fat low cholesterol diet for all patients which changes from time to time as per requirement.
Code Blue is the term for a medical emergency, meaning a person is possibly in danger of immediate dying.

Dial 222 for immediate assistance of a life threatening medical emergency or cardio pulmonary (cerebral) arrest occurring anywhere in CIMS.

CIMS Crash Cart is a special cart kept on all wards and in the ER which houses life saving equipments.

Calling criteria for our MET service are based on acute changes in
1. Heart rate ($<40$ or $>130$ beats/min),
2. Systolic blood pressure ($<90$ mmHg),
3. Respiratory rate ($<8$ or $>30$ breaths/min),
4. Conscious state, urine output ($<50$ ml over 4 hours), and
5. Oxygen saturation derived from pulse oximetry ($<90\%$, despite oxygen administration).

In addition, the calling criteria contains a 'staff member is worried' category to allow staff to summon senior assistance to manage any possible emergency situation.
Appropriateness of Care:
Appropriateness in healthcare is a complex parameter with various dimensions and definitions which differ with pathologies and regions. However, principally they address -
A) Clinically effective evidence based care
B) Cost effective care
C) Consistent ethical care
The priorities of these dimensions vary in different populations.

Based on above principles Appropriateness of Care can be measured using below indicators which directly and/or indirectly relate to patient wellbeing.
These indicators include-
I) Patient care indicators
II) Guideline driven indicators
III) Clinical outcome indicators
IV) System specific indicators
V) Cost-effective indicators
VI) Structural indicators.
At CIMS Appropriateness of Care is the followed ideology.

Quality improvement is not just about standard-setting and benchmarking with the best: there are analytical, counseling and self-improvement dimensions to the process. Through self-assessment at CIMS, we strive to assess our level of performance in relation to established standards and implement ways to continuously improve.

Length of stay (LOS) is a term used to measure the duration of a single episode of hospitalization. Inpatient days are calculated by subtracting day of admission from day of discharge.

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Length of stay (LOS) is a term used to measure the duration of a single episode of hospitalization. Inpatient days are calculated by subtracting day of admission from day of discharge.
Mortality: Total number of deaths, during hospital stay to the total number of deaths and discharges is termed as mortality rate.

Re-admission: Total number of patients readmitted to hospital for the same complain or further management of same complain within 48 hours of discharge, to number of total admission is termed as re-admission rate.

Re-scheduling of patients includes cancellation and postponement (beyond 4 hours) of the surgery.

Re-exploration: If after surgery, due to demand of circumstances the re-opening or procedure is repeated in the same patient it is defined as re-exploration.

Waiting time: It is the time starting right from patient had presented requisition form till the time that the test is initiated.

Safety adherence: Staff's adherence, in the respective laboratory, to the pre-defined safety measures.
A medication error is any preventable event that may cause or lead to inappropriate medication use or harm to a patient (US-FDA). Examples include, but are not limited to:

- Errors in the prescribing, transcribing, dispensing, administering, and monitoring of medications
- Wrong drug, wrong strength, or wrong dose errors
- Wrong patient, wrong route of drug administration and Calculation or preparation errors

ADR is any untoward medical occurrence that may present during treatment but which does not necessarily have a causal relationship with the treatment.
Patient satisfaction is defined in terms of the degree to which the patient's expectations are fulfilled.

At CIMS, quality measures are assessed by monitoring a wide range of parameters monthly and comparing them to established certified benchmarks.

Standard Benchmark set according to International Nasocomial Infection Control Consortium.

**Benchmark for Infection Control**

<table>
<thead>
<tr>
<th>Infection Type</th>
<th>Standard Benchmark</th>
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<tbody>
<tr>
<td>HAI</td>
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<tr>
<td>UTI</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>VAP</td>
<td>&lt; 4</td>
</tr>
<tr>
<td>BSI</td>
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<tr>
<td>SSI</td>
<td>&lt; 2</td>
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CIMS Quality Measures

<table>
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<tr>
<th>Year</th>
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<th>UTI</th>
<th>VAP</th>
<th>BSI</th>
<th>SSI</th>
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<tbody>
<tr>
<td>2011</td>
<td>0.461</td>
<td>0.36</td>
<td>0.128</td>
<td>0.658</td>
<td>0.533</td>
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<tr>
<td>2012</td>
<td>5</td>
<td>5</td>
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<td>2</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Satisfaction Percentage</th>
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<tr>
<td>2012</td>
<td>91.51</td>
</tr>
<tr>
<td>2011</td>
<td>95</td>
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HAI - Hospital Acquired Infection; VAP - Ventilator Associated Pneumonia; BSI - Blood Stream Infection; UTI - Urinary Tract Infection; SSI - Surgical Site Infection
CIMS Pharmacovigilance Outcomes

At CIMS, Naranjo's scale was used for causality assessment of detected ADRs. It revealed that in an OPD setting, 67% ADRs were probable followed by 16% as definitely related, 13% as possible and 4% as doubtful; while in IPD incidence rate of probable and possible were found to be same as 43%, followed by 11% as Definitely and 3% as doubtful.

At CIMS, severity assessment was done with the help of Modified Hartwig and Siegel scale. Out door patient reported same number of mild and moderate reaction to drug which is 47% followed by 6% severe reaction. In case of indoor patient, 50 % of reactions were found to be mild followed by 39% of moderate and 11% of severe reaction.

At CIMS, analysis by Schumock and Thornton scale for preventability showed that in both department most of the ADRs were probably preventable as in case of OPD it was 53 % while in IPD it was 44% followed by definitely preventable 33% and 30% in OPD and IPD respectively and not preventable 14% and 26% in OPD and IPD respectively.
Emergency Medical Services (EMS) is an essential part of the CIMS healthcare system as it saves lives by providing comprehensive, speedy, reliable and quality care immediately.

CIMS has 5 ambulances including 1 trauma ambulance with fixed ventilator, 1 CIMS kids ambulance (neonatology and pediatric), 2 ICU on Wheels and 1 General ambulance.

Our services are very effective and they are made available to the customers in a very prompt manner and at very reasonable rates. The ambulance comprises of medical staff to give temporary relief or first aid to the patient on the way to the hospital efficiently.

- 24 x 7 services are provided for all patient transport needs
- Transfers from home to hospital and from hospital to hospital
- Highly trained medical personnel
- Our ambulances carry oxygen therapy equipment with defibrillator to provide aid in the event of any deterioration of patients whilst in our care.

Other state pick up and drop services in Rajasthan, Madhya Pradesh and Maharashtra
“Patient Care” is the guiding principle of CIMS hospital.

CIMS values the patient most. Patient care comes first and our commitment to them goes beyond providing the best care.

We aim to make their stay in the hospital pleasant and make continuous endeavors to create a highly comfortable ambience for them.

Patient experience is of prime importance in Hospital’s strategic plan to improve clinical outcomes, quality, and safety.
We endeavor to celebrate birthday and anniversary of patients and birth of new born with cake cutting and room decoration so that patient's relatives don't miss the chance of celebrating their own or beloved's birthday or anniversary.

**Festival Celebration:** Christmas, Holi, Uttrayan, Republic Day, Independence day and Diwali are celebrated at CIMS by creating a festive look.

**Community Health Awareness:** Various camp and awareness programs like World Heart Day, Swasthya Mela, CIMS health fair are held.

**Kem Cho Round:** This round taken by PGRO (Patient and Guest Relation Officer) helps cross cultural bridges between hospital and patient to create a better interaction and smoother flow of services.

**Pediatrics:** Toys and games are provided to pediatric patients to make their stay in the hospital a more pleasant one.

**Movie CD/DVD:**

Lists of DVD/CD are available for patients which include comics, kid's specials, devotional, English movies, various other Hindi old and new movies for Pediatric Ward, Single and Suite Rooms.

**Others:**

1. Get well soon cards given to all patients after admission
2. Thank you/ Apology letter sent to all patients for their feedback.
3. After discharge, patients are given call to inquire for their health. If any complaints, forwarded to concerned person.
I had been admitted at CIMS hospital for angiography and further management under care of Dr. KP. I have really good experience here. Hospital has all the facilities with most ultra modern and latest technology. He is very supportive and helpful by nature and has given me personal care. In-house doctors, nursing staff and other managerial staff also are well-skilled and caring. Over all, I am well-impressed with CIMS, as regards to medical treatment and care taken during my admission here. I would highly recommend it to anyone.

Ramnik Makwana
This was a nice experience of staff work, it's good work of service to patient. We are happy with hospital facility. Doctor's staff, Nursing staff and all other staff special thanks to Dr. MC and Dr. VT. "Also special thanks for Birthday Celebration".

Nimish H. Vaishav
Treatment done by Dr. MC and Dr. DS. I am very satisfied with the facilities provided by the hospital. The food provided by the hospital was very hygienic. I am going to refer CIMS hospital to all my known ones and family members.

C.A. Ravani
Got admitted my father for angiography today morning! Thank God! Nothing to worry! Generally people face the issue of extended cardiac treatments such as angioplasty or bypass surgery. But Dr. AC was too good! He informed us about the non requirement of any further treatment. We were relaxed! Dr. AC is a gem of a person! Infact the whole team and their team members are very good doctors and more importantly very good human beings! The hospital staff is also very good! Though they are hospital staff they know the "hospitality " much better ! They take very good care of the patient and their relatives. Ultimately, when a patient is hospitalised what matters is not the medical treatments but "healing " and the same is very well known to CIMS ! Congrats! And go ahead! Thanks for every things.

Vijay Sarda
I Mr.VijaySarda had Angiography under Dr. SG at CIMS Hospital. Hospital is best. Environment is very good. Staff is excellent and also very cooperative as well as helpful."Thanks."

Tararam Prajapati
Treatment done by Dr. HB. With the grace of God and hard work of Dr HB, my relative got the treatment in a good hospital with the very good doctor, with awesome hospitality. Keep it up.

Baby Tanvi Dharmesh Pansuriya
CIMS: Saved my daughter BABY TANVI DHARMESH PANSURIYA for high risk heart surgery (Dr. SS, Dr. AC and Dr. KS) Excellent doctor and good guide lines, good care by nursing and ICU staffs Thanks..
Jimit Barot
My Son Mr. Jimit U. Barot was suffering from dengue fever on Sunday. We got him admitted at CIMS Hospital under Dr. BS for the treatment. The services of the Hospital is best. The atmosphere is very good. Treatment was good of doctors. "Thanks."

Pinakin Gajjar
My relative Mrs. Sushilaben Doshi was operated for TOTAL KNEE REPLACEMENT by Joint Replacement Team, We were very happy with the services of the doctors and the hospital. World class facilities at very reasonable rates at CIMS HOSPITAL.

Revat Sanger
Thank you, Thank you, Thank you! The treatment my son Yudhvir Sanger has received is beyond words. Dr. AC and his team at the NICU stand as an example for outstanding treatment. In one word for me they have been" life savers ". I cannot thank enough for the entire hospital. Please keep doing this noble deed and bring smile on people’s face as you did for me and my family. One word of advice for current and future patient is during time of crisis please let the medical team and your doctor perform their duties because they are the best judge while we can wait for the results and trust me it will be positive as it did in our case. Last but not the least I want to thank the entire CIMS hospital for being so nice to us and humble, keep up the good work and god bless.

Nishant Thakkar
"Thank You Dr. KP for gifting my father a new Life. Now my father is very happy and fine. My father’s words to Dr. KP: "You came as God to me and gifted me a new life. And now I believe in God. I am really grateful to you. And this is not only text message, but it is message from my heart for my belief". THIS HOSPITAL IS WORLD CLASS HOSPITAL IN INDIA.

Adit Patel
Excellent hospitality at CIMS Hospital, excellent medical facilities and services, which I have "NEVER SEEN BEFORE" in any hospital, while myself a well established physician, practicing in North Gujarat, India from last 30 year. World class treatment, I have seen here, where I feel like HOME or HEAVEN.

Jay Singh
It was a very comfortable and a caring stay at CIMS. At CIMS they really care. Doctors, nursing staff, attendants and the whole hospital staff was very good. It was a value for money for medical facility provided by CIMS to people of all categories irrespective of cost, colour and creed. "I Thank all CIMS staff for that treatment other than medical facilities like canteen, dormitory, parking, security and HRD which were more than expectation."
Seva Shah
My dad underwent bypass surgery at CIMS. The team of doctors and surgeons handling my dad’s case were excellent. All the doctors were very humble and always available to answer any questions. Everyone from the receptionist, the nurses, and nutritionist as well as other hospital staff; this place is stellar in terms of performance, patient satisfaction, cleanliness and care. After the surgery, my dad was provided excellent care. Hospital staff was available 24 hours ensuring speedy and precise recovery by providing him vital care he required. The family waiting area was very comfortable and extremely organized. It is already agonizing enough to have to wait for the outcome of loved ones, but CIMS staff made sure to make family and friends feel relaxed and cared for. Lots of magazines and newspapers are available; tea service for family and friends, on site canteen plus very knowledgeable and approachable staff. I was very impressed with the orderliness of this place and friendliness of the staff. Thanks to CIMS staff for making surgery experience much better for my dad and my family.

Richard Frederick
Operation was very good and patient automatically cure from what he is suffering because of good co-operation from all staff. Food, nurses, all staff and doctors team is excellent. The atmosphere of hospital is homely. "Thanks a lot to all."

Pramod Sisodia
My husband Mr. Pramodkumar had a Health Check up at CIMS Hospital. Hospital and services are excellent. I wish all success to CIMS and will certainly suggest other to friends and relatives to visit CIMS hospital.

Narendra Sawant
I was admitted to CIMS before one year for my heart treatment after a heart attack in Chittorgarh, Rajasthan. I was treated very promptly. I felt very homely in hospital. Consultants, doctors and all staff are very caring and lovely. We were guided very nicely. All were helpful right from entry to exit. We never felt it like a hospital. The atmosphere and setup is very friendly. During our stay, we were stress free. After my discharge, I recommended CIMS to many patients of Rajasthan and all are happy with the treatment and behavior of everybody at CIMS. We wish all the success to the hospital.

Pawan Sharma
I am very much satisfied from all the activities of the CIMS. I am very proud that this type of hospitals are in India (Ahmedabad). From the very beginning i.e cleanliness, behaviour of all the staff persons and doctors are so beautiful that patient will get cured before the treatment. At last, dispensing of medicines is good. Each medicines has a particular slip for how to take and when to take the medicines. "I will appreciate all the activities of the CIMS."

and many many others...
CIMS Hospital Dictates its Ethical Standards Through

Independent Ethics Committee of Care Institute of Medical Sciences

The Ethics Committee is an independent body whose responsibility is to protect the rights, safety and well being of human subjects involved in a clinical trial and to provide public assurance of that protection.

Ethics Committee of CIMS registered by DCGI and Registration No.: ECR/206/Inst/GJ/2013

Scope of Hospital Ethics Committee

- Monitoring hospital practice as per code of medical ethics, 2002
- To resolve potential conflict of ethical issues and practice
- Provide opinion on hospital related ethical matters

In house Hospital Ethics Committee monitors requirements and responsibilities of physician towards patient care besides checking overall hospital performance.

Number of Protocols Evaluated and Approved

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>27</td>
</tr>
<tr>
<td>2012</td>
<td>41</td>
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Orbital Atherectomy System in Treating Calcified Coronary Lesions:  
First in Man Assessment - 3 Year Follow Up

3 year follow up orbit trial was conducted at CIMS to evaluate the safety and performance of the Diamondback 360 Orbital Atherectomy System (OAS) (Cardiovascular Systems, Inc., St. Paul, MN, USA) for the treatment of calcified coronary lesions. Of the 33 patients, 90.90% (n = 30/33) were males with an average age of 54.9 years. The ACC/AHA lesion class was: Type A 6.06% (n = 2/33); Type B1 33.33% (n = 11/33); Type B2 60.60% (n = 20/33). The % diameter stenosis was 85.75%; lesion length was 15.90 mm. The procedural success was 97% (32/33) with one case where IVUS/device was not able to cross the lesion due to severe calcification. This case series demonstrates that OAS safely and effectively modified calcified lesions and facilitated stent delivery in this difficult-to-treat plaque morphology, which continues up to three years post-procedure.

*Published in JACC: Cardiovascular Intervention CRT 2013 Supplement: Volume-6, No. 2S.*

Correlation between Coronary Heart Disease and Depression and its Influence on Quality of Life and Clinical Outcomes

A total of 1648 patients undergoing percutaneous transluminal coronary angioplasty (PTCA) or coronary artery bypass graft (CABG) at CIMS were enrolled in the study. Of this, 39.8% patients were depressed (MARDS score > 6). Prevalence of depression was higher in males as compared to females. Of these patients with MARDS score > 6, 62.04% were hypertensive, 35.77% were diabetic. Socioeconomic data of 1648 patients revealed that depression was higher in males, uneducated, unemployed and rural subjects. Prevalence of depression was higher in males as compared to females.

*Presented at Journal of American College of Cardiology in March 2013.*
A Study to Evaluate the Trends of Accidental Trauma and Significance of Random Blood Sugar in Traumatic Brain Injury

A total of 258 records of injured patients attended the Accident and Emergency (A&E) at CIMS were analyzed. Injuries to the head occurred in 98 patients, Limb fracture 67, Abdomen injury 30, Chest injury 25, and Pelvic injury 19, and maxilla-facial injury 19 patients. Cause of trauma was due to the road traffic accidents in 217, poisoning 13, fall in 14 while burns and assaults cause injuries in 11 and 3 patients respectively. 150 patients with revised trauma score came under the priority 1, 92 patients came under priority 2 while 36 patients under priority 3. Among them 35 patients with severe head injury were treated with insulin for their hyperglycemic condition which improved the level of consciousness (GCS scale). At the time of admission the average GCS was 5.62 and after giving insulin it averaged to 11.

To study the comparative effect of Ivabradine and Metoprolol for Postoperative Inappropriate Sinus Tachycardia (IST) after Coronary Artery Bypass Graft Surgery

IST may be induced due to catecholamine infusion during CABG. At CIMS, patients were divided into three different groups. First group received only Ivabradine (5 mg/twice a day), second group received only Metoprolol (25 mg/twice a day) and third group received both. The heart rate and blood pressure were measured at different time interval after drug administration. Follow up of patients were taken after 5 days from hospital discharge for assessment of quality of life, drug adherence, complications, adverse drug reactions and prescription compliance. Combination therapy showed 5 percent fall of heart rate at 12 hrs and better blood pressure control after drug infusion as compared to single drug treatment group.

Correlation between Gastrointestinal Distress with Depression and Quality of Life in Cardiovascular Disease Patients

In this prospective study a total of 644 CVD patients with either effort angina, unstable angina, myocardial infarction and left ventricular dysfunction were enrolled at CIMS. Gastric distress was assessed with complains such as abdominal pain, vomiting, constipation, gas, abdominal tenderness and others. GI distress was depicted in 58.97% patients. Most common GI distress symptoms reported were abdominal pain (32.81%), constipation (33.12%) and gas (34.07%). Mean MADRS score (7.3 ± 5.12 v/s 3.38 ± 5.36) and HADS score (7.48 ± 3.24 v/s 3.94 ± 3.34) were significantly higher in patients with GI complains. QoL as assessed by Physical Component Summary scores (68.42 ± 26.23 v/s 75.68 ± 26.17) and Mental Component Summary scores (71.04 ± 23.62 v/s 79.82 ± 23.54) were significantly lower in patients with GI distress as compared to subjects without GI distress.

Presented at Cardiology Society of India Conference held in Dec. 2012
There are no full stops in education.

Education for Innovation

We are firmly committed to the application of newer and innovative medical techniques for improved patient care.

CIMS regularly organizes CMEs, workshops, etc. to acquaint its doctors with the latest technology and techniques in the field of medicine and surgery.

At CIMS, critical care unit holds weekly scientific and educational meetings open to all physicians. These discussions range from guidelines to patient management and latest medical updates with case studies supported by interactive audio-visual discussions.

As a part and process of education, we are proud of our annual mega educational event (www.cimsre.org), an annual conference targeted at physicians showcasing advances in medicine and surgery. Addressed by leading international and national medical luminaries, the conference is a result of an unwavering passion to educate all.
# Medical Fraternity

- **Cardiology**
  - Dr. Ajay Naik
  - Dr. Satya Gupta
  - Dr. Vineet Sankhla
  - Dr. Gunvant Patel
  - Dr. Keyur Parikh
  - Dr. Milan Chag
  - Dr. Urmil Shah
  - Dr. Hemang Baxi
  - Dr. Anish Chandarana

- **Cardiac Anaesthesiology**
  - Dr. Niren Bhavsar
  - Dr. Hiren Dholakia
  - Dr. Chintan Sheth

- **Vascular & Endovascular Surgery**
  - Dr. Srujal Shah

- **Pediatric Cardiology**
  - Dr. Kashyap Sheth
  - Dr. Milan Chag

- **Neonatology and Pediatric Intensive Care**
  - Dr. Amit Chitaliya
  - Dr. Tejas N Shah
  - Dr. Eva Bhagat
  - Dr. Urmish Chudgar
  - Dr. Sanjiv Mehta
  - Dr. Harshuti Shah
  - Dr. Siddharth Shah
  - Dr. Nilam Thaker
  - Dr. Varsha Tripathi

- **Cardiac Electrophysiology & Pacing**
  - Dr. Ajay Naik

- **Cardiothoracic & Vascular Surgery**
  - Dr. Dhiren Shah
  - Dr. Dhaval Naik
  - Dr. Dipesh Shah

- **Pediatric & Structural Heart Surgery**
  - Dr. Shaunak Shah

- **Critical Care**
  - Dr. Bhagyesh Shah
  - Dr. Harshal Thaker
  - Dr. Vipul Thakkar
  - Dr. Dhanashri Atre Singh

- **Trauma**
  - Dr. Sanjay Shah

- **Anaesthesiology**
  - Dr. Dipak Desai

---

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*Visiting Consultant(s)/Surgeon(s) (alphabetically)*

多少钱的错误或遗漏，请注意。

*Pediatric Superspeciality*

We have been unable to include the names of physician/internist/paediatrician due to space constraints. We acknowledge their contribution to the success of CIMS.
Medical Fraternity
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Orthopaedic

- Dr. Chirag Patel
- Dr. Amir Sanghavi
- Dr. Ateet Sharma
- Dr. Hemang Ambani
- Dr. Amit Agrawal
- Dr. Sagar Agrawal
- Dr. Prakash Amin
- Dr. Harshad Bhalodiya
- Dr. Jitendra Chaudhary
- Dr. Ritesh Davada
- Dr. Deepak Dave
- Dr. Ronak Desai
- Dr. Arvind Gosai
- Dr. Saurabh Goyal
- Dr. Yogesh Kapadia
- Dr. Ajay Krishnan
- Dr. Hasmukh Kubavat
- Dr. Sunil Maheshwari
- Dr. Mehul Maskariya
- Dr. Jayprakash V Modi
- Dr. Jyotindra Pandit
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- Dr. Biren Parikh
- Dr. Jitendra Parmar
- Dr. Mahipatsingh Parmar
- Dr. Bharat H. Patel
- Dr. Bhavin Patel
- Dr. Hitendra Patel
- Dr. Jyotish Patel
- Dr. Kamlesh Patel
- Dr. Kartik Patel
- Dr. Satish Patel
- Dr. Maulik Patwa
- Dr. Viren Rajyaguru
- Dr. Dhaval Sagala
- Dr. Ashvin Sardhara
- Dr. Ajay Shah
- Dr. Alap B. Shah
- Dr. Darshan Shah
- Dr. Harshal Shah
- Dr. Jaymin Shah
- Dr. Jigar Shah
- Dr. Manish Shah
- Dr. Mukesh Shah
- Dr. Nishith Shah (Arthroscopy)
- Dr. Pranav A. Shah
- Dr. Rikin Shah
- Dr. Saurabh Shah
- Dr. Daria Singh
- Dr. Ketan Thaker
- Dr. Navin Thakkar
- Dr. Sanjay Trivedi (Arthroscopy)

Oncosurgery

- Dr. Ashok Patel
- Dr. Dhaval Rajde
- Dr. Chaitanya Shroff
- Dr. Jayesh (J.D) Patel
- Dr. Anjana Chauhan
- Dr. Natubhai Patel
- Dr. Jayesh V Patel
- Dr. Laxmidhar Murtuza
- Dr. Shakuntala Shah
- Dr. Manish Gandhi (GI Onco)
- Dr. Somesh Chandra
- Dr. Lalit B. Choksi
- Dr. Darshil Dalal
- Dr. Ashish Dave
- Dr. Sonali Garg (Gynec Onco)
- Dr. Natwar Gupta
- Dr. Anila Kapadia (Gynec Onco)
- Dr. Kalpna Kothari
- Dr. Kiran Kothari
- Dr. Meeta Makand
- Dr. Roopesh Modi
- Dr. Arti Patel
- Dr. Brijesh Patel
- Dr. Mahesh Patel
- Dr. Shailesh Patel
- Dr. Tarang Patel
- Dr. Jayesh Prajapati
- Dr. Falguni Shah
- Dr. Pinakin Shah
- Dr. Viren Shah
- Dr. Hemant Shukla
- Dr. Rajan Tankshali
- Dr. Mukund Trivedi
- Dr. Jasmin Vasavada

*Visiting Consultant(s)/Surgeon(s) (alphabetically)

We also welcome new doctors to affiliate with CIMS.

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#### Neurosurgery
- Dr. Purav Patel
- Dr. Parimal Tripathi
- Dr. Y.C. Shah
- Dr. Mukesh Patel
- Dr. Navin Patel
- Dr. Harshil Shah
- Dr. Dipak Patel
- Dr. Somesh Desai

* Dr. Vipul Amin
* Dr. Nagesh Bhandari
* Dr. Ramil Diwanji
* Dr. Sandip Modh
* Dr. Manish A. Rathi
* Dr. Sandeep Shah
* Dr. Ashok Somani
* Dr. Mahesh Trivedi

#### Pediatric Surgery
- Dr. Keyur Bhalawat
- Dr. Jayul Kamdar
- Dr. Parthiv Shah
- Dr. Raj Shah
* Dr. Nikhilesh Bhattacharji

#### Pediatric Uro Surgery
- Dr. Raj Shah
* Dr. Mitul Parikh

#### Thoracic & Vascular Surgery
- Dr. Pranav Modi
* Dr. Rajesh Hydrabadi
* Dr. Kiran Dave

#### Gastrointestinal Surgery
- Dr. Jayant Jhala
- Dr. Chirag Thakkar
- Dr. Rashmi Thakkar
- Dr. Rajesh Shukla
- Dr. Hitesh Chavda
- Dr. Manish Gandhi
- Dr. Mahendra Bhavsar
- Dr. Premal Desai
- Dr. Bhavin Patel
* Dr. Kaushal Anand
* Dr. Vismit Joshipura
* Dr. Anish Nagpal
* Dr. K.S. Purohit

#### General Surgery
- Dr. Vasant Valu
- Dr. Deval Shah
- Dr. Alpesh Patel
- Dr. Vikram Patel
- Dr. Ajay Gadhavi

* Dr. Abhilash Choksi
* Dr. Anand Desai
* Dr. Chirag Desai
* Dr. Jitendra R. Desai
* Dr. Nemi Goriwal
* Dr. Praful Jarmarwala
* Dr. Bijal Kadia
* Dr. Didar Kapadia
* Dr. Manoj Kapoor
* Dr. Sadiq Kazi
* Dr. Raju Lakhani
* Dr. Tushar Lakhija
* Dr. Bhaumin Maniar
* Dr. Pankaj Modi
* Dr. Nayan Panchotra
* Dr. Ketu Parekh
* Dr. Dewal Parikh
* Dr. Apoorva R. Patel
* Dr. Apoorva S. Patel
* Dr. Hitesh N. Patel
* Dr. Krishnakant Patel
* Dr. Pritesh Patel
* Dr. Rajesh S. Patel
* Dr. Manish N. Raval
* Dr. Shail Sanghavi
* Dr. Amit Shah
* Dr. Bharat Shah
* Dr. Kartik D. Shah
* Dr. Piyush Shah
* Dr. Viral D. Shah
* Dr. Kirit Sheth
* Dr. Paresh Somani
* Dr. Balkrishna Tanna
* Dr. Niranjan Trivedi
* Dr. Sanjay Vyas

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Endoscopy & ERCP
◆ Dr. Yatin Patel

Gastroenterology & Endoscopy
*◆ Dr. Rajiv Bansal
◆ Dr. Manish Bhatnagar
◆ Dr. Jay Bhatt
◆ Dr. Manoj Ghoda
◆ Dr. Nilay Mehta
◆ Dr. Sudhanshu Patwari
◆ Dr. Sanjay Rajput
◆ Dr. Umang Rathi
◆ Dr. Kaushal Vyas

Bariatric and GI Surgery
◆ Dr. Digvijaysingh Bedi
◆ Dr. Chirag Thakkar
*◆ Dr. Manoj Agrawal

Urology
◆ Dr. Himanshu Shah
◆ Dr. Sharad Dodia
*◆ Dr. Hemang M. Baxi
◆ Dr. Hemen Das
◆ Dr. Janak Desai
◆ Dr. Deepak Joshi

Obstetric and Gynecology
◆ Dr. Nita Thakre
◆ Dr. Pinky Naik
*◆ Dr. Ashini Acharya
◆ Dr. Prashant Acharya
◆ Dr. Rajni Asthana
◆ Dr. Kashmira Chhatrapati
◆ Dr. Yogendra Jhala
◆ Dr. Parul Kapoor

Spine Surgery
◆ Dr. Purav Patel
◆ Dr. Hitesh Modi
◆ Dr. Subir Jhaveri
◆ Dr. Tarak Patel
◆ Dr. Jayprakash V. Modi
*◆ Dr. Jigar Anandjiwala
◆ Dr. Bharat Dave
◆ Dr. Bharat Patel
◆ Dr. Biren Shah
◆ Dr. Mayur Vala

*Visiting Consultant(s)/Surgeon(s) (alphabetically)

We also welcome new doctors to affiliate with CIMS.

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### Plastic Surgery
- Dr. Ashwin Lakhani
- Dr. Himanshu Vora
- Dr. Shailendra Singh
- Dr. Hemen Jaju
- Dr. Nischal Naik
- Dr. Bijal Parikh
- Dr. Chintan Patel
- Dr. Vishal Patel
- Dr. Nitin D. Shah
- Dr. Shishir Shah
- Dr. Dilip Trivedi

### Pain Management
- Dr. Hitesh Patel
- Dr. Dipak Desai
- Dr. Hemaxi Ambani
- Dr. Kamlesh Patel
- Dr. Pravin Patel

### Nephrology
- Dr. Manthan Kansara
- Dr. Apurva Parekh
- Dr. Javed Vakil
- Dr. Bhavin Mehtalia
- Dr. Himanshu Patel
- Dr. Prakash Darji
- Dr. Sonal Dalal
- Dr. Devang Patwari
- Dr. Jagdeep Shah
- Dr. Nilam H Thaker (Paed.)

### Pulmonology
- Dr. Nitesh Shah
- Dr. Amit Patel
- Dr. Harjitsingh Dumra
- Dr. Ajay Jain
- Dr. Deepali Kamdar
- Dr. Parthiv Mehta
- Dr. Amrish Patel
- Dr. Mukesh Patel
- Dr. Tushar Patel
- Dr. Varun Patel
- Dr. Gopal Raval
- Dr. Hitendra Thaker

### Critical Care (Visiting)
- Dr. Pratibha Dileep
- Dr. Rajesh Mishra
- Dr. Tejas Padodra

*Visiting Consultant(s)/Surgeon(s) (alphabetically)

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Medical Fraternity

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Radiology
- Dr. Kirtan Shah
- Dr. Jaimin Shah
- Dr. Rupal Doshi
- Dr. Kunjal Patel

Dentistry
- Dr. Parvin Chandarana
- Dr. Alka Banker
- Dr. Rohan Bhatt
- Dr. Soham Dave
- Dr. Meet Ramatri
- Dr. Anish Tiwari

Pathology
- Dr. Manisha Shah
- Dr. Jitendra Nayak
- Dr. Payal Kamdar

Microbiology
- Dr. Bhavini S. Shah

Anesthesiology
- Dr. Manish Bhatt
- Dr. Dipak Desai
- Dr. Kalpesh Goklani
- Dr. Sandeep Makani
- Dr. Arun Panchal

We congratulate & appreciate the efforts of the following:

Medical Officers
- Dr. Vinay Agrawal
- Dr. Jyoti Bhatia
- Dr. Mehul Darji
- Dr. Harish Lohana
- Dr. Chetan Maheshwari
- Dr. Ghansham Das Maheshwari
- Dr. Kishorilal Maheshwari
- Dr. Rano Mal Maheshwari
- Dr. Bhargav Patel
- Dr. Narendra Rathi
- Dr. Kaumil Shah
- Dr. Om Shukla

Physiotherapists
- Dr. Shubhi Gautam
- Dr. Siddharth Joshi
- Dr. Sagar Kundaliya

Hospitalists
- Dr. Himanshu Parmar
- Dr. Sachin Patel

Physician Assistants
- Dr. Sonal Pandya
- Dr. Varsha Parmar
- Dr. Falu Patel
- Dr. Vipul Patel
- Dr. Mitesh Prajapati
- Dr. Devankshi Shah
- Dr. Hemali Shah
- Dr. Krunal K. Shah
- Dr. Prachi Shah
- Dr. Jayesh Solanki

Pediatricians
- Dr. Rajesh Maheshwari
- Dr. Ankita Topiwala

Ortho-Oncosurgery
- Dr. Jaimin Shah
- Dr. Mandip C Shah

Pediatric Orthopedic Surgery
- Dr. Premal Naik
- Dr. Maulin Shah

Ophthalmology
- Dr. Alpesh Shah
- Dr. Nandani R. Shah

Interventional Radiology
- Dr. Ajay Desai
- Dr. Milan Jolapara

We apologise for any inadvertent omission of visiting consultant(s)/surgeon(s) names. We would appreciate if any missed name is brought to our notice.

We also welcome new doctors to affiliate with CIMS.

2. Sergio Leonardi, MD, MHS, Amanda Stebbins, Meredith Todd, Deepak L. Bhatt, MD, Gregg W. Stone, MD, A. Michael Lincoff, MD, Harold L. Dauerman, MD, C. Michael Gibson, MD, Harvey D. White, DSc, Keyur H. Parikh, MD. “Quantification of Clopidogrel Effect on Enzymatic Infarct Size Related to Percutaneous Coronary Intervention in Patients with Acute Coronary Syndromes: Insights from the CHAMPION PCI Trial.” accepted for publication in Coronary Artery Disease.

3. Parikh K et al. – The ORBIT I trial evaluated the safety and performance of an orbital atherectomy system (OAS) for the treatment of de novo calcified coronary lesions.

4. Three year Follow Up Data Demonstrate Safe And Effective Treatment Of De Novo Calcified Coronary Lesions By Orbital Atherectomy System. Keyur Parikh; Roosha Parikh; Apurva Patel; Milan Chag. Published in JACC: Published in Cardiovascular Interventions CRT 2013 Supplement: Volume 6, Number 2 S.

5. Jawahar L. Mehta, Parloop Bhatt, Bhavesh Vagehla, Keyur Parikh, A Prospective Study to Evaluate Correlation between Coronary Heart Disease and Depression and Its Influence on Quality of Life and Clinical Outcomes, JACC March 12, 2013 Volume 61, Issue 10, E1478.


<table>
<thead>
<tr>
<th>Number</th>
<th>Author(s)</th>
<th>Title</th>
<th>Journal/Source</th>
<th>Year</th>
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<tr>
<td>57</td>
<td>Gupta S.</td>
<td>Trans-radial Interventions: Our Experience.</td>
<td>Indian Heart J 2010;62:264-266</td>
<td>2010</td>
</tr>
</tbody>
</table>
## Local Faculty

### Conference Chairman
- Dr. Keyur Parikh  
  (M) +91-98250 26999

### Chairman, Scientific Committee
- Dr. Milan Chag  
  (M) +91-98240 22107

### Conference Directors & Co-Ordinators
- Dr. Ajay Naik  
  (M) +91-98250 82666
- Dr. Satya Gupta  
  (M) +91-99250 45780
- Dr. Vineet Sankhla  
  (M) +91-99250 15056

<table>
<thead>
<tr>
<th>Profile</th>
<th>Name</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Gunvant Patel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
  (M) +91-98240 61266 |
| Dr. Urmil Shah  |  
  (M) +91-98250 66939 |
| Dr. Hemang Baxi  |  
  (M) +91-98250 30111 |
| Dr. Anish Chandarana  |  
  (M) +91-98250 96922 |
| Dr. Dhiren Shah  |  
  (M) +91-98255 75933 |
| Dr. Dhiren Shah  |  
  (M) +91-98255 75933 |
| Dr. Dhaval Naik  |  
  (M) +91-90991 11133 |
| Dr. Dipesh Shah  |  
  (M) +91-90990 27945 |
| Dr. Shaunak Shah  |  
  (M) +91-98250 44502 |
| Dr. Srujal Shah  |  
  (M) +91-91377 88088 |
| Dr. Niren Bhavsar  |  
  (M) +91-98795 71917 |
| Dr. Hiren Dholakia  |  
  (M) +91-95863 75818 |
| Dr. Chintan Sheth  |  
  (M) +91-91732 04454 |
| Dr. Kashyap Sheth  |  
  (M) +91-99246 12288 |
| Dr. Amit Chitaliya  |  
  (M) +91-90999 87400 |
| Dr. Tejas Shah  |  
  (M) +91-90993 13222 |
| Dr. Nitesh Shah  |  
  (M) +91-98250 27487 |
| Dr. Amit Patel  |  
  (M) +91-98243 10150 |
| Dr. Bhagyesh Shah  |  
  (M) +91-90990 68938 |
| Dr. Vipul Thakkar  |  
  (M) +91-90990 68935 |
| Dr. Harshal Thaker  |  
  (M) +91-99099 19963 |
| Dr. Dhanashri Atre Singh  |  
  (M) +91-82380 01977 |
| Dr. Sanjay Shah  |  
  (M) +91-98980 00265 |
| Dr. Purav Patel  |  
  (M) +91-99099 89428 |
| Dr. Pranav Modi  |  
  (M) +91-99240 84700 |
| Dr. Hemang Ambani  |  
  (M) +91-98250 20120 |
| Dr. Chirag Patel  |  
  (M) +91-98250 24473 |
| Dr. Amir Sanghavi  |  
  (M) +91-98250 66013 |
| Dr. Ateet Sharma  |  
  (M) +91-98240 61766 |
### TRACKS - DAY-1 (January 10, 2014)

**CARDIOLOGY TRACK**
- Introduction Session
- Coronary Artery Disease / Acute Coronary Syndromes
- Plenary Lectures by International Speakers
- Hypertension / Lipids & Cardiovascular Risk Management
- Medical Devices in Cardiology / Interventional Cardiology
- Debates
- Special Topics

**Satellite Sessions**

(Time : 8.00 pm - 10.00 pm)
- Pharmacology & Therapeutics - 1 & 2
- Cardiology Guidelines
- Peripheral/ Endovascular /Diabetic Foot
- Stroke

### TRACKS - DAY-2 (January 11, 2014)

**CARDIOLOGY TRACK**
- Interactive ECGs/Arrhythmia
- Atrial Fibrillation/ Arrhythmia
- Plenary Lectures
- JIC-Oration
- Structural / Congenital Heart Disease
- Heart Failure
- Live Case Session

**CARDIOVASCULAR THORACIC SURGERY (CVTS) TRACK**

**NEONATAL & PEDIATRIC CRITICAL CARE TRACK**

**CRITICAL CARE & PULMONARY TRACK**

**TOTAL KNEE REPLACEMENT (TKR) TRACK**

### TRACKS - DAY-3 (January 12, 2014)

**CLINICAL CARDIOLOGY TRACK**

**CARDIOVASCULAR THORACIC SURGERY (CVTS) TRACK**

**NEONATAL & PEDIATRIC CRITICAL CARE TRACK**

**CRITICAL CARE & PULMONARY TRACK**

**TOTAL KNEE REPLACEMENT (TKR) TRACK**

**INTERNAL MEDICINE TRACK**

**TRAUMA CARE TRACK**
### World Best International Faculty at JIC 2014

<table>
<thead>
<tr>
<th>Dr. Subhash Banerjee</th>
<th>UT Southwestern Medical Center</th>
<th>USA</th>
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<tbody>
<tr>
<td>Dr. Vinayak Bapat</td>
<td>St. Thomas’ Hospital</td>
<td>UK</td>
</tr>
<tr>
<td>Dr. Matthew Bayfield</td>
<td>Strathfield Private Hospital</td>
<td>Australia</td>
</tr>
<tr>
<td>Dr. Vipin Bhavsar</td>
<td>Pediatrix Group OF Iowa</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Uday Desai</td>
<td>University of Central Florida</td>
<td>USA</td>
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<tr>
<td>Dr. Rahul Doshi</td>
<td>University of California</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Philip Hirst</td>
<td>Manchester Royal Infirmary</td>
<td>UK</td>
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<thead>
<tr>
<th>Dr. Sridhara Iyengar</th>
<th>Orange County</th>
<th>USA</th>
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<tbody>
<tr>
<td>Dr. Ashit Jain</td>
<td>Washington Hospital in Fremont</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Samir Kapadia</td>
<td>Cleveland Clinic</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Dharam Kumbhani</td>
<td>UT Southwestern Medical Center</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Nasser Lakkis</td>
<td>Baylor College of Medicine</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Raj Makkar</td>
<td>Cedars-Sinai Medical Center</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Luca Marega</td>
<td>Istituto Clinico S. Anna</td>
<td>Italy</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Dr. Atul Mehta</th>
<th>Cleveland Clinic</th>
<th>USA</th>
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</thead>
<tbody>
<tr>
<td>Dr. Jawahar Mehta</td>
<td>University of Arkansas</td>
<td>USA</td>
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<tr>
<td>Dr. Neil Mehta</td>
<td>Cleveland Clinic</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Navin Nanda</td>
<td>University of Alabama at Birmingham</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Sanjay Parikh</td>
<td>St. Vincent Hospitals</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Kaushik Ramaiya</td>
<td>Shree Hindu Mandal Hospital</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Dr. Rita Raman</td>
<td>University of Oklahoma</td>
<td>USA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. Martin Rothman</th>
<th>London Chest Hospital</th>
<th>USA/UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. M. Chandra Sekar</td>
<td>University of Findlay</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Ajay Shah</td>
<td>Jersey Shore University Medical Center</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Gaurang Shah</td>
<td>Long Beach Veterans Health Care System</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Jayesh Shah</td>
<td>South Texas Wound Associates</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Manoj Shah</td>
<td>Loma Linda University School of Medicine</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Maully Shah</td>
<td>The Childrens Hospital of Philadelphia</td>
<td>USA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. P. K. Shah</th>
<th>Cedars-Sinai Heart Institute &amp; Cedars Sinai Medical Center</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Shruti Shah</td>
<td>RWJMS-UMDNJ</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Samin Sharma</td>
<td>The Mount Sinai Medical Center</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Khushal Singh</td>
<td>MP Shah Hospital</td>
<td>Kenya</td>
</tr>
<tr>
<td>Dr. Meong Gun Song</td>
<td>Konkuk University Medical Center</td>
<td>Korea</td>
</tr>
<tr>
<td>Dr. James Stoller</td>
<td>Cleveland Clinic</td>
<td>USA</td>
</tr>
<tr>
<td>Dr. Alan Yeung</td>
<td>Stanford University</td>
<td>USA</td>
</tr>
</tbody>
</table>

For more information log on to [www.cimsre.org](http://www.cimsre.org)
JIC 2014 Registration Form

Cheque or DD's to be made A/C payee and in the name of ‘CIMS Hospital Pvt. Ltd.’ Kindly mail the registration form along with the cheque/DD to our office. All Cash Payments are to be made at ‘CIMS Hospital, Ahmedabad' only.

<table>
<thead>
<tr>
<th>Module</th>
<th>Before 31-10-2013</th>
<th>Before 31-12-2013</th>
<th>Spot Registration (After 31-12-2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Conference (January 10-12, 2014) (including certification course)</td>
<td>₹ 6000</td>
<td>₹ 7000</td>
<td>₹ 9000</td>
</tr>
<tr>
<td>Certification Courses (January 11-12, 2014)</td>
<td>₹ 2500</td>
<td>₹ 3500</td>
<td>₹ 4000</td>
</tr>
<tr>
<td>** Deposit for Hotel Accommodation (Separate cheque)</td>
<td>₹ 3500</td>
<td>₹ 3500</td>
<td>₹ 3500</td>
</tr>
<tr>
<td>For students doing MD (Medicine) with proof</td>
<td>₹ 3000</td>
<td>₹ 3500</td>
<td>₹ 4000</td>
</tr>
<tr>
<td>Spouse Hotel Registration (Non-refundable)</td>
<td>₹ 3500</td>
<td>₹ 3500</td>
<td>₹ 3500</td>
</tr>
<tr>
<td>In case of cancellation</td>
<td>□ 25 %</td>
<td>□ 50 %</td>
<td>□ 100 %</td>
</tr>
</tbody>
</table>

** Hotel Accommodation is optional. If you have applied for accommodation, please send a separate deposit cheque of ₹ 3500 to cover the cost of your stay for two nights. Spouse hotel registration will be charged extra. Students also need to pay for Hotel Accommodation at the same rate.

Please note that it is mandatory to provide all the information. Please fill in all fields in CAPITAL LETTERS

Full Name
Qualification
Resi. Address
City
Pin Code
Phone (STD code)
Mobile
Email

Payment Details

₹ in word:

DD/Cheque No.
Date
Bank:

Organized by

Conference Secretariat
CIMS Hospital, Nr. Shukan Mall, Off Science City Road, Sola, Ahmedabad-380060
Phone: +91-79-3010 1059 / 1060  Fax: +91-79-2771 2770 (M) +91-98250 66664, 98250 66668
Email: communication@cimshospital.org, www.cimsre.org / www.cims.me

Signature:
CIMS®
Care Institute of Medical Sciences
At CIMS... we care

CIMS Hospital:
Nr. Shukan Mall, Off Science City Road, Sola, Ahmedabad-380060, Gujarat, INDIA.
Ph. : +91-79-2771 2771-75 (5 lines) Fax: +91-79-2771 2770
For appointment call : +91-79-3010 1200, 3010 1008
(M) +91-98250 66661 or email on : opd.rec@cimshospital.org
www.cims.me

CIMS Clinic (Maninagar):
1st Floor, Shant Prabha Height, Opp. Vallabh Vadi, Bhairavnath Road, Maninagar, Ahmedabad-380 008, Gujarat, INDIA.
For appointment call : +91-79-2544 0381-82 (M) +91-90991 82222
Fax : +91-79-2544 0384

Ambulance & Emergency : +91-98244 50000, 97234 50000, 90990 11234