Liver Ensemble

Annual Report 2016

Institute of Liver & Biliary Sciences

An Autonomous Institute under Government of National Capital Territory of Delhi
A Deemed-to-be-University
New Delhi, India
From the editors’ desk

Last few years has been a fantastic journey for ILBS from patient care to a leading deemed university with high benchmark standards. Once again the Team ILBS with its strength and expertise has risen to meet the challenges with zealous fervour and enthusiasm. The 7th annual report with the theme “Liver Ensemble” highlights the achievements and success stories of Team ILBS. The cover design with hexagonal motif represents the workhorse unit of the liver viz., hepatocyte, working tirelessly in synchrony to make the functional liver. In a similar essence, ILBS is an amalgam of hard work done by each of the department and its staff members in various areas of patient care and treatment, teaching and research which are highlighted in the present annual report. Compiling the progress of ILBS in few words and limited space was most challenging to the editorial team and omissions if any were not done inadvertently.

The ILBS team work would not be possible, but for the visionary leadership of our director, Prof. S.K. Sarin. The editorial team is indebted to Prof. Sarin for his guidance and support. Above all his vision and conviction that dreams can be achieved has made the team ILBS unstoppable.

We acknowledge the support of Mr. Sunil Lal from Alpana Arts for designing the report. Compilation would not have been possible but for the help received from Dr. Nirupma, Dr. Dharm, Dr. Pooja, Mr. Dhiraj, Mr. Manish Dutta, Mr. Raj, Ms. Meena and Ms. Bijoya. We really appreciate the support received from all the departments for making the seventh annual report possible.

Gayatri Ramakrishna
Ekta Gupta
Shvetank Sharma
Rajeev Khanna
Shantanu Dubey

Published on behalf of the Director, ILBS, New Delhi
MESSAGE

It provides me pleasure to state that ILBS is one of the important hospitals and a Deemed to be University, under the Government of NCTD. ILBS has not only achieved higher standards in patient care, but also in translational science. I am happy to note that the super-specialty hospital dedicated to Liver and Biliary Diseases is providing excellent medical diagnosis and treatment.

The Institute is approved by the Medical Council of India and University Grants Commission to award higher degrees in niche areas of Hepato-Biliary Sciences. The World Health Organization has acknowledged ILBS as a Global Collaborative Centre.

Over the past few years, the Institute has rendered invaluable service to the society. ILBS has been providing Liver and Kidney transplantation services at highly competitive costs with high success rates. ILBS, Delhi is one of the most sought-after destinations in the medical tourism map for liver transplantation. The Institute has accomplished many milestones and is forging itself as the leading center of excellence not only at the national level but also internationally.

With the addition of the Phase-II, the Institute is witnessing further growth and development in both patient care and its academic goals. GNCTD is committed to provide the required support to the Institute and wish that ILBS strives ahead with its focus to serve the society by outreach especially to the needy and all sections of society with affordable cost, by offering best of services.

I congratulate the Team-ILBS for their relentless efforts and dedication to make ILBS a leading Liver Hospital and Institute. I wish the Institute greater success and continued growth in the years to come.

(Dr. M.M. Kutty)
On behalf of the Team-ILBS, I am privileged to present the seventh annual report of the Institution. The humble beginning of ILBS in 2008 has transformed into a journey of being a trend setter in liver care in areas of patient management, super-speciality teaching, niche areas of research, community outreach and advocacy.

"Liver Ensemble", portrays the events and milestones reached by ILBS in 2016. The ILBS hospital had a footfall of over 96,000 patients, nearly 26,000 day care admissions and more than 7,000 emergency referrals, reflecting the trust of people, quality of care and compassion in the patient care services offered. Most importantly, the 24hr liver critical care and GI bleed teams, one of their kind, greatly improved patient outcomes. The HPB surgery showed quantum leaps and organ transplant services reached a high of 373 for liver and 122 for kidney transplants with improved outcomes. The Institute achieved a double digit growth between 2015 and 2016 for cadaveric transplantations. Pediatric hepatology, nephrology and renal transplant services became distinctly visible at international scenarios. The clinicians had untiring contributions from pathology, hematology, virology, microbiology, transfusion medicine and diagnostic and intervention radiology, cardiology and pulmonology, colleagues. ILBS shifted out- patient services to spacious Phase –II building, upgraded its Hospital Information Management System and launched a mobile app for viewing reports, medication alerts, cashless transactions and browsing latest information on liver diseases.

The academic year rolled in with the Hon’ble President, Sh. Pranab Mukherjee delivering the Convocation Address and Bharat Ratna Awardee, Prof. C N R Rao giving the Foundation Day Oration. The scholastic targets were set high for us. Indeed, the faculty and students of ILBS showed their worth and won accolades at international conferences. The Team ILBS was recognized in the form of a ‘National Biobank facility on HCV’ by DBT, and, instrumentation facility, by the DST-FIST program. With over 140 original research publications in high impact journals, it is no wonder that ILBS was ranked 27th in the National Institutional Ranking Framework by the HRD ministry, Govt. of India.

ILBS also championed community awareness and screening programs including Hepatitis B, C and liver cancer. ILBS-ECHO program added to its class-rooms, faculty members from 38 medical colleges; first of its kind globally. The patient-centric work received blessings of the Hon’ble Chief Minister of Delhi, Sh. Kejriwal, who wrote, “Excellent hospital, feeling proud after visiting. Keep it up!" The Liver Ensemble at ILBS would have remained incomplete without the support of hospital operations, administration, finance, HR, IT, security and out-sourced staff. The canvas was beautifully embroidered by painstaking hardwork of experienced nursing staff, skilled technicians and paramedics. “The whole is better than the sum of its parts", as Aristotle said. Growth of ensemble was, and will be the way for exponential growth of ILBS.

The Team ILBS is deeply indebted to the entire Govt. of Delhi, our Chairman, Sh. M M Kutty and illustrious members of our Governing Council for their continued guidance, faith and support. The road of excellence and leadership is challenging; more so when our mandate is of self reliance with accountability. We welcome public scrutiny and accept our shortcomings with a smile. We would be guided by our beloved Chancellor’s words “Dream is not that which you see while sleeping, it is something that does not let you sleep".

Dr. S. K. Sarin
Member, Team ILBS
Our Science Drives Liver Care Globally

Vision, Mission & Values of Team ILBS

Vision:
Institute of Liver and Biliary Sciences (ILBS) envisions to become an International Centre of excellence for the prevention and cure, advanced competency-based training and cutting edge research in liver, biliary and allied sciences.

Mission:
The Institute strives to develop an internationally recognized facility based on evidence-based clinical practice, to provide a comprehensive and most modern set up for the diagnosis and treatment, and to establish a resource for specialized education and training and advance centre for dedicated research in the field of liver diseases including liver transplantation, biliary diseases and allied disciplines. ILBS declares itself as a torchbearer model of health care in the country by amalgamating the skills and structure of academic medical universities, clinical and research acumen of the research institutes and managerial skills of the corporate world. The Institute commits itself to the highest levels of patient satisfaction for all through continual training and improvement. ILBS keeps patient care at the top by allowing transparency in management processes, facilitating patient satisfaction & ensuring dignity and rights of the patients.

The Liver Centric Dogma:
Liver and Biliary system, as is self-explanatory by the Institute’s name, is the central dogma of all the health care services provided at
the Institute. All the other disciplines — Nephrology, Cardiology, Critical care, Anaesthesia, Pulmonology, Neurology, Radiology, Pathology, Microbiology and Virology are centred around liver. In addition to this, Pediatric Hepatology service at ILBS, the young counterpart of Adult Hepatology, is the only dedicated pediatric liver unit in the country providing care for young children suffering with some of the rare and complicated liver diseases. With its incessant efforts, ILBS looks forward to make realize the government bodies that liver care should be a part of routine primary care and should not be a matter of neglect.

**Journey till Now…..**

Institute of Liver and Biliary Sciences (ILBS) started as an autonomous teaching hospital under the Government of National Capital Territory of Delhi. It was given the status of a Deemed-to-be-University by the Ministry of HRD by GOI. Being a monothematic super-specialty hospital and teaching centre, ILBS has uniquely acquired the status of the only Liver University in the world. With a liver centric approach, the Institute has contributed tremendously to the treatment of liver diseases, which accounts for the top 10% of leading causes of mortality and morbidity in India.

**Improved Patient Care:**

ILBS has one of the finest liver intensive and critical care services that specializes in GI bleed, hepatic coma and liver failure. ILBS is the only hospital with a specialized Liver dialysis unit as an artificial liver support system. State of the art technically demanding procedures like endoscopic ultrasound are being routinely carried out at the Institute. ILBS is the only institute to have started the sub-specialty in clinical nutrition for Liver diseases. ILBS is the only public undertaking running a successful liver transplant programme in a Government setup. ILBS has achieved a milestone in liver transplantation as it has completed over 370 liver transplants and 150 kidney transplants. For those patients who do not undergo liver transplant due to donor non availability, a ray of hope is offered to them through the use of growth factors GCSF and erythropoietin; a protocol developed at ILBS for the first time. ILBS also reported the first clinical benefit of fecal microbial transplantation (FMT) in patients with severe alcoholic hepatitis with beneficial effects. With the addition of new beds in its Phase II, ILBS is marching to provide these services to a larger proportion of patients.

**Academic Excellence and National recognition:**

ILBS is unique in nurturing a vibrant academic hub for liver-centric teaching and training programs. On the basis of teaching and research based academic strength, ILBS was ranked 27th amongst all the Indian universities in the MHRD-NIRF ranking framework. Being a Liver Centric-Academic-Hub, ILBS attracts some of the brightest candidates for super-specialty programs. The students passing out from ILBS have been received placements in some of the country’s best Institutions and these students are carrying forward the vision of ILBS; serve with dedication. In addition, in the last few years, ILBS has nurtured a vibrant research culture in a clinical setting to bridge the gap between the bench and the bedside. For modern biological research, the scientists at ILBS make use of the state of the art cutting edge technologies such as Next generation sequencing, proteomics and molecular biology tools. The academic research output from ILBS has been published in the most prestigious international journals with high impact. In view of the academic excellence, ILBS was recognized by Ministry of Science and technology and was awarded two prestigious grants: (a) a national HCV-Biobank funded by the Dept. of Biotechnology, and, (b) DST-FIST laboratory for confocal imaging by the Dept of Science and Technology.

**International Recognition:**

The contributions made by ILBS in hepatitis research received international recognition by World health organization (WHO). Since the last two years ILBS is the worlds first health organization collaborating centre on Liver diseases and second on viral hepatitis. The forefront work done in the field of liver failure and alcoholic hepatitis by clinician and scientist was recognized internationally and a joint ILBS-INSERM Metabolomics laboratory was established to carry out dedicated research in the areas of Next Generation Science. ILBS has also signed a number of MOUs with leading universities and Institutes in the world.

**The Liver Ensemble:**

A total of 11 clinical departments and 7 specialties in laboratory medicine work tirelessly for patient care and diagnostics. For understandings the science behind the disease processes, ILBS has established state of the art modern biology laboratories with experienced scientists and clinical research team. The pillars of ILBS organization are hospital operations, administration, finance, HR and IT. ILBS has amongst the best paramedical and nursing staff in the country. All these together make the ‘Liver Ensemble’. The present seventh annual report, unfolds ‘Liver Ensemble’ of various achievements and challenges faced by the Team-ILBS. The responsibilities imposed by the society are carried forward with passionate enthusiasm to make ILBS a trend-setter in liver care. ‘Liver Ensemble’ unfolds with the smiles of patients and the stories of hope and recovery……….
"Thank you ILBS for all your help – The Physicians are more than a doctor, you are a healer!"
- Sanjay Malhotra

"I am writing this to express my sincere gratitude to you for the efforts put in by you in reviving my dad. I shall remain indebted to you and ILBS for your timely help. Medicine continues to a noble profession because of sincere and committed doctors like at ILBS. God bless you and keep up the good work."
- R.M Das

"I just want to compliment "ILBS" for the best service ever in saving my elder brother from all the troubles he was going through.....since me and my siblings reside abroad....ILBS HOSPITAL helped take care of him on OUR BEHALF...Thanks a lot."
- Vijayeta Pathak

"Madam Hawa has followed Dr. S.K. Sarin’s advice with his medical prescription. We’re extremely delighted to share with you after paying a visit to Dr. Aron T Korah Gastroenterologist Specialist at Universal Hospital in Abu Dhabi, has informed us that Madam Hawa has no longer Hepatitis C Virus RNA is detected. We thank God first who made this medicine work effectively, Secondly, we thank Prof. (Dr.) S.K. Sarin, Director, Institute of Liver and Biliary Sciences, for his great and kind service he provided Madam Hawa A Samatar, Similarly we thank Prof. Sarin’s assistant Doctors and his hard working sister nurses. Wishing You All The Best"
- Syed Ali A. Ainab, Family Member, UAE

Bringing Smiles and Inspiring Hopes
ILBS Synergy
Hepatology

Our mission is to develop ‘Hepatology’ as a comprehensive discipline of medicine which can provide distinctly advanced and protocol based patient care, training and clinical and translational research. We also appreciate that Hepatologist has to know other disciplines of medicine including metabolic medicine, nephrology, cardiology and intensive care. The Hepatology department at ILBS provides emergency, elective and tele-medicine based management to patients with liver, biliary and pancreatic diseases by a highly specialized and dedicated team of faculty, residents and supportive staff. With a rigorous academic program and constant monitoring and mentoring, the department is able to provide protocol and evidenced based care to an increasing number of difficult-to-diagnose and treat patients. The department has initiated efforts to promote the study of Hepatobiliary Sciences as a super-specialty and initiated advanced training in the field of Hepatology and Transplant Hepatology.
Adult Hepatology Services
Diagnosis and treatment of non-alcoholic fatty liver disease (NAFLD), alcoholic liver disease, viral hepatitis (Hepatitis B, C, E, A and D), autoimmune hepatitis, drug hepatitis, and all causes of jaundice and liver failure are attended to. Gall stones and bile duct stones, pancreatic diseases, liver, gall bladder and GI cancers add to the specialized care. The following advanced care services are routinely offered through the hepatology department:

A. Liver Intensive Care:
The institute has established one of the finest liver intensive and critical care services with specialized rapid response teams. The ICU teams include specialists from Hepatology (Dr. Rakhi Maiwal I/c, and Dr. Amrish Sahney) and the Critical Care team (Dr. Lalita Gauri Mitra, Dr. Naveen, Dr. Prasant and Dr. Vandana). These are ably supported by the nephrology, cardiology, pulmonology teams round the clock.

1) Acute GI Bleeds: Patients with acute GI bleed are seen immediately in the emergency room and appropriate treatment including emergency endoscopies (24x7) are instituted urgently, which leads to an improvement in survival. Patients who fail the combination of endotherapy and vasoactive agents are taken up for portal pressure (HVPG) measurement and if indicated, for emergency TIPS procedure. There is a dedicated team available round the clock for all these procedures. New intervention of placing self-expanding metal stent, the Denis Ella Stent has immensely improved control of refractory variceal bleeding and patient survival. Probably the highest number of such stents are placed in the country at ILBS.

2) Hepatic coma: Hepatic encephalopathy is the occurrence of confusion, altered level of consciousness, and coma as a result of liver failure. It may ultimately lead to death. A substantial increase in the patients admitted with hepatic coma occurred in the past one year. These patients are managed based on standard protocols and with our state of the art hepatic coma ICU functioning. New ammonia targeted approaches were introduced in 2015-2016 with improved outcomes. The area is led by Prof. B C Sharma and Dr. Vikram Bhatia.

3) Acute Liver failure: Acute liver failure is the appearance of hepatic encephalopathy rapidly after jaundice, and indicates that the liver has sustained severe damage. Common causes include Hepatitis E, Hepatitis A, and drugs. ILBS has been involved in the treatment of ALF patients with a rapid response team working round the clock and with the availability of urgent liver transplantation the outlook of this disease has improved substantially. Specialized monitoring with Optic Nerve Sheath Diameter (ONSD) measurement and transcranial Doppler improved our diagnostic capabilities.

4) Acute on Chronic Liver failure (ACLF): Liver failure can develop either acutely in the absence of any pre-existing liver disease (i.e. acute liver failure or ALF) or as acute on chronic liver failure (ACLF) which denotes a sudden deterioration of known or unknown chronic liver disease patient, which can be life threatening and requires intensive ICU care. This entity was first defined in India and ILBS has henceforth carried intensive research in this disease and developed effective treatments for this deadly condition. ILBS serves as the nodal center for the Asian Pacific Association for the Study of the Liver ACLF Research Consortium (AARC) coordinated by Dr. Ashok Choudhury.

At ILBS, there has been an ever increasing referral of patients for management of these emergencies as shown in the adjoining figure.

5) Liver dialysis: Artificial liver support systems can be non-cell based or cell-based systems. Several non-cell based extracorporeal liver support systems like hemodialysis, hemofiltration, plasma exchange, charcoal perfusion have been used in the past with a goal to remove the putative toxins and inflammatory cytokines to allow additional time for the liver to recover or as a bridge to liver transplantation. However, in all these protein bound toxins are removed to only a minor extent.

Abbreviations: AGB: Acute GI Bleed; HE: Hepatic encephalopathy; ALF: Acute liver failure; ACLF: Acute on Chronic liver failure.
B. Viral Hepatitis (A,B,C,E) and Hepatocellular Carcinoma Services:

- Hepatitis B and C are common causes of chronic liver disease in India and nearly 45 and 12 million people are estimated to be infected with these viruses in India respectively. They are also the common cause of cirrhosis and liver cancer. The area is led by Dr. Manoj Kumar and Dr. Ankur Jindal.

- ILBS sees one of the largest referrals for hepatitis B and C, and liver cancer as shown in the adjoining figure.

C. Alcoholic Liver Disease:

At the ILBS, alcoholic liver disease is the most common diagnosis requiring admission. ALD constitutes more than 40% of our in-patients and 2/3rds of our patients with acute-on-chronic liver failure. We have protocol-based treatments available for alcoholic hepatitis of nephrotoxic drugs, vasodilators, non-steroidal anti-inflammatory drugs, and diuretics. Antibiotics, volume expansion with intravenous albumin, and additional use of terlipressin and noradrenaline is considered for non-responsive AKI or hepatorenal syndrome. Since the response to vasoconstrictors is seen in only one third, renal replacement therapy is frequently required. Our liver intensive care is equipped with 24x7 dialysis services. We provide intermittent hemodialysis, slow low exchange dialysis (SLED) as well as continuous renal replacement therapy (CRRT). Continuous RRT is better tolerated than routine hemodialysis in liver patients because of improved cardiovascular stability and less effect on intracranial pressure. With the able support of the nephrology team, more than 2,000 SLED procedures and more than 300 CRRTs have been done till date in patients with liver failure with AKI.

Single pass albumin dialysis (SPAD), molecular absorbent and recirculation system (MARS) and recently, Prometheus (FPSA-fractional plasma separation and adsorption) which remove both water-soluble and protein-bound toxins have emerged as liver support therapies in patients with acute and chronic liver failure. The Prometheus system which combines the FPSA method with high-flux hemodialysis (of the blood) in an extracorporeal detoxification system.

These newer developing therapies have demonstrated benefits in biochemical parameters, systemic hemodynamics, hepatic encephalopathy, and also renal function but are expensive and enough data is available on safety of these devices. They can be used as a bridge for spontaneous recovery or transplantation in patients with ALF. In patients with acute on chronic liver failure (ACLF) with hepatorenal syndrome or hepatic encephalopathy (without contraindications for transplantation) - to improve their chances to be listed and transplanted.

We at ILBS have the Prometheus system, the first of its kind in India. We at ILBS are also trying to develop our “biological liver” with extracorporeal bioreactors containing hepatocytes which can provide additional synthetic and biotransformatory liver functions, which may be more effective than completely artificial systems like Prometheus which provide excretory capacity alone.
patients led by Dr. Shasthry and Dr. Shevtank. We have recently shown survival benefits in patients not responding to the standard of care with growth factors and those not eligible for standard of care with use of new protocols using fecal microbiota transplantation from a healthy donor. We further are trying to standardize protocols, which could in future become the standard of care in the management of severe alcoholic hepatitis patients.

D. Liver stiffness and fat measurement:

Early diagnosis and intervention can lead to a substantial reduction in morbidity and mortality from all conditions that lead to cirrhosis. Liver stiffness is important for evaluating the stage of liver fibrosis. The transient elastography (FibroScan®) technique measures the liver stiffness. This is used to quantify hepatic fibrosis in a totally non-invasive and painless manner, with no contra-indications for the patients. FibroScan allows accurate assessment of liver fibrosis resulting from all chronic pathologies that cause damage to the liver, including metabolic syndrome and non-alcoholic fatty liver disease, chronic viral hepatitis and excess alcohol intake. In the early stages of liver disease tests and conventional ultrasound have a poor predictive value in assessing fibrosis. Liver Stiffness measurement is the ideal diagnostic tool to accurately identify liver fibrosis and fat quantification and is being increasingly used at ILBS.

E. Endoscopy Services:
The Department of Hepatology provides most comprehensive endoscopic services—both diagnostic and therapeutic. Our spacious endoscopy unit has seven fully equipped rooms—two for gastroscopy, one for colonoscopy, one each for endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound (EUS), cholangioscopy, Intraductal ultrasound, one balloon enteroscopy room, and one room for extra-corporeal shock wave lithotripsy (ESWL). Experienced endoscopists, nurses and anesthesiologists receive all patients in a spacious day care reception area, where they are assessed pre-procedure. All elective endoscopic procedures at ILBS are carried out with tailored sedation provided by consultant anesthesiologists. Patients undergoing prolonged procedures, and high-risk patients are administered general anesthesia with elective endotracheal intubation and ventilation. After the procedures, patients are monitored in a segregated post-procedure observation area with full monitoring facilities and privacy. The services are efficiently supervised by a Resident Medical Officer, Dr. Poonam.

We have a round-the-clock gastrointestinal bleeding service and a round the clock, GI Bleed unit with consultant endoscopists on 24-hour call. The highlights of the gastrointestinal bleeding service include a fully equipped ambulance with on-site resuscitation facilities, to triage at admission, and all endoscopic therapeutic procedures. These include variceal banding and injection, glue injection, thermal coagulation, argon plasma coagulation (APC), and hemostatic stent placement. We take pride in having a short ‘door to endoscopy’ time, which is unrivalled by any other hospital.

Our interventional radiology services work in tandem, and provide salvage angioembolization, TIPS and BRTO services for difficult to control or inaccessible bleeding sources. ILBS has one of the largest experiences in emergency TIPS stent placement. All patients with gastrointestinal bleeding are managed in an intensive care setting.
We provide comprehensive pancreato-biliary endoscopy services. These include Extra-corporeal shock wave lithotripsy (ESWL) to fragment pancreatic and bile duct stones, therapeutic ERCP, and diagnostic and therapeutic endoscopic ultrasound (EUS) procedures. We have the experience of one of the highest EUS procedures done in the country. All our EUS procedures are done under anesthesia, providing unsurpassed patient comfort and safety. We are the one of the center to have dedicated on-site cytopathology services, with EUS sampling adequacy rates exceeding 97%. We have already introduced cholangioscopy in the last quarter of 2014 for indeterminate biliary strictures and large difficult common bile duct stones. In the coming year we plan to introduce 3-D EUS, contrast-EUS, and intraductal ultrasound (IDUS) services.

The goal of endoscopy services at ILBS is amalgamation of cutting edge technology with a humane touch. We strive to make endoscopy a pleasant experience for all patients, with attention to small details including lockers for personal belongings, clean clothes and towels, clean toilet facilities, and post-procedure discussion of the findings. Our smiling and pleasant staff is trained to put patient apprehensions at ease.

There is ever increasing load of Endoscopic Procedures through the years as shown in figures below.

Abbreviations: EVL: Endoscopic variceal ligation; APC: Argon plasma laser coagulation; HP: Heater probe; Glue: Glue injection; ERCP: Endoscopic retrograde cholangiopancreatography. Others include Extra-corporeal shock wave lithotripsy, Polypectomy and Achalasia Dilatation.

F Hepatic Hemodynamic Laboratory:
The hepatic hemodynamic laboratory is the backbone of Hepatology services. Under the supervision of Dr. Ankur Jindal, it provides detailed insight into the liver pressure which determines the outcome of patients with liver disease. Measurement of the hepatic venous pressure gradient (HVPG) is currently the best available method to evaluate the presence and severity of portal hypertension. Other unique features of this laboratory are accurate measurement of Pulmonary pressures, which is helpful in accurate diagnosis of porto-pulmonary hypertension and measurement of cardiac output; and simultaneous liver biopsy sampling even in patients with ascites and liver disease enabling accurate diagnosis and severity of liver disease.

The management of patients of liver disease is based on reduction in complications (such as variceal bleed, development of ascites and renal failure) and an opportunity to regenerate the liver. All this is done in a protocol and outcome based manner at the ILBS. Normal HVPG is <5 mm Hg and an HVPG >10 mm Hg (termed ‘clinically significant portal hypertension’ or CSPH) predicts the development of various complications of cirrhosis. Importantly, HVPG above 12 mmHg is the threshold level for variceal rupture and a reduction of HVPG to <12 mmHg or by 20% of baseline considerably reduces the risk of bleeding, mortality and other complications of cirrhosis, such as spontaneous bacterial peritonitis and hepatic encephalopathy. We are currently running protocols on HVPG response based approaches on primary prophylaxis of variceal bleed in cirrhotics and HVPG based approach for managing acute variceal bleed. Sequential HVPG measurements are helpful to optimize drug therapy or switch to another form of therapy.

The main advantages of the hepatic vein catheterization technique are its simplicity, reproducibility, and safety. Since its result has important implications, the appropriate and correct measurement of HVPG is an important issue both in research and clinical practice.

Because of its relatively invasive nature and domain skills, this facility is available in very few centers in the world. We at ILBS regularly perform this procedure taking due precautions that all the steps are performed with precision and patient safety.
Abbreviations: TJLB: Transjugular liver biopsy, HVPG: Hepatic vein pressure gradient

G. Quantitative Liver Function Tests:
At ILBS we have been able to standardize and establish two tests of quantitative liver functions, Indo-cyanin green (ICG) and ¹³C-Methacetin Breath Test (MBT).

H. Clinical Nutrition:
Department of Clinical Nutrition was established in ILBS, in 2012. The department is committed to providing nutrition support to the patients, along with nutrition education and research in collaboration with all the other departments at ILBS. Services for a detailed assessment of the nutritional status along with the body composition analysis using a bioelectrical impedance analysis system are provided by the department. Specialized enteral nutrition formulations have also been initiated for the patients. Several nutrition related research projects are underway for the partial fulfillment of the degree of DM and M.Ch students. Under the leadership of Prof. Y K Joshi and Dr. Jaya Benjamin, the department plans to expand its services in the coming years by providing academic leadership in clinical nutrition through a well established nutrition support team, nutrition laboratory, advanced research along with education & training in the field of clinical nutrition.

I. Liver regeneration and stem cell therapy
Only about 2-5% of patients, with advanced cirrhosis are able to get liver transplant. Lack of a donor, very advanced stage, financial and social issue are the major limitations. There is therefore an urgent need to provide alternative methods of maintaining and improving liver functions. Potential of stem cells to differentiate into multiple cell lineages raises the exciting possibility that these cells can be used in repair and liver regeneration, when resided stem cells are not sufficient for the regeneration of a failing liver.

The field of liver regeneration is led by Dr. Lovkesh, Dr. Anupam and Dr. Chhagan Bihari at ILBS. During liver regeneration, bone marrow-derived hematopoietic stem cells (HSC) may mobilize to the liver and, together with hepatocytes and intrahepatic stem cells, contribute to the proliferation of liver cells. Growth factors including granulocytecolony stimulating factor (G-CSF) and erythropoetin has been used successfully at ILBS to mobilize stem cells to the periphery in patients with advanced cirrhosis and ACLF and shown survival benefit in a subgroup of these patients.

Several laboratorial and clinical studies showed that various cells, including mature hepatocytes in adult liver (adult HCs), fetal liver cells (FLCs), hepatic stem/progenitor cells (HSPCs), mesenchymal stromal cells (MSCs), are the potential sources of cell based therapies for liver failure, including acute on chronic liver failure as well as acute liver failure. Thus, our future endeavour in this field of regenerative hepatology includes novel interventional approaches, including transplant of bone marrow cells and/or exosome infusion from allogeneic healthy bone marrow in the management of cirrhosis. Also we are studying the role of MSC transplant in management of ACLF patients. Utilization of macrophage therapy and/or Csf1 is also in our pipeline projects. Recently, in collaboration with IIT Kanpur, we have worked on a bio-artificial Liver (BAL) device to meet the metabolic demands of body. We have also worked on an emerging new approach of using decellularized liver for this purpose. We aim for a future in which no patient with liver disease dies due to failure to get liver transplant.

J. Transplant Hepatology
Liver transplant is the therapy for end stage liver disease, cirrhosis with complications and cases of acute liver failure/ACLF not improving on standard medical care. Transplant hepatology team led by Prof Sarin, Transplant Surgical team led by Prof Pamecha and Dr. Senthil Kumar had 101 and 93 successful liver transplants in 2015 and 2016 respectively. We had the largest deceased liver transplant follow up (180 patients)
as per UNOS and MELD-Na criteria and stringent allocation policy guided by NOTTO with 21 DDLT in 2016. The post transplant care is offered by surgical and medical resident doctors, nursing staffs; 24x7 phone support (transplant SR on call mobile no.+91 7835055601), whatsapp support (mobile no.+91 9650910421), email (livertransplant@ilbs.in) and post-transplant ward and supervised by faculty memebrs, Dr. Ashok Choudhury and Dr. Amreesh Sahney. Post transplant complications are uncommon; and if they occur, they are managed well. These include progressive multifocal leukoencephalopathy (PML), late onset antibody mediated rejection (AMR) in ABO compatible transplant, Graft Versus Host Disease (GVHD), post-transplant lymphoproliferative disease (PTLD), post LT malignancies. An algorithmic approach to post-LT Biliary complications is undertaken by ERC for PTBD. International (9) and national (12) fellows had been trained on transplant hepatology till date. Training of manpower (Fellowship on transplant hepatology, transplant critical care and transplant immunology, transplant nursing and co-ordination), academic excellence, translational research (noninvasive methods for early detection of graft rejection, cell based therapy for steroid resistant rejection and immunoscan, etc.) and strategies to increase organ donation awareness, organ retrieval and promotion of cadaver transplant are in pipeline for the future.

K. Protocol based treatment:
For patients with acute on chronic liver failure (ACLF), portal hypertension and variceal bleeding, hepatitis B and C and non-alcoholic steatohepatitis (Fatty liver disease), the department has been able to standardize the treatment protocols.

L. Patient support services:
For patients with hepatitis B and C, and portal hypertension, highly skilled and trained nurses are available to monitor the patient treatment and outcomes.

M. WHO Collaborating Centre on Viral Hepatitis and Liver Diseases at ILBS
After designation in Dec 2014, ILBS arranged for infrastructure and staff required for the smooth functioning of WHOCC and the centre was officially inaugurated and started on 5th May 2015 by Mr. Satyendra Jain, Health Minister, Govt of Delhi and Dr Nata Manabde, WR to India, WHO. In last 2 years, WHOCC has initiated many activities towards different terms of references with WHO and have also been instrumental in organizing, and participating in various national, regional and international meetings with WHO and partners.

On 29th July 2016, in partnership with GOI and WHO country office, WHOCC organized 3rd National Technical Consultation with theme “Towards a National Action Plan on Viral Hepatitis (NAP-VH)” to sensitize senior bureaucrats and all stakeholders regarding the need of a service delivery model on viral hepatitis, in line with WHO strategy to eliminate viral hepatitis by 2030.

WHOCC have signed a MOU with MSF to develop a role model for service delivery for hepatitis C in Meerut District of UP. WHOCC have also developed and submitted a project proposal to Delhi Government regarding capacity building and upgradation of 1000 planned Mohallah Clinics (100 functional) and 600 established dispensaries/urban health centres in Delhi to deliver services for viral hepatitis. WHOCC-ILBS also developed “one line messages on viral hepatitis” to be displayed in all Delhi Metro trains disseminating awareness all over Delhi. WHOCC-ILBS also contributed in updating Appendix 3 of the WHO Global NCD Action Plan 2013-2020.

STAFF
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Dr Nirupma Trehanpati  Additional Professor, MCM
Dr Meenu Bajpai  Associate Professor, Transfusion Medicine
Dr Rakhi Maiwall  Associate Professor, Hepatology
Dr Rajeev Khanna  Associate Professor, Pediatric Hepatology
Dr Jaya Benjamin  Assistant Professor, Clinical Nutrition
Dr Ankur Jindal  Assistant Professor, Hepatology
Dr Guresh Kumar  Biostatistician
Dr Ajeet Singh Bhadoria  Epidemiologist
Ms. Anila Goswami  Nurse Practitioner

New services & facilities

- **Plasma Exchange**: Is a modality of artificial liver support by its ability to remove a wide array of inflammatory toxins and cytokines in patients with liver failure can facilitate recovery of the failing liver by providing an environment conducive for liver regeneration and can be used as an effective bridging therapy to spontaneous regeneration or liver transplantation. During this procedure patient’s plasma is removed and exchanged with fresh-frozen plasma. Patients undergo plasma exchange sessions (utilizing centrifuge based Cobe-Spectra system, Lakewood, United States; through double lumen central venous access (jugular or femoral)). Plasma volume for exchange is calculated using total blood volume (TBV) based standard formula (TBV x (1-hematocrit)) and utilizing system software. The total volume of replacement was calculated using 1 unit of plasma removal (40mL/kg). A standard rate of removal (50 to 70mL/min) is done for each session and therapy is given consecutively for first 2-3 days and then at consecutive days until recovery or liver transplant. We routinely do plasma exchange for liver failure and have done this therapy in more than 100 patients with acute and acute on chronic liver failure in our intensive care unit which is again probably the highest in the country.

- **Ultrasound Chest**: A chest ultrasound is used to assess the organs and structures within the chest, such as the lungs, mediastinum (area in the chest containing the heart, aorta, trachea, esophagus, thymus, and lymph nodes), and pleural space (space between the lungs and the interior wall of the chest). Ultrasound chest is being routinely used in management of patients at ILBS.

- **Gastric Balloon placement for obesity**: For morbid obese patients one of the option is endoscopic placement of gastric balloon. The gastric balloon consists of soft, well-tolerated silicone that is filled with a sterile saline solution (salt water). The filled gastric balloon creates a sense of satiety. The balloon is generally removed after a maximum of six months. This work is spearheaded by Dr. Kapil Jamwal.

- **EUS guided gastric varix coil embolization**: Large gastric varices may some time be difficult to manage using direct endoscopic glue injection. EUS guided coil and glue injection in gastric varices is a safe and alternative procedure to Radiological procedures like BRTO and direct endoscopic glue injection.
• EUS guided Choledochoduodenostomy and Hepatogastrostomy and other Biliary interventions: In patients with biliary tract disorders especially malignancies of biliary tract who have failed ERCP procedure, percutaneous biliary drainage has been the standard of care. EUS guided rendezvous procedures, Choledochoduodenostomy and Hepatogastrostomy are newer upcoming procedures in such group of patients.

• Albumin Ward: Due to repeated need for tapping large volumes of ascetic fluid from the abdomen under careful monitoring, ILBS has started a day-care facility. Nearly 3 shifts are being run where about 15-20 patients per shift undergo paracentesis and receive albumin infusion. The service is supervised by Dr. Shasthry and Dr. Ali.

Educational Activities
• World Hepatitis Day - 2016: 28 July, 2016
• WHO Collaborative Center Work Review Meeting: 29 July, 2016
• ECHO-ILBS collaborative programme and Hepatitis Awareness Day: Dec 4, 2016

Course offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Candidates admitted 2016</th>
<th>Candidates passed 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM Hepatology: Admitted in 2016</td>
<td>Dr. Manjul Mishra, Dr. Karan Kumar, Dr. Harsh Tevitha, Dr. Apoikini Pandey</td>
<td>Dr. Tanmay Vyas, Dr. Madhumita P., Dr. Chetan Kalal, Dr. Cyriac Abby Phillips</td>
</tr>
<tr>
<td>PhD Clinical Nutrition</td>
<td>Dr. Vanisha Shasthry Ms. Puja Bhatia</td>
<td></td>
</tr>
<tr>
<td>PDCC Clinical Nutrition</td>
<td>Ms. Harshita</td>
<td></td>
</tr>
</tbody>
</table>

Short Term Training

<table>
<thead>
<tr>
<th>Names of the Training</th>
<th>Details of Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILBS ECHO Training Programme</td>
<td>2 Sessions Per Week(38 medical colleges and 350 doctor participants)</td>
</tr>
</tbody>
</table>

Department’s Achievements
• Department Research activities: Department is actively involved in clinical as well as basic research in varied areas such as Portal hypertension, Viral hepatitis, Alcoholic liver diseases, Non alcoholic fatty liver disease, Acute Liver Failure, Acute on Chronic Liver Failure, Kidney injury in Liver diseases, Liver regeneration, Liver transplant. Department of hepatology has given important contributions to developing guidelines for treatment of various hepatological diseases like APASL guidelines for hepatitis B, hepatitis C, liver fibrosis, hepatocellular carcinoma, variceal bleed, non-cirrhotic portal hypertension, International ascites club guidelines for AKI in cirrhotics. Department is also involved in developing novel therapies for liver diseases like regeneration therapies of liver using growth factors, fecal microbiota therapy for severe alcoholic hepatitis, newer biomarkers for liver cancer, AKI etc.
• Project-ECHO
Project ECHO, is a health program for developing capacity for safe and effective treatment of chronic, common, and complex diseases in rural and underserved areas while monitoring outcomes to ensure quality of care. ILBS is the first institute to replicate this model in India under the aegis of ILBS-ECHO programme with a goal to identify, treat and manage liver related disorders across the country. The aim of this project was to make a sustainable venture of ‘e-learning’ program on liver diseases through use of information technology tools. Information Technology plays a crucial role in the field of Healthcare. ILBS ECHO Project has evolved over time with information technology agility. Presently ILBS ECHO project has nearly 38 medical colleges on board and about 350 doctors in these institutions have registered for the Tele - ECHO clinics. For ensuring optimum utilization of resources a concerted division was done of these 38 medical colleges into 3 groups with each having a well-defined & designed schedule of sessions. The project aims at case based learning from evidence based studies. Cases are mandated to be reviewed on a regular basis to discuss the progress of treatment, side effect management, or any other concerns or questions.
This umbrella of colleges is being widened to enroll 75 colleges and register 1000 participants in coming months and the current registered participants would be assessed on their knowledge acquisition and the successful ones will be given a certificate of successful completion of course. The cycle of new college would continue unabated.

ILBS has now plans to widen its reach even to the general practitioners across the country through the network of Indian Medical Association. A fellowship program of 6 months duration that equips the general practitioner in his day to day practice in liver related patient care practices has been designed.

**Resident’s Achievements:**

**Tanmay Vyas:** Asia Pacific Association for study of liver (APASL), Young Investigator Award; ISG 2016 Best Poster Award

**Chetan Kalal:** Young Investigator Travel Award for poster presentation at the EASL Monothematic Conference- Ljubljana 25-26 November, 2016 Single theme conference on Nutrition and Liver Disease.

Young Investigator Travel Award for poster presentation at AASLD Liver Meeting 2016, November 11-15, Boston.


**Cyriac Abby Phillips:** Young Investigator Travel Award for poster presentation at AASLD Liver Meeting 2016, November 11-15, Boston.

**Vikash Prakash:** Young Investigator Travel Award for poster presentation at AASLD Liver Meeting 2016, November 11-15, Boston.

**Anand Kulkarni:** ICMR travel award for AASLD 2016

**Varsha Shasthry:** Poster presentation at 25th Annual APASL conference, February 20-24, 2016 - Tokyo, Japan.

**Visiting faculty to the department in 2016**

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Date of Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Shobha Ghosh</td>
<td>Professor of Medicine and Physiology, Associate Chair for Research, VCU Medical Center Richmond</td>
<td>13-01-2016</td>
</tr>
<tr>
<td>Professor Jayanta Roy-Chowdhury</td>
<td>Professor, Departments of Medicine and Genetics Albert Einstein College of Medicine, New York</td>
<td>18-01-2016</td>
</tr>
<tr>
<td>Professor Vinod Rustgi</td>
<td>Medical Director of Liver Transplantation and Clinical Director of Hepatology at University of Pittsburgh</td>
<td>19-01-2016</td>
</tr>
<tr>
<td>Mr. Karun Rishi</td>
<td>President, USA-India Chamber of Commerce</td>
<td>03-02-2016</td>
</tr>
<tr>
<td>Professor Daniel Hollander</td>
<td>Prof. Of Medicine, Division of Digestive Diseases, David Geffen School Medicine, UCLA</td>
<td>09-02-2016</td>
</tr>
<tr>
<td>Professor Masamichi Kamihira</td>
<td>Professor, Faculty Molecular and Biochemical Systems Engineering University of Kyushu, Japan</td>
<td>11-02-2016</td>
</tr>
</tbody>
</table>
## List of Visiting Scientists

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Date of Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Jessica Z. Rossi</td>
<td>Unite Mixte de Recherche Genomique fonctionnelle des tumeurs solides, Institut National de la Santé et de la Recherche Medecale, France</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Joel Doré</td>
<td>Institut National de la Recherche Agronomique (INRA), Paris</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Loredana Saveanu</td>
<td>Unité de Santé et de la Recherche Médicale, Unite UMR 1149, Centre de Recherche sur l'Inflammation, Paris, France</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Christophe Junot</td>
<td>Laboratoire d'Etude du Metabolisme des Medicaments, DSV/BiTec-SSRL, CEA- Saclay, Metabo HUB-Paris</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Stefan Viktor</td>
<td>Team Leader, Global Hepatitis Program, WHO HQ, Geneva, Switzerland</td>
<td>29-07-2016-30-07-2016</td>
</tr>
<tr>
<td>Professor Gottfried Herrnshall</td>
<td>Director, Department of HIV and Global Hepatitis Program, WHO HQ, Geneva, Switzerland</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Manal H El-Sayed</td>
<td>Professor of Pediatrics, Egypt</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Henk Bekedam</td>
<td>WHO Representative to India</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Jagpreet Chatwal</td>
<td>Assistant Professor, Harvard Medical School, USA</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Jidong Ja</td>
<td>Professor in Medicine, Director, Liver Research Centre, Beijing Friendship Hospital, Beijing, China.</td>
<td>09-07-2016-10-07-2016</td>
</tr>
<tr>
<td>Professor Shoenfeld Yehuda</td>
<td>Zabludovecy Center for Autoimmune Diseases, Sheba Medical Center (Affiliated to Tel-Aviv University), Israel.</td>
<td>07-08-2016</td>
</tr>
<tr>
<td>Professor Robert Storer</td>
<td>Deputy Director for Science and Technology, MIT Energy Initiative Director, Tata Center for Technology and Design, MIT, USA</td>
<td>11-08-2016</td>
</tr>
<tr>
<td>Professor Oliver Michel</td>
<td>Physican, Institute of Anesthesiology, Universiteats Spital Zurich, Switzerland</td>
<td>06-09-2016</td>
</tr>
<tr>
<td>Professor Chetan E. Chitnis</td>
<td>Head, Malaria Parasite Biology &amp; Vaccines Unit, Institut Pasteur, Paris FRANCE</td>
<td>13-09-2016</td>
</tr>
<tr>
<td>Professor Anil Dhawan</td>
<td>Director, Paediatric Liver GI and Nutrition Center, Clinical DirectorChild Health, King’s College Hospital, London</td>
<td>16-09-2016</td>
</tr>
<tr>
<td>Professor Yuan J. Hutin</td>
<td>Strategic Information, Global Hepatitis Programme WHO Headquarters, Geneva</td>
<td>06-09-2016</td>
</tr>
<tr>
<td>Professor Thomas S. Weiss</td>
<td>Prof. Thomas S. Weiss, Associate Professor, Experimental Paediatrics, University Children Hospital, Regensburg, Germany.</td>
<td>08-10-2016</td>
</tr>
<tr>
<td>Professor Puneet Puri</td>
<td>Professor, Dept. of Internal Medicine, Division of Gastroenterology, VCU, Richmond, USA</td>
<td>14-10-2016</td>
</tr>
<tr>
<td>Dr. Ajeet R Singhvi</td>
<td>Gastroenterologist, Former President/ Chair of American Association of Physicians of Indian Origin</td>
<td>14-10-2016</td>
</tr>
<tr>
<td>Professor Ranil Jayawardena</td>
<td>Senior Lecturer and Consultant Clinical Nutritionist, Univ. Colombo, Sri Lanka</td>
<td>14-10-2016</td>
</tr>
<tr>
<td>Professor Francesco S. Celi,</td>
<td>Division of Endocrinology and Metabolism Dept. of Internal Medicine</td>
<td>15-10-2016</td>
</tr>
</tbody>
</table>

### Additional Information

- **Professor Tilakavati Karupiah**: Associate Prof., Dietetics Faculty of Health Sciences, University Kebangsaan Malaysia. Date: 15-10-2016
- **Professor Luciana B Sutanto**: Clinical Nutrition Specialist, Lecturer- Medical Faculty Diponegoro University Semarang, Indonesia. Date: 16-10-2016
- **Professor William G. Blackard**: Chair, Division of Endocrinology Diabetes and Metabolism, Department of Internal Medicine, VCU, USA. Date: 16-10-2016
- **Professor Swami Swamnathan**: Advisor, Gilead Sciences. Date: 19-10-2016
- **Professor Shyam Kottilil**: Professor of Medicine and Institute of Human Virology/University of Maryland, Baltimore. Date: 19-10-2016
- **Professor Shobha Ghosh**: Professor of Medicine and Physiology, Department of Internal Medicine, VCU Medical Center, Richmond, VA. Date: 19-10-2016
- **Professor Richard Moreau**: Director, INSERM, France. Date: 22-10-2016-25-10-2016
- **Professor Rakesh Kumar**: Professor Department of Biochemistry and Molecular Medicine GWU Washington, DC. Date: 25-10-2016-26-10-2016
- **Professor Kumar Alagappan**: Prof. and Head of Dept of Emergency Medicine, MD Anderson cancer center. Date: 08-11-2016
- **Professor Sovmyra Viswanathan**: Assistant Professor, IBHME, University of Toronto, Toronto, Ontario. Date: 17-11-2016
- **Professor Ashok K Saluja**: Professor and Vice Chair, Department of Surgery, University of Minnesota. Date: 16-12-2016
faculty achievements

Dr. Shiv Kumar Sarin

Professor (Dr.) S.K. Sarin, MD, DM, D.Sc. (Hony.), FNA, FNASc is a Senior Professor of Hepatology and Director, Institute of Liver & Biliary Sciences, Adjunct Faculty, Molecular Medicine at JNU. He is also the Director, WHO Collaborating Centre on Viral Hepatitis and Liver Diseases. He is the founding Co-Chief Editor of Hepatology International.

In 2015, he helped develop the Hepatitis B management guidelines for the Asian Pacific Association for the Study of the Liver (APASL). He has in addition been instrumental in developing 18 major guidelines; including five major Asian Pacific Treatment Guidelines in Liver diseases. His main areas of current research include understanding the pathogenesis and developing new treatment protocols for Acute-on-chronic liver failure, liver regeneration and portal hypertension.

Prof. Sarin has had leadership roles as President of National and Asian Liver Societies and Chairs the Steering Committee of the APASL. He introduced far reaching reforms and a ‘Vision 2015’ document for Medical Education in India; covered by The Lancet.

Prof. Sarin has been bestowed with Padma Bhushan (third highest civilian award of the country) by the Govt of India. He is a member of all the three science academies of the country. He has been a recipient of Shanti Swarup Bhatnagar award, the highest Award in Science in India, The World Academy of Medical Sciences International Prize, EASL International Recognition Award and “Most Distinguished Physician from India” from the American Association of Physicians of India.

Key Leadership Roles(National): Chairperson-(i) Research Advisory Committee of Chettinad Academy of Research and Education, Chennai, (ii) Institutional Ethics Review Board Jawaharlal Nehru University, New Delhi, (iii) Standing Selection Committees and Standing Academic Committee, All India Institute of Medical Sciences, Patna. Member-(ii) Supreme Court mandated oversight committee to oversee the functioning of MCI and all matters considered by the Department related Parliamentary Committee on Health & Family Welfare, Government of India, (ii) Governing Council of Sun Pharma Science Foundation, (iii) Scientific Advisory Committee of Centre for Stem Cell Research (CSCRI), Christian Medical College, Vellore, (iv) High Powered Expert Committee on Management of New AILMS- constituted by Ministry of Health & Family Welfare, Govt. of India, (v) Institute of Medical Education & Research, Chandigarh

Key Leadership Roles(International): Chairman-Steering Committee of the Asian Pacific Association Association for the Study of the Liver (APASL), Secretary General-Asian Pacific Digestive Week Federation (APDF), Member- (iv) Advisory Board of the USA India Chamber of Commerce, (ii) International Health Regulations (2005) Roster of Experts, as an expert in Hepatitis (ABCDE) of World Health Organization, (iii) Global Guidelines Committee, Hepatology Interest Group, Training Centers of the World Gastroenterology Organisation WGO. Visiting Faculty- Mayo Clinic, Rochester, Minnesota, USA.

Awards/ Degree/ Named Oration

Okuda oration at the Asian Pacific Association for Study of the Liver (APASL) 2016, from Feb 20-24, 2016 at Tokyo, Japan

His Holiness Jagadguru Shri Shivarathri Rajendra Mahaswamiji Oration at Mysore on March 22, 2016 at IIS Medical College, Mysuru

Medindia Lifetime achievement award in recognition of outstanding and pioneering contribution in the filed of Hepatology and Endoscopy at the 10th International Live Digestive Endoscopy Workshop (DEW-2016) on September 17 at Chennai

ASSOCHAM Excellence Award for outstanding contribution in liver and biliary sciences on September 29, 2016 at New Delhi
Institute of Liver & Biliary Sciences, New Delhi


Representative/ Expert in the following Committee/Bodies (National)
- Adjunct Faculty School of Molecular Medicine, Jawaharlal Nehru University (JNU), New Delhi.
- Chairman, Institutional Ethics Review Board Jawaharlal Nehru University, New Delhi.
- Chairman, Standing Selection Committees and Standing Academic Committee, & Member, Institute Body, All India Institute of Medical Sciences, Patna.
- Member, High Powered Expert Committee on Management of New AIIMS—constituted by Ministry of Health & Family Welfare, Govt. of India.
- Member, Scientific Advisory Committee of Centre for Stem Cell Research (CSCHR), Christian Medical College, Vellore.
- Member, Planning Board of the Babasaheb Bhimrao Ambedkar University, Lucknow (1-4-2014-31-3-2017).
- Member, Institute Body, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow.
- Member Standing Academic Committee, Postgraduate, Institute of Medical Education & Research, Chandigarh.
- Member, Supreme Court mandated oversight committee to oversee the functioning of MCI and all matters considered by the Department related Parliamentary Committee on Health & Family Welfare.

Representative/ Expert in the following Committee/Bodies (International)
- Director, WHO Collaborating Centre on Viral Hepatitis and Liver Diseases.
- Editor-in-Chief of Hepatology International.
- Chairman, Steering Committee of the Asian Pacific Association for the Study of the Liver (APASL).
- Secretary General, Asian Pacific Digestive Week Federation (APDWF) 2016 – 2018, Singapore.

Health Services to the Community
- Helped Organize the GNCTD, the 18th Hepatitis Day, Yellow Ribbon Day.
- Trustee in the NGO to support the underprivileged children “Udayan care”.
- Trustee “Liver Care Trust” for the public education and care of patients with liver diseases.

Prestigious Fellowships
- Fellow of American Association for Study of the Liver Disease (FAASLD).
- Fellow of American Gastroenterology Association (FAGA).
- Fellow of Third World Academy of Sciences (TWAS).
- Fellow of American College of Gastroenterology (ACG).
- Indian Academy of Science (FASc).
- Indian National Science Academy (FNA).
- The National Academy Of Sciences, India (FNAMS).
- National Academy of Medical Sciences (India) (FAMS).

Lectures delivered and papers presented
- Delivered a lecture on ‘Challenges and outcomes of Hepatobiliary Endoscopy in Cirrhosis’ at the 46th Annual Meeting of Gastroenterological Society of Taiwan and the 25th Annual meeting of Digestive Endoscopy Society of Taiwan (DEST) at Taipei, Taiwan on March 26-27, 2016.
- Delivered lectures on ‘Regional baseline positions: where are we in 2016-view of Asia Pacific region’ and infection and sepsis in ACLF: Mechanisms and management’ at the European Association for Study of the Liver Disease (EASL) at Barcelona from April 13-17, 2016.
- Delivered a talk on "Role of Growth Factors in Hepatic Regeneration” at the Transplant Grand Round, Mayo Clinic, Rochester on August 15, 2016.
- Delivered lectures on ‘Acute on Chronic Liver Failure’ and ‘Current Treatment of Portal Hypertension and moderator of oral presentation -5 at the 33rd World Congress of Internal Medicine, 2016 from August 21, 2016 at Bali, Indonesia.
- Delivered lectures on ‘Liver regeneration and role of Bone Marrow’ and ‘Portal Vein Thrombosis: New classification and treatment options” at the 3rd Central China International Forum & National Continuing Medical Education Program 2016 at Wuhan, China on September 23, 2016.
- Chaired sessions and delivered lecture on ‘HBV: New treatment” at Asian Pacific Digestive Week at Kobe, Japan from November 2-5, 2016.
- Delivered lecture on ‘Management of Acute Variceal Bleed’ and “Acute On Chronic Liver Failure: East Meets West” at the AASLD Liver Meeting 2016 at Boston, USA from November 11-15, 2016.
- Chaired several sessions/Delivered lectures in national conferences.
Dr. Y.K. Joshi

Dr. Y.K. Joshi joined ILBS in 2012 as a Senior Professor of Clinical Nutrition. Prof. Joshi did his MD (General Medicine) from Friendship University, Moscow, USSR, and Ph.D. from the Department of Gastroenterology and Human Nutrition, AIIMS, New Delhi. He has had an illustrious career as a clinician with special interest in nutrition from 1975 to 2011 at AIIMS, he superannuated as a Professor from the Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi.

- Total Number of publications: 150
- Total Number of publications in 2016: 3

Dr. Barjesh Chander Sharma

Dr. Brajesh is a senior professor and has more than 20 years of clinical and teaching experience. Prior to joining ILBS he served as Professor Gastroenterology at G.B.Pant hospital. He is recipient of many prestigious awards such as Olympus J Mitra Award, ISG – SR Naik Memorial Award 2006 etc. He is the assistant editor of Hepatology International and serves as editorial member of many gastroenterology journals such as World Journal of Gastroenterology, J Gastroenterol Hepatol and Journal of Clinical and Experimental Hepatology.

- Total Number of publications: 216
- Total Number of publications in 2016: 4
- APASL Annual Conference 2016, Tokyo, Japan.
- Chinternational Hepatology Symposium Beijing, China 2016.
- APASL STC 2016 on Recent Advances in Presentation and Management of Cirrhotic Complications, Busan, Korea 2016.
- APASL STC 2016 on Hepatitis C Virus, Kaohsiung, Taiwan 2016.
- AASLD, Liver Meeting, Boston USA 2016
- APASL STC on Hepatitis B Virus, Beijing, China 2016.

Dr. Vikram Bhatia

Dr. Vikram Bhatia did his graduation and post-graduation (M.D. in Internal Medicine) from Maulana Azad Medical College (MAMC). He completed his sub-specialty training in Gastroenterology (D.M.) from the All India Institute of Medical Sciences (AIIMS), New Delhi, in December 2002. He subsequently continued to work in the Gastroenterology Department of AIIMS, before joining the Institute of Liver and Biliary Sciences (ILBS), New Delhi as a faculty member in June 2008.

Dr. Vikram Bhatia has been active in academics, including teaching of fellows, conducting training workshops, and doing research. He has over 128 publications to his credit, including 10 book chapters. His current H-index rating at the Google Scholar is 25.

Dr. Bhatia has been the recipient of several awards, notable being: Outstanding Young Gastroenterologist Award by World Endoscopy Organization (WEO) in 2014, Alkem Om Prakash Memorial Award by the Indian Society of Gastroenterology (ISG) in 2010, European Society of Gastrointestinal Endoscopy (ESGE) International fellowship award in 2007, Young Investigator Award at the Asian Pacific Digestive Week (APDW) in 2006, Fellowship of the Japan Cancer Society in 2005, and the Japanese Society of Gastroenterology (JSGE) overseas fellowship award in 2004.

Dr. Bhatia has trained extensively in centers of excellence in different parts of the world, including the Aichi cancer Center Hospital (ACCH), Nagoya, Japan, under Dr. Kenji Yamao, in the years 2005, 2009, and 2013, at the Gentofte Hospital, Denmark under Dr. Peter Vilmann, in 2007, and at the Osaka University Hospital, Japan in 2004. His areas of interest are Endoscopic Ultrasound (EUS), and gastrointestinal and pancreatobiliary cancers.

- Total Number of publications: 128
- Total Number of publications in 2016: 12

Dr. Manoj Kumar Sharma

Dr. Dr. Manoj Kumar Sharma obtained his DM in Gastroenterology from G B Pant Hospital, New Delhi in 2005. After that he worked as Assistant professor in Gastroenterology at G B Pant Hospital till 2008; after which he is at ILBS.

- Total Number of publications: 113
- Total Number of publications in 2016: 13
- Total Number of Projects: 2

Dr. Rakhi Maiwall

Dr. Rakhi Maiwall has completed her MBBS in 2003 with 3 gold medals and finished her MD Internal Medicine from Lucknow University in 2007 with gold medal. She has done her DM in Gastroenterology from Christian Medical College, Vellore in 2011. She is presently working for ILBS-ECHO project of telemedicine for training general physicians in rural and semi-urban areas of India in the management chronic liver related disorders particularly Hepatitis C and B virus related and leading the department of telemedicine at ILBS. She is having special interest in critical care medicine and renal disease in patients with ACLF and chronic liver disease, iron and liver, liver regeneration and artificial liver support therapies.

Attended Certificate Course by EDIC, ESCIM New Delhi Attended Symposium on Liver Transplant by International Liver Transplant Society (ILTS) at Boston Did 6 weeks training in “Inflammatory and Stress Responses in Chronic Liver Disease” located at the Center of Research on Inflammation (CRI, Paris, France Collaborating investigator of the ACLF Research Consortium (AARC)

- Total Number of publications: 42
- Total Number of publications in 2016: 15
Lectures Delivered:

- Renal Replacement Therapy in Decompensated Cirrhotics –International Ascites Club-APASL, Tokyo 2016
- “Acute Kidney Injury”- APASL, Tokyo 2016
- Neve Anti-fibrotic drugs-Indian National Association for the study of Liver,2016 Gurgaon
- “Clinician’s expectation from the pathologist in autoimmune liver diseases”-5th Dr. Ramalingaswamy Oration and Hepatopathology meeting, ILBS, New Delhi
- “Acute Kidney Injury-Definitions, Types and Diagnosis”- ISGCON, 2016, New Delhi
- “Acute Kidney Injury- Hepatologist’s perspective”-CPLD, Chandigarh
- “Artificial Liver Support and Bioengineering Platforms as innovative tools”- Kolkata Liver Meeting
- “Non-Invasive Methods of Hepatic Fibrosis-How It Has Changed the Practise of Hepatology”-Frontiers in Liver Transplantation, Bangalore

Papers presented

- Oral papers
- Natural History of Stage 3 AKI-APASL Tokyo
- Management of refractory variceal bleed with Dannis Ella stent in patients with ACLF-APDW, Japan
- Incidence, Predictors and Outcomes of Transition of Acute Kidney Injury to Chronic Kidney Disease in patients with Cirrhosis-AASLD,Boston Posters
- Incidence, Predictors and Outcome of Acute kidney injury in patients with nosocomial SBP-EASL, Barcelona
- 4 Posters in AASLD
- Plenary paper presentation in ISGCON “Cystatin C predicts Acute Kidney Injury and Mortality in patients with Cirrhosis”

Clinical Trials conducted:

- Early Versus Late SLED in critically ill cirrhotics-A prospective randomized controlled trial
- On-Demand versus Protocol-guided RRT in Cirrhotics with Stage 3 AKI-A prospective randomized controlled trial
- Fractional Plasma-Separation adsorption versus Plasma Exchange in patients with Acute Liver Failure-A Randomized Controlled Trial
- Epidemiology And Clinical Impact Of Bacterial Infections In Hospitalized Patients With Liver Cirrhosis:A Multicenter Observational Prospective Survey Among The Members Of The International Club Of Ascites

Awards

- Plenary award at ISGCON 2016 on paper entitled “Cystatin C predicts Acute Kidney Injury and Mortality in Cirrhotics”

Dr. Jaya Benjamin

- Dr. Jaya Benjamin did her B.Sc. in Clinical Nutrition and Dietetics and M.Sc. (Gold Medallist) in Foods and Nutrition from the Mahrishi Dayanand Saraswati University, Ajmer, Rajasthan. She did her Ph.D. from the department of Gastroenterology and Human Nutrition at the All India Institute of Medical Sciences, New Delhi and continued to work there as a Senior Research Officer. She joined the department of Clinical Nutrition, ILBS in 2013. She has keen interest in nutrition related clinical research, has attended many workshops and presented papers and won awards at numerous national and international conferences. She is also the reviewer of national and international journals. She was also the organizing secretary of the first national conference of the Indian Society of Clinical Nutrition, ILBS, Delhi.

- Total Number of publications: 13
- Total Number of publications in 2016: 3
- Total Number of Projects: 2

Dr. Kapil Dev Jamwal

- Dr. Kapil is working as Assistant Professor in department of Hepatology. He has completed his Gastroenterology training from Christian Medical College Vellore in 2013 and Advanced GI Endoscopy Fellowship from the same Institute in 2014. He has also received one month of observership training in Advanced Endoscopy at Kyushu University Fukuoka Japan in 2016.

- Total Number of publications: 6
- Total Number of publications in 2016: 2
- Total Number of Projects: 2
- August 2016: delivered lecture on EUS anatomy and interventions in gall bladder at the Asia Pacific EUS Association held at New Delhi.
- September: Delivered a lecture on role of endoscopy in Acute pancreatitis at KMC gastrocon 2016
- October: Delivered a lecture on EUS guided biliary interventions at EUS live workshop held at Kolkata

Awards

- International Travel award at TCAP 2016: EUS Guided Gall Bladder Drainage in Acute on Chronic Liver failure held at Tokyo Japan in June 2016.
- Young Investigator award: APDW 2016 (Kobe, Japan- November 2016): Modified APASL Variceal Bleeding Score Predicts Mortality better than Other severity score in ACLF
- Two orals in APDW 2016, Kobe Japan. A. Predictors for development of HCC in NASH cirrhosis B. Role of Dannis Ella stent in refractory variceal bleeding in Acute on chronic liver failure (as Co- Author) also presented a digital poster at the same meeting.
- Presidential poster: ISGCON 2016 – presented two presidential posters at the annual meeting
• Delivered hands on training to national and international delegates at ISGCON 2016.
• Presentation accepted for First World Congress of Endoscopy to be held at Hyderabad in 2017.

Dr. Shasthry S M

Obtained MD General Medicine in 2009 from Jawahar Lal Nehru Medical College, Ajmer, Rajasthan health university and later completed DM in Hepatology from Institute of Liver and Biliary Sciences, New Delhi in July 2014. Presently he is working as Assistant Professor, Department of Hepatology and has special interest in the areas of alcohol related disorders, Systems biology in HPB diseases, endoscopic procedures in the area of hepato-pancreato-biliary diseases.

- Total Number of publications: 7
- Total Number of publications in 2016: 6
- Total Number of Projects: 1
- One month advanced endoscopy fellowship from Kyushu university hospital, Fukuoka, Japan Sep’ 2016

Dr. Ankur Jindal

Dr. Ankur Jindal has completed his MBBS in 2008 with 1 gold medal and 3 certificates of honours and finished his MD Internal Medicine from PGIMER, Chandigarh in 2011. Completed DM in Hepatology ILBS in 2014. He has the capability and skills of performing both upper and lower GI diagnostic and ERCPs. He also had experience in hepatic hemodynamics including Hepatic Venous Pressure Gradient measurement and transjugular liver biopsies.

He is presently working as Assistant Prof of Hepatology and Liver transplantation at ILBS w.e.f September 2014. He had undergone observership for 2 weeks at Virginia common wealth University Richmond, VA, USA under Prof Arun Sanyal and his team on liver transplant, basic and clinical research methodology. His areas of interest are Viral Hepatitis, Portal hypertension, and Hepatorenal syndrome. He has publications in leading journals including New England Journal of Medicine, GUT, Endoscopy, Clinical Gastroenterology and Hepatology and Liver International in 2016.

- Total Number of publications: 13
- Total Number of publications in 2016: 2

Awards
- Oral runner up award in clinical research oral presentation at “HEPATOLOGY 360” oral presentation, Athens, Greece 2013.
- Travel bursary and membership award at European association for study of liver (EASL) at London, 2014.
- Membership award at European association for study of liver (EASL) at Amsterdam, 2013.

Dr. Ashok Choudhury

Dr. Ashok Choudhury has completed his MBBS and MD Utkal University Odisha and was the awarded the best outgoing student. He completed DM in Hepatology from and had undergone observership at Kings College Hospital London in liver transplant and critical care under supervision of Prof Julia Wendon and Prof William Bernal. Also had observed the transplant programme, care of patients on transplant waiting as well as clinical research at Virginia Common wealth University, Richmond, VA USA.

He is presently working as Asst. Prof of Hepatology and Liver transplantation at ILBS w.e.f. September 2014. His responsibilities include patient counseling, selection, work up and follow up for liver transplant before and after surgery, as well as critical care management, post transplant intervention i.e. ERCP for biliary complications. He has the skills of performing both upper and lower GI diagnostic and therapeutic endoscopic procedures, ERCPs as well as transplant ERCPs. He also regularly performs Hepatic Venous Pressure Gradient and trans jugular liver biopsies in hepatic hemodynamics lab. For his outstanding research work he received the prestigious Best fellow research award by American Association of Liver Disease (AASLD) in 2014 at Boston.

- Total Number of publications: 15
- Total Number of publications in 2016: 6
- Total Number of Projects: 2
- ILTS, May 2016;Seoul Korea
  - Plenary paper: The decision for liver transplant in Acute on Chronic Liver Failure (ACLF) - first week is the crucial period. Analysis of the APASL- ACLF Research Consortium. (AARC) prospective data of 1402 patients. Ashok Choudhury… Shiv K Sarin for the APASL ACLF working party.
- EASL, Apr 2016;Barcelona Spain
  - Oral paper: The decision for liver transplant in Acute on Chronic Liver Failure (ACLF) - first week is the crucial period. Analysis of the APASL- ACLF Research Consortium (AARC) prospective data of 1021 patients. Ashok Choudhury… Shiv K Sarin for the APASL ACLF working party.
  - Poster paper Portal hemodynamics predicts the outcome in Severe Alcoholic Hepatitis (SAH) presenting as acute-on-chronic liver failure (ACLF) Ashok Choudhury… Shiv K Sarin for the APASL ACLF working party.
  - Methacetin Breath Test is Superior to MELD in Predicting Mortality in Patients with Acute on Chronic Liver Failure: Results of a Phase II Clinical

- APASL, Feb 2016; Tokyo Japan
  - Plenary paper-AAPL-ACLF Score predicts 28days survival better than CLIF-SOFA and MELD scores in patients of ACLF. Ashok Choudhury… Shiv K Sarin for the APASL ACLF working party.

- Indian Society of Gastroenterology (ISGCON), Dec 2016; New Delhi

  As a Speaker delivered talk at
  - APASL STC on HCV, New Delhi on Hemophagocytosis in patient with Liver Failure
  - INASL 2016, New Delhi on Sepsis in ACLF to be part of definition-a debate.
  - ENDOSCOPY Pathsala, ILBS 2016, New Delhi on Obverse Overt Bleed and endoscopic approach.

Awards
- Asian Pacific Association for Study of Liver (APASL) - Young Investigator Award 2017 (Declared), Shanghai China.
- International Liver Transplant Society (ILTS)- Young Investigator Award 2016, Seoul Korea.
- Best poster Award TRANCRIT 2016, ILBS New Delhi.
- American Association for Study of Liver Diseases (AASLD)- Best abstract, Fellow Research Award 2014, 2014 Boston USA.
- EASL 2016 London- Full bursary as young investigator.

Dr. Amrish Sahney

Dr. Amrish Sahney has done his DM hepatology at ILBS, Delhi. His work is focused on management of critically ill cirrhots in liver ICU and consolidate the pretransplant assessment and optimization of patients. His areas of interest include movement disorders in cirrhots, management of critically ill cirhotic and advanced endoscopies. He has helped the department in developing a protocol based pre-liver transplant evaluation and management of patients with liver disease.

He attended the APASL-STC on complications in cirrhosis in Busan, South Korea where he presented paper on behalf of the department.

- Total Number of publications: 7
- Total Number of publications in 2016: 2
- Total Number of Projects: 1
- APASL-STC on complications in cirrhosis, April 2016, Busan (South Korea):
  - Hepatic Parkinsonism: A debilitating and under recognized Hepato-neuro disorder.
- AASLD 2016, Boston, Nov 2016. Poster presentation: Incidence, risk factors and outcome of ventilator associated pneumonia in cirrhotic admitted in liver ICU.

Dr. Lovkesh Anand

Dr. Lovkesh completed his MBBS from Calcutta University with a gold medal and was awarded cash prize for securing second highest marks in the University. He finished my MD Internal Medicine from PGIMS Rohtak followed by DM in Hepatology from Institute of Liver and Biliary Sciences, New Delhi in 2015. He joined as an Assistant Professor in the Department of Hepatology in October 2015. He has gained a good experience in transplant and regenerative hepatology, critical care hepatology and endoscopic procedures during and also after his training period. He had a short term observership at VCU, Virginia and MRM centre for regenerative medicine, University of Edinburgh. His research interest includes liver regeneration, transplant hepatology, autoimmune liver diseases and nutrition in patients with ACLF as well as chronic liver disease.

- Total Number of publications: 7
- Total Number of publications in 2016: 2
- Total Number of Projects: 1

Awards
- Membership award and registration bursary at EASL 2016, Barcelona.
Pediatric Hepatology

Institute of Liver and Biliary Sciences (ILBS) was the first centre to officially establish a department of ‘Pediatric Hepatology’. Although Pediatric Liver units were working in the various centres of the world, but “pediatric hepatology” as a specialty was not recognized in India. Department of Pediatric Hepatology at ILBS is a full-fledged department with well-trained faculty and senior residents. We have established a fully functional pediatric hepatology ward which is well equipped for prompt management of infectious, metabolic and hereditary liver diseases in neonates, children and adolescent. There are a lot of structural, infective, inborn errors of metabolism and autoimmune diseases of the liver amongst children. These disorders are very distinct from the liver disease seen among adults.

The OPD attendance in the department of Pediatric Hepatology has also shown remarkable exponential growth. Majority of the patients are referred cases of neonatal and childhood liver diseases from all parts of the country. We have referrals from various
hospitals of Delhi where junior doctors accompany patient to learn the work and understand the management of the patients and then discuss the monitoring of the patient with us from time to time. The Department has about 60 admissions each month in the ward and PICU. There was pressing need of the increase in beds in PICU as well NICU. The second phase building has already given us the much required increase in beds in ward, NICU & PICU this year. Diagnostic and therapeutic Pediatric GI endoscopies and procedures like hepatic vein pressure gradient and hepatic vein angioplasty as well as stenting are being performed. Fully functioning Pediatric liver transplant unit at ILBS has done 35 Pediatric liver transplants in the last 5 years. Intramural and extramural research are being done regularly in the department to tackle unanswered queries in the field of metabolic and infectious childhood liver disease. We have about 12 research projects involving the faculty and residents of the department. The academic activity of the department includes holding of regular lectures, case presentations, seminars and symposia, journal club, group discussions, clinical meetings and clinical grand rounds.

Our Mission
The mission of the Department of Pediatric Hepatology has been well sketched out right from the onset. On one side we are dedicated to the state of art patient care. And at the same time we as a department have been making a continued effort in causing more awareness among the pediatricians regarding identification and management of common childhood liver diseases. From time to time we participate in mass awareness programmes also, to help in the prevention and identification of the common hepatic disease among children. Besides we have participated in the prevention of infective hepatitis on televisions and school health programmes.

Services Highlights
- Outdoor facilities for evaluation of neonatal and childhood liver disease.
- Pediatric Hepatology ward for prompt management of infectious, metabolic and hereditary liver diseases in neonates, children and adolescent including NICU and PICU.
- Age and clinical profile appropriate protocol based approach to various metabolic liver disease in neonates, children and adults.
- Diagnostic and therapeutic pediatric GI endoscopies.
- Procedures like hepatic vein pressure gradient and hepatic vein angioplasty as well as stenting are being performed.
- Plasmapheresis in the Acute liver failure and acute on chronic liver failure patients to stent the gap to liver transplant.
- Pre-transplant evaluation and post-transplant monitoring done by the department along with the HPB surgery and various specialties.
- Pediatric hepatobiliary surgeries like Kasai’s portoenterostomy, Hepaticojejunostomy and Partial Hepatectomy are being done routinely and pre and postoperative care is provided for these patients.
- Splenic artery embolization and radiofrequency ablation are the radiological interventions are performed routinely for pediatric cases.
- Counseling is done to parents through ILBS website and are in the process of developing a “Query Corner” on ILBS website to help the general pediatricians with the diagnosis and management of different childhood liver diseases.

<table>
<thead>
<tr>
<th>Services Rendered</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td>New patients attended OPD</td>
<td>1617</td>
<td>1899</td>
<td>1612</td>
<td>1709</td>
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<tr>
<td>Admissions in Pediatric ward</td>
<td>495</td>
<td>589</td>
<td>599</td>
<td>587</td>
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<tr>
<td>Pediatric admissions in ICU</td>
<td>17</td>
<td>14</td>
<td>20</td>
<td>26</td>
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<tr>
<td>Diagnostic UGIE</td>
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<td>211</td>
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<td>Therapeutic UGIE</td>
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<td>25</td>
<td>28</td>
<td>30</td>
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<tr>
<td>Band ligation</td>
<td>20</td>
<td>29</td>
<td>35</td>
<td>37</td>
</tr>
<tr>
<td>Fibro scan</td>
<td>03</td>
<td>01</td>
<td>02</td>
<td>1</td>
</tr>
<tr>
<td>Stricture dilatation</td>
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<td>-</td>
<td>02</td>
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<tr>
<td>APC</td>
<td>1</td>
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<td>-</td>
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<tr>
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<td>01</td>
<td>2</td>
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<tr>
<td>HVPG</td>
<td>07</td>
<td>08</td>
<td>10</td>
<td>8</td>
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<tr>
<td>Colonoscopy</td>
<td>18</td>
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<td>Sigmoidoscopy</td>
<td>10</td>
<td>12</td>
<td>08</td>
<td>9</td>
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<tr>
<td>Capsule endoscopy</td>
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<td>Liver Biopsies:</td>
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<td>Percutaneous</td>
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<td>104</td>
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<td>- TILB</td>
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</table>

New services & facilities
- It was for the first time felt at our centre that algorithm guided approach to metabolic liver disease would help cost-effective investigative work up and early detection of the disorders. Diagnosis of the metabolic liver disease has been made easier and cost-effective by the development of age and clinical profile appropriate protocol based approaches to various...
presentations of liver disorder in neonates, children and adults. We have proven that it increases the case detection as well as decreases the cryptogenic/ indeterminate cases.

- Complete evaluation of the hereditary liver and pancreatic disorders is available in the department.
- Pediatric Liver Transplant Program available at the lowest cost in India.

Educational Activities
Details of the Educational activities (CME/Conf/workshop) hosted by the department in 2016 under following headings:

- Clinical Scenarios in Pediatric Liver Disease 2016 (CSPLD 2016): Department of Pediatric Hepatology organizes annual conference with the aim to popularize Pediatric Hepatology among young Pediatricians and fresh Post graduates. After immense success of CSPLD 2014 and 2015, CSPLD has been made an annual feature at ILBS. This conference is an ongoing initiative taken to create awareness about case scenarios in pediatric liver diseases faced by pediatricians on day-to-day basis and lay emphasis on approach based learning for their management. We discussed 20 different clinical scenarios commonly seen in pediatric hepatology in a unique manner. The case was presented by freshly passed out post graduates and senior residents. Each such case was allotted a moderator who advised the presentation of the case and also posed questions during the presentation in order to send across clear concepts. Mostly questions were posed to the audience to have a two way interactions and then one of the two or three panelists answered the query in detail. The event has participation from dedicated international & national faculty working in the field of Pediatric Hepatology.

Courses offered

<table>
<thead>
<tr>
<th>Name of the course</th>
<th>Number of candidates/year</th>
<th>Students admitted in Year 2016</th>
<th>Students passed out in Year 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM in Pediatric Hepatology</td>
<td>1</td>
<td>Dr. Snehabhushan Pandey</td>
<td>Dr. Vikrant Sood</td>
</tr>
<tr>
<td>PDCC in Pediatric Hepatology</td>
<td>4</td>
<td>Dr. Babu Lal Meena</td>
<td>Dr. Aditi Kumar</td>
</tr>
</tbody>
</table>

Department’s Achievements

- Prof Seema Alam, had a month long visit (01/08/2016 till 31/08/2016) at Pediatric Hepatology and Liver Transplantation section at Texas Children’s Hospital, Houston, USA. This visit was meant to basically get ideas and understand the methods to improve the teaching and training at department of Pediatric Hepatology as well as expanding the experience of pediatric liver transplantation.
- Dr. Rajeev Khanna, Associate Professor, spent an year (Dec’14 to Nov’15) at King’s College Hospital, London which has one of the world’s busiest and the oldest Pediatric Liver set up. There he received further experience in handling a variety of pediatric liver cases including those going for liver and multivisceral transplantation.
- Travel award and Oral presentation at Asia-Pacific Association for the Study of the Liver (APASL) 2017 to be held on 16-19th Feb 2017 at Shanghai, China to Dr. Arti Pawaria – Titled “Plasma Lactate Predicts Mortality in children with Hyperacute Liver Failure”

- First Prize in Poster presentation at 3rd annual conference of Indian Society of Pediatric Gastroenterology, Hepatology and Nutrition (ISPGHAN) on 24th-25th September 2016, at Kolkata, India to Dr. Bikrant Bihari Lal- Titled ‘Profile and Outcome of Acute kidney Injury and Hepatorenal syndrome in pediatric patients with liver disease’. 
- Award for poster presentation in Indian Society of Clinical Nutrition Conference, held at Institute of Liver & Biliary Sciences, New Delhi from 14-16 October 2016 to Dr. Arti Pawaria- Titled ‘Alterations in Hormonal Profile in Children’.
- Oral Plenary Session award at 24th Annual Scientific meet of Indian National Association for Study of the Liver (INASL), held in New Delhi, India on 5th-7th August, 2016 to Dr. Vikrant Sood.
- Young Investigator Award at the 49th annual meeting of the European Society for Pediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) held in Athens, Greece in May 2016 to Dr. Vikrant Sood.
- Professor Anil Dhawan, Director and Head, Pediatric Liver Unit, at King’s College Hospital, London, visited the institute and department of Pediatric Hepatology on 17th September 2016. He delivered a talk on ‘Hepatocyte Transplantation’ and also discussed few difficult cases with students.

Conference Presentations

- 57th Annual Conference of Indian Society of Gastroenterology – ISGCON 2016 held at New Delhi from 15th-18th December 2016 : Case presented at Liver Clinics – ‘Case of Portal Hypertension in a patient with PDA’ by Dr. Bikrant Bihari Lal,
- World Congress of Pediatric Gastroenterology, Hepatology and Nutrition (WCPGHAN) held at Montreal, Canada from 5th-8th October 2016: Poster Presentation titled “Study of Prevalence of Fatty Acid Oxidation Defects in children and adults with Acute Liver Failure: Significance of Carnitine/Acylcarnitine and Aminoacid Profile” by Dr. Vikrant Sood
- 3rd Annual Conference of Indian Society of Pediatric Gastroenterology, Hepatology & Nutrition (ISPGHANCON); Kolkata from 23-24th September 2016
  - Oral Presentation on “Predictors of Acute kidney Injury in Children with Acute-on-chronic Liver Failure” by Dr. Bikrant Bihari Lal
  - Poster presentation titled- Profile and Outcome of Acute kidney Injury and Hepatorenal syndrome in pediatric patients with liver disease by Dr. Bikrant Bihari Lal
  - Poster presentation on “Subjective Global Nutritional Assessment Vs Conventional anthropometry” by Dr. Arti Pawaria.
  - Poster presentation on “Liver involvement in Hemophagocytic lymphohistiocytosis – Experience from a tertiary liver referral centre” by Dr. Arti Pawaria.
  - Oral Presentation on “Duct Paucity in children: Spectrum, clinical Profile and Outcome” by Dr. Babu Lal Meena
- 24th Annual Scientific meet of Indian National Association for Study of the Liver (INASL), held in New Delhi, India on 5th-7th August, 2016; Oral Plenary presentation titled “Study of Prevalence of Fatty Acid Oxidation Defects in children and adults with Acute Liver Failure: Significance of Carnitine/Acylcarnitine and Aminoacid Profile” by Dr. Vikrant Sood
3rd Kunwar Viren Oswal Course in Pediatric Gastroenterology, Hepatology, Liver Transplantation and Nutrition on 7-10th August 2016 at Indraprastha Apollo Hospitals, New Delhi;
- Oral Presentation on “Predictors of Acute kidney Injury in Children with Acute-on-chronic Liver Failure” by Dr. Bikrant Bihari Lal
- Poster presentation titled- Profile and Outcome of Acute kidney Injury and Hepatorenal syndrome in pediatric patients with liver disease by Dr. Bikrant Bihari Lal
- Poster presentation on “Subjective Global Nutritional Assessment Vs Conventional anthropometry” by Dr. Arti Pawaria.
- Poster presentation on “Liver involvement in Hemophagocytic lymphohistiocytosis—Experience from a tertiary liver referral centre” by Dr. Arti Pawaria
- Oral Presentation on “Duct Paucity in children: Spectrum, clinical Profile and Outcome” by Dr. Babu Lal Meena

49th annual meeting of the European Society for Pediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) held in Athens, Greece in May 2016
- Case Presentation – “Adolescent with Massive Splenomegaly”- by Dr. Arti Pawaria.
- Paper (e-Poster and Poster) titled “Study of Familial Trendency and PNPLA3 Polymorphism in Pediatric Non Alcoholic Fatty Liver Disease” and “Non Cirrhotic Portal Fibrosis in Pediatric Population- Breaking the Myths!!” by Dr. Vikrant Sood

Hepaticon 2016 held at Mumbai on 9-10th April 2016; Case presentation- “Young child with hematemesis” by Dr. Arti Pawaria

8th Master Class in Liver Diseases held at Chennai on 21-23rd January 2016; Oral presentation- “Plasma Lactate Predicts Mortality in children with Hyperacute Liver Failure” by Dr. Arti Pawaria

For the 26th Annual Conference of Asian Pacific Association for Study of Liver Diseases (APASL) 2017, Shanghai, China to be held from 16-19th Feb 2017, a total of two oral presentations and three posters have been accepted.

### Visiting faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Dr. Anil Dhawan</td>
<td>King’s College hospital, UK</td>
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<tr>
<td>Dr. Sanjay Bansal</td>
<td>King’s College hospital, UK</td>
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<tr>
<td>Prof. S.K. Yadhaia</td>
<td>SGPGIMS, Lucknow</td>
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<tr>
<td>Dr. Anshu Svarstava</td>
<td>SGPGIMS, Lucknow</td>
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<tr>
<td>Prof. Vereshwar</td>
<td>Bhatnagar, AIIMS</td>
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<tr>
<td>Prof. B.R. Thappa</td>
<td>PG Chandigarh</td>
</tr>
<tr>
<td>Dr. Alka Goel</td>
<td>Children’s Hospital of Pittsburgh, USA</td>
</tr>
<tr>
<td>Prof. Deirdre Kelly</td>
<td>Birmingham Children’s Hospital, UK</td>
</tr>
</tbody>
</table>

**Staff**

**Faculty members**
- Prof. Seema Alam
- Dr. Rajeev Khanna
- Dr. Dinesh Rawat

**Senior Residents**
- Dr. Vikrant Sood
- Dr. Bikrant Bihari Lal
- Dr. Arti Pawaria
- Dr. Snehavardhan Pandey
- Dr. Babu Lal Meena
- Dr. Sheetal Ganju
- Dr. Ruchika Kumar

**Nurses**
- Leena Kurian
- Geena Devasia
- Monika
- Manju Jose
- Sheeja George
- Jomol P.J
- Jaya Krishan
- Naomi Dahrii
- Subina Devasia

**Designation**
- Professor and Head
- Associate Professor

**Designation**
- Senior Resident
- Junior Nurse
- Nurse
- Patient Care Executive

**Designation**
- Nurse
- Patient Care Executive
- Junior Nurse
- Patient Care Executive

**Designation**
- Nurse
- Patient Care Executive
- Junior Nurse
- Patient Care Executive
Faculty Achievements

Dr. Seema Alam

Dr. Seema Alam established the first ever department of Pediatric Hepatology in the country. The department has achieved various milestones since then: starting the Pediatric Liver Transplantation program in September 2011 where we have transplanted 35 children, initiation of Post-doctoral Certificate Course in Pediatric Hepatology in January 2013 and we have finally trained 6 PDCC fellows successfully. The DM program in the specialty from September 2013 – nationally the first ever and only training in this superspecialty is in its fourth year. Number of children attending out-patient clinic as well as those admitted in the wards has been increasing steadily. She is keenly interested in metabolic liver disease and her earnest enthusiasm has helped create widespread awareness about such disorders among pediatricians and adult gastroenterologists. She attended the APASL 2014 & 2015 conference at Brisbane & Istanbul respectively, where the organizers were persuaded to add a more organized Pediatric Hepatology session. Clinical Scenarios in Paediatric Liver disease was an idea introduced by her and it is successfully running in its fourth year.

- Total Number of publications: 54
- Total Number of publications in 2016: 10
- Total No. of Projects: 4
- Invited Faculty in “Liver Clinics 2016” held in Chennai, in July 2016- Talk on “Metabolic Liver Diseases”
- Invited Faculty in “3rd International Liver Symposium” held in Gurgaon in April 2016- Talk on “Metabolic Liver Diseases”
- Invited expert at Hepaticon 2016 held in Mumbai, India in April 2016.
- 5. Invited expert at “Master Class in Liver Disease 2016” held in Chennai, India in January 2016.

Dr. Rajeev Khanna

Dr. Rajeev Khanna joined the department in July 2011 and has contributed significantly to the growth of the department, on account of his diligent work and enthusiasm. His interests include pediatric portal hypertension, Wilson disease, acute liver failure, neonatal cholestasis and viral hepatitis. The department has received national and international acclaims on account of his academic work. He believes in a team-work model; acknowledging and promoting others who have contributed towards his achievements. He is an active member of the Echo program initiated by the Institute, and delivered talk related to pediatric hepatology via tele-conferencing on several occasions with active involvement of pediatric residents and faculty from various medical colleges.

- Total Number of publications: 23

Dr. Dinesh Rawat

Dr. Dinesh Rawat joined the department in April 2012 after completing his sub-specialty training in Pediatric Hepatology at Birmingham under Prof. Deirdre Kelly. Since then he has worked to consolidate the sub-specialty within the institute, aided by his interpersonal communication skills and teaching ability. His areas of interest include autoimmune liver disease, neonatal cholestasis, congenital hepatic fibrosis and care of children before and after liver transplant. Under his supervision, the department has closely supervised pediatric liver transplants with success rates comparable to the developed world. He has helped the department in developing a protocol based pre- and post-liver transplant evaluation and management of children with liver disease. He has initiated a study of immune mechanisms in Indian children with autoimmune hepatitis and is also a co-investigator in three departmental projects focusing on non alcoholic fatty liver disease, acute liver failure & biliary atresia. He is leading and participating in several projects within the department which have been presented at both national & international fora.

- Total Number of publications: 16
- Total Number of publications in 2016: 8
- Total Number of projects: 2
- 49th Annual Congress of ESPGHAN- Endoscopy Tutor ; May 25-28 2016, Athens, Greece
- 24th Annual Scientific Meeting of INASL (Indian National Association for Study of Liver)- Aug 5-7 2016, Delhi.
- 3rd International Liver Symposium – Hepatitis C in children; 3 April 2016, Delhi
- Symposium on Pediatric Liver Transplant-Long term outcomes: Chronic Rejection/Antibody mediated Rejection; 27 April 2016, Bangalore
- 14th Scientific Meeting of Commonwealth Association of Pediatric Gastroenterology- Approach to children with ascites; 4 Oct 2015, Delhi
- 3rd Kunwar Viren Oswal Course in Pediatric Gastroenterology, Hepatology, Liver Transplantation and Nutrition on 7-10th August 2016 at Indraprastha Apollo Hospitals, New Delhi
Hepatobiliary Surgery and Liver Transplant

The Department of HPB Surgery and Liver Transplantation offers high end services to patients with hepatobiliary and pancreatic diseases. ILBS has become a high volume center of excellence for complex liver and pancreatic surgeries. It is the only public sector undertaking with a successful liver transplantation program. The Department has performed over 370 liver transplantations till date. Advanced laparoscopic surgeries are being performed with increasing frequency and success. Equipped with the state of the art infrastructure and dedicated professionals, our results are at par with the best international standards. The Department is successfully conducting the country’s first Mch program in HPB Surgery and is actively involved in clinical research.
Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
</tr>
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<tbody>
<tr>
<td>Total</td>
<td>587</td>
<td>744</td>
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<tr>
<td>Liver Transplantation</td>
<td>101</td>
<td>93</td>
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<tr>
<td>Major Hepatectomy</td>
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<td>87</td>
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<tr>
<td>Whipple Operation</td>
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<tr>
<td>Advanced laparoscopy</td>
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<td>61</td>
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Course offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Candidates admitted</th>
<th>Candidates passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Ch, HPB Surgery</td>
<td>Dr. Shashwat Sarin</td>
<td>Dr. Niteen Kumar</td>
</tr>
<tr>
<td></td>
<td>Dr. Devi Singh Dhankar</td>
<td>Dr. Kumar Vaibhaw</td>
</tr>
<tr>
<td></td>
<td>Dr. Bramhadatta Pattnaik</td>
<td>Dr. Deeplaxmi P Borde</td>
</tr>
</tbody>
</table>

Department’s Achievements

The Department of HPB Surgery and Liver Transplantation is being increasingly recognized in both patient and medical circles as a destination for high quality patient care. This year has seen the performance of advanced laparoscopic surgeries like liver resection, choledochal cyst excision, bariatric surgeries with good success. Twenty two cadaveric liver transplants were performed with organs being retrieved from cities outside Delhi as well (Indore, Jaipur, Lucknow, Chandigarh). The liver transplant program has grown in and results of the work have been published in reputed international journals.

Staff

<table>
<thead>
<tr>
<th>Faculty members</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. T.K. Chattopadhyay</td>
<td>Senior Professor</td>
</tr>
<tr>
<td>Dr. Viniyendra Pamecha</td>
<td>Professor and Head</td>
</tr>
<tr>
<td>Dr. Senthil Kumar</td>
<td>Additional Professor</td>
</tr>
<tr>
<td>Dr. Nikhil Agrawal</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Dr. Aist Arora</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Dr. Shridhar V.Sasturkar</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Dr. Piyush Kumar Sinha</td>
<td>Assistant Professor</td>
</tr>
</tbody>
</table>

Senior Residents

| Dr. Nihar RM            | M.Ch.             |
| Dr. Rommel S            | M.Ch.             |
| Dr. Kapil C             | M.Ch.             |
| Dr. Imtakum J           | M.Ch.             |
| Dr. Ankur V             | M.Ch.             |
| Dr. Kunaraswamy         | M.Ch.             |
| Dr. Shashwat Sarin      | M.Ch.             |
| Dr. Brahm Datt Pathnayak| M.Ch.             |
| Dr. Devi Singh Dhankar  | M.Ch.             |

Technical Staff Name

| Mrs. Vibhuti Sharma      | Transplant Co-ordinator |
| Mr. Jomon Sebastian      | Transplant Co-ordinator |
| Mr. Tinet               | Transplant Co-ordinator |
| Mr. Kuldeep Varshney     | Chief.Tech.Executive   |
| Mr. Sunil Kumar          | Sr.Tech.Executive      |
| Mr. Neeraj Kaushik       | Jr.Tech.Executive      |
| Mr. Ravi Chauhan         | Jr.Tech.Executive      |
| Mr. PushpendraKumar      | Jr.Tech.Executive      |
| Mr. Kamaljit Singh       | Jr.Tech.Executive      |
| Mr. Mahesh Pal Singh     | Jr.Tech.Executive      |
| Mr. Jitender Kumar       | Jr.Tech.Executive      |
| Mr. Shailender Singh     | Jr.Tech.Executive      |
| Mr. Mahipal Yadav        | Jr.Tech.Executive      |

Nurses Staff

| Sr. Nurse: Mr. Sanjay Joshi |
| Nurse: Mrs. Amom Beda Devi, Mrs. T. Prameshwari Devi, Mrs. Debola Devi, Mr. Mohan Sharma |
| Junior Nurse: Mr. Sandeep Jhajhanya, Mrs. Thaluna, Mrs. Smitha Thomas |
| Pt. Care Executive: Ms. H. Taunthang, Ms. Omila, Ms. Jisha, Miss. Sinta, Ms. Manju, Ms. Sangeeta, Mr. Jisha, Miss. Sinta, Ms. Manju, Ms. Sangeeta |
Faculty Achievements

Dr. T. K. Chattopadhyay

Dr. TK Chattopadhyay graduated in Medicine from Calcutta University after which he joined AIIMS, New Delhi for postgraduation in surgery. Subsequent to successful completion of postgraduation, Dr. Chattopadhyay was inducted as a faculty in the Department of Surgery at AIIMS. He subsequently became the head of the department. Considering his deep interest in the field of GI Surgery, he was asked to head the department of GI Surgery. He served the department for 16 long years as head of the department.

He has interest in the diseases of the oesophagus, portal hypertension, ulcerative colitis, pancreatic cancer, disease of the liver and biliary tract to name a few. He was involved in the first cadaveric liver transplantation at AIIMS. He has published nearly 200 research papers in various national and international journals. He has presented papers in various conferences in India and abroad. He is recipient of the prestigious S R Joglekar gold medal for the best paper published in the Indian Journal of Surgery in 1985. He was chosen to deliver the prestigious Col. Pandalai oration in ASI 2010. He is the founding member of Indian Association of Surgical Gastroenterology. He went to become its Secretary and President. He was also a visiting professor of School of medicine, Creighton University. After serving the AIIMS for nearly 40 years, he joined ILBS as Senior Professor of HPB Surgery in 2010.

- Total Number of publications: 200
- Total Number of publications in 2016: 4

Dr. Viniyendra Pamecha

Dr. Pamecha completed his M.S. in General Surgery from R.N.T. Medical College, Udaipur, Rajasthan in 1998. He did specialty training in Hepato Pancreatico Biliary and Liver Transplantation Surgery in London UK, from 2003 to 2010, initially at the renowned Liver Unit of King’s College Hospital (2003 - 2005) and subsequently at Sheila Sherlock Liver Centre, Royal Free Hospital (2005 - 2010). He was awarded Fellowships in Multi organ Retrieval, Liver Transplantation & Hepato Pancreatico Biliary Surgery by the European Board of Surgery in 2009. He received the prestigious FRCS in Hepato Pancreatico Biliary Surgery in 2010. He joined ILBS in 2010 and has been spearheading the liver transplant program from last six years. He has performed more than 350 liver transplants for adults & children at the Institute with results comparable to best international centers. He has performed many complex liver and pancreatic resections. His research work is published in leading journals of the specialty & has been presented in many international congresses. He is dedicated to development of deceased donor liver transplant and training of young surgeons in the specialty. His research areas include liver regeneration, portal hemodynamics & immune regulation in solid organ transplantation.

- Total number of publications: 36
- Total Number of publications in 2016: 8

Dr. Senthil Kumar

Dr. Senthil Kumar graduated from the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry. He completed his surgical residency in 1995 and was awarded the S.B Sen Gold medal for the best outgoing postgraduate in the university, in general surgery. After completing three years of senior residency, he pursued higher surgical training in the UK. He was awarded the fellowship of the royal college of surgeons of Edinburgh in 1998. In the UK, after completing a research fellowship, he gained experience in various sub specialties in surgery including colorectal, endocrine, vascular, upper GI, hepatopancreaticobiliary surgery and liver transplantation. He has worked in major Hepatobiliary and liver transplantation units in the UK including The Royal Free Hospital, The Royal London Hospital and the Queen Elizabeth hospital, Birmingham. He obtained the certificate of completion of specialist training (CCT) in 2011. He has in addition been trained in diagnostic and therapeutic Upper and Lower GI endoscopy, laparoscopy, emergency and trauma surgery. He has been an instructor in the Advanced Trauma Life Support course (ATLS) and the Care of the Critically Ill Surgical Patient course (CCrISP), in the UK. His current areas of interests include living donor liver transplantation, multi-organ retrieval and the management of primary liver malignancies.

- Total Number of publications: 40
- Total Number of publications in 2016: 4
- Invited talk on Liver Transplantation for Acute on Chronic Liver Failure – Practical Problems, Clinical Perspective in Liver Disease, Nov 2016, Chandigarh
- Delivered talk on Liver Transplantation in India Current and Future – Indian Organ Donation Day Dec 2015 New Delhi
- Participated in debate on Liver Transplantation for Intrahepatic Cholangiocarcinoma –STC, AAPASAL, Delhi
- Chaired Session in
  - Indian Society of Gastroenterology Annual Conference, Delhi
  - Indian Society of Organ Transplantation, Oct 2016, Chandigargh
  - Apollo CLBS Conference Sept 2015 New Delhi
  - Medanta Liver Meeting, Delhi
  - Medanta Transplant Hepatology Course, Delhi
  - Transplant Critical Care Symposium ILBS, Delhi
- Principal Guide for a total of nine MCh thesis and co-guide on three PhD thesis

- Invited talk on Rejection and Sepsis after Liver Transplantation - Can they coexist? CLBS Conference Sept 2015 New Delhi
- Delivered talk on Live donor liver transplantation for hepatocellular carcinoma beyond Milan criteria – How far can we go? Indian Society of Organ Transplantation, Oct 2016, Chandigarh
- Invited talk on Liver Transplantation for Acute on Chronic Liver Failure – Practical Problems, Clinical Perspective in Liver Disease, Nov 2016, Chandigarh
- Delivered talk on Liver Transplantation in India Current and Future – Indian Organ Donation Day Dec 2015 New Delhi
- Participated in debate on Liver Transplantation for Intrahepatic Cholangiocarcinoma –STC, AAPASAL, Delhi
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  - Apollo CLBS Conference Sept 2015 New Delhi
  - Medanta Liver Meeting, Delhi
  - Medanta Transplant Hepatology Course, Delhi
  - Transplant Critical Care Symposium ILBS, Delhi
- Principal Guide for a total of nine MCh thesis and co-guide on three PhD thesis
- National conference in Gastrointestinal and Hepatobiliary surgery - Mahatma Gandhi medical college and research institute, Pondicherry – Lecture: Role of liver transplantation in acute liver failure Sept 24th 2016
- Mahatma Gandhi medical college and research institute, Pondicherry – Guest lecture: Overview of liver transplantation – sept 29th 2016
- Aster Medcity Bangalore: Debates in liver disease and transplantation: Lecture - Role of Shunts in EHPVO – November 19th 2016

Dr. Asit Arora

Brief Introduction- Dr. Asit Arora did his general surgery training from S.M.S Medical College, Jaipur. He pursued his specialty training in G.I and H.P.B surgery from G.B. Pant hospital and Maulana Azad medical college, Delhi where he successfully completed his M.Ch in 2012. His keen interest in academics and research is well evident by various national and international presentations and publications made in past years. His area of interest includes advanced laparoscopic surgery and H.P.B malignancy.

- Total Number of publications: 17
- Total Number of publications in 2016: 3
- Total Number of projects: 1
- Has initiated a project on genetic and epigenetic landscape of gall bladder cancer

Dr. Shridhar

Dr. Shridhar Vasantrao Sasturkar did his general surgery training from S.C.B. Medical College. Cuttack. He pursued his specialty training in H.P.B surgery and Liver Transplantation from ILBS New Delhi. His area of interest includes liver transplantation and H.P.B malignancy. His keen interest in academics and research is well evident by various national and international presentations made in past years. His area of interest includes liver regeneration and portal hemodynamics in living donor liver transplantation.

- Total Number of publications: 11
- Total Number of publications in 2016: 3
- The International Liver Transplantation Society, 22nd Annual International Congress, Seoul, South Korea.

Dr. Piyush Kumar Sinha

Dr. Piyush Kumar Sinha did his general surgery training from Post Graduate Institute of Medical Education and Reasearch, Chandigarh and completed his MCh HPB Surgery training from ILBS, New Delhi. He joined the Institute as Assistant Professor Liver Transplant Surgery in 2014. His areas of interest are liver transplantation and HPB malignancy.

- Total Number of publications: 7
- Total Number of publications in 2016: 4

Dr. Nikhil Agrawal did his M.S. (General Surgery) from Banaras Hindu University. He was trained in gastrointestinal and HPB surgery from the prestigious SGPGI, Lucknow and AIIMS, New Delhi. He completed his M.Ch in surgical gastroenterology from AIIMS. He has been trained in the field of laparoscopic hepatobiliary and pancreatic surgery from Seoul National University Bundang Hospital, Korea. He worked as Senior Research Associate in AIIMS before joining ILBS as faculty. He has an active interest in research and academics. He has a number of publications in various national and international journals and textbooks. He has presented papers and posters in various conferences. His areas of interest include acute and chronic pancreatitis, hepatobiliary and pancreatic cancers, laparoscopic surgery and bariatric surgery.

- Total Number of publications: 14
- Total Number of publications in 2016: 14
- Total No. of Projects: 2
- Clinical Scenarios in Pediatric Liver Disease (CSPLD) 2016, New Delhi, March, 5-6 2016.
- Participated as faculty on EHPVO 11th International Single Topic Symposium of the Korean Association of HPB Surgery (ISTS 2016), Jeonju, Korea, September, 3-4 2016, Presented a poster, Awarded Travel Grant
- 26th World Congress of the IASGO (IASGO 2016), Seoul, Korea, September, 8-10 2016, Presented a poster, Awarded Travel Grant
- 1st national conference of Indian Society of Clinical nutrition, New Delhi, India, October, 14-16 2016, Participated as faculty on nutritional management in acute pancreatitis
- BARICON 2016, 1st International Conference of FORMS, CME cum Live Operative Workshop, New Delhi, India. December, 1-3 2016, Delivered a lecture on “Facts behind VLCD – does body mechanism change”
Department of Anaesthesia at Institute of Liver and Biliary Sciences provides perioperative anaesthesia care for surgical and interventional procedures in the setting of operation theatres as well as outside as for day care endoscopy and radiological procedures. The department is also actively involved in postoperative care of high risk surgical patients admitted to surgical and transplant intensive care units and provides round the clock acute pain services for management of postoperative pain for patients discharged to surgical wards after their surgery. Besides the clinical services the department is also engaged in research activities and has an active teaching program under which students are admitted to MCI recognised post-doctoral courses including DM and PDCC in Transplant anaesthesia and critical care. The department takes pride in its alumnies who are presently occupying positions of...
repute all over the world. The department since last 5 years have been successfully conducting a one day symposium for clinicians involved in conduct of anaesthesia and perioperative critical care for solid organ transplant recipients by the name of TRANCRIT which has become a much awaited event of the speciality.

Services Rendered

<table>
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<tr>
<th>Services</th>
<th>2015</th>
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<tr>
<td>Liver Transplant</td>
<td>90</td>
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<tr>
<td>Kidney Transplant</td>
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<td>38</td>
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<td>GI and Urology Surgeries besides Transplant</td>
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<td>1222</td>
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<tr>
<td>Endoscopy Procedures</td>
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<td>11175</td>
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<td>1148</td>
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<td>Miscellaneous</td>
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<td>Liver Coma ICU</td>
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<td>HDU</td>
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<td>Liver Transplant ICU</td>
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<td>Surgical ICU</td>
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<td>903</td>
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Educational Activities

- TRANCRIT 2016, 14th June 2016 5th Transplant Anaesthesia and Critical Care Symposium

Courses offered

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<tr>
<th>Course</th>
<th>Candidates admitted</th>
<th>Candidates passed</th>
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<tr>
<td>DM Organ Transplant Anaesthesia and Critical Care</td>
<td>Dr. Nanda Kumar</td>
<td>Dr. Sandeep Sharma</td>
</tr>
<tr>
<td>PDCC Liver transplant Anaesthesia and Critical Care</td>
<td>Dr. Kalpana Pandulkar Thate</td>
<td>Dr. Vivekananthan P</td>
</tr>
<tr>
<td>PDCC Critical Care (Liver ICU)</td>
<td>Dr. Surbhi Abrol</td>
<td>Dr. Prachi Bansal</td>
</tr>
</tbody>
</table>

Department’s Achievements

- First candidate of DM Organ Transplant Anaesthesia and Critical Care successfully completed the course.
- The students who successfully completed the academic programmes of the Department of Anaesthesia have been recruited to the centres of the repute of the world.

Visiting faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Date</th>
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<tbody>
<tr>
<td>Dr. Lenin Babu</td>
<td>JIPMER Puducherry</td>
<td>February 2016 to March 2016</td>
</tr>
<tr>
<td>Dr. Satya Prakash</td>
<td>JIPMER Puducherry</td>
<td>February 2016 to March 2016</td>
</tr>
</tbody>
</table>

Staff

Faculty members

- Dr. Chandra Kant Pandey: Senior Professor and Head
- Dr. Ravi Caturvedi: Professor
- Dr. Shweta Singh: Additional Professor
- Dr. Vijay Kant Pandey: Associate Professor
- Dr. Manish Tandon: Associate Professor
- Dr. Sunaina Tegpal Karna: Associate Professor
- Dr. Lalita Govind Mitr: Associate Professor
- Dr. Naveen Yadav: Associate Professor
- Dr. Vandana Saluja: Associate Professor
- Dr. Prashant Mohan Agarwal: Assistant Professor

Senior Residents

- Dr. Kelika: Senior Resident DM
- Dr. Nandakumar: Senior Resident DM
- Dr. Ankur Agarwal: Senior Resident PDCC
- Dr. Surbhi Abrol: Senior Resident PDCC
- Dr. Kalpana Thate: Senior Resident PDCC
- Dr. Parvez Qurram: Senior Resident PDCC

Technical Staff

- Technical Executive: Mohd. Shaki Hadimi, Mohd. Parvez Ahmad, Ms. Geeta Verma, Mr. Ramesh Chandra, Mr. Arun Kumar
- Jr. Technical Executive: Mr. Kulidip Sharma, Mr. Praveen Kumar, Mr. Bhupender Singh, Mr. Raju Yadav, Mr. Ravinder, Mr. Lakhmi Chand
Faculty Achievements

Dr. C. K. Pandey

Dr. C.K. Pandey graduated and postgraduated from Moti Lal Nehru Medical College Allahabad. Before joining Institute of Liver and Biliary Sciences, New Delhi, he worked as Additional Professor Anaesthesiology as Sanjay Gandhi Postgraduate Institute of Medical Sciences, New Delhi and Senior Consultant Sahara Hospital Lucknow. Presently he is working as Senior Professor of Anaesthesiology at ILBS. He conceptualized and spearheaded a DM in Organ Transplant Anaesthesia and Critical Care. This course is the first and only MCI recognized course in the subject so far. While holding various academic positions and working on liver related aspects of anaesthesiology he has written a book entitled *Hepatic and Biliary Diseases: Anaesthesiologists’ Perspective* (the first book on the subject by an Indian author in the country). The book is a comprehensive review on the anatomy, physiology and relevant anaesthetic pharmacology of the liver as well the anaesthetic management of patients of liver disease posted for transplant and non-transplant surgery. He also wrote at chapter on *Percutaneous dilatational tracheostomy with Ambesh T trach Kit in Principles and Practice of Percutaneous Tracheostomy*.

- Total Number of publications: 84
- Total Number of publications in 2016: 3
- Number of projects: 3
- Chaired session on “Liver Transplantation for acute liver failure” during Master Classes “Liver Disease” 22nd January 2016 at Chennai.
- Delivered lecture on “Obstructive Jaundice: An approach to a patient” at 4th PG Assembly Lucknow on 28th February 2016.
- Delivered lecture on “Hyperlactatemia or Lactic Acidosis: The clinical implications” at Dr. Rajendra Prasad Government Medical College Tanda, Kangra, Himanchal Pradesh on August 9, 2016.
- Current Trends in Anaesthesia-Coagulant Monitoring: Role of Thromboelastography, Haldawani UISCON 2016
- Judged Oral Scientific Presentation during UISCON 2016 at Haldawani September 24-25.
- Chaired Session during ICACON 2016 at Shillong from 30th September 2016 to 2nd October 2016.
- Delivered lecture on “Pulmonary Issues in Liver Transplant Recipient” during ICACON 2016 at Shillong from 30th September 2016 to 2nd October 2016.
- Judged competitive poster during ICACON 2016 at Shillong from 30th September 2016 to 2nd October 2016.
- Delivered lecture on “Bedside use of Thromboelastogram” during 4th Annual Conference on Critical Care Advances in the millennium (ACCORDION 2016) on 20th November, 2016, New Delhi.

Dr. Ravi Chaturvedi

Maj General (Dr.) Ravindra Chaturvedi is an Anaesthesiologist and Critical Care specialist with 36 years of professional and administrative experience in the Army Medical Corps. He graduated from the Armed Forces Medical College, Pune and did his Post Graduation in Anaesthesia from Bangalore University and fellowship in Paediatric anaesthesia and Critical Care from All India Institute of Medical Sciences, New Delhi. During his career in Armed Forces he has had extensive experience in Intensive care, Paediatric cardiac Anaesthesia, Renal Transplant and Liver Transplant Anaesthesia. During the course of his academic career he has held several prestigious posts like the Dean at Command Hospital Bangalore, Professor and Head at AFMC and Command Hospital Bangalore. He has 25 years MCI recognised teaching experience, 15 of which have been as a Professor in University of Delhi, Rajiv Gandhi University of Health Sciences and in Karnataka University of Health Sciences. In later part of his career he has worked as Deputy Commandant at Command Hospital Bangalore an 800 bed Superspecialty teaching hospital and subsequently rose to be the Major General Medical, Head Quarter Dakshin Bharat Area, where he had both professional as well as administrative and logistic control of the medical institutions of the Army in southern India. His area of responsibility included eight hospitals, eight dental units, ninety polyclinics and four Station Health Organisations. He is an Examiner for MD at these and several other universities. He has also been a member of the Board of Studies at KLE University, Belgaum. He has been appointed as examiner as well as trainer for teachers by the National Board of Examinations. He has been on the editorial board of four indexed journals and has been the Secretary of the Delhi Chapter of Indian Society of Anaesthesiologist. His contribution has been recognised with a Commendation by the Chief of Air Staff in 2002 and by the Army Commander in 2006. He has recently joined the Institute of Liver and Biliary Sciences as Professor of Anaesthesiology.

- Total Number of publications: 6
- Number of projects: 3
- Be Orate program, ISA Bangalore Chapter.
- SANCON2016 , Bangalore.
Dr. Shweta Singh

Joined ILBS in July 2008 as Assistant Professor and has set up the department of Anaesthesiology and Critical Care. She was instrumental in setting up the protocols for pretransplant evaluation, intraoperative management and post operative management of patients who underwent Liver Transplantation. She has trained in management of liver transplant patients at Sir GangaRam Hospital which was a pioneer in the field and at King’s College Hospital, London.

- Total Number of publications in 2016: 4
- Total Number of Projects: 2
- Symposium on Liver Transplantation: Management of the brain dead donor at 24th Annual Scientific Meeting of INASL, at Hyatt Regency, Gurgaon, Delhi (NCR) India; 5th to 7th August 2016.
- Acute Liver Failure at 2nd CLBS Symposium, Advances in Adult & Pediatric Liver Transplantation at New Delhi, September 16-18, 2016.
- Perioperative challenges in ALF, at ISOT, organized by PGI Chandigarh , 6-9th October, 2016.
- Anaesthesia for organ transplantation – Is designated anaesthesia team necessary? at ISACON 2016, Ludhiana, Punjab, 26-29 December.

Dr. Vijay Kant Pandey

He joined ILBS in November 2010. He has done his MBBS and MD (Anesthesiology) from NSCB Medical College, Jabalpur. He completed his post doctoral course in organ transplant anesthesiology from Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow. He has experience in various anesthesiology specialties such as cardiac neuro and organ transplantation. He has published in national and international journals. He is cognitively inclined towards organ transplantation, critical care and pediatric anesthesiology.

- Total Number of publications: 17
- Total Number of publications in 2016: 3
- Total Number of projects: 2

Dr. Manish Tandon

Dr. Manish Tandon following post graduation in Anaesthesiology from JLNMC Ajmer did senior residency and Post-doctral in Cardiac Anaesthesia from SGPGIMS Lucknow. He practiced cardiac anaesthesia for 5 years before joining ILBS to pursue Transplant Anaesthesia in 2011.

- Total Number of publications: 27
- Total Number of publications in 2016: 2
- Total Number of projects: 4
- Presented poster at the Networking World Anesthesia Convention 2016; New York, Poster Presentation

Dr. Sunaina Tejpal Karna

Dr. Sunaina has done her graduation from GMC Aurangabad and MD in Anaesthesia from BJMC, Pune. She completed senior residency from GTB Hospital Delhi and SGPGIMS, Lucknow. Later she did PDCC in Liver transplant anaesthesia from Institute of Liver and Biliary Sciences in 2012. She has active interest in study of coagulopathy after donor hepatectomy, electrophysiological changes during liver transplantation and postoperative pulmonary cardiopulmonary complications in liver transplant recipients.

- Total Number of publications: 13
- Total Number of publications in 2016: 2
- Total Number of projects: 3
- Presented poster at Australian Society of Anesthetists 75th National Scientific Congress- 17-20 September 2016 at Melbourne, Australia.
- Presented work at TMC - Difficult airway conference 2016 (9-11 September) at Mumbai
- Airway ultrasound workshop.

Dr. Lalita Gouri Mitra

Dr. Lalita did her postgraduation from Tata Memorial Hospital Mumbai followed by her senior residency at GTBH New Delhi before joining as a teaching faculty at Calcutta medical College, Kolkata in 2004. She has been trained in Australia as an Anesthesia fellow and worked there as a staff specialist as well before joining ILBS in 2013. She has keen interest in critical care and anaesthesia for trauma and paediatrics. She is a certified ATLS provider.

- Total Number of publications: 2
- Total Number of publications in 2016: 0
- Delivered lecture at Liver Clinics in Chennai
- Delivered lecture CRITICON meeting in Kochi
Dr. Naveen Yadav

Dr. Naveen completed his MD anesthesiology from King George Medical University and did senior residentship from AIIMS Delhi. His main focus is on understanding the critical care in liver disease patients and has a strong interest in understanding metabolic acidosis in liver disease patients.

- Total Number of publications: 17
- Total Number of publications in 2016: 1
- Total Number of projects: 1

Dr. Vandana Saluja

Dr. Vandana graduated from Dr. DY Patil medical college, Mumbai and postgraduated from GMC, Aurangabad. She did her post doctoral in liver transplant anaesthesia from ILBS in year 2013 and has worked as consultant anaesthesia at Max Hospital, Bathinda before joining ILBS in the year 2013. She has keen interest in practice of critical care medicine. Her areas of expertise include percutaneous tracheostomy, transthoracic Doppler and ultrasound guided vascular access.

- Total Number of publications: 8
- Total Number of publications in 2016: 3
- Total Number of projects: 2
- Received first prize for poster competition on "Patient safety in ICU", conducted by Indian Society of Critical Care Medicine(ISCCM) on ISCCM day.

Dr. Prashant Mohan Agarwal

Dr. Prashant Mohan Agarwal has done his MBBS from Madras Medical College, Chennai in 2006. He has done MD Anesthesiology & Critical Care from N. H. L Municipal Medical College, Ahemdabad in 2010. He has done his senior residency from SGPGIMS, LKO in Anesthesia and Critical Care from 2010 to 2013. Dr. prashant has worked as attending consultant in critical care medicine at MEDANTA THE MEDICITY, Gurugram. He is working as assistant professor in Critical Care Medicine at ILBS since 2014. Currently, he is working in the field of critical care in patients with liver disease. His areas of interest are use of USG in critical care, mechanical ventilation in ARDS, hemodynamic monitoring.

- Total Number of publications: 1
- Attended meeting TRANSCRIT, 2016
Nephrology

Nephrology Department

The Department of Nephrology at ILBS is a fully fledged department with its modest beginning in 2010 with well trained faculty. We have established a state of art fully functional dialysis unit running around the clock. The department also provides complete comprehensive nephrology care to all patients suffering from different kidney ailment. The OPD attendance in the department of Nephrology has also shown remarkable growth in last few years. The department at ILBS is first to start renal transplant program under Delhi Government and running successful program. Till now we have done 125 transplants. We are getting referred patients not only from different parts of India, even from over sea patients are being referred for Renal transplant. Our department is first in North India to do Deceased cardiac donation renal transplant. We have started doing ABO i Renal transplant in 2016 with good
short term outcome. This is the only centre in India who runs regular liver kidney clinic where patients with liver and kidney diseases are seen together by hepatologist and nephrologist. The academic activity of the department includes holding of regular lectures, case presentations, seminars, journal club, group discussions, clinical meetings and clinical grand rounds. The department is also very active at social front and regularly contributes to society by organising free kidney camp not only at ILBS but in other states. Last year the Department organised a free Kidney camp at Sirsa (Haryana) on 20th March 2016.

**Goal:**
To be frontrunner in providing dedicated and complete Nephrology care to all patients suffering from kidney diseases.

**Vision:**
1. The mission of the Department of Nephrology is to reach masses and educate about prevention of kidney diseases.
2. To start super speciality course in Nephrology which will further improve the department at academic and research front.

**Services Highlights**

<table>
<thead>
<tr>
<th>Services</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>New patients attended OPD</td>
<td>943</td>
<td>1595</td>
<td>2366</td>
</tr>
<tr>
<td>Admissions in Nephrology</td>
<td>508</td>
<td>621</td>
<td>800</td>
</tr>
<tr>
<td>Nephrology admission in ICU</td>
<td>23</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>Kidney transplant</td>
<td>19</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>Kidney biopsy</td>
<td>42</td>
<td>48</td>
<td>94</td>
</tr>
<tr>
<td>CAPD catheter insertion</td>
<td>15</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Permacath insertion</td>
<td>50</td>
<td>50</td>
<td>83</td>
</tr>
<tr>
<td>HD SESSIONS (Dialysis unit)</td>
<td>6441</td>
<td>9554</td>
<td>9182</td>
</tr>
<tr>
<td>ICU DIALYSIS</td>
<td>681</td>
<td>1139</td>
<td>1833</td>
</tr>
<tr>
<td>CRRT</td>
<td>22</td>
<td>184</td>
<td>277</td>
</tr>
</tbody>
</table>

**New services & facilities**
1. The department did the first DCD renal transplant with good outcome.
2. Started ABO incompatible Renal transplant with good short term outcome.

**Educational Activities**
Details of the Educational activities (CME/Conf/workshop) hosted by the department in 2016 under following headings:
1. The Department of Nephrology celebrated world kidney day on 10, March 2016.
   An educational and awareness program related to kidney disease in children and a free Kidney camp were organized. This Program brought was a huge success with enthusiastic participation of public in the program.
2. Felicitation of parents of deceased donor to sensitize the media and public to spread awareness about organ donation.
3. Department also organized free medical camp at Sirsa and Kurukshetra on 20th Dec 2016
4. Radio FM program on organ donation.
5. Delivered public lecture in Gurgaon on DM and Kidneys.

**Courses offered**

<table>
<thead>
<tr>
<th>Name of the course</th>
<th>Number of candidates/year</th>
<th>Students admitted in Year 2016</th>
<th>Students passed out in Year 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate course in Renal replacement</td>
<td>1</td>
<td>Dr. Mani and Dr. Harsh</td>
<td></td>
</tr>
<tr>
<td>PDCC in Renal replacement</td>
<td>1</td>
<td>Dr. Roli Bansal</td>
<td></td>
</tr>
</tbody>
</table>

**Visiting faculty**

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Sanjeev Gulati</td>
<td>Director Nephrology, Fortis Vasant Kunj, New Delhi</td>
</tr>
<tr>
<td>Dr. Sudarshan Ballal</td>
<td>Director Manipal hospital</td>
</tr>
<tr>
<td>Dr. Ranjit Nair</td>
<td>GB &amp; R Hospital, New Delhi</td>
</tr>
<tr>
<td>Dr. Himanshu Mahapatra</td>
<td>HOD Nephrology, RML hospital</td>
</tr>
</tbody>
</table>
Dr. S.C. Tiwari

Dr. Tiwari did his DM Nephrology from PGIMER Chandigarh and was a senior Professor at the Department of Nephrology. During tenure of Dr. Tiwari at AIIMS, the dept of Nephrology was adjudged best in the country for consecutive 3 years. He is the examiner for medicine and DM nephrology, at various university in India MD (med) and PhD of AIIMS and at many national and international university. Dr. Tiwari’s has unmatched clinical and academic excellence that got acknowledged in various ways. He is the fellow of the National Academy of Medical Sciences, Fellow of Indian Society of Nephrology, Fellow of Geriatric Society of India, fellow of International Medical Science academy (FIMSA), He received the Best Doctor Award from IMA and Best Nephrologist award from Vice President of India. Mr Bharosinighe Shekhawat, Chikitsa Rattan Award at Bangalore by Deputy prime minister of bangkok and the Life time achievement award for medicine from Institute of Economic studies by Governor of Chhattisgarh and Governor of Bihar at New Delhi. As an administrator he has held positions of significance. At Present he is President of Indian Society of Hemodialysis, He was Past President Indian Society of Nephrology, He was Chairman Hospital Management Board of AIIMS, Member Academic Committee of AIIMS. He was also on the Advisory Board of UPSC and ICmr. Chief editor of Journal of renal sciences and in the Editorial Board of many national & international scientific nephrology journal. He is president kidney health education and research foundation and Chairman REIC institute if ethics. He is the chairman of ethics committee AIIMS, New Delhi. He is the governing body member in health skill council of India. He is appointed as Emeritus professor DIPSARU NCT Delhi. As a visiting professor, Dr. Tiwari has been at the Albert Einstein College of Medicine, Long Island Jewish Medical Centre USA, Winthrop university Hospital, Minnolve in New York USA, University of Minnesota, Hennepin County Medical Centre Minneapolis, USA. Also at the University of Mnnitoba, Winnipeg CANADA. He has more than 300 publication in National and International Journal.

Dr. Tiwari is Member Editorial Board of International Journal of Nephrology. He has been Editor of Journal of Renal Sciences. He has been referee for journal like Renal Failure, Indian Journal of Nephrology and Nephron. Transplant proceeding and associate Editor of Journal of International sciences academy. His main area of clinical interest to name a few i.e. dedicated patients care on holistic way, Geriatric nephrophy preventive nephrology, Hypertension and its control, Diabetic Nephropathy, Acute Renal Failure, Dialysis and Kidney Transplantation.

- Total Number of publications: 280
- Total Number of publications in 2016: nil
- Total Number of Projects: nil

Awards:
Awarded Dronacharya award by Delhi Nephrology Society

Dr. Suman Lata

Dr. Suman Lata is an alumna from AIIMS and started her journey at ILBS in 2009. She is also ISN scholar and did short term fellowship in Renal transplant from St Georges London in 2011. She was instrumental in establishing as well as strengthening the department of Nephrology at ILBS. The department has achieved various milestones since then: starting the Kidney transplant program in September 2012 and till now 125 transplants both live and deceased has been completed with good outcomes. She also took initiative of doing first deceased cardiac donation in North India with the help of dynamic renal transplant team with excellent outcome. She has also started academic courses of Post-doctoral and Certificate Course in renal replacement therapy in January 2013 and trained 3 PDCC fellows and 5 certificate fellows till now. She is also very active at social front and regularly organizes free kidney camp to reach masses about the prevention of kidney diseases.

- Total Number of publications: 280
- Total Number of publications in 2016: nil
- Total Number of Projects: nil

Dr. Tirthankar Mohanty

Dr. Tirthankar Mohanty is an alumnus from PGI Chandigarh and joined the department in August 2016. He is a brilliant Nephrologist with good clinical acumen. His presence will further strengthen the department at clinical as well as academic front. His research area include FGF 23 levels clinical as well as academic front. His research area include FGF 23 levels outcomes. She also took initiative of doing first deceased cardiac donation in North India with the help of dynamic renal transplant team with excellent outcome. She has also started academic courses of Post-doctoral and Certificate Course in renal replacement therapy in January 2013 and trained 3 PDCC fellows and 5 certificate fellows till now. She is also very active at social front and regularly organizes free kidney camp to reach masses about the prevention of kidney diseases.

- Total Number of publications of that faculty member: nil
- Total Number of publications in 2016: nil
- Total Number of Projects: nil

- Total Number of publications of that faculty member: nil
- Total Number of publications in 2016: nil
- Total Number of Projects: nil
Renal Transplant & Urology

The department came into existence in June 2012. In a short period of 4.5 years, it has become the “FIRST and the only department in a Delhi Government hospital” to offer treatment for all urological ailments using “state of the art cutting edge technology”. The technology and expertise, to treat urological problems, that we offer, match the best available in any government and private sector hospitals in India that too at very affordable rates with short waiting lists.

The department is expanding both in technology/expertise and manpower, with induction of new faculty/senior residents and procurement of latest equipments like flexible ureteroscope, lasers and urodynamics laboratory. On academic front, it aims to start post-doctoral courses in Renal Transplant and Urology soon.

<table>
<thead>
<tr>
<th>Services Rendered</th>
<th>2015</th>
<th>January ’16 to November ’16</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV Fistula construction</td>
<td>90</td>
<td>121</td>
</tr>
<tr>
<td>Stent Removal</td>
<td>118</td>
<td>137</td>
</tr>
<tr>
<td>PCN and PCN change</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Bilateral Orchidectomy</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>Circumcision</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CAPD catheter Insertion</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CAPD catheter Removal</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>
Departments Achievements

This year saw the department completing 100 successful kidney transplants. The new developments in the department include starting of ABOi kidney transplants. This is an important boon for the patients who do not have blood group compatible donors in their families. The success of transplants across the blood group barrier in a government set-up is a ray of hope for middle class Indian families, as this procedure is very expensive in private hospitals. Further, in 2016 the department also received its first kidney from outstation (Lucknow). Even after 18 hours of ischemia, we could achieve a successful outcome comparable to in-house retrievals. The ILBS urology students were selected for prestigious MCh Urology programmes at various National Institutes.
Faculty Achievements

Dr. Vikas Jain

Dr. Vikas received his urological and renal transplant training from prestigious Muljibhai Patel Urological Hospital, Nadiad (Gujarat). He further received training in deceased donor renal transplant at Fundacio Puigvert, Barcelona (Spain). Dr. Vikas has independently started the First Renal Transplant and Urology department at ILBS. Under his leadership, the department is achieving newer heights and the graft survival rate has been 100% till date. He is an advanced laparoscopic urologist and has been popularizing “Laparoscopic donor nephrectomy (LDN)” i.e. removal of kidney from donor through “key hole” amongst patients and fellow transplant surgeons. He is a reviewer to Indian J Urol. It is an official journal of Urological Society of India.

- Total Number of publications: 25
- Total Number of publications in 2016: 2
- 49th Annual Conference of USI (USICON 2016) held at Hyderabad, between 7th & 10th Jan ‘16:
  - Vijayawada Prize Poster: In-situ anastomosis of multiple graft arteries to the branches of internal iliac artery: an underutilized technique to address multiple renal arteries in live donor kidney transplantation.
  - Poster presentation: En-bloc (Dual) kidney transplant from a 16-month old brain donor to an adult recipient: A case report and literature review.
- 34th World Congress of Endourology and SWL held at Capetown, between 8th to 12th November 2016:
  - Poster presentation: Ureteroscopic management of calculus disease in patients with “uncorrected coagulopathy” in chronic liver disease (CLD): myths and facts.
  - Poster presentation: Genitourinary gossypiboma revisited: three different presentations and their management in the present era of minimally invasive urology.

Awards

- Received scholarship from European Foundation of Urology to attend Semi-Live 2017, to be organised by the Department of Urology of the University Hospital Heidelberg, Germany between 16-18th February 2017.

Dr. Saurabh Jain

Dr. Saurabh Jain, after finishing his MCh from PGI, Chandigarh, joined Medanta and got specialised training in Robotic urology and Renal Transplant. He has special interest in reconstructive urology and minimal access urology. In 2016, he got Diploma in Laparoscopic Urology from University of Strasbourg, France.

- Total Number of publications (Till date): 7
- Total Number of publications in 2016: 3
- 49th Annual Conference of USI (USICON 2016) held at Hyderabad, between 7th & 10th Jan ‘16:
  - Poster presentation: Ureteroscopic management of calculus disease in patients with “uncorrected coagulopathy” in chronic liver disease (CLD): myths and facts.
The oncology department at ILBS, within a short time span of time has established itself as a referral centre for gastrointestinal (GI) and hepato-pancreato-biliary malignancies. The oncology service at ILBS provides an evidence-based multidisciplinary diagnostic, consultative and treatment service to patients with cancer, especially with special emphasis on both upper and lower gastrointestinal malignancies, Hepato pancreatico biliary malignancies and other relatively rare tumor like GIST/GI Neuroendocrine tumors and GI lymphoma. While the treatment strategy is scientific and evidence based, it is also individualized considering patient’s social, economical and emotional requirement.

The department provides screening, diagnosis and treatment for cancers affecting the digestive system, from the esophagus to the anus. The list includes esophageal cancer, gastric cancer, colorectal cancer, anal canal cancer, hepatocellular carcinoma, pancreatic
cancer, gall bladder cancer, neuroendocrine tumor and GI Lymphoma to name a few. Consultation and management of other malignancies like lung cancer, breast cancer, head neck cancer, gynaecological cancer, uro-malignancy, and hematological malignancy like lymphoma are also available. In view of these large number of cancers being referred to ILBS, the department has taken a lead in developing a hospital based cancer registry as part of the national disease informatics initiative.

**Services Rendered**

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPD Services</td>
<td>2259</td>
<td>2027</td>
</tr>
<tr>
<td>IPD Services</td>
<td>152</td>
<td>208</td>
</tr>
<tr>
<td>Day care chemotherapy</td>
<td>942</td>
<td>661</td>
</tr>
</tbody>
</table>

**New services & facilities**

Added an eigth bedded chemotherapy daycare in May 2016.

**Educational Activities**

The department has conducted cancer awareness programme in collaboration with NGO “Cancer Care India” on 23/8/16, 22/9/16 and 26/10/16. The topics included:
1. Lung cancer awareness
2. Control on preventable cancer
3. Breast cancer awareness

**Department’s Achievements**

- On going projects: Adjuvant treatment in carcinoma gall bladder patient: a multicentric randomized trial
- Initiated proposal on gall baldder cancer together with Dept of Surgery and Dept of Molecular and Cellular Medicine.
- Initiating project on hospital based cancer registry together with the National Centre for Disease Informatics and Research (NCDIR), Indian Council of Medical Research (ICMR), Bengaluru.

**Visiting faculty**

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Kumar Alagappan</td>
<td>MD Anderson cancer center</td>
<td>6/11/16</td>
</tr>
<tr>
<td>Dr. Prabhat Kumar Mallik</td>
<td>AllMS</td>
<td>24/11/16</td>
</tr>
</tbody>
</table>

**Faculty Achievements**

**Dr. Hanuman Prasad Yadav**

Dr. Hanuman Prasad Yadav completed his MBBS and MD from SMS Medical College, Jaipur, Rajasthan University in 1981 and 1986, respectively. He has worked in Sawai Mansingh Hospital and Medical College, Mahatma Gandhi Medical College & Hospital and Guru Gobind Singh Medical College & Hospital/Baba Farid University of Health Sciences. He was the Nodal Officer of Advanced Cancer Diagnostics and Treatment Centre, Bathinda, Punjab. He has developed comprehensive cancer treatment centre in GGS Medical College, Faridkot and Bathinda. He has joined ILBS in 2016 as Professor, Radiation Oncology.

- **Total Number of publications:** 10
- **Total Number of publications in 2016:** 1
- **Total Number of projects:** 2
- Received the appreciation award from Baba Farid University of Health Sciences, Punjab for services given to GGS Medical college, Faridkot.
- Served as Chairperson at : CARBICON, Jammu; Head and Neck cancers CME, Jalandhar and ICRO, Fortis Noida.
- Served as Co-organizing chairman, NZAROI, Faridkot.
- Served as Judge for best paper award, AROI, Bhubaneswar.

**Dr. Saphalta Baghmar**

Dr. Saphalta Baghmar completed her MBBS from Mahatma Gandhi Medical College, Indore and MD medicine from Shyam Shah Medical College, Rewa. She did her DM from All India Institute of Medical Sciences in 2014. Her area of interest is GI oncology, Gynaeconcolgy and intended to study research based on preventive oncology. She is actively working with an NGO, Cancer Care India, which is spreading cancer awareness all over India. Giving lectures about cancer awareness for the NGO.
Institute of Liver & Biliary Sciences, New Delhi

- Total Number of publications: 9
- Total Number of publications in 2016: 4
- Total Number of projects: 2
- Gave lecture to 1600 Army officials and NCC cadets on 22 Sept 2016 on the topic “Preventable cancer; how prevented risk factors; early detection & treatment”.
- Presented poster on “Role of adjuvant treatment in periampullary carcinoma” in World GI cancer congress 2016, Barcelona.
- Received oral presentation award in 1st Indian cancer congress.
- Serving as editorial board member of an International journal “The scientific pages of pancreatic cancer”.

Dr. Puja Sahai

Dr. Puja Sahai completed her MD from Maulana Azad Medical College. She has worked as a Senior Resident and Senior Research Associate at the All India Institute of Medical Sciences, New Delhi.

- Total Number of publications: 18
- Total Number of publications in 2016: 2
- Total Number of projects: 2
- Chaired a session at the International Federation of Head and Oncologic Societies (IFHNOS) and Foundation for Head & Neck Oncology (FHNO) combined meeting, New Delhi.
The Department of Radiology and Interventional Radiology provides comprehensive imaging services under the banner of ILBS and is one of its kind, in the country to be solely dedicated to the subspecialty of hepatobiliary radiology. ILBS employs more than 10-certified radiologists specializing in abdominal imaging and performs more than 60,000 imaging examinations annually at the hospital.

Our Mission

- Provide excellent-quality, radiation safe and cost effective care to patients through medical imaging.
- Integrate imaging into research for further advancement of technology and improved clinical benefits.
- Pass on the torch of knowledge and experience gained in the field of imaging through teaching programs.
Clinical expertise

The department boasts of high-quality patient care with world class equipment and highly trained specialists. In addition, the department continues to play a key role in advancing the state of the art for technologies in image-guided vascular and non vascular interventional procedures as well as imaging technologies including CT (computed tomography), MRI (magnetic resonance imaging), X-Ray (radiography) and ultrasound.

Subspecialty Divisions

• Diagnostic abdominal imaging
• Vascular imaging and intervention
• Non vascular imaging and intervention
• Transplant imaging
• General diagnostic radiology (neurology, renal, thoracic , pediatric , emergency and cardiothoracic imaging)

Training

As an integral part of, one of the nation’s premiere academic institute’s, teaching is an essential part of the department. Our intensive, highly sought-after post graduate diploma certified courses provide budding radiologists with advanced, specialized training in intervention and diagnostic hepatobiliary radiology. In addition, the department offers short term visitor’s training programmes that attract radiologists from across the world.

Research

The radiology department also helps to advance the quality of clinical practice while sowing the seeds for future life-saving breakthroughs. Departmental research is being conducted in the fields of newer invasive interventional techniques for tumour ablation, embolization and biliary stenting. In addition, new techniques involving spectral CT, 3Tesla MRI( MR spectroscopy, MR Elastography), contrast ultrasonography are being conducted in the diagnostic wing. In addition, the department also supports clinical trials and drug development as well imaging for toher clinical specialties and liver transplant surgery advancements.

Services Rendered

The diagnostic division is comprised of four unique sections: conventional radiography and procedures, ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI). The interventional set up comprises of one of the finest laboratory in the country catering to both vascular and non-vascular procedures. Cutting-edge, fully digital, multimodal technological resources are used to provide the following services:

• Four outpatient ultrasound units with 1 unit dedicated to contrast ultrasonography.
• Three portable ultrasound units
• High end ultrasound unit dedicated to the transplant programme
• One (3 Tesla) MRI
• One multispectral 64 slice CT scanner with Gem stone Imaging
• Three digital radiography units with flat panel detectors.
• Fluoroscopy suite with C arm and flat panel detector for fluoroscopic guided procedures
• Barium Studies

Interventional Radiology

Suites For:

• USG / CT guided FNAC and Biopsies
• PCD (Percutaneous drainage)
• PTBD and stenting
• Radio Frequency Ablation (RFA)
• Transjugal liver and kidney biopsy
• Trans-Jugular Intra-hepatic Portosystemic Shunt (TIPS)
• Trans-arterial chemo embolization (TACE)
• Diagnostic angiography
• GI bleed embolisation
• Bronchial artery embolisation
• Balloon-ocluded retrograde transvenous obliteration of varices (BRTO)

All of the diagnostic and interventional radiology services are supported by the latest hospital informatics and PACS capabilities. These technologies are a part of the Radiology Department’s commitment to offer the best care and technology for patients and fellow physicians.

• IVU
• DEXA –Whole body and individual hip, spine & wrist bone density scanner equipped with rotating C arm and facility for animal model research
• 3D Imaging - The 3D imaging service of the Radiology department takes data from cross-sectional CT (computerized tomography) and MRI (magnetic resonance imaging) studies and produces life-like spatial views of body systems through the Myrian software, especially utilized in transplant realted imaging.
• Our department supports the full spectrum of imaging-related services in support of clinical trials.
Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>X rays</td>
<td>26,672</td>
<td>28,594</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>18,623</td>
<td>22,444</td>
</tr>
<tr>
<td>CT scans</td>
<td>8753</td>
<td>9541</td>
</tr>
<tr>
<td>MRI scans</td>
<td>3355</td>
<td>3487</td>
</tr>
<tr>
<td>DEXA scans</td>
<td>1514</td>
<td>1810</td>
</tr>
<tr>
<td>Transplant evaluations (Myrian)</td>
<td>350</td>
<td>500</td>
</tr>
</tbody>
</table>

New services & facilities

World class Myrian™ French liver volumetry software was incorporated into existing MDCT and MRCP scans, to provide MEVIS like in-house reformat for the liver transplant workup. On site training at Paris was also given to faculty regarding operations of the same.

Liver volumetry software Myrian™ XP-Liver uses unique segmentation algorithms to isolate entire hepatic vascular systems, healthy parenchyma and lesions and calculate their volume with high precision. It generates highly accurate, dependable and reproducible measurements, as well as three-dimensional images which facilitate interdepartmental communication. This software has set new standards in decision-making for living donor liver transplant surgery and interventional radiology procedures.

3D reconstructions for evaluating the liver anatomy and volume rendered image for pre transplant evaluation as shown below:

This procedure was introduction in the mid-1990s in Japan and is being practiced mostly in Asian subcontinent. It is a minimally invasive, highly effective treatment for gastric varices. It is an effective treatment option for portal-systemic encephalopathy secondary extrahepatic portal-systemic shunts. Although, its use in India is not widely popular, ILBS is amongst the very few centers where the procedure is being frequently performed with excellent clinical outcomes. The multidisciplinary team at ILBS consisting of the Hepatologist and Interventional Radiologists is proud to have performed one of the highest number of BRTO procedures in the country.

Per-cutaneous trans hepatic antegrade gastro/lienorenal shunt occlusion:
Large spontaneous porto-systemic shunts in the setting of liver cirrhosis may sometimes lead to recurrent severe hepatic encephalopathy. Patients who do not respond to medical management require closure of these shunts. Patients with complex venous vascular anatomy may require percutaneous access of portal vein and further cannulation of the shunt and closure of the same. A rare and challenging procedure which our team has successfully performed in few cases.

**TIPS shunt reduction:** Hepatic encephalopathy is the most common complication seen in patients with TIPS. Those patients having recurrent severe hepatic encephalopathy require either closure or reduction of TIPS shunt. While closure of the shunt may lead to recurrence of the symptom (UGI bleed / Ascites), reduction of the shunt remains the most reasonable treatment. Although challenging task but our interventional team has done few of these procedures using novel parallel stent technique.

**Transjugular renal biopsy:** Renal biopsy is one of the most important investigation for a nephrologist to determine appropriate therapy. However percutaneous biopsy may be risky in patients with low platelet count and increased prothrombin time (specially in patients with liver cirrhosis) and in such cases biopsy may be safely performed via jugular route. Our institute is amongst few to initiate and perform this procedure on regular basis.

### Educational Activities

#### Course offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Candidates admitted</th>
<th>Candidates passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDCC in Diagnostic and Hepato Biliary Interventional Radiology</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>PDCC in Abdominal Imaging</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Faculty Achievements

**Dr. Shalini Thapar**

Dr. Shalini graduated from Calicut Medical College with distinction and completed her post graduation from the prestigious Dewan Chand Aggarwal Imaging and Research Centre, New Delhi. She was awarded the National Gold medal for standing first in the all India national board examination in Radiodiagnosis. She did her senior residency training from Post Graduate Institute of Medical Education And Research, Chandigarh and G.B Pant hospital, affiliated to Maulana Azad Medical College, New Delhi. Due to her keen interest in abdominal and hepato-biliary imaging, she joined as faculty at ILBS and has done specialized work in transplant and hepato biliary imaging in the past 7 years. She was the core person involved in establishing the department of Radiodiagnosis at Institute of Liver and biliary Sciences (ILBS) with installation of Dual energy 64 slice CT scanner, 3T MRI, and Ultrasound machines with contrast ultrasound facility, portable ultrasounds, Digital X ray and Angiography suite. She has initiated and is involved in ongoing research work in the fields of MR Elastography, Multi spectral CT and contrast sonography in the department of radiology at ILBS. She is an accomplished orator and has presented various papers at national and international podiums. She has excellent publications in the field of abdominal imaging, where her core interest lies. She has more than 30 proffered papers and scientific exhibits to her credit.

- Total Number of publications: 106
- Total Number of publications in 2016: 18
- Total Number of projects: 2
Dr. Amar Mukund

Dr. Amar Mukund, associate professor interventional radiology has been a key person in establishing the interventional radiology laboratory and commencing one year fellowship in interventional radiology (PDCC in HPB interventional radiology). He has plenteous publications in various national and international journals and has also authored chapters on interventional radiology and paediatric imaging. He has special interests in Hepato-biliary interventions and a few of his original works have found place in some of the distinguished journals pertaining to interventional radiology. His great dedication towards his work and his friendly nature makes him a very popular faculty at ILBS

- Total Number of publications: 57
- Total Number of publications in 2016: 7
- Total Number of projects: 2
- 2016 (February 18-21) – Percutaneous management of portal vein thrombosis at ISVIR National conference 2016 at Bangalore
- 2016 (March 26-27) – Ultrasound & CT Guided Interventions at IRIA MP State Annual conference at Jabalpur, MP
- 2016 (March 26-27) – Imaging & Interventions in Surgical Obstructive Jaundice at IRIA MP State Annual conference at Jabalpur, MP
- 2016 (April 29-30th) – RFA in HCC: Evidence for and against CME on “Irreversible electroporation: Application in oncology” at PGI Chandigarh
- 2016 (September 3-4th) – Approach to a patient with abdominal pain at IRIA UP State Annual conference at Varanasi, UP

Dr. Yashwant Patidar

Dr. Yashwant Patidar joined the institute in 2011 and is presently working as Associate Professor in Department of Interventional Radiology. He acquired his M.D. Radiodiagnosis from N.S.B.C. Medical College, Jabalpur and subsequently completed 3-years of senior residency from All India Institute of medical sciences (AIIMS), New Delhi. His professional expertise includes ample exposure to all interventional procedures. He had a lot of experience of routine as well as various life saving interventional procedures. Worked at AIIMS and ILBS has been a pleasurable journey and has greatly inspired and increased his dedication towards patient care and clinical research.

- Total Number of publications: 34
- Total Number of publications in 2016: 7
- Total Number of projects: 2
- Delivered lecture at Interventional Radiology Update - 2016” conference on 26th - 27th Nov, 2016 at Sir Ganga Ram Hospital, New Delhi on “Role of TACE for advanced stage hepatocellular carcinoma”.
- Delivered lecture at 18 th ISVIR registry cum Complication meet on 13th and 14th August 2016 at Nagpur on “Complications in GI Interventions”.
- Presented paper at SIR-2016 (Society of Interventional radiology) conference on 03, 2016 at Vancouver Convention Centre, Canada on “Radiofrequency ablation of surface v/s intraparenchymal hepatocellular carcinoma in chronic liver disease patients”.
- Presented a case in 18 th annual ISVIR-2015 (Indian society of vascular and interventional radiology) conference on 18-21Feb at Bengaluru on “Transjugular Intrahepatic Mesocaval Shunt”.

Awards

- Best case presentation award in 18th ISVIR Registry Cum Complications meet, 13th 14th August 2016, Nagpur.

Dr. Binit Sureka

Dr. Binit Sureka joined as a faculty in the Department of Radiology at Institute of Liver & Biliary Sciences in June 2014. He has done his post graduation in Radiodiagnosis from Postgraduate Institute of Medical Education & Research, Chandigarh. He has done Fellowship in Abdominal Imaging from University of Verona, Italy. He has also cleared DNB Radiology Exam of Diplomat of National Board of Examinations. In addition Binit has done Masters in Healthcare Administration (MBA-Healthcare) from Faculty of Management Studies, Delhi University, New Delhi and Diploma in Hospital Administration from Apollo Hospitals, Hyderabad. He is an esteemed Member of the National Academy of Medical Sciences. He is also in the Editorial Board of World Journal of Radiology. He has been nominated for the Dr. VP Lakhpanal Gold Medal for the best academic contribution by the Indian College of Radiology & Imaging.
• Total Number of publications: 106
• Total Number of publications in 2016: 18
• Nominated for Dr. VP Lakhanpal Gold Medal for the best academic contribution in the year 2015 by the Indian College of Radiology & Imaging
• Felicitated by the Agarwal Samaj of Jaipur for contribution to Radiology
  - Invited as a Faculty to deliver talk in Annual Conference of Indian Radiological & Imaging Association (IRIA) at Bhubaneshwar, January 2016
• Presented oral paper on Annuual Conference of Indian Radiological & Imaging Association (IRIA) at Bhubaneshwar, January 2016
• Attended European Society of Gastrointestinal and Abdominal Radiology (ESGAR) 2016 Conference held in Prague, Czech Republic, June 2016
  - "Advanced pancreatic adenocarcinoma: CT evaluation before and after neoadjuvant - treatment with FOLFIRINOX and correlation with histopathology" selected as ESGAR Top 20 presentations in ESGAR, Prague, Czech Republic, June 2016
• Presented oral paper on Xanthogranulomatous cholecystitis at ESGAR, Prague, Czech Republic, June 2016
• Presented E-poster on CT and MR findings in cirrhosis and other liver diseases mimicking cirrhosis at ESGAR, Prague, Czech Republic, June 2016
• Attended SGPGI-NIH Workshop on Basic Biostatistics Lucknow, August 2016
• Presented three E-posters (participated from home) on CYSTIC Model in cystic lesions of pancreas; Autoimmune Pancreatitis; Portal vein variations at the Korean Congress of Radiology, Seoul, October 2016
• Invited as a Faculty to deliver talk in Intervention Radiology update 2016 at Sir Gangaram Hospital, New Delhi, November 2016
• Coined “CYSTIC Model for Cystic lesions in Pancreas” with the help of HPB Surgery and Pancreatic team, ILBS which is published in The Journal of Pancreas.
Laboratory Medicine

Pathology
The motto of the pathology department at ILBS is in accordance with that of the institute, i.e. to continuously strive towards excellence in quality with patient care being of utmost importance. Dextrous technical team, works in unison with dedicated and motivated pathologists to attain optimum standards in every test results. The department is actively involved in academic activities with PDCC candidates being enrolled every six months, who then participate in weekly discussions and presentations. There is in totality, a holistic environment with a perfect blend of both diagnostics as well as research oriented projects.
Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td>HISTOPATHOLOGY</td>
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<td>Small Biopsy</td>
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<td>Medium Biopsy</td>
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<td>2993</td>
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<td>Large Biopsy</td>
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<td>2561</td>
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<td>Renal Biopsy</td>
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<td>115</td>
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<td>Liver Biopsy</td>
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<td>Frozen Section</td>
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<td>110</td>
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<td>Cell Block</td>
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<tr>
<td>CYTOPATHOLOGY</td>
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<tr>
<td>Fluid Cytology</td>
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<td>767</td>
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<tr>
<td>Brush Cytology</td>
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<td>74</td>
</tr>
<tr>
<td>USG AND EUS Guided FNA</td>
<td>402</td>
<td>342</td>
</tr>
<tr>
<td>Pap Smear examination</td>
<td>152</td>
<td>163</td>
</tr>
<tr>
<td>On site cytological evaluation rapid staining and reporting</td>
<td>402</td>
<td>342</td>
</tr>
</tbody>
</table>

New services & facilities

- Expanded diagnostic services to cover the increasing needs of department like nephrology, urology, pulmonary medicine and oncology.
- Interactive academic and teaching programmes for PDCC Course (2 batches every year).
- Clinicopathological correlation monthly meetings in ILBS and in other Institutes as and when needed.
- Expanded immunofluorescence panel.
- Immunofluorescence studies for Autoimmune liver diseases as part of biochemistry-immunopathology services.
- Expanded immunohistochemical markers for diagnostic and prognostic needs.
- Expanded immunohistochemical markers for opportunistic infections.
- Dual immunohistochemistry on formalin fixed paraffin embedded tissues.
- Department started the procurement process for autopsy and liquid based cytology.

Educational Activities

5th "Dr. V. Ramalingaswami Oration" and Hepatopathology Meeting, 2016 on 8th August, 2016

5th Dr. V. Ramalingaswami Oration and Hepatopathology meeting was held on 8th August 2016, on the theme of "Autoimmune Liver diseases (AILDs)". This one day meeting was a rich academic session and included Oration and series of lectures by eminent National & International faculty. About 150 delegates turned up for this conference. The oration was delivered by the eminent autoimmunologist, Prof. Y Schoenfeld from Zabludowicz Center for Autoimmune Diseases, Sheba Medical Center (Affiliated to Tel-Aviv University) Tel-Hashomer, Israel and an incumbent of the Laura Schwarz-Kipp chair for research of autoimmune diseases, Tel-Aviv University, Israel, Prof. Schoenfeld discussed in detail an important aspect of liver autoimmunity and novel aspect of autoimmune. Eight senior pathologist of repute added flavor in the conference by adding recent advances in the field and the diagnostic utilities of newer advances in autoimmune liver pathology. In the meeting various lectures on effect of systemic autoimmune diseases on liver, diagnostic approach to AILDs, approach to liver biopsy with AILDs, AILDs liver transplantation, primary biliary cirrhosis, primary sclerosing cholangitis, drug induced AIH, were discussed and appreciated. The main highlight of the program was learning about approach to AILDs in liver biopsy including the clinical aspects to it. Liver pathology conferences were desired more frequently by most of the delegates to fill the lacunae in liver pathology.

Course offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Candidates admitted</th>
<th>Candidates passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDCC (Hepatopathology)</td>
<td>Dr. Ayushi Agarwal Dr. Neha Nigam</td>
<td>Dr. Sachin Choudhary, Dr. Kanika Taneja</td>
</tr>
</tbody>
</table>

Department’s Achievements

- Department of Pathology delivered excellent quality services as per NABL and NABH standards.
- 5th “Dr. V. Ramalingaswami Oration” and Hepatopathology Meeting, 2016 on 8th August, 2016
- Conducted PDCC Hepatopathology courses and entrance & exit examinations.
- Department provided FISH training to lab technicians
- Department provided support and service to various research projects
- Department conducted Pathology part in the CPCs held in 2016
- Training of internal & external DM (Hepatology) students.
- Started new diagnostic panels for various malignancies & liver diseases.
Faculty achievements

Dr. Archana Rastogi

Dr. Archana is currently Additional Professor in Pathology. She has done her MBBS and MD Pathology from IMS, BHU. She has also done DNB and postdoctoral certified course (PDC) in pathology from prestigious superspeciality institutes in India like SGPGI, Lucknow, and GB Pant hospital. For the past 13 years, she has been actively involved in research and diagnostic histopathology & cytopathology work in hepatopancreato-biliary diseases and Gastrointestinal Pathology.

She has about 110 publications in indexed journals, mainly in the field of HPB and GI Pathology and has presented work in several international and national conferences. Because of her expertise, she is regularly invited as a speaker to several national GI, Liver & Pathology conferences. She was instrumental in setting up the Histopathology and Cytopathology laboratory of ILBS, Delhi, which is now a referral centre for specialized cytopathology protocols. Several important pathology related academic activities in ILBS such as Post Docto-Certified Course (Hepatopathology), Pathology Oration and Hepatopathology annual meeting/updates, monthly CPCs have been initiated by her. Being an active researcher, she is a principal investigator in research projects & co-supervisor in Post-graduate thesis. Member of APASL-ACLF consensus group. The APASL-ACLF consensus group has nominated her as an active member. Her interest areas include: mainly liver transplant pathology, liver regeneration & hepatobiliary neoplasia. Current areas of work are fatty liver, preneoplasia & neoplasia of liver & liver allograft rejection.

• Total Number of publications: 110
• Total Number of publications in 2016: 11
• Total Number of projects: 2
• Liver CME held in SKIMS, Srinagar, May, 2016
• Pathology National conference - APACON, 2016 - Transplant Pathology session, Jaipur, December, 2016

- ISOT, 2016- Chandigarh, October, 2016
- SAASL, 2016, held in September in Chennai
- Indo-French node for research on NAFLD & ALD, held in ILBS. Session- “HCC in NAFLD, July 9th, 2016
- Abstract accepted for Poster presentation in EASL, 2016
- Abstract accepted for Oral presentation in APASL, 2017

Awards
- Certificate from the International Society of Nephrology (ISN) and the American Nephrologists of Indian Origin (ANIO) - CNC Clinical Nephropathology

Dr. Chhagan Bihari

Dr. Bihari has done his MD pathology from SMS Medical College. Currently he is working as an Associate Professor and his areas of interest include vascular and autoimmune liver diseases, and bone marrow pathophysiology in liver diseases. He is also actively involved in the establishment process of biobanking process designing, including- analytical framework, verification and standardization of operating procedures, manual for implementation of quality practices, cryopreservation and storage validation SOPs, stakeholders participation and scientific and business development in the field of biobanking. He has been identified as PI, CO-PI, supervisor and co-supervisor of various extramural and intramural projects and student protocols.

Our group has recently shown that progression of cirrhosis is associated with progressive impairment of the hematopoietic stem cell niche in bone marrow (Bihari et al, Hepatology, 2016 and appearing on the cover page). This in turn is responsible for the progressive hematological and immune derangements seen in advanced cirrhosis, as well as impaired liver regeneration.

- Total Number of publications: 85
- Total Number of publications in 2016: 19
- Total Number of projects: 2

Microbiology and Infection Control

Department of Microbiology and Infection Control imbibes the mission and vision of ILBS in amulgumating Clinical Research, Diagnostics, and unmatched patient care. Department is a multidisciplinary unit consisting of Bacteriology, Mycology, Parasitology, Mycobacteriology and infection control. Timebound and accurate reports forms our core strength, and provide a defining edge to evidence based medicine. Real time online reporting and use of state-of-the-art equipment have made this goal possible to achieve. Our department is the flag bearer of the Quality commitment incorporated in every aspect of ILBS. NABL accreditation validates our commitment for upholding the high standards of quality. We follow strict quality control (Q.C.) and quality assurance (Q.A.) practices, having participated in EQAS and Interlab comparisons with approved National Reference Centres for the past many years. Infection control activities and Antibiotic stewardship programme provides continuous liasioning between the clinicians and the lab. The Infection Control Department performs surveillance of Hospital Associated Infections, monitors the environs, health care providers and the patients to prevent the spread and acquisition of MDROs and other infectious agents. We also trains and motivate all categories of staff to follow good infection control practices to prevent the spread.
Institute of Liver & Biliary Sciences, New Delhi


## Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>January’16 to November’16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic culture</td>
<td>26945</td>
<td>27347</td>
</tr>
<tr>
<td>Fungal culture</td>
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<td>524</td>
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<tr>
<td>AFB culture</td>
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<td>194</td>
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<tr>
<td>Stain</td>
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<td>7785</td>
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<td>Stool Examination</td>
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<td>854</td>
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<td>TB PCR</td>
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<td>299</td>
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<tr>
<td>Serology</td>
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<tr>
<td>Hospital surveillance</td>
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<td>701</td>
</tr>
<tr>
<td>Aerobic culture</td>
<td>26945</td>
<td>27347</td>
</tr>
</tbody>
</table>

### Infection Control

- **Infection Control Activities-** the hospital has a comprehensive infection control programme for Prevention and Control of Healthcare Associated Infections & multidrug Resistant Organisms.
- **We follow globally accepted NHSN guidelines and protocols to provide a safe environment to patient staff and visitors.** Data collection and statistical analysis of HAI indices, Hand Hygiene compliance, MRSA screening form the core of infection control activities. The incidence of all major indices is weekly reported to the director of the institute and quarterly to NABH.
- **HAI rates of our critical areas are well below the pooled mean rates reported by INICC (International Nosocomial Infection Control Consortium) and CDC-NHSN.**
- **New guidelines and measures are adopted to curtail the HAIs. Regular training and education & orientation of new employees and existing staff is done for Prevention and Control of Healthcare Associated Infections & multidrug Resistant Organisms.**
- **Regular environmental surveillance in form of air culture, water culture, surface culture, hand sampling is done to prevent and control any outbreak.** Patient education, Oversight of regulatory compliance, isolation of potentially infectious patients. Management of Occupational exposures involving employees are important components of our routine work.
- **The infection control committee meets regularly on last Tuesday of every month to discuss any issues, to formulate and update patient care policies, to develop system of identifying, reporting, investigating and controlling the hospital acquired infection, and formulation of preventive and corrective programs in view of infectious hazards. Policies and protocols on the methods of sterilization and disinfection guidelines for segregation and disposal of hospital waste are regularly reviewed.**
- **Antimicrobial stewardship:** Antimicrobial stewardship forms an important component of daily infection control rounds. Discussion and review of antimicrobial treatment is carried by the infection control officer routinely. Antibiogram is prepared based on susceptibility patterns and temporal trends of aggregated data are analysed and shared. Antibiotic policy is formulated based on in-house antibiogram and globally accepted clinical guidelines. Escalation and de-escalation of antimicrobials is done to optimize the treatment and to prevent the emergence of MDROs(multiple drug resistant organisms).
- **The infection control manual and antibiotic policy is available on HIS (hospital information system) and can be readily accessed for referral in all areas.**
- **Restricted antimicrobials are administered only after due consideration and clearance from the concerned Faculty and infection control officer their usage monitored, quantified and rationale documented.**
New services & facilities

- Quantitative Procalcitonin estimation
- Galactomannan assay
- Quantitative C-Reactive Protein (CRP) estimation
- Rapid test for Giardia in stool
- Rapid test for Helicobacter pylori in stool

Educational Activities

a) Courses offered by the Department

Names of candidates admitted/passed out this course in 2016:

Department’s Achievements

Training and sensitization programme of Housekeeping staff for Biomedical waste management.

- Factors effecting adherence to standard precautions by Nursing professionals—a Feedback exercise.
- The preanalytical optimization of blood cultures the clinical importance of Preanalytical variables-refining the phlebotomy skill.
- Behavioural modification for better hand hygine compliance-Identifying the psychological barriers to compliance of hand hygine.
- Hospital associated infections-importance of critical care nursing.
- Principal of sepsis and asepsis -Revising the Basics.
- Disinfection of critical care equipment-training of nursing staff.

<table>
<thead>
<tr>
<th>Technical staff</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>Sapna Sharma</td>
<td>‘Antimicrobial Susceptibility Testing (AST)’</td>
</tr>
<tr>
<td>Geetha D Nair</td>
<td>“Processing of sputum samples, smear, Solid and Liquid culture, PCR and Reporting for TB”</td>
</tr>
<tr>
<td>Sanjay Singh Mehta</td>
<td>‘Technical skills in automation in Bacteriology’</td>
</tr>
</tbody>
</table>
Faculty members
Dr. Vikas Khillan
Dr. Pratibha Kale

Technical Staff
Charu Parashar
Geetha D Nair
Sanjay Singh Mehta
Sapna Sharma

Infection Control Nurse
Amit Chaturvedi

Dr. Vikas Khillan completed his MBBS, MD from UCMS, Delhi in 1999 and 2002. After working as a senior resident in GTB hospital for 3 years he joined as a National Head, Department of Microbiology at Dr. Lal path labs, New Delhi before joining ILBS in 2008. At ILBS, he was instrumental in setting up of Departments of Microbiology and Infection control.

He developed antibiotic policy, infection control manual and quality manuals for the hospital. Along with handling microbiology lab, he is actively involved in antibiotic stewardship and infection control activities. He emphasized hand hygiene training, surveillance of OTs and monitoring of infection control indicators like CRBSI, SSI, VAP, and CAUTI at ILBS. He is helping clinicians in rational use of antibiotics during his rounds in critical areas of the hospital. He is a coordinator for all NABL related activities of the labs in the capacity of “Technical Manager” laboratory medicine. He is a co-chairman of infection control committee and a member of drug and theuraptic committee at ILBS. He is also a co investigator and co supervisor in various projects and thesis work in ILBS.

- Total Number of publications: 8
- Total Number of publications in 2016: 3
- Total Number of Projects: 3
  1. Vietnamese time bomb” waiting to explode; Burkholderia pseudomallei, rebranding the “rare” tag. An update Indian Journal of Medical Specialities, Volume 7, pp 116-124

• Delivered lecture in ICCMID course in Sept 2016.
• Poster presentation at International Conference of Infectious Disease in July 2016.
• Poster presentation at European society of clinical microbiology and infectious disease in April 2016.
• Attended ICCMID course in Sept 2016.
• Attended ECCMID 2016
• Delivered series of lectures at ILBS during “certificate course in critical care nursing”.

Dr. Pratibha Kale
Dr. Pratibha Kale has graduated from Government Medical College, Aurangabad, Maharashtra and then MD, Microbiology from PGIMER, Chandigarh and senior residency from AIIMS, New Delhi in 2015. She has received the bronze medal for academic performance at PGIMER and Dr. Bederkar Award For Physiology (2002). Her major research work has been in the field of mycology. She has been awarded the G.P. Agarwal Young scientist award in 2012, and best oral paper presentation on topic “Comparison of responses of Aspergillus flavus and Alternaria alternata on activation and degranulation of eosinophils in allergic fungal rhinosinusitis” at SIHAM, 2012. She has received the USTI- IASSTD & AIDS Scholarship worth Rs 20,000 for Oral paper presentation at ASTICON 2014 and IAMM Silver Jubilee Best paper in parasitology, MICROCON 2015. She has been awarded First Prize In Essay Writing Competition in Vigilance Week PGIMER Chandigarh. Dr. Pratibha is an NABH assessor. Invited as a faculty for debate presentation at MICROCON 2016, Chandigarh.

- Total Number of publications: 11
- Total Number of publications in 2016: 5
Clinical Virology

Clinical Virology Laboratory at the Institute provides a full range of diagnostic services for the detection and monitoring of viral illnesses in both the adult and pediatric patients. The laboratory handles an enormous sample load and variety of viral markers testing. The laboratory has been automated to the extent possible, in keeping with international standards. The laboratory performs diagnostic services for the detection and monitoring of viral diseases for the full range of Hepatitis viruses (Hepatitis A, B, C, D and E). Quantitative assessment of viral infection in transplant and other immunocompromised patients (CMV, EBV, and BK) is also done. A BSL level grade 2/3 molecular diagnostic facility for HBV, HCV, HAV, HAV, CMV, EBV, HSV 1 & 2 and VZV is available. HBV & HCV genotyping are routinely being done. The laboratory takes pride in performing the following diagnostic assays for the first time in India: HCV Resistant associated substitutions (RAS) testing, antiviral drug resistance testing for HBV; HBs Ag quantification; Occult HBV diagnosis; Mutant screening for HBV (Pre-core, Basal core promoter mutations); HEV RNA Quantification; EBV Quantification; CMV and EBV Quantification from tissue biopsy. The laboratory is actively involved in the investigation of recent Influenza, Dengue and Chikungunya outbreaks in the city. Dengue virus serotyping by PCR & Real-time PCR based detection of Chikungunya virus is also being done routinely. The Virology Lab has been active in initiating teaching modules and programs in clinical virology. Emphasis is given to quality research and development of novel diagnostics, so that the department remains at the forefront of patient care. Recently, simultaneous detection of 33 different respiratory pathogens (Viruses, atypical pathogens) by multiplex PCR protocol was initiated. NABL accreditation was awarded to the lab in 2013 and this is the one of the very few NABL accredited molecular virology lab in India. The Molecular Lab participates in External Quality Assurance Program (EQAS) by Royal College of Pathology, Australia. The Virology Lab has made an exhaustive protocol for Needle Stick Injuries for healthcare professionals at ILBS. The lab also keeps a record of immunization protocol of the entire ILBS staff. The laboratory also supervises the unique Needle stick injury control programme through our website: nsilibs.in. The ILBS NSI – website aims to provide platform for a centralized registry for needle stick injuries. The vision of ILBS is not only to create an institutional database on needle stick/ sharps injuries but to expand it as a statewide and thereafter national NSI Registry. One of its kind PDCC course in Hepatovirology has been introduced from August 2014 to train young budding microbiologists in this field. We provide opportunity for M.Sc. students from various institutions to observe virological techniques as a part of internship and observership programmes. Virology laboratory is also actively involved in initiation of nationwide training program for Microbiologist and technical staff as a part of World Health Organization collaborative Center (WHO CC) in Viral Hepatitis.

Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
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<td>HCV</td>
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<td>8923</td>
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<tr>
<td>HAV &amp; HEV</td>
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<td>3612</td>
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<tr>
<td>HIV</td>
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<td>DENGUE VIRUS</td>
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<tr>
<td>CHIKUNGUNYA IgM</td>
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<td>106</td>
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<tr>
<td>LIVER SOL WORKUP (Amoebic &amp; Hydatid Cyst)</td>
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<td>SPECIAL SEROLOGY(HBsAg Quantification)</td>
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<td>Anti-EBV IgM, Anti-HSV IgM, Anti-VZV IgM</td>
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<td>HDV IgM, HDV Total</td>
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<td>MOLECULAR ASSAYS</td>
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<td>HBV DNA QUANTITATIVE (REAL TIME PCR)</td>
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<td>HAV &amp; HEV RNA QUANTITATIVE (REAL TIME PCR)</td>
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<td>143</td>
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<tr>
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<td>832</td>
<td>989</td>
</tr>
</tbody>
</table>
New services & facilities
- Multiplex Real time PCR for Respiratory Viruses and atypical pathogens.
- Screening for Resistant associated substitutions in HCV infected patients on DAA.
- Chikungunya Serology and molecular testing.
- Hepatitis Delta Virus Serology.

Educational Activities
Details of the Educational activities (CME/Conf/workshop) hosted by the department in 2016 under following headings:

1. Laboratory Technician training program on “Laboratory diagnosis of Viral Hepatitis” under WHOCC
   The department has started one day laboratory technician training programme under WHO-CC. The training includes lectures on Laboratory diagnosis of viral Hepatitis, Needle stick injury and biosafety for health care workers. This is followed by hands-on training on various techniques including serological techniques as well as molecular techniques for viral hepatitis. Five such trainings were conducted in 2016 and 80 technicians have been trained so far, from various ICTC centers of Delhi and NCR.

2. Hepatitis B and C Screening Camps
   The laboratory is actively involved in organising free screening camps for Hepatitis B & C virus on various occasions at the Institute. Following camps were organised in 2016.
   - Organized Hepatitis B & C screening camp on the occasion of World Liver Day on 19th April, 2016. Total 190 registrations were done for the camp.
   - Organized Hepatitis B & C screening camp on the occasion of World Hepatitis Day on 28th July, 2016. Total 186 registrations were done for the camp.
   - Organized Hepatitis B & C screening camp on the occasion of Hepatitis Day on 4th Dec, 2016. Total 176 registrations were done for the camp.

Course offered

<table>
<thead>
<tr>
<th>Course offered</th>
<th>Candidates admitted</th>
<th>Candidates passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDCC in Hepato-Virology</td>
<td>03</td>
<td>02</td>
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</table>

Short Term Training

<table>
<thead>
<tr>
<th>Names of the Training</th>
<th>Details of Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Term Training in Clinical Virology</td>
<td>Sonam Makhija, Amity University</td>
</tr>
</tbody>
</table>
Department’s Achievements

Representation of the Department by the residents at various National/International Conferences:-


- **Supriya Mahajan**, Pragya Ranjan, Vijeta Bajpai, Suman Lata Nayak, Ekta Gupta*. “Prevalence of Hepatitis B virus, Hepatitis C virus and Human Immunodeficiency virus in chronic kidney disease patients on haemodialysis in a tertiary care hospital in India.” Poster presentation in Indian Association of Medical Microbiologists – Delhi Chapter (MICRO-D-CON 2016) held at India Habitat Centre, New Delhi on 19th November 2016.

- **Vijeta Bajpai**, Ekta Gupta, supriya Mahajan, Ashish Chowdhary, Meenu Bajpai. “Clinical relevance of Anti HBC as a predictive marker of occult Hepatitis B virus infection” Oral presentation in VMMC award session in Delhi Chapter IAMM 19 Nov’2016.

- **Mousumi Paul**, Nadeem Hasnain, Vijeta Vajpai, Ekta Gupta*. “Clinical Utility Of Quantification Of CMV DNA In Intestinal Biopsy Specimen In Inflammatory Bowel Disease Patients” Delhi Chapter (MICRO-D-CON 2016) held at India Habitat Centre, New Delhi in November 2016.


Visiting faculty to the department in 2016

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Date of Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Mini P Singh</td>
<td>PGIMER, Chandigarh</td>
<td>25.06.2016</td>
</tr>
<tr>
<td>Dr. Deepthi Nair</td>
<td>vMMC, New Delhi</td>
<td>12.12.2016</td>
</tr>
</tbody>
</table>
Faculty Achievements

Dr. Ekta Gupta

Clinical Virology from AIIMS. She was granted gold medal for her MD. Did post MD research work in Dengue viruses for which “The best Scientist award for outstanding contribution in clinical research by Indian Council of Medical Research (ICMR)” was given. Major research interests are in Hepatitis Viruses, Transplant viruses and respiratory viruses. Have more than 60 scientific publications in indexed National & International Journals and author of 9 chapters in books. She is the nodal officer for Hepatitis Day which is celebrated annually on 4th December in the Institute, she is actively involved in organizing various social level screening and vaccination camps for HBV, HCV & HIV in general public. She is the course faculty for the WHO CC and ECHO program at the Institute. She is the member secretary of the Institutes Ethical committee along with many other institutional committees, and executive member of Indian Association of Medical Microbiologist association and various other committees outside the Institute.

- Total Number of publications: 67
- Total Number of publications in 2016: 4
- Total Number of projects: 2
- Faculty Lecture in IAMM DC Annual Conference MICROCON DC 2016 on ‘Antiviral susceptibility testing’ Nov 2016, New Delhi.
- Faculty Lecture in MICROCON 2016 Annual conference of IAMM on ‘Significance of Viral load testing and genotyping in HBV & HCV infection’ in Dec, New Delhi.
- Presented Award category oral paper on “Early Cytomegalovirus infection in liver transplant recipients in high seropositive population: does pre-transplant CMV immunity have any role?” in MICROCON 2016 Annual conference of IAMM, Nov 2016, PGIMER, Chandigarh.
- Guest faculty lecture “Update on Chikungunya Virus diagnostics” in AMU, Oct 2016.
- Course faculty and chairperson in oral paper session in “World Trauma Conference” at JPNATC, AIIMS, New Delhi Aug 2016.
- Chairperson in Poster paper session, poster judge and course faculty in MICROCON annual conference of IAMM, Nov 2016, PGIMER, Chandigarh.
- Organised 5 technician training workshops at ILBS on “Laboratory diagnosis of Viral Hepatitis” as WHO CC. Faculty lecture on “Laboratory diagnosis of Viral Hepatitis”.
- Organised 3 screening camps for HBV & HCV testing at ILBS.
- Faculty lecture on “Needle stick injury for health care workers” in ILBS ECHO program.
- Faculty in ILBS ECHO first contact program cum conference, Dec 2016.
- Nodal officer for Hepatitis day on 4th Dec 2016.
- Member ethical committee Jamia Milia Islamia University.
- Member Stem cell and Ethics committee Indian spinal Injuries centre, New Delhi.
- Member expert group on National committee on Infection safety and Health care workers.
- Invited expert BER Committee at NACO, New Delhi.

Biochemistry

The Biochemistry laboratory provides clinicians with timely, unambiguous and meaningful reports to assist in the clinical diagnosis of disease and to monitor response to treatment. It obtains reliable and reproducible data for health screening and epidemiological studies and keeps abreast with advancing technology as well as aspects of healthcare legislation that might be relevant to modern laboratory practice.

The laboratory is involved in both pre-analytical (test ordering, blood collection, specimen transport) and the post analytical testing (preparing reports, transmission of results and maintaining a data file). The lab is involved in basic analysis, quality control, professional competencies, and cost-effective strategies of operation. All these applications are encompassed by the highest standards of national accreditation. Biochemistry lab excels in greater accomplishments in areas of informatics. New version of WIPRO LIS has enabled complex laboratory test result ordering and reporting and management and communication of clinical information in a meaningful way to clinical colleagues. The area of near –patient laboratory services has grown with the addition of two new ABG machines. Internal quality control monitoring and purchase of reagents, overall maintenance of P.O.C.T. equipments is overseen by the Biochemistry lab. Upgradation of STAT lab by installation of DXH 600 automated cell counter and the routine lab by Maglumi 2000 plus and DXI immunoassay analyzers will enable us to respond to increased volumes of testing and complexity of measurements and examinations. Benchmarking has been introduced in the lab which is an essential technique for achieving continuous sustainable improvement based on evidence in laboratory performance to ensure that it is effective and efficient with elimination of waste.
New Instruments
1. DXH 600 automated cell counter
2. DXI Immunoassay analyzer
3. MAGLUMI 2000 Plus
4. 2 ABG machines (LCICU, TICU)

New software
1. Bidirectional interfacing of Access2 and DXC600
2. Version 4 Wipro software has improved TAT of verification through bulk verification.
3. New report format condensing interpretation of tests.

Continual Quality Improvement
1. Expansion of scope of NABL (14 tests)
2. Started participation in HbA1C CMC Vellore EQAS.
3. Revised SOPs of DXC 600 test (Routine Biochemistry)
4. Prepared final SOPs of Inflammatory markers and protein assays.

Educational Activities
The department offers short term training programme in clinical biochemistry/automation and immunology to B.Sc.MLT students.

Department’s Achievements
- Technical or scientific expertise is its strength. The management structure involves a clear line of accountability of each member of staff to the head of department.
- The biochemistry lab has contributed to saving to the tune of nearly one crore to ILBS along with revenue generation and reduction of outsourced tests to minimum.
- Continuing professional development of all the staff is encouraged.

Academic enrichment programs attended
1. Annual quality and HbA1C meet
2. V.Ramalingaswami Oration
3. Journey with Radiometer
4. Westgard rules
5. Automation in urinalysis and comprehensive Pre-Natal screening solution
6. Immunofluorescence/Autoimmunity workshop

<table>
<thead>
<tr>
<th>Services Rendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
</tr>
<tr>
<td>TOTAL TESTS</td>
</tr>
<tr>
<td>ROUTINE</td>
</tr>
<tr>
<td>FLUID ANALYSIS</td>
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<tr>
<td>URINE ANALYSIS</td>
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<td>ENDOCRINOLOGY</td>
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<td>ONCOLOGY</td>
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<td>IMMUNOLOGY</td>
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<td>INFLAMMATORY MARKERS</td>
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<td>SEROLOGY</td>
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<tr>
<td>AUTOIMMUNE TESTS</td>
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<tr>
<td>THERAPEUTIC DRUG MONITORING</td>
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<tr>
<td>LIVER TRANSPLANT CHEMISTRY</td>
</tr>
<tr>
<td>BONE METABOLISM TEST</td>
</tr>
<tr>
<td>POINT OF CARE TESTING</td>
</tr>
<tr>
<td>ALLERGY PROFILE</td>
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<tr>
<td>OUT SOURCED TESTS</td>
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New services and facilities

<table>
<thead>
<tr>
<th>New tests</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>LC-1</td>
<td>(Autoantibody by blot)</td>
</tr>
<tr>
<td>Sp100</td>
<td>(Autoantibody by blot)</td>
</tr>
<tr>
<td>M2-3E(BPO)</td>
<td>(Autoantibody by blot)</td>
</tr>
<tr>
<td>Adrenaline</td>
<td>(by ELISA)</td>
</tr>
<tr>
<td>Noradrenaline</td>
<td>(by ELISA)</td>
</tr>
<tr>
<td>Aldosterone</td>
<td>(by ELISA)</td>
</tr>
<tr>
<td>Homocysteine</td>
<td>(by Colorimetry)</td>
</tr>
<tr>
<td>NT-proBNP</td>
<td>(by CLIA)</td>
</tr>
<tr>
<td>Anti TPO</td>
<td>(by CLIA)</td>
</tr>
<tr>
<td>CA242</td>
<td>(by CLIA)</td>
</tr>
<tr>
<td>Chromogranin-A</td>
<td>(by ELISA)</td>
</tr>
<tr>
<td>24hrs Urinary uric acid</td>
<td>(by Colorimetry)</td>
</tr>
<tr>
<td>24hrs Urinary phosphorus</td>
<td>(by Colorimetry)</td>
</tr>
</tbody>
</table>
• Participated in and arranged sponsors for V.Ramalingaswami Oration held on August 8th 2016.
• Involved in PhD. Teaching, D.M. teaching, co-supervisor in D.M, PDCC theses/projects of Hepatology, Hepatobiliary Surgery, Nephrology, Transplant anaesthesia, Urology and nutrition.
• Two months training of BSc. MLT student, Arun. Training on ICG of Dr. Ashish Saha, KPC Medical College.
• Internal collaboration related to “Metabolomics in Alcoholic hepatitis” with INSERM Institute, FRANCE
• Interdepartmental project funded by SERB – Therapeutic approach to diastolic dysfunction in CLD patients and its impact on morbidity and mortality.
• Conducted 3 Health screening camps
  - World kidney day 10th March, 2016, World liver day 19th April, 2016
  - World Hepatitis Day 28th July, 2016
• Part of team for “Healthy Liver Healthy Delhi project” of ILBS with Mylan pharmaceuticals. Helped with logistics and preparation of IEC material.

Future plans of department
1. To offer customers high quality diagnostic services with a wide spectrum of test, faster turn around time, decreased errors, access to recent developments in medical diagnostic care with a human touch, at an affordable cost using state-of-art equipments and LIS.
2. Enhanced education, training and research.
3. To study inborn errors of metabolism of liver.

Visiting Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Ashish Saha</td>
<td>KPC Medical College</td>
</tr>
</tbody>
</table>

Faculty Achievements

Dr. Sherin S. Thomas

Dr. Sherin has received her MD in Biochemistry from University of Delhi and she has a vast experience in running the clinical biochemistry laboratory. She is fully conversant with the principles of laboratory practice, especially with interpretation and clinical significance of the various analytical procedures, so as to provide a reliable and authoritative link between the laboratory and clinicians. Paramount is the manner in which she has mustered its resources in equipment, personnel and reagent supplies to respond to the needs of health care providers and patients in terms of access, timeliness, cost, and quality of test results. She has adequately met new challenges which continue to emerge for the laboratory to provide excellent quality services at fiscally responsible expense resulting in cost savings to ILBS and reduced out sourcing of tests thereby increasing revenue. She is also involved in teaching of PhD and D.M. programmes and is a Co-supervisor in total 12 D.M., M.Ch., PDCC theses/projects of the Departments of Hepatology, Hepatobiliary Surgery, Nephrology, Transplant anaesthesia, Urology and Nutrition.

- Total number of publications: 14
- Total number of projects: 1
- Award-Journey with Radiometer, Radiometer-29th April, 2016.
- Chairperson for session of V.Ramalingaswami Oration, ILBS-8th August, 2016.
- Incharge of poster display for 19th National Hepatitis Day (4th Dec 2016).
- Participated in and arranged sponsors for V.Ramalingaswami Oration held on August 8th 2016.
- Incharge of poster display for 19th National Hepatitis Day (4th Dec 2016).
Haematology and Clinical Pathology

The department of Haematology and Clinical Pathology is a holistic unit which caters to patient care, laboratory services and clinical research. It represents a unique amalgamation of laboratory and consultative haematology dedicated to clinical as well as diagnostic aspects of patient well being. The NABL accredited lab is well-equipped with advanced automated technologies for carrying out haematological investigations besides providing consultative services in the diagnosis of haematological diseases and disorders.

Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematology routine</td>
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</tr>
<tr>
<td>Absolute counts</td>
<td>209</td>
<td>181</td>
</tr>
<tr>
<td>Complete blood counts</td>
<td>48883</td>
<td>53860</td>
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<tr>
<td>Complete Hemogam</td>
<td>8349</td>
<td>9879</td>
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<tr>
<td>ESR</td>
<td>263</td>
<td>343</td>
</tr>
<tr>
<td>Hb/PCV</td>
<td>7187</td>
<td>6153</td>
</tr>
<tr>
<td>BBC indices</td>
<td>02</td>
<td>00</td>
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<tr>
<td>Malaria Antigen</td>
<td>420</td>
<td>381</td>
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<tr>
<td>Platelet count</td>
<td>912</td>
<td>619</td>
</tr>
<tr>
<td>TLC and DLC</td>
<td>1675</td>
<td>1237</td>
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<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral smear examination</td>
<td>1197</td>
<td>723</td>
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<tr>
<td>Haemolytic workup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G6PD deficiency test</td>
<td>296</td>
<td>414</td>
</tr>
<tr>
<td>Hb HPLC</td>
<td>128</td>
<td>129</td>
</tr>
<tr>
<td>PNH test</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Reticulocyte Count</td>
<td>2652</td>
<td>2427</td>
</tr>
</tbody>
</table>

| Bone marrow evaluation          |      |      |
| Bone marrow aspiration procedure and reporting | 293 | 265 |
| Bone marrow biopsy procedure and reporting | 271 | 245 |
| Iron stain                      | 293  | 265  |

| Coagulation lab services        |      |      |
| Prothrombin time                | 36952| 42391|
| Activated partial thromboplastin time | 3365 | 3480 |
| von Willebrand Antigen          | 03   | 03   |
| Sonoclot assay                  | 281  | 145  |
| Fibrinogen assay                | 1425 | 1749 |
| Protein C                       | 132  | 150  |
| Protein S                       | 126  | 153  |
| Antithrombin III                | 107  | 123  |
| Fibrin degradation products     | 115  | 67   |
| D-dimer                         | 176  | 103  |
| Factor VIII assay               | 136  | 138  |
| Bleeding time                   | 16   | 12   |
| Clotting time                   | 14   | 09   |

| Clinical pathology              |      |      |
| Urine routine and microscopy    | 9831 | 10817|
| Urine for reducing substance    | 200  | 148  |
| Urine for ketones               | 213  | 162  |
| Urine for Bence Jones protein   | 39   | 36   |
| Fluid TLC                       | 4,282| 4471 |
| Fluid DLC                       | 4,274| 4464 |

New services & facilities

- ELISA based factors assessment of components of coagulation pathway.
- Department is in the process of getting cryoequipments
- Department provided short term observership in BM pathology
- In the process of installing a fully automated coagulation analyzer with platelet function analyzer
Faculty Achievements

Dr. Chhagan Bihari

Dr. Bihari has done his MBBS and MD pathology from SMS Medical College. Currently he is working as an Associate Professor and his areas of interest include vascular liver diseases, and bone marrow pathophysiology in liver diseases. Our group has recently shown that progression of cirrhosis is associated with progressive impairment of the hematopoietic stem cell niche in bone marrow (Bihari et al., Hepatology, 2016 and appearing on the cover page). This in turn is responsible for the progressive hematological and immune derangements seen in advanced cirrhosis, as well as impaired liver regeneration.

- Total Number of publications: 85
- Total Number of publications in 2016: 19
- Total Number of projects: 2

Eosinophilic VCS parameters, namely, MEV (Mean eosinophil volume) and MEV-SD (eosinophil size variability) in patients suspected of drug induced liver injury (DILI). Patients with DILI have increased levels of MEV and MEV-SD compared to other patients.

Staff

Faculty member
Dr. Chhagan Bihari
Senior Residents
Dr. Anupama Patil
Technical Staff
Rekha Suryan
Parveen Kumar
Surendra Raj
Kuldeep Kumar

Designation
Associate Professor
Senior Resident
Junior Technical Executive
Junior Technical Executive
Junior Technical Executive

Department’s Achievements

- Department of hematology and clinical pathology is committed to deliver excellent quality services as per NABL and NABH standards.
- Department provided observer ship and short term training in hematology
- Department provided support and services to various research projects
- Dr. Anupama Patil and Ms. Deepika presented their work on “Sonoclot Signature Analysis Predicts Coagulopathy in Chronic Liver Disease” and “Alteration of Megakaryocytic stem cells niche in Cirrhosis” in Haematoclon 2016, held in Jaipur from 10th – 13th November, 2016.
- Department prepared and designed SOPs for cryopreservation

- EOSINOPHILIC VCS PARAMETERS, NAMELY, MEV (MEAN EOSINOPHIL VOLUME) AND MEV-SD (EOSINOPHIL SIZE VARIABILITY) IN PATIENTS SUSPECTED OF DRUG INDUCED LIVER INJURY (DILI). PATIENTS WITH DILI HAVE INCREASED LEVELS OF MEV AND MEV-SD COMPARED TO OTHER PATIENTS.

- EOSINOPHILIC VCS PARAMETERS, NAMELY, MEV (MEAN EOSINOPHIL VOLUME) AND MEV-SD (EOSINOPHIL SIZE VARIABILITY) IN PATIENTS SUSPECTED OF DRUG INDUCED LIVER INJURY (DILI). PATIENTS WITH DILI HAVE INCREASED LEVELS OF MEV AND MEV-SD COMPARED TO OTHER PATIENTS.
Clinical and Cellular Transplant Immunology

The clinical and cellular transplantation Immunology at Institute of Liver & Biliary Sciences is a state of the art histo-compatibility and immune-genetics testing laboratory that supports busy clinical transplant programs and transplantation research activities. In ILBS overarching goal of Clinical and Cellular Transplant Immunology unit is to provide the comprehensive diagnostic tests related to liver and kidney transplants as well as for graft rejections.

The human leukocyte antigen (HLA) test, also known as HLA typing or tissue typing, identifies antigens on the white blood cells (WBCs) that determine tissue compatibility for organ transplantation. Number of identical HLA antigens increases the probability for a successful transplant. Clinical and cellular transplantation Immunology laboratory at ILBS, we have state-of-the-art equipments to perform molecular HLA typing to identify HLA genes at low allele resolution by PCR-SSP (polymerase chain reaction-sequence-specific primers) for kidney and liver transplants.

In addition to this, laboratory also provide services for determination of HLA B-27. Human Leukocyte Antigen B*27 (subtypes B*2701-2724) is a class I surface antigen encoded by the B locus in the major histo-compatibility complex (MHC) on chromosome 6 and presents microbial antigens to T-cells. HLA-B27 is strongly associated with a certain set of autoimmune diseases like ulcerative colitis, inflammatory bowel disease and Crohn disease.

Patients with graft rejections may have circulating antibodies that recognize HLA antigens on a donor organ or tissue and experience rapid and irreversible destruction of the graft upon transplantation. Even low levels of antibodies may damage the grafts, so more sensitive antibody tests are used for cross-matching and for identifying the risk of immune antibody-mediated damage.

Clinical and cellular transplantation Immunology laboratory at ILBS also provide services for Panel Reactive Antibody (PRA) test to rule out any reaction against pre-existing antibodies. Cross-match tests are used primarily for transplant candidates to assess the suitability of a potential donor. In renal transplant, a positive lymphocytotoxic T-cell cross-match is a contraindication for renal transplant.

Clinical and cellular transplantation Immunology laboratory performs complement-dependent cytotoxicity (CDC METHOD) and HLA-Cross match by flow cytometry to detect antibodies that react with donor HLA antigens prior to transplantation.

Clinical and cellular transplantation Immunology laboratory also provide services for monitoring of phenotypic characteristics of T-lymphocytes (CD4 and CD8 cells) in peripheral blood, which is commonly performed in the management of human immunodeficiency virus (HIV) positive and chronic hepatitis patients. The serial measurements of CD4 and CD8 lymphocytes to study the influence of immune suppressants are useful for a possible predictive value of lymphocyte count for the occurrence of cancer.

Services Rendered

- HLA DNA Typing ABDR
- HLA B-27
- HLA Cross Match, Complement-Dependent Cytotoxicity (CDC METHOD)
- HLA-Cross Match by flow cytometry
- Panel Reactive Antibodies (PRA) Class I & II
- Donor Specific Antibodies (DSA)
  - Immunophenotyping for CD4 T cells and CD4/CD8 T cells ratio for HIV monitoring
  - Immune deficiencies analyzing the antiviral drug monitoring
  - Immune deficiencies of CD4/CD8 T cells in chronic hepatitis
  - Immune deficiencies of regulatory T cells in autoimmune hepatitis
  - Immune Deficiency of NK/NKT cells

In addition to ongoing services we have developed, Immune monitoring assay through ATP release to detect immune rejection and immune activation.
The importance of investigating genetic perturbations in diseased individuals is highlighted by the fact that many such alterations, in form of single nucleotide polymorphisms (SNP), would be inherited by the offsprings of the diseased individual. Capturing such information would develop a resource base that could be used to understand the disease or treat the patients of the next generation more effectively. Keeping this larger interest of the society and to better the treatment options, ILBS initiated genetics services in 2011. ILBS is amongst a handful of hospitals in the country that undertake genetic investigations for liver diseases. Genetics is an indispensible field for disease related research. More than 3600 patients have been screened for genetic disorders leading to liver diseases since then. With rapid pace of research new genes are being identified that correlate with liver diseases eventually resulting in the increase in the number of patients that are now being screened for liver disorders. This number jumped over 1100 in the year 2016. The department also provides scientific and technical inputs to clinical and research faculties, fellows, students and staff to meet their research targets. The Department has also initiated the tests for galactosemia (GALS), dependency on alcohol (GAL9) and cholesterol ester storage disease (CESD), which will be introduced in the coming year. Standardization is in process of extended KRAS mutations for colorectal cancers. The Department of Genetics provides single nucleotide polymorphism (SNP) analysis for the following diseases:

- **IL28B** – Mutation in this gene is associated with poor immune response during HCV infection.
- **ITPA** – Associated with increased risk of anemia in HCV patients on ribavrin treatment.
- **TATA box** – Polymorphism in the promoter region of UDP glucuronosyltransferase 1 family, polypeptide A1 (UGT1A1) results in a defective enzyme leading increased unconjugated bilirubin in circulation.
- **MTHFR, Factor-II and Factor-V** – The SNPs in these gene area associated with thrombosis disorders resulting in hypercoagulability.

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**Faculty Achievements**

**Dr. Nirupma Trehanpati**

Dr. Nirupma obtained her PhD from Kurkeshtra University and did her postdoctoral studies in Chicgao University. She has more than 15 years of research experience.

- Total Number of publications : 51
- Total Number of publications in 2016: 8
- Total number of projects: 3
- Faculty in WHO CC on Liver Diseases and Viral Hepatitis

**Award**

Recipient of Rashtriya Gaurav Award
• **ATP7B** – Either of the 200+ mutations in this gene result in accumulation of copper in body parts and is classified as Wilson’s disease.
• **HFE** – The polymorphisms in the gene are responsible for increased accumulation of iron in the liver.
• **SPINK1, CFTR** – Both these genes are responsible for regulating the trypsin production pathway in pancreas; mutations result in pancreatitis.
• **JAK2** – Polymorphism in this gene is associated with Budd-Chiari syndrome often as a complication of polycythemia vera.
• **PNPLA3** – SNPs in this gene are associated with non-alcoholic fatty liver disease and steatohepatitis.
• **TPMT** – The immune suppressant azathioprine metabolism is necessary to curtail its toxic effect. TPMT enzyme is responsible for this and SNP leads to increased drug toxicity.
• **PRSS1** – Mutations in this gene result in premature conversion of trypsinogen to trypsin leading to pancreatitis

### Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL28B – Mutation in this gene is associated with poor immune response during HCV infection.</td>
<td>1</td>
</tr>
<tr>
<td>ITPA – Associated with increased risk of anemia in HCV patients on ribavirin treatment.</td>
<td>1</td>
</tr>
<tr>
<td>TATA box – Polymorphism in the promoter region of UDP glucuronosyltransferase 1 family, polypeptide A1 (UGT1A1) results in a defective enzyme leading increased unconjugated bilirubin in circulation.</td>
<td>369</td>
</tr>
<tr>
<td>MTHFR, Factor-III and Factor-V – The SNPs in these genes are associated with thrombosis disorders resulting in hypercoagulability.</td>
<td>134</td>
</tr>
<tr>
<td>ATP7B – Either of the 200+ mutations in this gene result in accumulation of copper in body parts and is classified as Wilson’s disease.</td>
<td>12</td>
</tr>
<tr>
<td>HFE – The polymorphisms in the gene are responsible for increased accumulation of iron in the liver.</td>
<td>5</td>
</tr>
<tr>
<td>SPINK1, CFTR – Both these genes are responsible for regulating the trypsin production pathway in pancreas; mutations result in pancreatitis.</td>
<td>69</td>
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<tr>
<td>JAK2 – Polymorphism in this gene is associated with Budd-Chiari syndrome often as a complication of polycythemia vera.</td>
<td>171</td>
</tr>
<tr>
<td>PNPLA3 – SNPs in this gene are associated with non-alcoholic fatty liver disease and steatohepatitis.</td>
<td>33</td>
</tr>
<tr>
<td>TPMT – The immune suppressant azathioprine metabolism is necessary to curtail its toxic effect. TPMT enzyme is responsible for this and SNP leads to increased drug toxicity.</td>
<td>54</td>
</tr>
<tr>
<td>PRSS1 – Mutations in this gene result in premature conversion of trypsinogen to trypsin leading to pancreatitis</td>
<td>9</td>
</tr>
</tbody>
</table>

### New services & facilities
The Genetic department is now adept with analysis of next generation sequencing analysis, along with data assimilation and analysis. With recently developed algorithms, analysis of proteins, transcription factors and kinases regulating differential gene expression is possible in-house.

### Staff

<table>
<thead>
<tr>
<th>Faculty member</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Shvetank Sharma</td>
<td>Associate Professor and In-charge</td>
</tr>
</tbody>
</table>

### Technical Staff

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Surinder Kapoor</td>
<td>Technician</td>
</tr>
<tr>
<td>Dilip Newaria</td>
<td>Technician</td>
</tr>
<tr>
<td>Arun Thakur</td>
<td>Technician</td>
</tr>
</tbody>
</table>

### Faculty achievements

**Dr. Shvetank Sharma**

The group is focusing on genetic analysis of inheritance patterns of the potential candidate genes which when mutated results in genetic disorders which finally affect the liver functioning. The group has screened affected families to identify potentially susceptible individuals by mutation analysis screening.

- Total Number of publications: 17
- Total Number of publications in 2016: 4
- Total Number of projects: 2
Department of Transfusion Medicine

Our Mission
“To provide safe and quality transfusion products and services timely, as well as contributing to education, research and training of medical and paramedical personnel in the field of transfusion medicine so as to benefit the overall well being of the patient”

The Department of Transfusion Medicine is committed to provide the highest quality of Transfusion support both in terms of diagnostic and therapeutic modes of treatment round the clock and advanced Immunohematological testing to the patients and the donors. Brief outline of the department and its role in the hospital are mentioned as under:

- Blood donors form the backbone of any transfusion medicine service. Our aim is to increase the percentage of repeat voluntary donors who form a steady source of the safest blood. This is will help us in reducing the burden on patient’s relatives from distant places for replacement donation.
- We appreciate and encourage voluntary donors by increasing the awareness and education regarding blood donation and also honour them and register them in our endeavour to form a voluntary donor database.
- The second most important aspect is to provide safe units in terms of transfusion transmitted infections for which we have a highly sensitive screening test based on the principle of chemiluminescence to reduce the number of false negatives.
- The third important aspect is precise serological testing in
patients and donors samples for which we have gel techniques, extended phenotyping and antibody screening and typing facilities which enables us to select the best match unit for the patient.

- The fourth important aspect is to provide units which meet the highest standards of quality as set by the accreditation authorities for which we have a strict and regular quality control of the products and the equipments.
- The fifth important aspect is the therapeutic mode of intervention for which we have the facility of plasma exchange, cascade plasmapheresis, therapeutic apheresis and therapeutic phlebotomy. In addition to that we have transfusion medicine experts who have an active discussion with the clinicians regarding problems faced in multitransfused, transplant patients and in work up and treatment of patients undergoing ABOi liver and renal transplant patients.
- The most important aspect is of hemovigilance i.e. vein to vein scrutiny of the unit collected and transfused. To serve this purpose we introduced the concept of pink sheet which maintains the transfusion record of all the patients and a transfusion follow up form which is recorded for all events of transfusion and a regular reporting and active participation in the hospital transfusion committee.
- To sub serve the aforementioned aims we have a dedicated and a well trained staff who all hold patients overall well being in the highest regards and adhere strictly to SOPs (standard operating procedures) and GMP (good manufacturing practices).

### Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
</tr>
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<tbody>
<tr>
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<td>9041</td>
</tr>
<tr>
<td>Donor ICT</td>
<td>8501</td>
<td>9041</td>
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<tr>
<td>Donor Du</td>
<td>540</td>
<td>615</td>
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<td>Patient grouping</td>
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<tr>
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<td>3437</td>
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<td>Patient DCT</td>
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<td>Patient Du</td>
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<td>Cross matching</td>
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<td>Donation</td>
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<tr>
<td>Fresh Frozen Plasma (FFP) prepared</td>
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<td>Random Donor Platelet Concentrate (RDPC) prepared</td>
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<td>Leucodepleted SDPC (LD-SDPC) prepared</td>
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<tr>
<td>Cryoprecipitate (CRYO) prepared</td>
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<td>3403</td>
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Services

<table>
<thead>
<tr>
<th>Service</th>
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<tr>
<td>Leucodepleted PRBC (LD-PRBC) issued</td>
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<td>Fresh Frozen Plasma (FFP) issued</td>
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<td>Random Donor Platelet Concentrate (RDPC) issued</td>
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<tr>
<td>Leucodepleted RDPC (LD-RDPC) issued</td>
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<td>347</td>
</tr>
<tr>
<td>Leucodepleted SDPC (LD-SDPC) issued</td>
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<td>541</td>
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<tr>
<td>Cryoprecipitate (CRYO) issued</td>
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<tr>
<td>Antibody identification</td>
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<td>Antibody Titer</td>
<td>104</td>
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<td>ABO - i workup</td>
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<tr>
<td>DFPP</td>
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</table>

New services & facilities

a. Cascade plasmapheresis.
b. Therapeutic platelet reduction.

d. Antibody identification

c. Antibody Titer

d. ABO - i workup

e. DFPP

Educational Activities

• Details of the Educational activities (CME/Conf/workshop) hosted by the department in 2016 under following headings:

Course offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Candidates admitted</th>
<th>Candidates passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDCC in Immunohematology and Blood Banking</td>
<td>Dr. Vikas Hegde</td>
<td>Dr. Anjali Sharma</td>
</tr>
<tr>
<td></td>
<td>Dr. Akshay Batra</td>
<td>Dr. Vikas Hegde</td>
</tr>
<tr>
<td></td>
<td>Dr. Sukanya Baruah</td>
<td></td>
</tr>
</tbody>
</table>

Department’s Achievements

a. Dr. Vikas Hegde presented an oral paper on “Prediction score in the Blood component utilization in live donor liver transplant of chronic liver disease patients: a comprehensive study” and was awarded 3rd PRIZE at TRANSMEDCON Bhopal held in November 2016.
b. Dr. Vikas Hegde presented a poster on “Formula to calculate the total blood volumes to be processed during a therapeutic platelet reduction at TRANSMEDCON Bhopal held in November 2016.
c. Dr. Akshay Batra presented 2 posters; titled, “Analysis of 1-year experience with plasmapheresis in patients with neurological diseases at a tertiary neurosciences center in Southern India”, and “Role of low plasma volume treatment on clinical efficacy of plasmapheresis in neuropathological optic neuritis” at 34th Congress of International Society of Blood Transfusion (ISBT) DUBAI held in September 2016.
d. Dr. Akshay Batra presented oral paper titled, “Therapeutic plasmapheresis in Guillain Barré syndrome: an experience at a tertiary neurosciences center in Southern India” at Joint Congress of American Association of Blood Bank (AABB) and Asian Association of Transfusion Medicine (AATM) Bangalore held in December 2016.
e. Dr. Akshay Batra co-authored oral paper titled “Did positive anti-ACHR antibody status warrant more plasma volume treatment in patients with myasthenia gravis? An experience in plasma exchange at a tertiary neurosciences center in Southern India” at TRANSMEDCON Bhopal held in November 2016.
f. Dr. Akshay Batra was invited as Guest Speaker on topic titled “Therapeutic plasma exchange in liver diseases” in pre-conference workshop on “Modern blood banking: ‘A to Z’ of plasmapheresis” at TRANSMEDCON Bhopal held in November 2016.
g. Dr. Vikas and Dr. Akshay trained the blood bank staff in Immunohematology at National Institute of Biologicals Noida held in November 2016.
h. Mr. Pankaj Jain was invited as a technological expert in pre-conference workshop on immunohematology at TRANSMEDCON Bhopal held in November 2016.
i. Mr. Pankaj Jain presented a lecture on e-raktkosh at TRANSMEDCON Bhopal held in November 2016.

Visiting faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Sunder Periyavan</td>
<td>NIMHANS</td>
<td>October 2016</td>
</tr>
</tbody>
</table>
Dr. Meenu Bajpai is presently Additional Professor and Faculty-in-Charge of Department of Transfusion Medicine at ILBS. She did her MD in Transfusion Medicine from Post Graduate Institute of Medical Education and Research, Chandigarh. She also did her Senior Residency from the same Institute, following which she did Senior Research Associateship from All India Institute of Medical Sciences, New Delhi for a short period. She has worked on platelet antibodies in hemato-oncology patients as a part of her MD and on irregular antibodies in neonates with hemolytic disease of newborn as SRA. She was awarded Princess of Wales Scholarship by the British Blood Transfusion Society in 2009 and the Harlod Gunson Fellowship by the International Society of Blood Transfusion conference [Vox Sanguinis (2016) 111 (Suppl. 1)pg 298] Dubai September 2016.

She also looks after procurement at ILBS as purchase officer (Faculty). She is a member of the Signal Review Committee of Hemovigilance Programme of India under NIB (MoH&FW). She is member Board of Studies, AIIMS Jodhpur. She is an executive member representing North India of the India chapter of Asian Association of Transfusion Medicine (AATM).

- Total Number of publications of that faculty member: 16
- Total Number of publications in 2016: 4
- Total No. of Projects: 2


- “Case presentation on hemolytic anemia in Autoimmune Liver Disease. Ramalingaswamy Oration, New Delhi August 2016

- Platelethperesis. CME on Apheresis at Aligarh Muslim University. Aligarh. October 2016.

- Visiting faculty for the Blood Safety Training Programme. MPSACS and BMHRC, Bhopal. February and November 2016

- Expert Faculty for Training of Blood Bank Officers under NHM and NIB collaborative program. NIB Noida. April, July and November 2016.

- Expert Faculty at NACO for Blood transfusion Services Training at RML Hospital, New Delhi. February and March 2016
Cardiology

The department of cardiology provides non-invasive cardiology services to outpatients and inpatients for a more complete patient evaluation and management. The department also helps in clinical research in cardiology related issues in the liver disease patients.

Services Rendered

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<tr>
<td>Echocardiography</td>
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<tr>
<td>Dobutamine stress echocardiography</td>
<td>538</td>
<td>619</td>
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<tr>
<td>Thallium-stress echocardiography</td>
<td>33</td>
<td>34</td>
</tr>
<tr>
<td>Saline contrast echocardiography</td>
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<td>510</td>
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<tr>
<td>Holter monitoring</td>
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<tr>
<td>TMT</td>
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<td>ECG</td>
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</table>

Academic and Research Achievements of Faculty

Staff

- **Faculty Member**
  - Dr. Jelen Singh

- **Technical Staff**
  - Mr. Jitender Kumar Singh
  - Mr. Loktongbam Tony Singh
  - Ms. Vandana Joshi

Designation

- Associate Professor
- Technical Executive
- Technician Trainee
- Junior PCE (Nursing)
Pulmonary Medicine

The department of pulmonary medicine deals with disease of respiratory system and sleep disorders. Following diseases are being dealt in pulmonary medicine.
1. Bronchial asthma
2. Chronic obstructive airway disease
3. Interstitial lung disease
4. Tuberculosis
5. Allergy
6. Pneumonia
7. Cystic fibrosis
8. Occupational lung disease
9. Bronchitis
10. Various sleep disorders

Department has various facilities like spirometry, diffusion study, cardiopulmonary exercise testing, bronchoscopy, polysomnography (sleep study) etc.

Services Rendered

<table>
<thead>
<tr>
<th>Services</th>
<th>2015</th>
<th>2016</th>
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</thead>
<tbody>
<tr>
<td>PFT</td>
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<td>1010</td>
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<tr>
<td>PFT with Diffusion Studies</td>
<td>272</td>
<td>251</td>
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<tr>
<td>Bronchoscopy</td>
<td>24</td>
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<tr>
<td>Pleurodesis</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Cardio pulmonary exercise test</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>Sleep study</td>
<td>40</td>
<td>44</td>
</tr>
</tbody>
</table>

Faculty Achievements

Dr. Hemant Kumar

Dr. Hemant did his MBBS from Dr. MGR medical university, Chennai, followed by MD Pulmonary medicine in 2012 from Banaras Hindu University(BHU). He did his residency in AIIMS, and has actively participated in national and international conferences, research work and teaching medical students.

- Total Number of publications: 9
- Total Number of publications (2016): 2
- Total Number of projects: 2
The department of molecular and cellular medicine fosters multidisciplinary scientific research activities in modern areas of biology with special focus on “hepatobiliary pancreatic highway”. Translational approaches and application of basic biology in field of liver diseases is the main focus. (Fig.1). The main areas of interests include: relation of gut microbiome to liver injury, hepatic regeneration, decellularized liver, bone marrow and hepatic stem cell biology, mechanisms of immune paresis and sepsis in liver failure, molecular pathways and therapeutic targets in Hepatocellular Cancers, “OMICS” including proteomics, metagenomics and metabolomics in liver injury and regeneration, albumin biology, iron dysregulation in liver failure, senescence and quiescence in liver cancers, Hepatitis B immunopathogenesis . The research in the department is funded dominantly by extramural grants from various national and international funding agencies.

![Image of a scientist in a laboratory setting](image-url)
National and International Recognitions:
- ILBS-NIH laboratory of Molecular Immunology
- Metabolome and Metagenomics laboratory in partnership INSERM, France
- ILBS-DST-FIST laboratory for Confocal Imaging supported by DST, Ministry of Science and Technology

Highlights of the Research Activities
The institute has achieved significant goals in the year 2016. A brief overview of the various research works carried out are highlighted below:

1. Regenerative Medicine (Dr. Nirupma Trehanpati, Dr. Anupam Kumar and Prof. S.K. Sarin)

Discoveries from our group have uncovered role of immune cells, bone marrow reservoir, endothelial progenitors and stromal cells in the liver regenerative process following injury.

- Role of stromal and immune cells in liver regeneration

  We have now demonstrated that partial hepatectomy in healthy donors, is accompanied by increased expression of hematopoietic stem cells (HSC), mesenchymal stem cells (MSC), monocytes and macrophages (Shridhar S et al 2016, communicated). This is indicative of an active interplay between immune cells and other liver cell types in regenerative process during liver regeneration in donors undergoing voluntary right hemi-liver hepatectomy for LDLT.

- Progressive loss of bone marrow reservoir in cirrhosis

  In collaboration with Department of Pathology our group has now shown that loss of hematopoietic stem cells is due to derangement of the bone marrow hematopoietic niche in cirrhosis (Bihari et al., Hepatology 2016;64:1273-1288). Loss of hematopoietic stem cells, contributes to hematological derangements, predisposition to sepsis and early graft dysfunctions in advanced cirrhosis. This work highlights that restoring bone marrow function could provide new therapeutic options in cirrhosis.

- Compromised SDF1 production by liver stromal cells suppress hepatocyte self replication in Acute-on-chronic liver failure.

  Underlying mechanisms for compromised hepatocyte self replication in ACLF is not known. Recently our group has shown that compromised stromal derived factor (SDF1) by liver stromal cells leads to suppression of regenerative angiocrine function of hepatic endothelial cells that finally leads to suppression of hepatocyte self replication in Acute-on-chronic liver failure (Smriti et al, APASAL Tokyo Japan, 2016; young investigator Award)

- Bone marrow endothelial progenitor cells activate hepatic stellate cells and aggravate liver fibrosis in mice via paracrine factors

Using a chimeric mouse model a role of bone marrow derived endothelial cells in liver fibrosis has been demonstrated (Manali et al, manuscript under review data).

2. HEPATOMICS and Liver System Biology (Dr. Nirupma Trehanpati, Dr. Shvetank Sharma, Dr. Jaswinder Maras and Kumar and Prof. S.K. Sarin)

With the advent of Next Generation technologies ILBS has forged ahead with use of high throughput genomic technologies in a comprehensive understanding of the underlying pathobiological process associated with various liver diseases. The major highlights of the Omics approach used in the current reporting year include:

- Identification of Hepatic cancer stem cells associated biomarkers using OMICS approach

  Through mRNA and miRNA profiling, Dr. Trehanpati’s group has shown molecular similarity between EpCAM+ cirrhotic cells and EpCAM+ cancer stem cells (CSCs)(Fig. 3). In vitro and in vivo functional studies have also shown similarities between the two populations (Khosla et al Stem Cells Translational Medicine, 2016, In Press). However, targeted therapies against CSCs are currently limited in HCC due to paucity of data on CSC specific molecular changes. Therefore, Dr. Trehanpati’s group is currently trying to determine EpCAM+ CSC specific molecular changes using an integrated protein, mRNA and miRNA profiling approach to compare EpCAM+ and corresponding EpCAM- cells from HCC tissues along with EpCAM+ cells from non-cancerous/non-cirrhotic control liver tissues, by iTRAQ and next generation sequencing (NGS), respectively.
- Hyperoxidized albumin in blood and urine of severe alcoholic hepatitis (SAH)

Using liquid chromatography/mass spectrometry and spectrophotometry analysis, we have now identified eight different modifications in human albumin during liver injury. Of these, the irreversibly oxidized albumin (HNA2) and Glycosylated HMA was significantly increased in severe alcoholic patients, which also correlated with mortality. (Das Sukanto, et al. Hepatology 2016). Additionally, the group has also shown ischemia-modified albumin and advanced oxidative protein product in urine of SAH patients indicating that urinary albumin modification serves as a useful non-invasive biomarker in SAH. (Hussain S et al, EASL poster, 2016).

- Proteomic approach for biomarker characterization for early diagnosis of acute on chronic liver failure (ACLF) and Alcoholic Hepatitis

Characterization of proteins differentially expressed in the plasma of ACLF patients has been done using proteomics strategies involving the use of advance labelling techniques, HPLC based fractionation methods coupled to high resolution mass spectrometry. The major highlights of the study are (a) iron metabolism and transport were highly deregulated in ACLF group and (b) measurement of plasma transferrin saturation could be used as an additional predictor of early mortality in patients with ACLF (Maras JS et al, Hepatology 2015). In yet another study using a metabolomics approach, the group has identified L-acetyl carnitine as a prominent biomarker candidate for early identification of steroid non-responders in severe alcoholic hepatitis (Maras JS et al. 2016, EASL presentation).

3. Hepato-Immunology (Dr. Nirupma Trehanpatri and Prof. S.K. Sarin)

Imune markers for Hepatitis B surface antigen spontaneous seroconversion in HBeAg-ve chronic hepatitis B patients

Hepatitis B virus (HBV) infection is one of the most serious global health problems. HBsAg seroconversion in HBeAg-ve patients is an ideal end-point of any antiviral therapy and is associated with significantly lower risk of disease progression, liver related decompensation and HCC. Therefore, the immunology group has focused on understanding the immune markers in HBsAg spontaneous clearance. In brief, the work showed importance of functional CD4+CXCR5 (T follicular helper) cells in secreting IL-21 leading to increased plasma B cells and dendritic cells for regulating the HBsAg seroconversion (Ashish et al, 2016 manuscript under review and best paper award ISG meeting, 2016).
4. Liver Cancer (Dr. Nirupma Trehanpati, Dr. Gayatri Ramakrishna and Dr. Shiv K Sarin) EpCAM+ Liver Cancer Stem-Like Cells Exhibiting Autocrine Wnt Signaling Potentially Originate in Cirrhotic Patients

Trehanpati laboratory, have compared the molecular and functional features of EpCAM+ population from cirrhosis, HCC and noncancerous/noncirrhotic (control) liver tissues. The work has elucidated a role of autocrine Wnt signalling in Cancer Stem Cell maintenance and tumor formation, which could be inhibited upon the addition of a Wnt inhibitor (Khosla et al, Stem cells and Translational Medicine, In Press). This work provides therapeutic options for targeting Wnt pathway in the genesis of HCC.

5. Liver Degenerative Biology (Dr. Gayatri Ramakrishna, Dr. Subrajit Biswas, Dr. Sukriti and Prof. S.K.Sarin)

While actively the group is pursuing in areas of liver regeneration to help the patients, it is equally challenging to understand the degenerative changes occurring in diseased liver for identification of therapeutic targets. In this regard the three main areas of focus are cellular senescence, microparticles and programmed cell death. The major highlights of the work involve:

- SIRT2 is a novel marker of cellular senescence and upregulated in cirrhotic liver

A novel finding from the group demonstrated upregulation of SIRT2 as a specific feature associated with stress induced premature senescence but not with either quiescence or cell death (Anwar et al, Cell Cycle, 2016). And we now also report increased expression of SIRT2 in hepatocytes undergoing senescent changes (Bijoy et al, AASLD, 2016).

- Microparticles in diagnostics of liver injury:

Circulating microparticles (MPs) are emerging as markers of immune cell stress. Work from our group has shown hematopoietic stem cell (CD34+) and Hepatocytes (ASGPR+) MPs were markedly higher in alcoholic hepatitis patients in steroid non-responder group and was also responsible for triggering sterile inflammation. These findings will certainly pave way for novel therapeutics and prognostic markers and revamp the management of severe alcoholic hepatitis (Sukruti et al, EASL Talk awarded with full bursary, 2016). In addition, we have now shown that hepatic MPs can act as reservoir of HBV infection and persistence and this novel work is suggestive of MPs as new therapeutic strategies to target HBV.

- Therapeutic Implication of Apoptotic Priming in resolution of Liver Injuries

We now report that activated HSCs are more resistant than HCC cells against treatment with multikinase inhibitor, sorafenib. In the CCl4 induced mice model of cirrhosis and cancer we found the tumor cells became un-primed due to over expression of p53 up-regulated modulator of apoptosis (Puma). And the protection from sorafenib Driven apoptosis was found exclusively in non-malignant cells with low Puma levels. Therefore, Puma repression may contribute to the suppression of apoptosis and inflammation, may help promote liver regeneration.

EXPERIMENTAL ANIMAL FACILITY

The department of Molecular and Cellular Medicine has been instrumental in establishing a animal facility at ILBS which has been operational in the current reporting year for experiments on small animals to meet the requirements of the scientists for advanced liver research. Animals are being used as models for understanding the liver regeneration, disease pathogenesis, diagnosis and for cure. The Animal House Facility (AF) at ILBS is registered with the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Environment and Forests, Government of India vide renewed registration no. 1562/GO/Re/51/1/CPCSEA, valid till December-2017, for conducting experiment on small animals such as rats and mice and audited annually by the CPCSEA nominated members as per the statutory guidelines.

<table>
<thead>
<tr>
<th>Staff</th>
<th>Faculty members</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Shvetank Sharma</td>
<td>Scientist in-Charge</td>
<td></td>
</tr>
<tr>
<td>Dr. Anupma Kumari</td>
<td>Veterinary Officer</td>
<td></td>
</tr>
<tr>
<td>Mr. Karamjeet</td>
<td>Jr. Animal Technician</td>
<td></td>
</tr>
<tr>
<td>Mr. Krishan</td>
<td>Jr. Animal Technician</td>
<td></td>
</tr>
</tbody>
</table>
The Animal Facility at ILBS has specially designed room for rodents, which are maintained in Individually Ventilated Cage System (IVCS) under controlled conditions for temperature (23 deg C +/-3), humidity (50% +/-10), air pressure and dark & light cycles (14/10 hrs) with uninterrupted power supply. The Animal Facility procures and maintains various strains of quality rodents animals from the CPCSEA registered traders for the IAEC approved research projects of the Institute. All activities of the Animal Facility are carried out as per standard operating procedures (SOPs). The Animal Facility maintains the records of day to day activities as well as maintenance and experimentation records of the animals as per the statutory requirement of CPCSEA. The Animal Facility also extends complete research and technical support to facilitate animal experimentation in the Institute.

Management & Animal Ethics:

The AHF has its own Institutional Animal Ethics Committee (IAEC) and this has been in existence since 2012 and reconstitution takes place every three years according to CPCSEA guidelines. IAEC specifically address scientific and ethical considerations i.e. 3Rs principle (Replacement, Reduction and Refinement) of animal use for research. AHF at ILBS strictly follows animal ethics & welfare to meet national and International norms and guidelines by conducting teaching and training to the researchers, PhD students and animal care staffs.

Available facilities

Animal house has facility to maintain immunodeficient, inbred and outbred strain of rodents. Following laboratory animals are maintained at the facility:

Animal species – Mice: C57BL/6J (IB) and NOD/SCID (ID), nu/nu (ID)

Rat : Sprague Dawley (OB)


Animal models of liver diseases developed at ILBS

- CCl4 liver injury model for cirrhosis
- Bile duct ligation model
- Nude mice model for xenografts
- High fat diet mice model for fatty liver disease
- NAFLD / NASH Mice Model

HFD MCD Control
**Educational Activities**

**Workshops and Meetings**

<table>
<thead>
<tr>
<th>Workshop /Meeting</th>
<th>No. of candidate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow cytometry program</td>
<td>August 16th to August 18th</td>
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<tr>
<td>Immunology Day</td>
<td>April 29th</td>
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**Courses offered**

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<thead>
<tr>
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<tbody>
<tr>
<td>Ph.D (Biomedical Sciences)</td>
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<tr>
<td>Short term and long training for MSc and MTech candidates for thesis</td>
<td></td>
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<tr>
<td>Summer training programme</td>
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</table>

**Student Trainees**

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<tr>
<th>Name of the student</th>
<th>Name of University</th>
<th>Training period</th>
<th>INSAS fellowship</th>
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</thead>
<tbody>
<tr>
<td>Elizabeth K. Johnson</td>
<td>Kalasalingam University, Kerala</td>
<td>May-July 2016</td>
<td>Yes</td>
</tr>
<tr>
<td>K. A. Kanimozi</td>
<td>Bharathidasan University, Tamil Nadu</td>
<td>May-July 2016</td>
<td>Yes</td>
</tr>
<tr>
<td>Abhishek Thakkar</td>
<td>National Institute of Technology, AP</td>
<td>May-July 2016</td>
<td>Yes</td>
</tr>
<tr>
<td>Rajpreethi</td>
<td>Anna University, Tamil Nadu</td>
<td>May-July 2016</td>
<td>Yes</td>
</tr>
<tr>
<td>Rituja R. Redkar</td>
<td>Anna University, Tamil Nadu</td>
<td>June-Aug 2016</td>
<td>Yes</td>
</tr>
<tr>
<td>Ankita Debrath</td>
<td>KLE University, Karnataka</td>
<td>July-Sept 2016</td>
<td>Yes</td>
</tr>
<tr>
<td>Monika</td>
<td>Kolkata University, West Bengal</td>
<td>May-July 2016</td>
<td>No</td>
</tr>
<tr>
<td>Shagufta Danish</td>
<td>Jamia Milia, Delhi</td>
<td>July-Aug, 2016</td>
<td>No</td>
</tr>
<tr>
<td>Supreet Kaur</td>
<td>Institute of Applied Medicine and Research, Uttar Pradesh</td>
<td>July-Aug, 2016</td>
<td>No</td>
</tr>
<tr>
<td>Vinay Kumar</td>
<td>Institute of Applied Medicine and Research, Uttar Pradesh</td>
<td>Sept-Dec, 2016</td>
<td>No</td>
</tr>
<tr>
<td>Aakansha Kakran</td>
<td>Jamia Hamdard, Delhi</td>
<td>Sept-Dec, 2016</td>
<td>No</td>
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<tr>
<td>Happy Chauhan</td>
<td>Amity Institute of Virology and Immunology, NCR</td>
<td>Sept-Dec, 2016</td>
<td>No</td>
</tr>
</tbody>
</table>

**Department’s Achievements**

- The department was awarded the prestigious DST-FIST infrastructural grant to establish a confocal facility.
- Early career grants awarded to Principal Investigators, Dr. Sanal and Dr. Sukriti, for their liver-centric proposal.
- The department has received extramural fundings from national agencies for conducting focused research in areas of molecular medicine.
- Students have presented their ongoing work in the prestigious national and international conferences like AASLD (4), EASL (4), APASL (4) and ISG (4).
- The students have bagged travel grants, bursaries, and best presentation awards in National and International meetings.
- A total of 8 original research articles have been published in the international peer reviewed journal with impact factors above 5.0.
- Few publications from the department have been cited extensively, more than 30 times.
- The department also successfully conducted workshop on Flow cytometry applications.
Faculty and Students Achievements

<table>
<thead>
<tr>
<th>Name</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Sanal</td>
<td>Early Career Grant</td>
</tr>
<tr>
<td>Dr. Jaswinder Singh Maras</td>
<td>Registration Bursary EASL-2016, Spain</td>
</tr>
<tr>
<td>Dr. Sukruti Baweja</td>
<td>Early Career Grant</td>
</tr>
<tr>
<td>Full Bursary EASL-2016, Spain</td>
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</tr>
<tr>
<td>Dr. Avishek Singh</td>
<td>PhD Awarded</td>
</tr>
<tr>
<td>Ashish Kumar Vyas</td>
<td>Young Investigator with Registration bursary, EASL-2016, Spain. ICMR Travel award for attending AASLD-2016, Boston, USA. Poster, AASLD-2016, Boston, USA. Poster in ICID-2016 and Bill and Merinda gates Travel award to attend ICID-2016, Hyderabad. Young investigator of South East Asia and India by ICID-2016, Hyderabad. Paper presentation in ISGCON-2016 and Second Prize Young Investigator by ISGCON-2016.</td>
</tr>
<tr>
<td>Sukanta Das</td>
<td>Full Bursary EASL-2016, Spain. 2 Poster in EASL.</td>
</tr>
<tr>
<td>Rashpi Sehgal</td>
<td>Full Bursary By EASL-2016, Spain. Poster in ISGCON-2016</td>
</tr>
<tr>
<td>Smruti Shubham</td>
<td>Young Investigator Award, Cash prize by APASL-2016, Japan.</td>
</tr>
</tbody>
</table>

Sadaf Bashir  
Registration Bursary By EASL-2016  
Liver Care foundation Travel award to attend APASL-2016, Japan.

Dhananjay Kumar  
Poster AASLD-2016  
Poster ICGCON-2016

Dr. Manish Chaudhary  
Early Career Grant, Poster in AASLD-2016, USA

Adil Bhat  
Poster in EASL-2016, Spain.

Rishita Nath  
Poster in AASLD-2016, Boston, USA

Bijoya Sen  
Poster in AASLD-2016, Boston, USA

Md. Shabir Husain  
Poster in EASL-2016, Maulana Azad National Fellowship for 2016-17 for Minority Students to pursue M.Phil/Ph. D. Degree

Tarique Anwar  
Submitted PhD Thesis  
Awarded for best work at All India Cell Biology Conference

Staff

Faculty members | Designation  
Prof. N.K. Ganguly | Hon. Professor  
Dr. Nirupma Trehanpati | Additional Professor  
Dr. Gayatri Ramakrishna | Additional Professor  
Dr. Shvetank Sharna | Associate Professor  
Dr. Subhrajit Biswas | Assistant Professor  
Dr. Anupam Kumar | Assistant Professor  
Dr. G.M. Sanal | Assistant Professor  
Dr. Jaswinder Maras | DST-INSPIRE Faculty  
Dr. Anupama Kumari | Veterinary Officer  
Dr. Suvercha Bhardwaj | DST Women Scientist  
Dr. Sukruti Baweja | Senior Research Fellow

Adjunct Faculties | Designation  
Dr. Shyam Kotill (Univ Maryland, USA) | Adjunct Professor  
Dr. Vijay Kumar (ICGEB, India) | Adjunct Professor  
Dr. Devanshi Seth (Univ Sydney, Australia) | Adjunct Professor

Research Associates: Dr. Tanvi Agarwal

PhD Students: Dr. Avishek Singh, Ms. Sadaf Bashir, Ms. Arshi Khanam, Ms. Ritu Khosla, Ms. Aditi Varshney, Ms. Sukanta Das, Ms. Smruti Shubham, Mr. Dhananjay Mathur, Mr. Ashish Vyas, Ms. Bijoya Sen, Mr. Mojahidul Islam, Ms. Adil Bhat, Mr. Sachin Sharma, Ms. Sudristhi, Ms. Nandini Bhattacharya, Ms. Swati Arora, Ms. S. Savera, Ms. Sarita

Research Fellow: Ms. Rashi Sehgal, Ms. Arpita Bainik, Ms. Mohini Hasan, Ms. Shabir Hussain, Ms. Rishita Nath, Mr. Rohit, Ms. Rekha, Ms. Nisha, Mr. Michael

Technical Staff: Mr. Virender Kumar, Ms. Mohini Sharma, Mr. Nileep Singh, Ms. Surinder Kapoor, Mr. Arun Kumar
Faculty Achievements

Dr. Nirupma Trehanpati

Dr. Nirupma obtained her PhD from Kurkeshtra University and did her postdoctoral studies in Chicgao University. She has more than 15 years of research experience. In the laboratory of Molecular and Cellular Immunology, our research protocols are focused in understanding the regulatory parameters that influence the outcome of an immune response during sepsis and liver failure during HBV, and HEV infection. Group is basically involved in understanding the suppressive mechanisms of Regulatory T cells, Th17, Tfh and monocytes and macrophages. More so, major thrust of laboratory is to understand the Cellular involvement and mechanism in the HBV vertical transmission as well as in HBV reactivation and HBV induced HCC.

- Total Number of publications: 51
- Total Number of publications in 2016: 8
- Total number of projects: 3
- Faculty in WHO CC on Liver Diseases and Viral Hepatitis
- Member Secretary of Institutional Animal Ethics committee (IAEC)
- Member Secretary of Institutional Stem Cells Research and therapy committee (IC-SCRT)
- Applied one National Patent
- 2 Abstracts were accepted in EASL 2016, Barcelona, Spain
- 4 Abstracts were accepted in AASLD 2016, USA
- Abstracts were accepted in Virology 2016, Sandiego, USA
- Invited talk at Kurukshetra University, Kurukshetra

Award
Recipient of Rashtriya Gaurav Award

Dr. Gayatri Ramakrishna

Dr. Gayatri graduated from Jawaharlal Nehru university and perused her postdoctoral work at National Cancer Institute, NIH, USA. Prior to joining ILBS she work as staff scientist at CDFD, Hyderabad. Her areas of research interests include: (a) understanding the process of cellular senescence which is at crossroads of both ageing and cancer and (b) targeting cyclophilin to induce endoplasmic reticulum stress (ER-stress) and autophagy. Recently the group has identified SIRT2 as a novel marker of senescence (Anwar, Cell Cycle, 2016) and also established peroxyvananates as new tools to study the process of premature senescence (Chatterjee et al, Mol.Cell. Biochem, 2016).

- Total Number of publications: 42
- Total Number of publications in 2016: 3
- Total Number of projects: 2
- Invited talk on nutrogenomics at Clinical Nutritional meeting, Delhi.
- Invited talk on Translational Deliverables in Fatty Liver disease at the Indo-French meeting, Delhi
- Invited talk on Sirtuins in DNA damage, Biochemistry TRS Meeting, Bangalore
- Invited talk on Beyond Human Genome, at Buddha University, Industry-Academy meeting
- Appointed as reviewer for the Journals; Nature Reports, Scientific Reports, Nature Communication, Oncostarget, Hepatology International, Cell Molecular Life Sciences, Digestive Disease, World Journal of Gastroenterology and Hepatology
- Poster Presentations in AASLD (1)

Dr. Shvetank Sharma

Research focuses on elucidation of molecular pathways active in the cells and tissues during disease progression using integrated approach of genomic, proteomic, metabolomic and metagenomic tools. An intense area of research in this regard is the gut microbial alterations during disease onset. Using the Next Generation Sequencing tools the group has analyzed the gut metagenome in patients of alcoholic liver disease. In the same set of patients, the PBMC transcriptome and plasma metabolome has also been analyzed. Another area of investigation is genetic analysis of inheritance patterns of the potential candidate genes which when mutated results in genetic disorders which finally affect the liver functioning. The group has screened affected families to identify potentially susceptible individuals by mutation analysis screening.

- Total Number of publications: 17
- Total Number of publications in 2016: 4
- Total Number of projects 2
- Attended European Association for the Study of the Liver, 2016, Barcelona, Spain.
Our studies focus on strategies aimed at antagonizing either anti-apoptotic proteins or oncomirs to promote the induction of cell death in harmful proliferative cells in disease models and cancer. We used mice (C57BL/6J) model of liver injury to examine hepatotoxic effects such as fibrosis, cirrhosis, hepatocellular death to study miRNA, role of Bcl-2 family members. Work involves evaluating the efficacy of miRNA to restore tumorgenesis using HCC cell lines in vitro and in vivo subcutaneous xenograft tumor model using NOD/SCID mice. Currently we are also working on sorafenib treatment escaping apoptotic pathways in HSCs. and bone marrow response following loss of IAPs antagonist in the survivability of hematopoietic stem and progenitor cells (HSPCs) with immune modulations. Our current goals are emphasizing the translational implication to study the mode of cell death and cross-talk of hepatocyte and stellate cells and application of IAPs to increase engraftment efficiency of HSPCs in resolution of liver injuries.

- Total Number of publications: 10
- Total Number of publications in 2016: 4
- Total Number of projects: 2
- 7th International Conference on Stem Cells and Cancer (ICSCC-2016): Proliferation, Differentiation and Apoptosis, Ravindra Bhavan, Margao, Goa on 21-23 Oct 2016
- 12th International Conference of the Asian Clinical Oncology Society Theme : Cancer in Asia: Bridging the Gaps at New Delhi, India on 8-10th April 2016
- International Conference on Reproductive Health with Emphasis on Occupational, Environmental & Lifestyle Factors at National Institute of Occupational Health (NIOH), Ahmedabad, India 18-20 Feb 2016
- 6TH International Conference on Stem Cells and Cancer (ICSCC-2015): Proliferation, Differentiation & Apoptosis at Pune, India 2-5 Oct 2015

Dr. Anupam Kumar

Dr. Anupam Kumar has graduated from All India Institute of Medical Science (AIIMS), New Delhi in December 2006. He worked as postdoctoral fellow in UT MD Anderson Cancer Centre Huston Texas, USA from March 2007 to June 2011 before he joined ILBS as Senior fellow research in September 2011 and become instructor in February 2012. Currently He is working as assistant professor since January 2013 and heading the laboratory of stem cell and Regenerative medicine. Major interest of his Group is to understand the mechanism of impairment of liver regeneration in Liver failure. Developing novel and effective regenerative medicine based therapeutic protocol to rescue liver regeneration and repair in liver failure , Liver tissue engineering and Development of bio-artificial Liver as an extra/intra corporal support for patient with acute and Acute on Chronic Liver failure.

- Total Number of publications: 18
- Total Number of publications in 2016: 2
- Total Number of projects: 2
- Short term training on Development of Bio-Artificial Liver support System in Department of Biochemical Engineering Kyushu University, Japan from May 9th to 23rd 2016.

Dr. M. G. Sanal

The major interests of my laboratory: 1) Making functional and transplantable ‘hepatocyte like cells’ from various cell types, especially induced pluripotent stem cells and embryonic stem cells 2) Gene crafting using various genome editing tools, viral vectors etc. 3) Regeneration of the liver, especially the metabolomics and proteomics during the course of regeneration and termination. Studying liver regeneration in living donor liver transplantation (LDLT) will help us identify factors which would facilitate the growth and maintenance of hepatocytes which has clinical value, bridging the bench to bedside. We are also interested in the events that are involved in early development in mammals, how one cell becomes another, the gain and loss of cellular identity.

- Total Number of publications: 17
- Total Number of publications in 2016: 1
- Total Number of projects: 2
- UGC Resource Network outreach Program, School of Life Sciences, Jawaharlal Nehru University, New Delhi-110067
- Visiting Faculty Lecture, Special Center for Molecular Medicine, Jawaharlal Nehru University, New Delhi

Award
SERB Early Career Research Award

Dr. Jaswinder Singh Maras

Dr. Jaswinder obtained his PhD from Delhi University and is a DST-INSPIRE faculty fellow. Currently the work focuses on identification of biomarker from biofluids using high resolution mass spectrometry based approaches. Using a proteomics based approach we were the first to characterise (%TSAT) as a marker of iron overload associated mortality in plasma samples of ACLF patients (Maras et.al. Hepatology 2015). He has also worked on the adduct modification pattern in circulating albumin and its association with severity and mortality in severe alcoholic hepatitis patients (S Das et.al Hepatology 2016). Using a metabolomics approach the group has identified L-acetyl carnitine as a prominent biomarker candidate for early(baseline) identification of non responders to corticosteroid therapy in severe alcoholic hepatitis abstract of which
has been published (Maras et al 2015). The main focus of our experimental journey is to understand liver diseases and identify potential biomarker candidate which may be utilized for benefit of patients with liver disease.

- **Total Number of publications**: 7
- **Total Number of publications in 2016**: 1
- **Total No. of Projects**: 1
- Attended European association for the study of Liver diseases (EASL) held at Barcelona, Spain.

**Award**

- Awarded young investigator bursary award to attend EASL 2016 held at Barcelona Spain.

**Dr. Sukriti**

Dr. Sukruti is a PhD in medical sciences with specialization in clinical immunology, vascular biology and molecular biology and has three years of postdoctoral training at one of the world’s leading University, University of Illinois at Chicago (UIC), USA. She is the recipient of highly meritorious American Heart Association (AHA) postdoctoral award. Presently she is working as a Senior Fellow in the department and working on extracellular vesicles (EVs), including microparticles (MPs), which serve as vehicles for intercellular communication and can mediate transfer of proteins, mRNAs, and microRNAs. While it has been shown that EVs containing hepatitis B virus (HBV) can cause immune cells dysfunctions but their role in the transmission of HBV infection remains unknown. Presently she is investigating whether MPs serve as reservoirs of HBV infection, carry HBV DNA after its clearance from plasma post treatment, mediate viral replication and can transmit infection. She has now found hepatic MPs from CHB patients can act as reservoir of HBV infection and persistence in MPs after clearance of HBV DNA from serum. Also, they are capable of mediating replication in Huh7 cells. MPs from infected Huh7 cultured cells are unable to transmit productive HBV infection in vitro. This novel data may help develop new therapeutic strategies.

- **Total Number of publications**: 18
- **Total Number of publications in 2016**: 4
- **Total number of projects**: 1

**Awards**

- Awarded with Young investigator full bursary award at European association for study of liver meeting at Barcelona, Spain, 2016 to present Oral presentation at the conference.
- SERB Early Career Research Award
Clinical Research

The clinical research facility at ILBS, conducts multi-centric, global, complex clinical trials of new therapies, molecules to meet the unmet need of medical sciences. ILBS is one of the major hospital centres in Delhi carrying out focused clinical research and epidemiological studies the area of liver and biliary sciences. The experienced research staff of the Clinical Research department, shepherd the trial studies through the various protocol steps which includes (a) required safety approvals of the Institutional Ethics Committee and drug Controller General of India, (b) counselling and recruiting, (c) constant monitoring and laying of the patients throughout the study, and (e) ensuring compliance with privacy regulations and Good Clinical Practices.

ILBS carries out Clinical Trials in various areas like drug trials, in-house, national & International projects. The Clinical Research Department of ILBS is run by a team of active workers who coordinate the various activities and maintain quality in research as per ICH-GCP Guidelines and other regulatory authorities (DCGI, FDA, EMEA, and the like). Clinical research determines the safety and effectiveness of medications, devices, diagnostic products and treatment regimens intended for human use. These may be used for prevention, treatment, diagnosis or for relieving symptoms of a disease. Clinical trials involving new drugs are commonly classified into four phases. Each phase of the drug approval process is treated as a separate clinical trial and proceeds through Phases I, II, and III. Only after successful completion of trial the drug is approved by the national regulatory authority for use in the general population. Phase IV are 'post-approval' studies.

The Clinical Research at ILBS provides the bridge between medical
research and patient care. Patients, however, may derive benefit from clinical trials by gaining early access to new treatments. Most, however, have altruistic motives and participate in order to further the understanding or treatment of particular diseases. Patients who join clinical trials receive access to new treatments and the dedicated attention from physicians, research nurses and coordinators. Patients enrolled in the trial get new treatments and investigations free of cost, which otherwise cost very high. In short span the facility of clinical research has established itself and attained vital position in the Institute’s objective and mission of being a pioneer institution in research. Currently there are many clinical trials ongoing in different stages. In almost every clinical trial we have enrolled highest numbers of patients globally at ILBS which has enhanced the image of the Institution and set standards of clinical research among one of the top at the international level. We are being looked by multinational companies and CROs as major recruiting site with state of art facilities and dedicated staff. With clinical research expanding its arms at ILBS, there is an immediate effect seen on raising the funds for the Institution. We have been getting fund from International and National agencies.

### Project Description

<table>
<thead>
<tr>
<th>Phase</th>
<th>Indication</th>
<th># of studies handles</th>
<th>Sponsor</th>
</tr>
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<tbody>
<tr>
<td>II</td>
<td>Chronic HBV (HBeAg-Negative)</td>
<td>01</td>
<td>Gilead</td>
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<tr>
<td>II</td>
<td>Chronic HBV (HBeAg-Positive)</td>
<td>02</td>
<td>Gilead</td>
</tr>
<tr>
<td>IIIa</td>
<td>HCV (Chronic Genotype 1 or 3)</td>
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<td>Gilead</td>
</tr>
<tr>
<td>IIIb</td>
<td>Chronic HBV &amp; HCV</td>
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<td>Gilead</td>
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<tr>
<td>III</td>
<td>Liver Cirrhosis- HCV related</td>
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<td>NATCO</td>
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<tr>
<td>II</td>
<td>Hepatocellular Carcinoma</td>
<td>02</td>
<td>BMS</td>
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<tr>
<td>II</td>
<td>Chronic HCV</td>
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<td>Chronic Liver Disease</td>
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<td>Exalenz</td>
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<td>II</td>
<td>Acute on Chronic Liver Failure</td>
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<td>Exalenz</td>
</tr>
<tr>
<td>IV</td>
<td>Chronic HCV</td>
<td>01</td>
<td>Gilead</td>
</tr>
</tbody>
</table>

### Faculty Achievements

**Dr. Guresh Kumar**

Dr. Guresh Kumar has done Post Graduation and M.Phil from Punjab University, Chandigarh. He is also a Doctor of Philosophy (Ph.D.) in Statistics from UOR Jaipur. He has vast experience of more than 30 years in the prestigious All India Institute of Medical Sciences (AIIMS), New Delhi in the fields of Biostatistics. Currently he is the senior most Research Instructor in the department of clinical research. He is involved in teaching and research activities of DM, M.Ch. and Ph.D. scholars in the Institute. He is facilitating the faculty, residents and PhD scholar for protocol development to final data analysis during their research projects and thesis work. He is an active member of institutional ‘Data Safety and Monitoring Board (DSMB)’ and WHO CC on viral hepatitis and liver diseases.

- **Total Number of publications:** 75
- **Total Number of publications in 2016:** 05
- **Invited as a resource person twice in a workshop conducted by ICPO (ICMR).**
- **Reviewer for three renowned national/International journals indexed in Medline.**
- **Active member of three prestigious National associations (Indian Society of Medical Statistics (ISMS), Indian Association of Medical Informatics (IAMI), and Indian Association of Preventive and Social Medicine (IAPSM).**
- **He attended the ISMS conference held at Indian Statistical Institute, Kolkata and presented a paper, which was highly appreciated.**

**Dr. Ajeet Singh Bhadoria**

Dr. Ajeet Singh Bhadoria is presently working as an Epidemiologist and Public Health Specialist in Department of Clinical Research at ILBS. He is a post graduate in Community Medicine with expertise in Epidemiology and has consistently pursued academic, training and research activities in the field of epidemiology and public health. Presently he is taking care of epidemiological aspects of intramural and extramural research activities in the Institute. He has an additional responsibility as ‘Project Coordinator’ at WHOCC on viral hepatitis and liver diseases to accomplish different terms of references (TORs) with WHO. He is actively involved in research projects to assess the association of family history of metabolic traits with natural history of chronic liver disease with underlying etiology such as NASH, ALD and HBV infection. He is a principle investigator (PI) for a 5 year cohort study to evaluate non-invasive markers for fibrosis against biopsy among patients with NASH, HBV or HCV infection. He is member secretary to the institutional ‘Data Safety and Monitoring Board (DSMB)’. He is a member of expert committee developing surveillance plan for Viral Hepatitis in the country at NCDC, New Delhi. He’s a faculty in ILBS-ECHO project, WHOCC Lab technician training program and MSc Nursing programme.

- **Total Number of publications:** 51
• Total Number of publications in 2016: 10
• Invited as a resource person twice in a workshop conducted by ICPO (ICMR).
• Reviewer for three renowned national/international journals indexed in Medline.
• Active member of three prestigious National associations (Indian Society of Medical Statistics (ISMS), Indian Association of Medical Informatics (IAMI), and Indian Association of Preventive and Social Medicine (IAPSM))
• He attended the ISMS conference held at Indian Statistical Institute, Kolkata and presented a paper, which was highly appreciated.
• Participated in “WHO-SEAR regional consultation of WHOCC” at New Delhi, 20-21 Oct 2016
• Organized, participated and delivered a talk at GOI-WHO-ILBS 3rd National Technical Consultation held at ILBS, New Delhi, 29th July 2016
• Participated in Global Meeting on World Hepatitis Day held at JW Mariott, Mumbai, on 28th July 2016
• Participated in a panel discussion and delivered a talk at WHO South East Asia Regional Meeting held at Jakarta, Indonesia, 26-28th April 2016

Dr. Ankit Bhardwaj

Dr. Ankit Bhardwaj is presently working as a junior Clinical Trial Coordinator in Department of Clinical Research at ILBS. He has done Post Graduate Diploma in Clinical Research from IIPH, PHFI. He is currently pursuing master in Clinical Research and Regulatory Affairs from Sikkim Manipal University.

• Total Number of publications: 03
• Total Number of publications in 2016: 01
• Total number of clinical trial projects: 10
• Poster presentation in an international conference (AASLD 2016) Boston, USA.
• Poster presentation in national conference (ISG 2016) New Delhi, India.

Dr. Priyanka Jain

Dr. Priyanka Jain is presently working as a Statistician in the department of clinical research at ILBS. She has done M.Sc, M.Phil and Doctor of Philosophy (Ph.D.) in Statistics from Dr. B. R. A. University Agra. She has three years experiences as Assistant Professor in Degree College and three years experiences as a Statistician in research and also as a project coordinator cum Statistician at AARC (APASL ACLF Research consortium), a largest patient database with multicentric-multinational project. She is actively involved in managing online database as well as helping investigators in their compiling and analyzing the data.

• Total Number of publications: 06
• Total Number of publications in 2016: 02
• Actively involved in collecting relevant information, developing database and data analysis for the protocols of AKI (Acute Kidney Injury) in Intensive care Unit (ICU).
• Coordinate with Wipro team and IT team (ILBS) regarding progress of web portal of deliverable of clinical research software.
• Help faculty, Senior Residents and PDCC students in extracting, compiling and analyzing the data and provide results into graphs and tables as per requirement.
• Helping in analysis of quality control (NABH) as per requirement in the department of medical operation.
• Handling clinical data of ILBS database and provide relevant information, prepare graph as per requirement of ILBS.
Academics

Academics at ILBS

ILBS as a Deemed-to-be-University

Institute of Liver and Biliary Sciences (ILBS) is a premier medical institute established by the Government of the National Capital Territory (NCT) of Delhi as an Autonomous Super-specialty Institute, under the Societies Registration Act - 1860, New Delhi. Conceptually, this has been planned and executed as an innovative, medical institution not only for patient-care but also to undertake advance research and educational teaching programmes in the field of Liver and Biliary diseases. Besides imparting quality care patient service, a major vision of the Institute is to provide world-class training, teaching and performing cutting-edge scientific research in a focused niche area of liver and biliary diseases. ILBS has been granted a deemed-to-be-University status was granted by the University Grants Commission (UGC) under Section 3 of the UGC Act, 1956 under the de-novo category through the Ministry of Human Resource Development, Government of India. This deemed to be university is a “de-novo institute with a promise for excellence” in Hepatobiliary Medicine, Surgery and Research and is a unique institute that is dedicated to patient management, teaching and research. On basis of teaching and research based academic strength, recently ILBS was ranked 27th amongst the Indian universities in the MHRD-NIRF ranking framework. Further, the liver-centric research done by ILBS was recognized by Ministry of Science and Technology for support of infrastructural grants for (a) development of national bio-banking facility for HCV supported by Dept of Biotechnology and (b) DST-FIST grant for setting of confocal laser imaging laboratory supported by Dept of Science and Technology.
Examination at ILBS

The admission to DM/M.Ch./PDCC/Ph.D. and Certificate courses at ILBS is done through an open & transparent examination system on an All India basis. The Admission notification is issued in the month of March and September every year inviting applications from eligible candidates to appear for the entrance Examination scheduled on the last Sunday of May and the second Sunday of December for the academic session July and January respectively. The admission notification is issued in the press and also on the Institute website. The applications are called from eligible candidates through an online system and after scrutiny, for eligibility for various courses of ILBS, candidates are called for the entrance examination. The entrance examination consists of two parts viz. Theory Examination and Department Assessment Examination. The Result of the Theory Examination is declared on the same day in the evening (Day 1), and displayed on the website, and successful candidates are called for the Department Assessment examination on very next day (Day 2). The final result based on the combined performance of the Theory and the Department Assessment examination declared in the evening (Day 2), and also displayed on the Institute’s website. In the interest of fairness and transparency, all results are declared and displayed on the evenings of the examinations. The Examination committee, consisting of Senior faculty members of ILBS, ensures validity and reliability of the Examination so as to incorporate necessary checks at different stages to hold the examination effectively.

Hostel Accommodation

The Institute of Liver and Biliary Sciences, New Delhi is a fully residential complex. All residents have to compulsorily reside in the campus during their course of study. The older Adhayan hostel at ILBS was established to provide accommodation facilities for the Residents’ and Research Scholars enrolled in various courses. The recently acquired New Adhayan hostel at ILBS was established to provide accommodation facilities for the Residents’ and Research Scholars enrolled in various courses. The admission to DM/M.Ch./PDCC/Ph.D. and Certificate courses at ILBS is done through an open & transparent examination system on an All India basis. The Admission notification is issued in the month of March and September every year inviting applications from eligible candidates to appear for the entrance Examination scheduled on the last Sunday of May and the second Sunday of December for the academic session July and January respectively. The admission notification is issued in the press and also on the Institute website. The applications are called from eligible candidates through an online system and after scrutiny, for eligibility for various courses of ILBS, candidates are called for the entrance examination. The entrance examination consists of two parts viz. Theory Examination and Department Assessment Examination. The Result of the Theory Examination is declared on the same day in the evening (Day 1), and displayed on the website, and successful candidates are called for the Department Assessment examination on very next day (Day 2). The final result based on the combined performance of the Theory and the Department Assessment examination declared in the evening (Day 2), and also displayed on the Institute’s website. In the interest of fairness and transparency, all results are declared and displayed on the evenings of the examinations. The Examination committee, consisting of Senior faculty members of ILBS, ensures validity and reliability of the Examination so as to incorporate necessary checks at different stages to hold the examination effectively.

Hostel Officialis

Dr. Senthil Kumar, Addl. Professor (HPB Surgery) Sr Faculty Incharge
Dr. Ankur Jindal, Asst. Professor (Hepatology) Jr Faculty Incharge

E-LIBRARY

The E-Library at ILBS supports the academic as well as the research needs of students and
faculty of the University round the clock with its 131 online journals. The E-Library can be accessed by Residents’ and Faculty from all corners of the Hospital and Hostel.

Its collection comprises hybrid resources (Print and Electronic) of books, theses and journals. It houses 536 books, 49 theses, 330 bound volumes of journals. It also subscribes 131 full text scholarly current e-Journals to keep users updated with trends in their field.

ILBS Library has received an award for highest usage of ERMED resources, an initiative of Directorate General of Health Services, Ministry of Health & Family Welfare, Govt. of India by National Medical Library, New Delhi on 21st December 2016 under level-2 category.

Courses Offered

**Academic Courses**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Course</th>
<th>Duration</th>
<th>Seats per year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degree Courses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>DM Hepatology</td>
<td>3 years</td>
<td>4 seats</td>
</tr>
<tr>
<td>2</td>
<td>M. Ch Hepato-Pancreato-Biliary Surgery</td>
<td>3 years</td>
<td>3 seats</td>
</tr>
<tr>
<td>3</td>
<td>DM Organ Transplant Anaesthesia and critical care</td>
<td>3 years</td>
<td>1 seat</td>
</tr>
<tr>
<td>4</td>
<td>DM Paediatric Hepatology</td>
<td>3 years</td>
<td>1 seat</td>
</tr>
<tr>
<td>5</td>
<td>MD-PhD</td>
<td>5 years</td>
<td>4 seats</td>
</tr>
<tr>
<td>6</td>
<td>PhD in Biomedical Sciences</td>
<td>5 years</td>
<td>5 seats</td>
</tr>
<tr>
<td>7</td>
<td>Ph.D. in Nutrition</td>
<td>5 years</td>
<td>4 seats</td>
</tr>
<tr>
<td>8</td>
<td>PDCC in Liver Transplant Anaesthesia</td>
<td>1 Year</td>
<td>6 seats</td>
</tr>
<tr>
<td>9</td>
<td>PDCC in HPB Interventional Radiology</td>
<td>1 Year</td>
<td>6 Seats</td>
</tr>
<tr>
<td>10</td>
<td>PDCC in Pediatric Hepatology</td>
<td>1 Year</td>
<td>6 Seats (Two sponsored)</td>
</tr>
<tr>
<td>11</td>
<td>PDCC in Hepatopathology</td>
<td>1 Year</td>
<td>6 Seats (Two sponsored)</td>
</tr>
<tr>
<td>12</td>
<td>PDCC in Nephrology</td>
<td>1 Year</td>
<td>6 Seats (Two sponsored)</td>
</tr>
<tr>
<td>13</td>
<td>PDCC in Hepato-Virology</td>
<td>1 Year</td>
<td>6 Seats</td>
</tr>
<tr>
<td>14</td>
<td>PDCC in Critical Care Medicine (with Specialisation in Liver Intensive Care)</td>
<td>1 Year</td>
<td>6 Seats</td>
</tr>
<tr>
<td>15</td>
<td>PDCC in HPB GI Oncology</td>
<td>1 Year</td>
<td>6 Seats</td>
</tr>
<tr>
<td>16</td>
<td>PDCC in Abdominal Imaging</td>
<td>1 Year</td>
<td>6 Seats</td>
</tr>
<tr>
<td>17</td>
<td>PDCC in Blood Banking &amp; Immunohaematology</td>
<td>1 Year</td>
<td>6 Seats</td>
</tr>
<tr>
<td>18</td>
<td>PGCC in Clinical Nutrition</td>
<td>1 Year</td>
<td>4 Seats</td>
</tr>
<tr>
<td>19</td>
<td>Certificate Course in Nephrology</td>
<td>6 Months</td>
<td>4 Seats (Two sponsored)</td>
</tr>
<tr>
<td>20</td>
<td>PDCC/PGCC in Apheresis Technology</td>
<td>1 Year</td>
<td>6 seats</td>
</tr>
<tr>
<td>21</td>
<td>PDCC in advanced Diagnostic and Clinical Microbiology</td>
<td>1 Year</td>
<td>4 seats</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Course</th>
<th>Duration</th>
<th>Seats per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Critical Care Certification Course</td>
<td>6 Months</td>
<td>4 seats</td>
</tr>
</tbody>
</table>

**Short Term Courses**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Course</th>
<th>Duration</th>
<th>Seats per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Short Term Training in HVPG &amp; TJLB</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
<tr>
<td>2</td>
<td>Short Term Training in Research Department</td>
<td>1-6 months</td>
<td>Variable</td>
</tr>
<tr>
<td>3</td>
<td>Short Term Training in Clinical Virology</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
<tr>
<td>4</td>
<td>Short Term Training in Hepatopathology</td>
<td>6 months</td>
<td>2 seats every 6 months</td>
</tr>
<tr>
<td>5</td>
<td>Short Term Training in Hematology (for technical grade)</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
<tr>
<td>6</td>
<td>Short Term Training in Hematology (for MD/DCCH)</td>
<td>3 months</td>
<td>1 seat every 3 months</td>
</tr>
<tr>
<td>7</td>
<td>Short Term Training in Biochemistry (Automation in Diagnostics)</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
<tr>
<td>8</td>
<td>Short Term Training in Biochemistry (Immunological Techniques)</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
<tr>
<td>9</td>
<td>Short Term Course in Hepato-Pancreato-Biliary Radiology</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
<tr>
<td>10</td>
<td>Short Term Training in Transient Elastography</td>
<td>2 weeks</td>
<td>2 seats / course</td>
</tr>
<tr>
<td>11</td>
<td>Short Term Training in Endoscopic Ultrasound</td>
<td>3 months</td>
<td>2 seats every 3 months</td>
</tr>
</tbody>
</table>

**Successful Candidates in Year 2015**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of Student</th>
<th>Designation</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Examination – June’ 2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Dr. Madhumita P</td>
<td>Sr. Resident</td>
<td>DM (Hepatology)</td>
</tr>
<tr>
<td>2</td>
<td>Dr. Cyriac Abby Philips</td>
<td>Sr. Resident</td>
<td>DM (Hepatology)</td>
</tr>
<tr>
<td>3</td>
<td>Dr. Chethan Ramesh Kalal</td>
<td>Sr. Resident</td>
<td>DM (Hepatology)</td>
</tr>
<tr>
<td>4</td>
<td>Dr. Tanmay SunilKumar Vyas</td>
<td>Sr. Resident</td>
<td>DM (Hepatology)</td>
</tr>
<tr>
<td>5</td>
<td>Dr. Niteen Kumar</td>
<td>Sr. Resident</td>
<td>MCh (HPB Surgery)</td>
</tr>
<tr>
<td>6</td>
<td>Dr. Kumar Vaibhav</td>
<td>Sr. Resident</td>
<td>MCh (HPB Surgery)</td>
</tr>
<tr>
<td>7</td>
<td>Dr. Deeplaxmi Purushottam Borle</td>
<td>Sr. Resident</td>
<td>MCh (HPB Surgery)</td>
</tr>
<tr>
<td>8</td>
<td>Dr. Sandeep Sharma</td>
<td>Sr. Resident</td>
<td>DM Organ Transplant Anesthesia and Critical Care</td>
</tr>
<tr>
<td>9</td>
<td>Dr. Vikrant Sood</td>
<td>Sr. Resident</td>
<td>DM Pediatric Hepatology</td>
</tr>
<tr>
<td>10</td>
<td>Dr. Priyanka Vishvakarma</td>
<td>Sr. Resident</td>
<td>PDCC Abdominal Imaging</td>
</tr>
<tr>
<td>11</td>
<td>Dr. Anjali Sharma</td>
<td>Sr. Resident</td>
<td>PDCC in Blood Banking &amp; Immunohaematology</td>
</tr>
<tr>
<td>12</td>
<td>Dr. Prachi Gupta</td>
<td>Sr. Resident</td>
<td>PDCC in Critical Care Medicine (With Specialization in Liver Intensive Care)</td>
</tr>
<tr>
<td>13</td>
<td>Dr. Pragya Ranjan</td>
<td>Sr. Resident</td>
<td>PDCC in Hepato-Virology</td>
</tr>
<tr>
<td>No.</td>
<td>Resident Name</td>
<td>Position</td>
<td>Course Details</td>
</tr>
<tr>
<td>-----</td>
<td>---------------</td>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td>14.</td>
<td>Dr. Vinay Kumar D P</td>
<td>Sr. Resident</td>
<td>PDCC in HPB Interventional Radiology</td>
</tr>
<tr>
<td>15.</td>
<td>Dr. Alok Kumar Udhy</td>
<td>Sr. Resident</td>
<td>PDCC in HPB Interventional Radiology</td>
</tr>
<tr>
<td>16.</td>
<td>Dr. Vivekananthan P</td>
<td>Sr. Resident</td>
<td>PDCC in Liver Transplant Anesthesia</td>
</tr>
<tr>
<td>17.</td>
<td>Dr. Aditi</td>
<td>Sr. Resident</td>
<td>PDCC in Pediatric Hepatology</td>
</tr>
</tbody>
</table>

**Exit Examination – December’2016**

<table>
<thead>
<tr>
<th>Date of Examination</th>
<th>Name of the Course</th>
<th>Name of the Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st July, 2017</td>
<td>DM/MCh/PDCC/PhD and C/C</td>
<td>Induction of new batch admitted in July 2017</td>
</tr>
<tr>
<td>10th, 12th, 14th and 17th July, 2017</td>
<td>DM/MCh</td>
<td>Theory Examination</td>
</tr>
<tr>
<td>22nd and 23rd July, 2017</td>
<td>DM/MCh</td>
<td>Practical Examination</td>
</tr>
<tr>
<td>31st August, 2017</td>
<td>PDCC / CC</td>
<td>Submission of Project Proposal of batch admitted in July 2017</td>
</tr>
<tr>
<td>30th October, 2017</td>
<td>PDCC</td>
<td>Project Submission for PDCC batch admitted in January 2017</td>
</tr>
<tr>
<td>13th, 14th, 15th and 16th November, 2017</td>
<td>DM and MCh</td>
<td>Departmental Midterm/Semester Examination</td>
</tr>
<tr>
<td>14th, 15th, and 16th November, 2017</td>
<td>PDCC</td>
<td>Departmental Pre-final of batch admitted in January 2017</td>
</tr>
<tr>
<td>4th, 6th and 8th December, 2017</td>
<td>PDCC / CC</td>
<td>Theory Examination</td>
</tr>
<tr>
<td>10th December, 2017</td>
<td>PDCC / CC</td>
<td>Practical Examination</td>
</tr>
<tr>
<td>17th December, 2017</td>
<td>PDCC / CC</td>
<td>Entrance Written Examination</td>
</tr>
<tr>
<td>18th December, 2017</td>
<td>PDCC / CC</td>
<td>Entrance Departmental Assessment</td>
</tr>
<tr>
<td>30th December, 2017</td>
<td>DM/M.Ch.</td>
<td>Submission of Thesis protocols batch admitted 01/07/2017</td>
</tr>
</tbody>
</table>

**Academic Calendar**

The Institute of Liver and Biliary Sciences, Deemed-to-be-University academic calendar provides important planning information for students and faculty. The calendar includes semester start dates, deadlines for Thesis, exam dates, and much more time-sensitive information. The Academic Calendar for Year 2017 is mentioned below:

**Academic Calendar for 2017**

<table>
<thead>
<tr>
<th>Date of the Examination</th>
<th>Name of the Course</th>
<th>Name of the Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd January 2017</td>
<td>PDCC / PhD</td>
<td>Induction of new batch admitted in January 2017</td>
</tr>
<tr>
<td>28th February, 2017</td>
<td>PDCC</td>
<td>Project Proposal submission of batch admitted in January 2017</td>
</tr>
<tr>
<td>28th May, 2017*</td>
<td>DM/MCh/PDCC/PhD and C/C</td>
<td>Entrance Written Examination</td>
</tr>
<tr>
<td>29th May, 2017*</td>
<td>DM/MCh/PDCC/PhD and C/C</td>
<td>Entrance Departmental Assessment</td>
</tr>
</tbody>
</table>

**International Conferences**

Residents of various courses at ILBS attended International Conferences in Year 2016 funded by ILBS / Government Funding Agencies i.e. DST, ICMR, CSIR to enhance their knowledge and exposure.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of Resident</th>
<th>Course Details</th>
<th>International Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Dr. Madhumita P, Senior Resident</td>
<td>DM Hepatology</td>
<td>APASL 2016, Tokyo</td>
</tr>
<tr>
<td>3</td>
<td>Dr. Sumeet Kainth, Senior Resident</td>
<td>DM Hepatology</td>
<td>EASL 2016, Barcelona,</td>
</tr>
<tr>
<td>5</td>
<td>Dr. Chetan R Kalal, Senior Resident</td>
<td>DM Hepatology</td>
<td>EASL 2016, Spain</td>
</tr>
<tr>
<td>6</td>
<td>Dr. Sandeep Sharma, Senior Resident</td>
<td>DM (Organ Transplant Anesthesia and Critical Care)</td>
<td>International Anaesthesia Research Society IARS 2016 California</td>
</tr>
<tr>
<td>7</td>
<td>Dr. Vikrant Sood, Senior Resident –Pediatric Hepatology</td>
<td>DM Pediatric Hepatology</td>
<td>ESPGHAN 2016 Greece</td>
</tr>
<tr>
<td>8</td>
<td>Dr. Kelka Prakash, Senior Resident –</td>
<td>DM Pediatric Hepatology</td>
<td>16th World Congress of Anaesthesiologists at Hong Kong, China</td>
</tr>
</tbody>
</table>
Trainees at ILBS
Residents from various Institute undergone training/observership in Year 2016 to attain expertise in their speciality.

<table>
<thead>
<tr>
<th>Name of the student</th>
<th>Name of the Institute</th>
<th>Period of Training</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. John Paul Norvell</td>
<td>Emory University, Atlanta, USA</td>
<td>21.03.2016 to 25.03.2016</td>
<td>Dr. John Paul Norvell</td>
</tr>
<tr>
<td>Dr. E Lenin Babu</td>
<td>Jawaharlal Institute of Post Graduate Medical Education and Research</td>
<td>14.02.2016 to 16.04.2016</td>
<td>Dr. E Lenin Babu</td>
</tr>
<tr>
<td>Dr. Satya Prakash</td>
<td>Jawaharlal Institute of Post Graduate Medical Education and Research</td>
<td>14.02.2016 to 16.04.2016</td>
<td>Dr. Satya Prakash</td>
</tr>
<tr>
<td>Dr. Kalayarasan</td>
<td>Jawaharlal Institute of Post Graduate Medical Education and Research</td>
<td>14.02.2016 to 16.04.2016</td>
<td>Dr. Kalayarasan</td>
</tr>
<tr>
<td>Dr. B.H. Srinivas</td>
<td>Jawaharlal Institute of Post Graduate Medical Education and Research</td>
<td>14.02.2016 to 16.04.2016</td>
<td>Dr. B.H. Srinivas</td>
</tr>
<tr>
<td>Dr. K. Prem Kumar</td>
<td>Madras Medical College</td>
<td>28.01.2016 to 11.02.2016</td>
<td>Dr. K. Prem Kumar</td>
</tr>
<tr>
<td>Dr. Shifa Babu</td>
<td>Madras Medical College</td>
<td>12.02.2016</td>
<td>Dr. Shifa Babu</td>
</tr>
<tr>
<td>Dr. M.I. Abhilash</td>
<td>Gandhi Medical College</td>
<td>15.02.2016 to 27.02.2016</td>
<td>Dr. M.I. Abhilash</td>
</tr>
<tr>
<td>Dr. Rohan P. Reddy</td>
<td>Gandhi Medical College</td>
<td>15.02.2016 to 27.02.2016</td>
<td>Dr. Rohan P. Reddy</td>
</tr>
<tr>
<td>Dr. K. Saikrishna</td>
<td>Gandhi Medical College</td>
<td>15.02.2016 to 27.02.2016</td>
<td>Dr. K. Saikrishna</td>
</tr>
<tr>
<td>Dr. Ashis Kumar Saha</td>
<td>KPC Medical College</td>
<td>13.06.2016 to 18.06.2016</td>
<td>Dr. Ashis Kumar Saha</td>
</tr>
<tr>
<td>Dr. Peevysh Varshney</td>
<td>SGPGI Lucknow</td>
<td>02.11.2016 to 16.11.2016</td>
<td>Dr. Peevysh Varshney</td>
</tr>
<tr>
<td>Dr. Ashish Bansal</td>
<td>SGPGI Lucknow</td>
<td>02.11.2016 to 16.11.2016</td>
<td>Dr. Ashish Bansal</td>
</tr>
<tr>
<td>Dr. Sadasivan M.</td>
<td>Caritas Hospital, Kerala</td>
<td>01.12.2016 to 31.12.2016</td>
<td>Anesthesia</td>
</tr>
<tr>
<td>Dr. Nithish P. Narayanan</td>
<td>Caritas Hospital, Kerala</td>
<td>15.12.2016 to 31.12.2016</td>
<td>Anesthesia</td>
</tr>
<tr>
<td>Dr. Kiran Regmi</td>
<td>National Academy of Medical Sciences Bir Hospital, Kathmandu Nepal</td>
<td>15.12.2016 to 14.06.2017</td>
<td>Hepatology</td>
</tr>
</tbody>
</table>

Clinico-Pathological Conferences held in 2016
Clinico-pathological conferences at ILBS are organised on last Thursday of every month. The Department of Pathology in association with Department of Hepatology, HPB Surgery, Pediatric Hepatology, Oncology and Nephrology discuss in detail interesting and challenging cases. The details of Clinico Pathological Conferences organised in year 2015 are:

<table>
<thead>
<tr>
<th>Month</th>
<th>Invited Faculty</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>January’2016</td>
<td>Dr. Nihar Ranjan Dash, Additional Professor, Department of Gastrointestinal Surgery, AIIMS, New Delhi</td>
<td>HPB Surgery</td>
</tr>
<tr>
<td>February’2016</td>
<td>Dr. P. K. Garg, Professor, Department of Gastroenterology, AIIMS, New Delhi</td>
<td>Hepatology</td>
</tr>
<tr>
<td>March’2016</td>
<td>Grand Round—Dr. Dinesh Rawat, Associate Professor Pediatric Hepatology</td>
<td>Pediatric Hepatology</td>
</tr>
<tr>
<td>April’2016</td>
<td>Col. Ramjith Nair, Sr Adv Medicine and Nephrology from AIIMS</td>
<td>Nephrology</td>
</tr>
</tbody>
</table>

In addition the Department of MCM also helped 12 summer trainees, of which 10 trainees were recipients of the INSA fellowship from National Academy of Science, India.
# Publications in 2016


randomized open label study of ‘impinen vs. cefepime in spontaneous bacterial peritonitis. Liver Int. 2016 May;36(3):677-87.


36 Bhardwaj S, Ahmad F, Wedemeyer H et al.Increased CD56(bright) NK cells in HIV-1 infected patients with chronic hepatitis C virus genotype 1 or 3 infection in India. J Viral Hepat. 2016 Dec 9.


44 Shah SR, Rao PN, Sarin SK et al. Chronic hepatic C virus infection in India: Regional demographics and distribution of viral genotypes. Indian J Gastroenterol. 2016 NOv 15


51 Abby Philips C, Sahney A. Accepted clinical image “Manual Oral Extraction of Large Pork Tapeworm”. In Press NEJM.


55 Lal BB, Sood V, Rawat D et al. Congenital extrahepatic portosystemic shunt in a child with Caroli’s Syndrome. ACG Case Rep J. [In Press]


63 Hijoika S, Hara K, Mizuno N et al. Diagnostc performance and factors influencing the accuracy of EUS-FNA of pancreatic


143 Saurabh, Lalit Singh, Anurag Agarwal et al. Echocardiographical Evaluation And Cardiovascular Changes In Chronic Obstructive Pulmonary Disease Patients In Tertiary Care Hospital. JMSCR Volume 04 Issue 06 June

Hospital Services
Medical Operations

The department of Medical Operations once more remained committed to its mission in improvising the standard of care available in the institute. The year saw us raise the benchmark in our services compared to the best of the hospitals in the nation. This year, the hospital got a new, more user friendly and browser based version of the Hospital Information system. The institute also implemented new modalities of automated queue management in its outpatient area, which was shifted to the newly opened second phase building. Dr. Girish Chandra, Head Operations (Medical) leads the team and is supported by a group of young and enterprising professionals from the department of Medical operations, Nursing Services, Quality and Training, Front Desk operations and other support services. The operations team aims to facilitate the care providers in delivering the highest standards of care to our patients.

<table>
<thead>
<tr>
<th>Staff</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Girish Chandra</td>
<td>Head Operations (Medical)</td>
</tr>
<tr>
<td>Dr. Vimal Rai Sharma</td>
<td>Dy. Head Operations (Medical)</td>
</tr>
<tr>
<td>Dr. Kishore Singh</td>
<td>Asst. Head Operations (Medical)</td>
</tr>
<tr>
<td>Dr. Shantanu Dubey</td>
<td>Asst. Head Operations (Medical)</td>
</tr>
<tr>
<td>Dr. Nitesh Kumar</td>
<td>Asst. Head Operations (Medical)</td>
</tr>
<tr>
<td>Ms. Cicily Babu</td>
<td>Sr. Manager ( Nursing)</td>
</tr>
<tr>
<td>Mr. Anurag Panwar</td>
<td>Assistant Manager</td>
</tr>
<tr>
<td>Ms. Sarika Jha</td>
<td>Executive</td>
</tr>
<tr>
<td>Ms. Kulwinder Kaur</td>
<td>Jr. Executive</td>
</tr>
</tbody>
</table>
Hospital Committees
- Core Committee,
- Credentialing and Privileging Committee,
- Code Blue Committee,
- Drugs & Therapeutics Committee,
- Emergency Preparedness Committee (Disaster),
- Grievance Redressal cum Welfare Board,
- Hospital Safety Committee,
- Hospital Transfusion Committee,
- Infection Control Committee,
- Medical Audit Committee,
- Quality Assurance Committee, and
- Sexual Harassment Committee

Patient Care Services
Out Patient Department
The Out patient services were shifted to the new and improved quarters in Phase –II building with better consultation chambers and waiting and sub- waiting areas. Out-patient clinics are conducted in sub-specialties like Hepatology, Hepatopancreateo-biliary surgery, Pediatric Hepatology, Nephrology, Pulmonology, Oncology, Cardiology, Urology and Renal Transplant services. Special Clinics in nutrition, neurology and radiation oncology have also been started. General OPD clinics are conducted twice a week for the general category of patients at a nominal consultation fee of Rs. 20/-. The appointment system was also shifted to a fully electronic platform with display based queue management.

Patient Care Services
In-Patient Services
<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Beds (Functional)</th>
<th>Admissions</th>
<th>In-Patient Days</th>
<th>Bed Occupancy</th>
<th>Bed Turn Over Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>142</td>
<td>5435</td>
<td>41429</td>
<td>79.5%</td>
<td>3.1</td>
</tr>
<tr>
<td>2015</td>
<td>151</td>
<td>5926</td>
<td>43944</td>
<td>81%</td>
<td>3.3</td>
</tr>
<tr>
<td>2016</td>
<td>191</td>
<td>6605</td>
<td>48489</td>
<td>82%</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Emergency Services
The emergency services are functional 24x7, round the clock on all days. The emergency block is fully equipped with advance monitoring and resuscitation equipments. Services are well organized with dedicated manpower and designated space for triage, observation and admission. The emergency block consists of a Triage Hall with 4 beds and an emergency observation ward with 8 beds. With starting of new building of ILBS, there is a plan to further expand the service facility of emergency area.

Triage System: START and Jump-Start Protocols are used for initial triaging of adult and pediatric patients respectively. The emergency services cater to all categories of patients presenting with hepato-biliary and non-hepato biliary clinical conditions across all age groups. However, non-hepato-biliary cases are referred to appropriate health care facilities after initial assessment and stabilization. ILBS has in house blood bank and laboratories, providing emergency support to appropriate patients.
Liver Emergencies
ILBS provides emergency care to all types of liver diseases, presenting in critical condition. The clinical conditions commonly presenting in ILBS emergency include hepatic encephalopathy, acute variceal bleed, lower GI bleed, spontaneous bacterial peritonitis, hepato renal syndrome, hepatic hydrothorax, acute liver failure, acute cholecystitis, acute pancreatitis, blunt trauma abdomen, acute gastroenteritis, etc. The emergency is prepared to tackle any medical emergency however non hepato biliary emergency are referred to other facilities after stabilization. A team of casualty medical officers is present to triage patients. ILBS team is well prepared to manage serious patients presenting with Acute Liver Failure (ALF) suitable for emergency transplant surgeries. A team is always ready for retrieval and transport of organs from potential brain dead donors for cadaver transplant. During past year, rapid transport of organs from the airport was facilitated to the hospitals through a green corridor created with the support of Delhi police. A dedicated team comprising skilled emergency physicians, hepatologists, hepato- biliary surgeons and critical care specialists, is available round the clock. There is in- house presence of support services of pediatric hepatology, nephrology, neurology, cardiology, urology, renal transplantation and intervention radiology.

Code Blue Team
A dedicated Code Blue Team is available round the clock to tackle any medical emergency involving cardiovascular arrest within the hospital premises. All activities are continually standardized through NABH accreditation program with round the year training of all emergency staff. All staff and doctors are provided BLS ACLS training on regular basis.

Liver Helpline
A dedicated 24 hour toll free no.1-800-11-5354 has been designated as “Liver Help Line” for the benefit of patient and their relatives. Questions related to liver diseases are answered round the clock by hospital emergency staff at this dedicated telephone number. During past year on an average 25 - 30 calls were received every day in emergency seeking information and help about liver diseases. The common queries include information related to jaundice, continuation of treatment, follow up advice, new symptoms, emergency problems, liver transplantation, hepatitis B hepatitis C, etc. The Liver helpline also functions as telephone triage service. Patients discharged from hospitals also benefit from 24x7 connectivity with the institution in case of any emergency. This service is especially beneficial for outstation patients. Depending upon the urgency it helps patients and their relatives directing them towards appropriate level of health care.

Liver Ambulance Service
ILBS is well equipped for handling transportation of sick patients with two basic and one advanced life support ambulances. The BLS ambulances are equipped with an oxygen cylinder, and emergency medications and supplies. The advanced “Liver Ambulance Service”, an ALS facility, is available for critically ill patients and the management of such patients is undertaken during the process of transfer to ILBS. This ambulance is fitted with state of the art pre-hospital medical equipment almost identical to the Hospital’s ICUs. The ambulance has the capability to establish and maintain a patient’s airway, defibrillate the heart, stabilize pneumothorax conditions and perform other advanced life support procedures or services, such as cardiac (EKG) monitoring, intubations and ventilation. This ambulance can transport ventilator- supported patients to long distances. Emergency of ILBS also facilitates transfers through air ambulances for patients from far and remote places.

Liver Outreach Van
A state of art, multi equipped liver outreach van is in the final stages of procurement and shall be utilized to proved free screening services to the general public in rural and semi rural areas of NCT of Delhi. The free screening shall include blood tests for common liver and kidney disorders as well as advanced liver non invasive tests like Fibroscan. The fibrosan machine uses a probe, similar to an ultrasound probe, which is kept on the right lower chest wall of the patient. Just by pressing a button the ultrasound probe sends a shear wave in to the liver and detects the stiffness of the liver. This data is automatically processed by the on- board computer and the liver stiffness is displayed on the screen. Ten such readings are recorded. Easy to perform, and rapid, the measurement is expressed with a clear figure in kPa. The patient lies on his/her back, right arm raised behind the head. The measurement is made on the right lobe of the liver by intercostal route using a dedicated probe with a vibrating system. The result is delivered at the end of the 10 acquisitions.
Disaster Management Plan
ILBS hospital has a well documented Disaster Management Plan. ILBS is well equipped to handle any type of external or internal disaster. A documented disaster management policy is in place. In case of Mass Casualty, the area outside the emergency ward is used as a triage zone and the inner zones are designated as Yellow, Red and Black zones respectively. Disaster drills are carried out a regular interval to check preparedness.

<table>
<thead>
<tr>
<th>Emergency Staff</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients Seen in Emergency</td>
<td>6925</td>
<td>6857</td>
<td>7202</td>
</tr>
<tr>
<td>Admissions through Emergency</td>
<td>2836</td>
<td>2940</td>
<td>3561</td>
</tr>
<tr>
<td>Medico-Legal Cases</td>
<td>21</td>
<td>09</td>
<td>8</td>
</tr>
</tbody>
</table>

Day Care Services
The Institute has day care facilities which provide services to patients for short stay procedures like diagnostic and therapeutic endoscopy, ERCP, biliary stenting, endoscopic ultrasound (EUS), Endoscopic Shock Wave Lithotripsy (ESWL), etc. The services are operational from 8 am to 8 pm.

<table>
<thead>
<tr>
<th>Day-Care Services</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day-Care Admissions</td>
<td>21476</td>
<td>23859</td>
<td>26024</td>
</tr>
</tbody>
</table>

Intensive Care Services
Out of the hospital’s total strength of 184 beds, 36 function as ICU beds and 13 have been designated as High Dependency Unit beds. All ventilated patients in the ICU are staffed round the clock with a dedicated nurse in each shift (Nurse: Patient ratio of 1:1). Close attention is paid to infection control practices in the ICU leading to extremely low rates of ventilator associated pneumonia (VAP) and other HAI indicators. State of art infrastructure like fully automatic remote controlled patient beds, centralized patient monitoring system, HEPA filters, Conferencing facilities, high end ventilators and a well stocked inventory of advanced medical equipment are available.

<table>
<thead>
<tr>
<th>Critical-Care Services</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver Coma ICU Admissions</td>
<td>1404</td>
<td>1224</td>
<td>1188</td>
</tr>
<tr>
<td>HPB Surgical ICU Admissions</td>
<td>326</td>
<td>541</td>
<td>981</td>
</tr>
<tr>
<td>Transplant ICU Admissions</td>
<td>110</td>
<td>144</td>
<td>155</td>
</tr>
</tbody>
</table>

Endoscopy Suites
The Institute has eight endoscopy suites for undertaking various endoscopic procedures namely UGI endoscopy, colonoscopy, ERCP, capsule endoscopy, ESWL, diagnostic and therapeutic endoscopic ultrasound, single and double balloon enteroscopy, bronchoscopy, Liver biopsy, Hepatic Venous Pressure Gradient (HVPG) and Trans Jugal Liver Biopsy(TILB). Major endoscopic procedures are carried out by highly trained faculty assisted by skilled nurses and experienced technicians. At ILBS, a high priority is placed on prevention of transmission of infections and microorganisms from one patient to another. To ensure this, the endoscopes and other accessories are washed, cleaned and disinfected following national and international guidelines in a separate disinfection room. The disinfection room also houses two state-of-art fully automatic endo-washers which are used to treat and disinfect the instruments after every use.

<table>
<thead>
<tr>
<th>Endoscopy Suites</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver Coma</td>
<td>Ms. Asha Varghese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical ICU</td>
<td>Ms. Deepa Anthony</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transplant ICU</td>
<td>Ms. Rosamma Xavier</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Technical Staff:
Mr. Krithan Kumar Gehlout, Mr. Ravinder Kumar, Mr. Rajesh Kumar Rai, Mr. Shashendra Mr. Kumar Yadav, Mr. Naveen Antil
Nurse Incharge:
Ms. P. Jamuna Rani

High Dependency Unit and GI Bleed Unit
The institute has started a thirteen bedded HDU as step down facility, to cater to patients who require close monitoring but are not critical enough to require admission in ICU. One of these beds is designated as isolation bed for immunocompromised or immunodeficient patients.

<table>
<thead>
<tr>
<th>High Dependency Unit and GI Bleed Unit</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
</table>

Nurse Incharge:
Ms. Smitha Jacob, Ms. Lucy Joseph
Operating Suites
The institute has six fully equipped state-of-the-art modular operating rooms (OR). Two ORs are dedicated to the liver and renal transplant surgery and four OR are for other surgical procedures. The ORs are equipped with latest equipments like Ultrasonic Surgical Aspiration System, Argon Beam Coagulator, Thromboelastograph, Cell Saver, Rapid Infusion System, Cardiac Output Monitor, Veno-Venous Bypass Pump, Fibro-Optic bronchoscope, Video-bronchoscope, Video-choledochoscope, HD Surgical Light Camera System, central anaesthesia Monitoring System and HD laparoscopic Monitor System.

<table>
<thead>
<tr>
<th>Surgeries</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Operations (Including Liver Transplants)</td>
<td>877</td>
<td>1159</td>
<td>1179</td>
</tr>
<tr>
<td>Minor Operations</td>
<td>277</td>
<td>312</td>
<td>380</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1154</td>
<td>1471</td>
<td>1559</td>
</tr>
<tr>
<td>Liver Transplant</td>
<td>65</td>
<td>101</td>
<td>93</td>
</tr>
<tr>
<td>Renal Transplant</td>
<td>21</td>
<td>45</td>
<td>37</td>
</tr>
</tbody>
</table>

Technical Staff Surgery:
Mr. Kuldeep Varshney, Mr. Sunil Kumar Prasad, Mr. Neeraj Kaushik, Mr. Ravi Chauhan, Mr. Pushpendra Kumar, Mr. Kamaljit Singh, Mr. Mahesh Pal Singh, Mr. Jitender Kumar, Mr. Mahipal Yadav, Mr. Shailender Kumar

Technical Staff Anaesthesia:
Mr. Md. Shakil Hashmi, Mr. Parvez Ahmad, Mr. Arun Kumar, Mr. Ramesh Chandra, Ms. Geeta Sharma, Mr. Kuldeep Kumar Sharma, Mr. Praveen Kumar, Mr. Bhupender Singh, Mr. Raju Yadav, Mr. Ravinder Kumar, Mr. Susendra Babu, Mr. Lakshmi Chand, Mr. Lalit Yadav, Mr. Hari Om Sharma, Mr. Harbeer

OT Nurse Incharge:
Mr. Sanjay Joshi

Phlebotomy Services & Lab Reception
The phlebotomy area is a dedicated area for the collection of samples from OPD patients. Trained phlebotomists who collect samples observe all the standard precautions. After collection, each vacutainer is bar-coded with the patient’s details. The lab reception receives samples from the OPD as well as IPD. On reception at the counter, each sample is acknowledged onto the hospital information system (HIS) and then distributed into the respective labs. In 2016, the phlebotomy services were shifted to the ground floor of the second phase building along with OPD services. The patients are now serviced through a queue management token based system to avoid patient harassment during waiting. All lab reports are also now dispatched through the phlebotomy counter itself.

Faculty Incharge:
Dr. Eka Gupta, Additional Professor (Virology)

Technical Staff:
Mr. Sandeep Tyagi, Mr. Surender Kumar, Ms. Sanjay Mohini Sharma, Mr. Manvir Singh Chauhan

Lab reception staff:
Mr. Manisha Toppo, Mr. Rakesh Pratap Singh, Mr. Sheetal Pasi

Quality and Training
The Quality and Training Department is concerned with maintaining high standards of quality in delivery of services, establishing and monitoring performance through measurement of Quality indicators, development and implementation of SOPs, hospital wide policies and protocols, and maintaining standardized formats of documentation across the organization. The department assists various other departments in preparation of Departmental Quality Manuals and collation and analysis of data on indicators.

Incharge:
Dr. Kishore Singh

Staff:
Ms. Sarika Jha, Ms. Dzuzieneiu Usou, Mr. Sandeep Tyagi

NABH Accreditation
ILBS is the First Super Speciality government hospital in the country to be accredited by NABH. It also is the second government hospital in Delhi, and the seventh in the country to be so accredited. Various steps towards this were taken including sensitization programs, Gap analysis, Training of Champions/Master Trainers, Committee’s formation, implementation and monitoring of Quality Indicators, and Documentation of Hospital Wide Policies and Quality Manuals. The assessors highly appreciated the standards of patient care delivered in the Institute, and commended the management highly for the steps taken to ensure world class service delivery and infrastructure. The institute intends to continue to strive ceaselessly towards higher standards of quality in patient safety and care delivery. The Institute was awarded NABH Reaccreditation Certificate. The department monitors and analyses more than 80 quality indicators from departments across the hospital every month. Periodic reports for all of these are shared with the management and NABH. Quality improvement projects are undertaken on the basis of these reports in collaboration with parent departments. Many other quality initiatives are undertaken such as Root Cause Analyses, Activity mapping, process redesigning and implementation of concepts like “5 S” (seiri, seteton, seiso, seiketsu, and shitsuke) and lean six sigma in various hospital areas. The
department actively encourages on job trainings for various non faculty staff in conjunction with the HR department. In addition, the department also supervises the implementation and monitoring of external Quality Assurance Programs in collaboration with different departments.

**External Quality Assurance Program**

In accordance with good Quality Assurance practices, ILBS has instituted External Quality Assurance programs (EQAS) for all its diagnostic services. External quality assurance (EQA) is a program that allows testing sites to assess the quality of their performance by comparing their results with those of other laboratories. The Virology laboratory in ILBS is the first in India to participate in the EQAS program of the prestigious Royal College of Pathologists of Australasia (RCPA). Strict Internal Quality Assurance is also followed in all departments as per OEM guidelines. The various EQAS programs being implemented in different departments of ILBS are tabulated below.

<table>
<thead>
<tr>
<th>Department</th>
<th>Name of Organisation performing EQAS</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virology</td>
<td>Royal College of Pathology, Australia (RCPA)</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Hematology</td>
<td>Departments of Hematology and Clinical Pathology &amp; Blood Bank, CMC, Vellore</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td>Hematology Department, AIIMS, New Delhi</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>Bio -Rad Laboratories, Irvine, California, USA</td>
<td>Monthly</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Department of Microbiology and Immunology, Sir Gangaram Hospital, New Delhi</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Pathology (Histopathology &amp; Cytopathology)</td>
<td>All India Institute of Medical Sciences, New Delhi &amp; TATA Memorial Hospital, Mumbai.</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Blood Bank</td>
<td>Santokba Durlabhji Memorial Hospital, Jaipur</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Radiology and Imaging</td>
<td>Mahajan Imaging Centre, Hauz Khas, New Delhi</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

**NABL Accreditation**

The Dept. of Lab medicine, Institute of Liver and Biliary Sciences, achieved accreditation by National Accreditation Board for Testing and Calibration Laboratories (NABL) on 20.01.2013. Preparations for NABL Accreditation were started in early 2010 and the Institute applied to NABL in early 2011. Various steps towards this have been taken including sensitization programs, Gap analysis, Training of Champions/Master Trainers, Committee’s formation, implementation and monitoring of Quality Indicators, and Documentation of Hospital Wide Policies and Quality Manuals. On this occasion the assessors were highly appreciative of the standards of Lab services being followed in the Institute and commended the staff highly for the steps taken to ensure world class service delivery. The Lab medicine Department was awarded NABL and Reaccreditation audit is due in March 2017.

**Training and CME**

Regular training programs are conducted for BLS and ACLS certification. Resident doctors, casualty medical officers, nurses and technicians have regular access to high quality clinical CMEs at the institute.

**Front Desk Services**

ILBS is one of the few government hospitals in the country to implement the concept of Front Desk. The department encompasses the functions of an enquiry counter; admission, discharge and transfer of patients; OPD registration; Helpdesk etc. The front desk also deals with billing and collection of hospital charges. This department coordinates patient’s arrival, registration, documentation and admission formalities. The department has billing counseling and corporate desks for facilitation of admission process. The department also facilitates patient escort to diagnostic services and to wards. The department also runs a 24 hour Liver helpline service (1-800-11-5354).

In 2016, the OPD registration services were shifted to the ground floor of the second phase building along with OPD services. The patients are now serviced through a token based queue management system to avoid patient harassment during waiting. The IPD and billing services were also shifted to phase two building.

**Call Triaging and Soft Console**

In 2016, ILBS implemented a software based IVR call triaging system with multiple input options to reduce the load on the telephone operators and also to better handle incoming call traffic. Multiple options are now built in for incoming callers so that calls required to be forwarded to frequently called numbers may be directly routed without the intervention of the operator. Various options like appointment booking, IPD desk and billing enquiries are provided so that the caller can reach such services through the IVR only. This has resulted in better call management, less frequency of call drops and missed calls and a better overall experience.

**Incharge**

Dr. Kishore Singh

**Front Desk Staff**

Mr. Anurag Panwar (Asistant Manager -Hospitality), Ms. Rajni, Ms. Sarita Dabas, Mr. Ankur Chaudhary, Ms. Ruchika Sajwan, Mr. Sahab Singh, Mr. Mithun Kumar, Mr. Yogender Kandpal, Pooja, Mr. Asad Kamal, Ms. Jyoti Yadav

**Billing Staff**

Mr. Anand Singh, Mr. Naveen Bansal, Mr. Manoj Rana, Ms. Madhu Parmar, Mr. Girish Shah, Ms. Rekha Rani
Medical Records Department

Medical Record Department is responsible for monitoring, maintaining and keeping of the medical record of Indoor/outdoor (daycare) patients. Apart from maintenance of the records, the department is responsible for providing assistance to the patient and their relatives for getting claims from their departments/Insurance companies, correction & modifications of patient details and other concerned needs. The department also provides statistical data of the hospital for conducting the research work in different specialties. This year the department has embarked on an ambitious project of digitization of all the existing paper medical records available with the Institute since the beginning. A third party agency has been engaged for the project which is expected to cover more than 40,000 daycare and 20,000 IP medical files in the first phase over a period of six months.

Staff
Ms. Vandana Suthyala, Mr. Satpal

Central Sterile Supply Department (CSSD)

The Institute has most modern and state of the art central sterile supply department (CSSD) with the layout in such a way that there is unidirectional flow of materials, avoiding mix up of sterile and unsterile materials. We use HEPA filters in the CSSD to maintain the highest standards in our sterile zones. Only mineral free and RO water is used in the steam sterilizer and medical washer disinfector. Biological indicator, PCD, chemical indicator strips, Bowie Dick test and AET (autoclaving efficiency test) are used regularly to check the efficiency and quality of sterilization.

Technical Staff
Mr. Rajesh Kumar Tiwari, Mr. Ajay Kumar Tyagi, Mr. Pankaj Sharma, Mr. Shahnawaz Khan

Pharmacy Services

The pharmacy services at ILBS are functional 24x7 with advanced features like unit dose indenting system, advanced inventory management, strict adherence to cold chain etc. Utmost transparency is maintained in the dispensing of medicines to patients as all indents are made only through the hospital HIS software. The Hospital pharmacy services are comprised of a Central Medical store, an inpatient & outpatient pharmacy and an OT pharmacy. ILBS manages to procure high quality medicines to support the advance treatment regimens prescribed by its consultants. The Institute has an elaborate system of purchase of medicines and consumables whereby quality drugs and consumables are procured through manufactures and main distributors. The hospital boasts of a dynamic and continually updated drug formulary which is regularly monitored and revised under the supervision of the Drugs and Therapeutics Committee. In an unprecedented development, ILBS Pharmacy became the first point of availability in the country for the latest wonder drugs in Hepatitis C management, namely Sofosbuvir, Daslatavir, and a combination of Sofosbuvir and Ledipasvir, at extremely affordable prices bringing cheer to millions of patients affected with this disease.

Incharge
Ms. Sangeeta Sharma (Chief Pharmacist)

Senior Staff
Ms. Sangeeta Sharma (Senior Pharmacist)

Pharmacy Staff
Ms. Rashmi P.S., Mr. Dharambir Prasad, Mr. Brij Mohan Rawat, Mr. Om Prakash, Mr. Sushil Kumar, Mr. Shiv Kant Yadav, Mr. Sunil Kumar, Mr. Gaurav Kumar, Ms. Himanshi, Mr. Ravinder, Mr. Vikrant Rawat

Hospital Nutrition Services

Patients with liver diseases are mostly malnourished and require special nutrition care and for diagnosis and management. The Nutrition and Dietetics Department at ILBS specializes in providing specialized expert nutritional care to all such admitted and OPD patients. The IPD patients are visited on daily basis, their nutritional needs are assessed and keeping in mind their disease conditions diet is planned for them. In order to achieve these goals the institute has an ultra modern kitchen catering to the therapeutic needs of the patients. For those who were being
given enteral nutrition through tube feeds a special feed section has been demarcated where these feeds are being prepared with the help of powdered supplements.

The department has been involved in taking care of patients undergoing liver transplants/renal transplants with building them up pre – operatively. Also these patients are followed up in the OPD with nutrition advice being given to them on each visit. Patients reporting to the intensive care units as well as those undergoing major GI surgeries are being taken care of with recently devising protocol based nutrition care for patients undergoing bariatric surgery with good follow–up.

All patients reporting to the OPD/ IPD patients after discharge are seen in the OPD on each visit so that continuity of care can be maintained.

Senior Nutritionist
Ms. Uma Kanal

Other Nutritionists
Ms. Anuradha Sharma, Ms. Shefali Sharma

Food & Beverage Department

Food & Beverage is an integral part of support services department, which is responsible for the preparation and service of dietary requirements. Our prime objective at ILBS is to provide clean, hygienic, tasty and healthy meals for quick recovery of patients, clubbed with warmth & efficient service to create world-class standards. Apart from taking utmost care for the dietary requirements of the patients, we also make sure that the attendants and visitors get tasteful and nutritious meals via our Attendant Room Service and through visitor’s Cafeteria at Ground Floor Tripti.

The Food and Beverage Department has four major areas of functioning:

Patient Meal Service – To ensure that all the patients receive nutritious and healthy diet as prescribed by the Dietetics Department as per the schedule.

Attendant Room Service - The attendant also gets a choice of delicious and hygienic meals from the Room Service menu at specified times. Apart from this the attendant or visitor also has a choice of meals offered at Visitors Cafeteria Tripti and through Café Day Xpress at Atrium block.

Staff Meal Service – The staff which include the doctors and other support department also get healthy and fresh food at subsidized rates at Dining areas located at 1st floor of Kitchen Block.

Incharge
Mr. Anurag Panwar (AM-Hospitality)

Incharge F & B
Mr. Sachin Rodger Joseph

Housekeeping & Sanitation Services

Hospitals, being one of the most important organizations of the society, have a distinct role both in the life of the individual and of the society. The control of hospital infections requires team work. Housekeeping services includes activities aimed to maintain a healthy, clean, orderly, safe and pleasant environment for the faculty, staff, patients and their relatives/attendants by making the maximum use of available facilities of the hospitals. The housekeeping in the Institute is outsourced and is being supervised by the Institute’s staff. Continuous on Job Training is carried out by the agency, hospital faculty and Infection Control Committee for all the housekeeping staff.

Laundry Services

ILBS hospital has its own mechanical laundry. The efficient laundry operations ensure to provide disinfested clean, fresh smelling linen for the In-patient hospital and uniform to the staff such as Doctors, technicians, Nurses and receptionist and maintain adequate inventory for the same.

Laundry handled total soiled linen quantity since its inception as per the following.

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity in Kgs</td>
<td>4,06,515</td>
<td>4,12,875</td>
<td>4,24,715</td>
</tr>
</tbody>
</table>

Bio-Medical Waste (BMW) Management

The Institute takes utmost care and precaution while dealing with BMW generated on-site. Segregation into different colour coded bins and bags is done in accordance with schedule-I (BMW rules 1998) prior to its transportation and disposal. ILBS hands over the biomedical waste to the authorized vendor i.e. M/s Biotic Waste Solution (P) Ltd. (BMW), New Delhi as per the approval of DPCC, GNCTD for further disposal. Total Biomedical waste generated year-wise is as under:

<table>
<thead>
<tr>
<th>Categories of Waste Generated/Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I, II, III, V &amp; VI (Yellow Bags) in Kgs</td>
<td>29,435.95</td>
<td>40,481.00</td>
<td>48,182.00</td>
</tr>
<tr>
<td>Category IV &amp; VII (Red Bags &amp; sharp) in Kgs</td>
<td>59,169.10</td>
<td>70,444</td>
<td>72,071.00</td>
</tr>
<tr>
<td>Category VIII &amp; X in Kgs</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Total in Kgs</td>
<td>88,605.05</td>
<td>1,10,925</td>
<td>1,20,253</td>
</tr>
</tbody>
</table>
Incharge
Dr. Vimal Rai Sharma, Dr. Kishore Singh, AHO (M)

Sr. Staff
Mr. Ashish Ranjan

Auditorium
In 2016, ILBS inaugurated a state of art fully equipped auditorium with a seating capacity of 350. Equipped with the latest audio visual gadgetry, the auditorium is capable of hosting the most sophisticated conferences, seminars and cultural events. Located in the newly contracted second phase building, the auditorium is directly accessible via road from the rear gates of the institute.

Nursing Services
The Institute boasts of a fleet of more than 340 qualified and experienced nursing staff specializing in caring for patients with liver and biliary disorders. The department provides 24x7 supports to the clinicians with constant emphasis on patient safety and quality. The nursing department of ILBS is unique in that it independently runs a very successful in-service training programme. Daily classes are conducted by senior nurses on relevant topics. The Institute has a robust incident reporting system whereby even the smallest mistakes are thoroughly analyzed by nursing management so that mistakes are not repeated. However, all work and no play makes jack a dull boy. Going by this dictum, the department regularly engages its staff in various cultural activities such as singing, dancing, drama, fine arts and quizzes. All in all, the department believes in keeping staff morale and confidence high so that they can deliver high quality nursing care with compassion , dedication and dignity.

Senior Manager 01
Senior Nurses 07
Nurses 48
Junior Nurses 72
PCE 191
Junior PCE 04
Infection Control Nurse 02
Quality Nurse 01
Transplant coordinator 02

Senior Manager Nursing
Ms. Cicily Babu

Senior Nurses
Ms. Darcy Sib, Ms. Biji Godwin, Ms. Synimol Jose, Ms. P Jamuna Rani, Ms. Reena Chacko, Ms. Bindhu B. Nair, Mr. Sanjay Joshi

Nursing Stations & Charge Nurse

<table>
<thead>
<tr>
<th>Phase</th>
<th>Name of Participant</th>
<th>Topic</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Ms. Leena Kurian</td>
<td>Medication Safety</td>
<td>MAMC, New Delhi</td>
<td>5-6th March 16</td>
</tr>
<tr>
<td></td>
<td>Ms. Asha Varghese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Ms. Khundom Reeta Devi</td>
<td>Day Care</td>
<td>Ms. Konul</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ms. Suby K Danial</td>
<td>Oncology Daycare</td>
<td>Ms. Shakila Angel</td>
<td></td>
</tr>
</tbody>
</table>
Achievements of the Nursing Department

1. Quality nursing care:
The department was awarded the “AHPI Award 2016 For Nursing Excellence” on 13th February 2016 at the AHPI National Conclave (Hotel Lalit Mumbai).

For enhancement of focus of delivering experienced and skilled nursing staff on patient care and maintaining the Nursing Quality service, parameters and training strategies were revisited and certain important strategies were implemented with significant effect on broadening of participation of the nursing staffs and increase in performance:

- To increase bedside nursing care time with patients, documentation forms and formats were revised for easy and quality nursing documentation.
- Strengthened the clinical competency checklists for direct observation & audit of clinical/key nursing skills to improve and identify training needs and deliver on spot bedside corrective trainings.
- Maintaining quality standard targets: indicators, processes, analysis and outcomes related to the delivery of care.
- Conducted nursing audits and nursing rounds to improve the nursing practices.

2. Education and training:
- Successfully started Post Graduate Courses in Nursing (Msc. Nursing program)
- Conducted in house certified BLS training for all nursing staffs.
- Conducted more than 200 hours of in service education and trainings from January to November 2016.
- Conducted departmental and unit meetings.

Engineering & Bio Medical Engineering Services

The Engineering & Bio-Medical Department are very useful and highly essential as a supportive service for effective patient care. The scope of engineering services at ILBS includes civil, electrical, water supply, ventil medical gases, bio-medical engineering services, air and clinical vacuum delivery system, HVAC, lifts, landscaping and last but not the least workshop facilities for repairs and maintenance. The department also ensures optimum operational reliability, risk reduction and safety for the patients, staff and patient’s attendants at large.

A highly skilled and experienced team led by General Manager Engineering, Sh. Ved Prakash Siwach, FIE, CEng provides 24x7 support to the institute. Even the slightest breakdown of power supply, information, & communication system or malfunctioning of vital equipment is taken care of in the shortest time. The department is also involved in proper execution of Phase-II building project in liaison with Delhi Metro project team and various consultants who provide necessary technical inputs wherever needed. The department has developed a unique Zero Fault / Zero breakdown culture, with minimum inventory of spare parts and less documentation / Paper Works. The role of engineers in the Institute has been highly appreciated by the Govt. & Institute Authorities and Accreditation agencies etc. Our engineers bring their problem-solving skills to bear on specific problems and also bridge the gap between various silos to help the institution as a whole function more effectively.

In today’s high technology environment with a proliferation of advanced & complex medical equipment, Bio-medical engineering has assumed great significance. The aim of biomedical engineering department is to provide technical expertise & management support to hospital administration, engineering department & the medical staff. Bio-medical Engineering department of ILBS provides 24x7 support to the ILBS. ILBS is one of the rare Govt Hospitals which can boast of more than 95% uptime for their critical medical equipments. We are proud to have highly skilled and qualified Bio Medical Engineers. The Institute runs an extremely efficient preventive maintenance program that ensures early identification and rectification of potential problems with medical equipments. Also, the department takes care of proper installation and safety involved in the use of critical medical equipments through proper training to the users. All biomedical equipments which are not under manufacturer’s warranty are covered under AMC / CMC to ensure seamless functionality. This results in minimal downtime, ensuring patient safety and quality of care.

The total number of Engineering Staff in ILBS is as under:

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Manager</td>
<td>01</td>
</tr>
<tr>
<td>Engineer Civil</td>
<td>02</td>
</tr>
<tr>
<td>Bio-medical Engineer</td>
<td>02</td>
</tr>
<tr>
<td>Engineer Electrical</td>
<td>01</td>
</tr>
<tr>
<td>Junior Engineer (Electrical)</td>
<td>01</td>
</tr>
<tr>
<td>Senior Technician (Electrical)</td>
<td>01</td>
</tr>
<tr>
<td>Technician (Electrical)</td>
<td>01</td>
</tr>
</tbody>
</table>

Institute of Liver & Biliary Sciences, New Delhi
Achievements of the engineering department

1. Engineering Services:
   - New Nursing college planned and constructed with space utilization by in-house engineering team at ILBS.
   - Exclusive Planning and design of liver transplant facility at SMS Hospital, Jaipur exclusively by ILBS Engineering team.
   - Alteration/modification of structure and engineering services of existing room in phase-I buildings phase with space utilization by in-house engineering team at ILBS for shifting radiology department from other location in phase-I.
   - Sewage Treatment Plant (STP) of phase I has been upgraded from manual system to fully automated System to make it highly effective and efficient, thereby ensuring zero discharge, recycling and reuse of the treated waste water after treatment.
   - State of the art Plants Nursery (Sanjeevni Vatika) with vermi-compost pit has been developed in-house Engineering team using discarded material as recycled policy.
   - Additional beds for general ward phase II have been created.
   - Appreciation from NABH audit team for engineering efforts and working philosophy of 3 R’s (Reduce, Recycled & Reuse).
   - Institute’s main electrical input supply shifted from 11 kv to 33 kv which minimized electrical losses, breakdowns & highly stabilized supply.
   - Online ups of Phase-I electrical load shifted to online ups of Phase-II which has led to Revenue saving of approx. Rs. 46, 59,700/- per annum.
   - Rebate received from Delhi Jal Board in water supply bill amounting to Rs. 1,22,34,592/- (one Crore twenty two lacs thirty four thousand five hundred ninety two)
   - Institute conventional lighting system replaced from old fluorescent tube lights to new energy saving led lights.
   - 70 nos. Of steel sofas recovered from the junk and made serviceable and put into service by in-house engineering team.
   - 80 nos. CSSD steel racks/buckets recovered from the junk and made Serviceable and put into service by in house Engineering team.

2. Biomedical Engineering Services
   - Regular training to doctors, nurses, paramedical staff & nursing students.
   - Managing activity of AERB, PNDT and other licences activity of equipments.
   - Tedious task of shifting of huge research lab equipments from various locations without affecting the functionality of the research dept. in very short span.
   - Records no of equipments installed are more than 500.
   - Revenue saving of more than 50 lakhs by internal repairing of PMG plant under AMC (labours only).
   - Total breakdown call resolved
     - Year 2015 – 2415 nos
     - Year 2016 - 2600 nos.
   - In-house breakdown call resolved
     - Year 2015 – 2066 nos
     - Year 2016 - 2125 nos.
   - Revenue saving by biomedical Engg. department (repair & maintenance)
     - Year 2015 – approx. 17.5 lakhs
     - Year 2016 - approx. 20 lakhs
   - No. of equipment installed in 2016 is more than 500.
   - At present, taking care of inventory of more than 5000 equipments.
   - Assisting as backup support for liver transplant surgery 24 x 7.
   - Vendor’s data base is more than 800.
   - Over 85% of breakdown calls are resolved in-house.
   - Successful NABH/NABL audit.
   - PMG system of hospital is taken care by the biomedical Engg. department.
   - Revenue saving of more than 50 lakhs by internal repairing of PMG plant under AMC (labours only).
   - Presently maintaining ILBS PHASE-II PMG system with PHASE-I manpower only.
   - Operationalization of PHASE-II PMG system.
   - At present biomedical engineering department manpower – 3 nos. of biomedical engineers is maintaining ILBS PHASE-I & PHASE-II equipments.

Trainings
- BSL-3 lab and GMP facility, ICGEB Trieste, Italy
- Visit to M/S Climaventa (Mitsubishi Electric) at Bassano and Belluno, Italy

Awards
- IGBC Platinum certification - 2016 for new owner occupied building
- Qualified for ahpi award for green building-2016.
- Qualified for energy conservation-2016
24 x 7 Emergency Observation and Management Services:

The emergency services are functional round the clock on all days from the inception of the institute. However, due to extreme pressure on admissions of sick patients, in the last quarter of 2014, ILBS started to admit patients in the ER till the patient gets stabilized to come to OPD or gets a bed in the hospital.

The emergency unit is fully equipped with advance monitoring and resuscitation equipments. Services are well organized with dedicated manpower and adequate space for triage, observation and admission. The emergency block consists of a Triage Hall having 4 beds and an emergency observation ward with 6 beds. START and Jump-Start Protocols are used for initial triaging of adult and pediatric patients respectively.

The emergency services cater to all types of patients presenting with hepato biliary and non-hepato biliary conditions across all age groups. However, non-hepato biliary cases are referred to appropriate health care facilities after initial assessment and stabilization. ILBS has in house blood bank and laboratories, providing emergency support to appropriate patients.

IlBS emergency is well prepared to handle serious patients such as Acute Liver Failure (ALF) suitable for emergency transplant surgeries. A team is also ready for retrieval and transport of organs from potential brain dead donors for cadaver transplant.

Expert Teams

A dedicated team comprising skilled emergency physicians, hepatologists, hepato-biliary surgeons and critical care specialists, is available round the clock. There is in- house presence of supporting services of pediatric hepatologists, nephrology, neurology, cardiology, urology and renal transplantation and Intervention Radiology.

Code Blue Team

Code Blue Team is available round the clock to tackle any medical emergency involving cardiovascular arrest within the hospital premises. All activities are continually standardized through NABH accreditation program with all emergency staff being ACLS trained.

Liver Helpline

A dedicated 24 hour toll free no 1-800-11-5354 has been designated as "Liver Help Line" for the benefit of patient and their relatives. Questions related to liver diseases are answered round the clock by hospital emergency staff at this telephone number. Liver helpline also functions as telephone triage service and depending upon the urgency it helps patients and their relatives directed towards seeking appropriate level of health care.

Ambulance Service

ILBS is well equipped for handling transportation of sick patients with two basic and one advanced life support ambulances. The BLS ambulances are equipped with an oxygen cylinder, and emergency medications and supplies.

The advanced "Liver Ambulance Service", an ALS facility, is available for critically ill patients and the management of such patients is undertaken during the process of transfer to the ILBS. This ambulance is fitted with the state of the art pre hospital medical equipment almost identical to the Hospital’s ICU’s.

The ambulance has the capability to establish and maintain a patient’s airway, defibrillate the heart, stabilize pneumothorax conditions and perform other advanced life support procedures or services, such as cardiac (EKG) monitoring, intubations and ventilation. This ambulance can transport ventilator-supported patients on long distances.

Emergency of ILBS also facilitates transfers through air ambulances for patients from far and remote places.

Disaster Management Plan

ILBS hospital has a well documented Disaster Management Plan. ILBS is well equipped to handle any type of external or internal disaster. A documented disaster management policy is in place with clearly described roles and responsibilities. In case of Mass Casualties, the area immediately outside the emergency ward is used as a triage zone and the inner zones become designated as Yellow, Red and Black zones respectively. Disaster drills are carried out a regular interval to check preparedness.

Training and CME

Regular training programs are conducted for BLS and ACLS certification. Resident doctors, casualty medical officers, nurses and technicians have regular access to high quality clinical CMEs at the institute.

Transplant Services

Though our overall numbers for both liver and kidney transplants fell in 2016, other achievements raised hope! Our total number of liver transplants reached 373 and Kidney transplants done were 122. Based on these numbers and the total recorded referrals to transplant coordination, a conversion rate of 13.2% was established based on this 7-year real time data to help raise the bar!

Inspite of this dip, there was an increase in the number of emergency
transplants for patients with acute liver failure in 2016. This was where transplant coordination played a key role as facilitators involving the necessary documentation with turnaround time in mind as part of saving lives.

We also evaluated our case mix to identify a higher patronage from those liver patients residing in other cities of the country. This was as high as 49%! This made us very proud that the reputation of the Institute as a centre of excellence has been recognized countrywide.

Deceased liver donations have been on the increase in 2016 as the Institute received an outstation kidney for the first time! In total, 40 organs have been received at the Institute achieving a double digit growth between 2015 and 2016 for cadaveric transplantation. However, the waiting lists remain long as is the case of all active organ transplant programs. Until the end of 2016 we had a closing balance of 129 living patients waiting for a liver on the NOTTO list for cadaver transplants. During the year, 43 died on the waiting list and 50 were transplanted either with a living donor or a cadaveric donor at the Institute and elsewhere.

It is hoped that the upward moving trend line continues! We could give ourselves a pat on the back for a well-coordinated effort between the police for establishing green corridors, the airlines that served to carry the organs and arrange airport transfers always and our ambulance drivers who put their lives to risk when transporting the liver within cold ischaemia time allowances. We could never have done this without our precious team at the Institute starting from the Director, Head operations and the hepatology and HPB team including the residents and all those nurses involved. On the paramedical side, we can’t thank enough the security for their undivided support during organ transport. And how can we forget the donor hospitals and NOTTO officials that helped us in every way to achieve our jump this year? On top of all of this, nothing would have been possible without the donor family saying yes to organ donation. Without a “Yay” that blessed recipient would have never had the second chance.

Søren Kierkegaard, the famous 19th century Danish philosopher says that “Life can only be understood backwards; but it must be lived forwards,” and so shall we, with new benchmarks in the coming year!
Organization
The organization of ILBS has been structured so as to achieve efficiently, the aims and objectives of the institute. The Institute strives to be a pioneer in higher education, research and patient care in the field of Hepato- Pancreato-Biliary Sciences. The organizational design specifies how goals are divided under various subdivisions of the organization. The councils, the committees, the departments, the units, positions, and tasks make up its functional subdivisions. A co-ordinated and planned co-operation of the elements of this organization is able to achieve goals that lie beyond the abilities of individual elements. At the apex, the affairs of the Institute are managed, administered, directed and controlled by the Governing Council of the Institute, subject to the rules and bye-laws of the Institute. Amongst the members of the Governing Council are distinguished academicians, scientists, and clinicians. The Chief Secretary, GNCTD is the Chairperson of the Governing Council and the Principal Secretary (Finance), GNCTD, the Vice –Chairman. DDA, the Principal Secretary (H&FW), GNCTD are amongst the other distinguished members. Several other distinguished people across the country have served in the previous Governing Councils. Thirty Seven (37) meetings of the Governing Council have been conducted, till date. The Finance Committee and the Building Committee make their recommendations to the Governing Council in matters related to finance and construction of Hospital infrastructure. The Director is the Chief Executive Officer of the Institute, is directly concerned with the overall management of the Institute, and is accountable to the Chairman and the Governing Council for his actions and decisions. The daily functioning of the Institute in terms of Administration, Human
ILBS offers training programs for super-specialties related to Hepato-Biliary and Pancreatic Sciences through DM (Hepatology), DM (Organ Transplant Anaesthesia and Critical Care), DM (Paediatric Hepatology) and M.Ch. (Hepato-Pancreato-Biliary Sciences). The Institute has also started PDCC courses in Liver Transplant Anaesthesia, HPB Interventional Radiology, Pediatric Hepatology, Hepatopathology and Nephrology, besides Certificate Course in Nephrology. ILBS is running PhD program in Biomedical Sciences. Various short-term training programs and observer-ship have also been started.

ILBS, as a fore-runner Super-speciality Healthcare Institute under Delhi Government has a highly responsive, transparent, efficient and people friendly administrative machinery working subtly based on the following key premises:-

- Act correctly in accordance with the law, statutory obligations, organisational policy and guidance and any other rules and regulations in conformity with the Government Norms;
- Act within the boundaries of established good practice;
- Take key decisions that are reasonable based on all relevant considerations and norms;
- Coordinate with various department internally as well as liaison with multiple agencies both in Government as well as Private sector;
- Aim is to achieve good governance with reasonable level of automation Administration including Human Resource (HR), Establishment, Security, Estate, Purchase, Engineering Services, Stores, Vigilance and Finance are being controlled and looked after by the concerned Deputy Heads and staff members.

Governance System
The Institute practices a closely knit system of intra-departmental “inclusive and ethical governance” which has immensely benefited the organization in quick decision making in a transparent manner which translates into meaningful and timely implementation. This is paramount for the holistic growth of the Organization.

Council & Committees

Governing Council
The affairs of the ILBS society are being managed, administered, directed and controlled, subject to rules, byelaws of the ILBS Society and orders of the Governing Council. Amongst the members of the Governing Council are distinguished policy makers, academicians, scientists and clinicians.

The present Governing Council of the Institute constituted by Hon’ble Lt. Governor of Delhi comprises the following members: -

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Secretary, GNCTD</td>
<td>Chairperson</td>
</tr>
<tr>
<td>Principal Secretary (Finance), GNCTD</td>
<td>Member</td>
</tr>
<tr>
<td>Principal Secretary (H&amp;FW), GNCTD</td>
<td>Member</td>
</tr>
<tr>
<td>Vice Chairman, DDA</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. Jagdish Prasad, DG, DGHs, GOI</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. Deepak Nayar, Former VC, Delhi University</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Soumya Swaminathan, Director General, ICMR</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. R. A. Mashelkar, Former DG , CSIR</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. D. R. Mehta, IAS (Retd.), Former Chairman, SEBI</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Devi Shetty, Narayan Hridayalya, Bangalore</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. H. K. Chutani, Former Director, GB Pant Hospital</td>
<td>Member</td>
</tr>
<tr>
<td>Sh P.K. Tripathi, Former Chief Secretary, GNCTD</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. S. K. Kacker, Former Director, AIIMS</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. G. P. Takkar, Former Director, Nil</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. C. K. Jaipuna, Eminent Industrialist</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. M. L. Lahoty, Sr. Advocate, Supreme Court of India</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. S K Sarin, Director, ILBS</td>
<td>Member-Secretary</td>
</tr>
<tr>
<td>Special Invitees</td>
<td></td>
</tr>
<tr>
<td>Secretary (Planning), GNCTD</td>
<td></td>
</tr>
<tr>
<td>Secretary (AR), GNCTD</td>
<td></td>
</tr>
</tbody>
</table>

Finance Committee
The Finance Committee is constituted to give direction to the financial affairs of ILBS by making recommendations to the Governing Council regarding the financial matters of the institute. The members of the present Finance Committee are:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Secretary (Finance), GNCTD</td>
<td>Chairman</td>
</tr>
<tr>
<td>Principal Secretary (H&amp;FW), GNCTD</td>
<td>Member</td>
</tr>
<tr>
<td>Secretary (Administrative Reforms), GNCTD</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. P.K. Tripathi, Chairman, Public Grievance Commission, GNCTD</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. S.K. Kacker, Former Director, AIIMS</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. Naresh Takkar, CEO, ICRA</td>
<td>Member</td>
</tr>
<tr>
<td>Prof. S K Sarin, Director, ILBS</td>
<td>Member</td>
</tr>
<tr>
<td>Medical Superintendent/Head Operations (Medical ), ILBS</td>
<td>Member</td>
</tr>
<tr>
<td>Financial Advisor/Sr. Manager (F&amp;A), ILBS</td>
<td>Member-Secretary</td>
</tr>
</tbody>
</table>
Project Implementation Committee

The second phase of ILBS is being constructed by DMRC as the PMC, which will add a dedicated multi-storied research complex, auditorium, guest house, hepato-biliary oncology unit, additional beds and residential accommodation. Phase — II building will allow for a synthesis of varying medical perspectives, improved and advanced medical and surgical treatment and research endeavours. A Project Implementation Committee regularly monitors the progress of construction of Phase — II, ILBS and takes all decisions required to be taken to ensure quality and timely completion of the project. The composition of the committee is as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sh. S Regunathan, former Chief Secy, GNCTD</td>
<td>Chairman</td>
</tr>
<tr>
<td>Prof. S K Sanin, Director</td>
<td>Co-Chairman</td>
</tr>
<tr>
<td>Sh. A K Singh, ED (Elect), DMRC</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. B.K. Mishra, CE (Works), DMRC</td>
<td>Member</td>
</tr>
<tr>
<td>Chief Engineer, PWD</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Arul Agarwal, Dy. Head (Admin)</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. Ved Prakash, General Manager (Engg.), ILBS</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. Gautam Shah, Architect</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Y P Bhatia, Hospital Consultant, M/s Astron</td>
<td>Member</td>
</tr>
</tbody>
</table>

Building Committee

The building committee has been constituted for coordinating and managing various issues related to the construction of the Buildings of Phase-I & Phase-II. The composition of the building committee is as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Secretary (H&amp;FW), Ex-Officio</td>
<td>Chairman</td>
</tr>
<tr>
<td>Prof. S K Sanin, Director ILBS</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. D. K. Sanin, Director Projects DMRC</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. G C Mishra, Director, National Centre for Cell Sciences, Pune</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. B. Bose, Former Sr. Manager NII</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. G K Majumdar</td>
<td>Member</td>
</tr>
<tr>
<td>Chief Engineer, Zone-IV, PWD</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. J. Kshirsagar, Commissioner Planning DDA</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. B.K. Mishra, CE (W), DMRC</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Shabnam Singh, Max Hospital</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. Vikram Varma, Architect</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Gurish Chandra, HODM, ILBS</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Arul Agarwal, Dy. Head (Admin), ILBS</td>
<td>Member</td>
</tr>
<tr>
<td>Sh. Ved Prakash, General Manager (Engg), ILBS</td>
<td>Member Secretary</td>
</tr>
</tbody>
</table>

Academic Council

The Academic Council is the principal academic body of the ILBS which is responsible for the maintenance of standards of education, teaching and training, inter-department co-ordination, research, examinations and tests within the Institute; and exercises such other powers and performs such other duties and functions as may be prescribed or conferred upon it by the rules and bye-laws. Seven (07) meetings of the Academic Council have been conducted, till date ILBS runs long-term courses/training programs leading to D.M., M. Ch., Ph.D., Fellowships and other degrees. The institute already has been granted the status of a Deemed to be University by the University Grants Commission (UGC) for conducting such courses.

The members of the Academic Council are as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. S.K. Sarin, Director, ILBS</td>
<td>Chairman</td>
</tr>
<tr>
<td>Dr. Showkat Zargar, Director, Sher-e- Kashmir Institute, Srinagar</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Vinod Raina, Director, IRC Center, AIIMS, Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Jyotshila Dhawan, Director, Stem Cell Institute of India, Bangalore</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Seyed Hasnain, Professor, Life Sciences, IIT, Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Subroto Sinha, Director, Brain Research Institute, Manesar</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. N. K. Arora, Executive Director, INCLEN Trust, international, Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Chinmay K Mukopadhy, Jawaharlal Nehru University</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Vinay Kapoor</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Ashok Panagariya, SMS College, Jaipur</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Y.K. Chawla, Director, PGI Chandigarh</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Nihil Tandon, AIIMS, Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Archana Rastogi, Additional Professor, ILBS</td>
<td>Member Secretary</td>
</tr>
</tbody>
</table>

The decisions of the academic council are placed before the Governing Council of the Institute for ratification. Six meetings of the Academic Council have taken place till now and the new courses which were approved have been initiated.

Scientific Research Review Board

A committee has been constituted to evaluate the proposal to start new courses at ILBS. The composition of the committee is as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. T.K. Chattopadhyay, Sr. Professor (Surgical Hepatology)</td>
<td>Chairman</td>
</tr>
<tr>
<td>Prof. Y.K. Joshi, Sr. Professor (Clinical Nutrition)</td>
<td>Member</td>
</tr>
<tr>
<td>Prof C K Pandey Sr. Professor (Anaesthesia)</td>
<td>Member</td>
</tr>
<tr>
<td>Dr. Seema Alam, Professor (Pediatric Hepatology)</td>
<td>Member Secretary</td>
</tr>
<tr>
<td>Dr Manoj Kumar, Additional Professor (Hepatology)</td>
<td>Member</td>
</tr>
<tr>
<td>Dr Gayatri, Additional Professor (Molecular and Cellular Medicine)</td>
<td>Member</td>
</tr>
</tbody>
</table>
Intramural Project Review Committee

An Internal Project Review Committee has also been constituted for reviewing the project proposals under the Grant Assistance Scheme for New Faculty Recruits to examine the projects submitted by the ILBS faculty members:

The composition of the committee is as follows:

Institutional Review Board (Institutional Ethics Committee)

ILBS has a mandate to develop new diagnostic and treatment protocols in the specified field of Hepato-biliary sciences. Also, in keeping with the aim of providing cutting edge basic research, it is important to have an independent Institutional Ethics Committee (Institutional Review Board). The IRB is constituted as per the standard guidelines. It ensures that all patients, subjects, biological material recruited for clinical trials or research is conforming to the standard guidelines and best ethical standards. The composition of the Institutional Review Board of ILBS is as follows:

Scientific Advisory Committee

Scientific Advisory Committee (SAC) is constituted to guide and facilitate clinical and basic research work. The SAC advises the Governing Council on policy matters. The Committee monitors progress and facilitates in-depth exchange of views in specific fields. The Committee evolves the Scientific and Technical Vision Documents for the Institute, reviews them periodically and takes further course of action as deemed fit for furthering scientific and technological research of the Institute. The recommendations of the Committee are submitted to the Governing Council for approval.

The members of the Scientific Advisory Committee are as follows:

Institutional Animal Ethics Committee

Being a teaching and research institution with PhD scholars performing research on animals, ILBS has been constituted the Animal Ethics Committee to oversee and evaluate all aspects of animal care and humane procedures. All projects of research involving animal have to be reviewed and approved by committee.

The members of the Animal Ethics Committee are as follows:

Institutional Committee for Stem Cell Research

As research protocols involve use of stem cells an institutional committee for stem cell research & therapy was set up to scrutinize the scientific and ethical issues. The committee scrutinizes all the protocols for scientific and ethical issues and monitor the progress of ongoing work. As per the As
Administration Department

Matters related to General Administration, holding of meetings of Governing Body, building committee, acquisition of land, court cases, vetting of proposals and agreements of other departments before implementation, liaison with various government and non-government agencies and legal issues are being supervised by the Dy. Head Administration under the able guidance of Sh. D.K. Mishra, IAS, officer on special Duty. The department is led by Dr. Anil Agarwal, who believes in team effort, lean staff with maximum output. Transparency and error reporting is highly encouraged along with use of modern tools of IT. The Department emphasizes on “innovative approaches for newer administrative policies along with complete and implementable solutions”. Several other departments in the Institute seek advice and expertise from this department on a routine basis. He has also been able to develop and enact several key agreements and MOUs with different national and international agencies in the past 12 months.

Dr. Anil Agarwal, has also been designated as the First Appellant Authority for the implementation of the Right to Information Act, 2005 and settlement of appeals so received in a democratic, transparent and time-bound manner.

Phase-II, ILBS

DMRC has been engaged as Project Management Consultant on turnkey basis for the construction management of Phase-II of the Institute. Phase-II of ILBS is under construction and is likely to be made operational by mid 2017. Phase-II of ILBS will include additional beds, a state of the art academic block, clinical block, vivarium block, administrative block and research block.
Dy. Head Administration is also designated as the Nodal officer for the conceptualization/ project planning, development and construction of the Phase-II of ILBS through DMRC and various sub-consultants. Besides, he co-ordinates with various stakeholders/ agencies and is responsible for smooth conduct of the Project Implementation of the project review.

### Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. D. K. Mishra, IAS</td>
<td>Officer on Special Duty (OSD)</td>
</tr>
<tr>
<td>Dr. Anil Agarwal</td>
<td>Deputy Head (Administration), M.B.B.S, MBA, DANICS</td>
</tr>
<tr>
<td>Mr. Kulvinder Singh</td>
<td>Manager (Admin &amp; Purchase)</td>
</tr>
<tr>
<td>Mr. Nirmal Singh</td>
<td>Sr. Executive (HR/Admin)</td>
</tr>
<tr>
<td>Mr. Arun Prakash</td>
<td>Sr. Executive (HR/Admin)</td>
</tr>
<tr>
<td>Mr. Deepak Kumar</td>
<td>Jr. Executive</td>
</tr>
<tr>
<td>Ms. Savita Choudhary</td>
<td>Jr. Executive</td>
</tr>
</tbody>
</table>

### Human Resources

The Human Resources (HR) department is concerned with the “people” dimension and looks after the people at work and their relationship within the organization. The HR Department aspires to fulfill its role of organizational excellence by attracting, developing and inspiring the Human Resources and providing an environment conducive to growth, innovation and enrichment. The department has helped the employees in identifying their strengths, weaknesses, interests and values by maintaining open and effective communication.

The department has created a healthy working environment which integrates with the Mission and Vision of the Institute thus cultivating a sense of belongingness and commitment towards the Institute. The HR department of the Institute successfully implements the approved policy of the Institute. The department is involved in various aspects like recruitment and selection, establishing employee performance objectives, training employees in developing their skills, motivating them to enhance their performance, creating positive working condition, developing good employee relations and welfare etc. The department has inculcated an environment that inspires all employees to explore their full potential in improving the patient care.

### The Team HR ILBS

The HR department has been able to attract, select and retain the best talent for the Institute. The medical staff of the Institute comprises of 59 highly super specialized and dedicated faculty supported by 79 Senior Residents and 13 Junior Residents which includes students undergoing super specialized post graduate courses and certificate courses providing best professional patient. Round the clock Casualty Medical Officer and Resident Medical officers are available to look after the emergency patients. The Institute also has trained staff in the field of Molecular and Cellular Medicine, Epidemiology, Clinical Trials, and Veterinary Sciences. The Institute presently has 331 dedicated, caring and committed nurses delivering world class patient care, supported by 109 paramedical staff.

Operational support to the clinical staff is provided by 46 competent and professional staff in the field of Medical Operations which includes hospital administration, front office, billing and cash, MRD, Quality control, etc. The pharmacy department provides round the clock services to OPD and IPD patients and four qualified Nutritionists offer advise and guidance to all patients. The administrative support is provided by 52 experienced and professional staff comprising of different departments like HR, Administration, IT, Finance & Accounts, Engineering, Purchase, Store, Security & Fire for smooth functioning of the Institute.
The Finance and Accounts department of the Institute is responsible for transparent book-keeping of the accounts as per the Indian Accounting Standards. The financial process controls set up within the Institute ensure that accurate generated revenue is timely booked and efficient utilization is made of the available funds. Costing methods are adopted in order to reduce the running costs so as to enhance the profitability. Financial reports are maintained for the management to help in decision-making and achievement of the annual business targets.

Broadly the department undertakes following:-

- Annual Financial Statements of the Institute viz., Receipt & Payment account, Income & Expenditure accounts and Balance Sheet along with various Annexure and Schedules forming part of the Financial Statements.
- Maintaining computerized books of accounts comprising of Cash Book, Bank Book and Journal Book of the Institute along with periodical Bank Reconciliation Statement.
- Monitoring and preparation of Monthly Revenue Statement of the Institute by comparing the various cost centres with revenue generated by each of them.
- Establishing Letter of Credit and Wire Transfer for procurement of equipments, consumables and services from abroad along with timely settlement of the bills raised by contractors/suppliers.
- Generation of salary of the employees along with maintenance of monthly Provident Fund, TDS and other statutory deductions. Responsible for depositing the Tax and issuing Form 16 to employees and 16A to other agencies.
- Preparation of Monthly Expenditure statements for review by ILBS management and submission to Health & Family Welfare Department, Finance Department and Planning Department, Govt. of NCT of Delhi.
- Organizing meetings of Finance Committee and complying with the decisions of the Committee.
- Maintaining record of all Indirect and Direct Taxes for the purpose of timely e-filing of Tax returns.
- Responsible for securing annual audit by the Statutory Auditor, CAG Auditors and Examiner, Local Fund Accounts of GNCT, Delhi. Compliance with the qualifications made in the respective Audits.
- Separate Accounting for various Research Projects conducted by the Institute under the leadership of the designated Principal Investigators. Preparation and periodical submission of Utilization Certificate for each Research Project to the concerned authorities.
- Separate Accounting for various Conferences/Seminars organized.
out of ILBS Conference Funds, which are kept separate having been generated from non-Government resources for the purpose.

- Preparation of Core Budget as also the Revised Budget Estimates of the Institute for review and finalization by ILBS management before submission to the concerned authorities.
- Coordinating with the Purchase Committee for negotiations for National and International procurement for the Institute.
- Accounting for the Grants received from the Govt. of NCT of Delhi for the Institute. Maintenance of all records for the Utilization of the Grants and submission of the same to the Govt. of NCT of Delhi.
- Compilation of MIS reports, as required from time to time, for Top-level management.


<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Opening Balance</td>
<td>17947.19*</td>
<td>12112.06*</td>
<td>18235.33*</td>
</tr>
<tr>
<td>Grants-in Aid received</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For FY 2014-15</td>
<td>7200.00</td>
<td>13400.00</td>
<td>3000.00</td>
</tr>
<tr>
<td>For FY 2015-16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For FY 2016-17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Revenue generated</td>
<td>10486.01</td>
<td>12709.59</td>
<td>8420.61</td>
</tr>
<tr>
<td>Non-Operational Revenue generated</td>
<td>973.82</td>
<td>842.73</td>
<td>615.95</td>
</tr>
<tr>
<td>Total Receipts (incl. opening balance)</td>
<td>36607.12</td>
<td>39064.38</td>
<td>30271.89</td>
</tr>
<tr>
<td>Expenditure</td>
<td>24495.06</td>
<td>20829.05</td>
<td>10627.86</td>
</tr>
<tr>
<td>Closing Balance</td>
<td>12112.06*</td>
<td>18235.33*</td>
<td>19644.03*</td>
</tr>
</tbody>
</table>

- Includes committed liabilities to DMRC for payment towards building construction of Phase-II and also for procurement of Drugs & Consumables/ Machinery & Equipments along with other committed liabilities of the Institute.
- Over the years, the funding by Govt. of NCT of Delhi in the form of Grants-in-aid to the Institute has pruned and on the other hand, the Institute has been generating its own funds in the form of operational Revenue and Non-Operational Revenue, as brought out in the table below:

Department’s Achievements

As the flagship programme of Govt. of India is driving its economy to a cashless-India, even the ILBS Finance Department carries most of its financial transactions in cashless and digitized format. With a view to provide better banking services to the Institute, its employees, patients and their attendants, the entire banking was switched over to the HDFC Bank during the Year 2016. This is not only reducing the cost of the Institute in terms of Bank commission/charges, but also providing facilities to its patients and their attendants, mainly as follows:

a. Patients and their attendants are having facility of online payments and payment through ILBS mobile app. by using HDFC Payment gateway to settle their bills, from anywhere in the world without any extra cost.
b. HDFC bank is providing Debit Cards & Credit cards swipe machine for settlement of patients’ bills at Zero Commission/ Bank Charges, resulting into huge saving to the Institute also.

c. Patients (mainly OPD Patients) and their attendants will be soon be able to make the payments of their bills easily by using Prepaid card at different hospital service centers, which will be fully integrated with our HIS (Hospital Information System) on real time basis.

Further, HDFC bank is providing Institutional Saving Bank Account with facility of RTGS payments to vendors & establishment of LC at Zero cost. This is resulting into huge savings to the Institute.

HDFC Bank is also offering Salary Accounts to ILBS employees with zero balance and at nil cost with some other facilities e.g. free accidental insurance, free platinum Debit Cards, free fire and burglary insurance etc.

<table>
<thead>
<tr>
<th>Staff Name</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Naveen Narang</td>
<td>Sr. Manager (F&amp;A/C&amp;B)</td>
</tr>
<tr>
<td>Mr. R. K. Verma</td>
<td>Manager (F&amp;A)</td>
</tr>
<tr>
<td>Mr. Vivek Pai</td>
<td>Dy. Manager (F&amp;A/C&amp;B)</td>
</tr>
<tr>
<td>Mr. Tribhuvan Jha</td>
<td>Assistant Manager (F&amp;A)</td>
</tr>
<tr>
<td>Ms. Shaloo Arora</td>
<td>Executive (F&amp;A)</td>
</tr>
<tr>
<td>Mr. Shiv Prakash Tripathi</td>
<td>Executive (F&amp;A and C&amp;B)</td>
</tr>
<tr>
<td>Mr. Krishna Das</td>
<td>Staff Assistant</td>
</tr>
</tbody>
</table>

The department is engaged in the procurement of goods and services in a fair and transparent manner to ensure ‘Best Quality at the best price’ maintaining financial propriety. The procurement process includes sourcing of suppliers, input and agreement of specifications, preparation of tender document, coordination and evaluation of bids, seek appropriate approval, negotiations, agreement of contract and management and closure of contracts, ensuring that they meet legal, audit and GFR requirements using standardized protocols.

Purchase Department is also involved in resolution of disputes and taking action to protect the interest of the Institute.

The department is engaged in co-coordinating/monitoring/negotiating/record keeping of the flow of received institutional purchase requests for medical and general non consumable and consumable goods. This in turn is done through purchase orders, goods receipts, inspection and commissioning of goods, payment proposals subject to strict auditable rules/regulations with limited resources of time and manpower between departments of the user, stores, administration, purchase and finance.

Under the able supervision of Dr. Anil Agarwal, Deputy Head Administration, the department undertakes tender documentation, advertising, receiving, processing, convening meetings, concluding rate contracts and placing purchase orders and monitoring subsequent contract execution.

Services Rendered
- Procurement of Equipment
- General Stores (Inclusive Engineering, IT, Housekeeping Stores)
- Procurement of Lab Consumables
- Procurement of Drugs and Medical Consumables etc.

Fund Allocation for the Financial Year 2016-17

<table>
<thead>
<tr>
<th>Categories</th>
<th>Fund in Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>30,00,00,000.00</td>
</tr>
<tr>
<td>General store</td>
<td>13,00,00,000.00</td>
</tr>
<tr>
<td>Lab, CSSD &amp; Research Consumables</td>
<td>16,00,00,000.00</td>
</tr>
<tr>
<td>Drugs and Medical Consumables</td>
<td>77,00,00,000.00</td>
</tr>
</tbody>
</table>

Utilization of Allotted fund in the Year 2016

<table>
<thead>
<tr>
<th>Categories</th>
<th>No. of PO</th>
<th>Procurement (in Rs )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment &amp; Spares</td>
<td>110</td>
<td>20,00,000,000.00</td>
</tr>
<tr>
<td>General store</td>
<td>631</td>
<td>11,10,000,000.00</td>
</tr>
<tr>
<td>Lab, CSSD &amp; Research Consumables</td>
<td>752</td>
<td>15,40,000,000.00</td>
</tr>
<tr>
<td>Drugs and Medical Consumables</td>
<td>8140</td>
<td>50,00,000,000.00</td>
</tr>
</tbody>
</table>
ILBS-IT vision is to provide health information delivered instantly and securely to patient care providers when needed. To keep abreast with the latest developments in information technology and its dissemination, ILBS is constantly keeping pace with the improvement and research through an active process that requires communication, collaboration and decision making across care providers.

The Institute strongly believes that “Information Technology is a fundamental organizer in relationship development and making improvements to patient care delivery.” A common integrated Hospital Information System and Picture archiving and communication system has been successfully implemented leading to realization of efficiencies. ILBS is part of NKN (National Knowledge Network) which is a state-of-the-art multi-gigabit pan-India network for providing a unified high speed network backbone. This is useful for the purpose of knowledge sharing and collaboration of doctors and medical services between different medical hospitals and institutions across the country.

Current Year Achievements:

This year, the Institute has upgraded the hospital information management system from client server technology to browser based software which has resulted into ease of access by users from anywhere across the Globe. Laboratory equipments have been integrated with HIS which may improve TAT and quality data analysis. New quality reports and fresh dashboards have been developed for enabling better decision support system. For better patient engagement and health services, new mobile application for patients has been developed which is targeted to help patients to have a single window for viewing reports, medication alerts, cashless transactions and also know about new updates on liver related diseases.

A larger initiative to unlock synergies and harmonize processes across Institute, campus network has been upgraded to 40gbps backbone. Entire ILBS campus including resident hostels have been enabled with wifi access on high speed IEEE 802.1ac protocol which is helping faculties, students and other staff to locate and view information faster and use applications relevant to their roles and responsibilities. For enabling the Institute to respond rapidly to evolving business needs, the core IT infrastructure consists of green data centers using the virtualization Technology, additionally the data center has been redesigned to provide a stable, scalable and secure platform for business growth. A new software application for “Clinical Research” on Big Data Analysis has been developed to search various databases of different kinds, websites and intranet. This Big data analysis tool shall assist the faculty and students for the purpose of clinical research.
Telecom infrastructure of entire campus has been upgraded to heterogeneous environment consisting of VOIP and analog phones. To improve patient satisfaction, a new CRM application with call centre has been deployed which helps to handle large volume of calls, single window to patients for appointments, registration and FAQs etc.

New ILBS website (www.ilbs.in) has been developed which can be used interactively for various processes like submitting online applications for career opportunities, admission to various courses and to securely access investigations reports, seeking doctor’s appointments and online payments by patients along with other major information pertaining to respective Departments.

**IT roadmap for next year:**

The doctor and patient interaction plays the most vital role in healthcare delivery; it is not arduous to bridge the gap between a doctor and a patient. Mobile application for doctors shall be introduced consisting of handy EMR, discharge summary, prescriptions etc. This may help in providing proactive response to patient condition, track specific patient information and alerts anywhere anytime. The Institute plans to introduce Enterprise Resource Planning (ERP) to support cross functional enterprise vide non medical operations.

The Department of IT plans to introduce Tele-Radiology which shall be an integrated ecosystem using cloud and Mobility Technology. Introduction of this technology shall assist the ILBS faculty and patients to access from anywhere anytime, the study and reports through the zero foot print web based browser. Further the department of Information technology has planned to introduce new Information Security Infrastructure to meet latest best practices Healthcare Industry standards.

**TeleHealth**

Within health care reforms, Health Information Technology (HIT) is an integral part of improving access and quality to healthcare. Telemedicine is one example of an endeavour that has the potential to improve access and quality of care, while saving precious health care resources especially, with respect to delivery of Super specialty healthcare to the masses at nominal cost. ILBS with its dedicated team of Healthcare and IT professionals strives to establish and run a state of the art Telemedicine Network in the Institute duly connected to renowned Healthcare centers across the Globe on one hand and on the other hand, to the remote parts of the country.

**International telemedicine Conference / Symposium**

Using state of the art technology, ILBS has participated in the international Telemedicine Conferences organised by Asia Pacific Advanced Network (APAN) at regular intervals through which medical fraternity from different parts of the Globe joins for knowledge sharing and collaborations. ILBS is also an active working group member of the prestigious Asia Telemedicine Symposium. The Institute has successfully organized Live Transmission of various medical procedures for collaboration concurrently to different countries across Globe.

<table>
<thead>
<tr>
<th>Staff</th>
<th>Faculty members</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sh. D.K. Mishra</td>
<td>OSD</td>
<td></td>
</tr>
<tr>
<td>Dr. Rakhi Maewal</td>
<td>Faculty In-Charge, Associate Professor, Hepatology</td>
<td></td>
</tr>
<tr>
<td>Sh. Dinesh Taneja</td>
<td>General Manager (IT)</td>
<td></td>
</tr>
<tr>
<td>Sh. Manish Dutta</td>
<td>DM(IT)</td>
<td></td>
</tr>
<tr>
<td>Sh. Gaurav Agarwal</td>
<td>AM(IT)</td>
<td></td>
</tr>
<tr>
<td>Sh. Sandip Kumar</td>
<td>AM(IT)</td>
<td></td>
</tr>
<tr>
<td>Ms. Chitra Mudgal</td>
<td>AP(IT)</td>
<td></td>
</tr>
</tbody>
</table>

ILBS Faculty participating in HPB Surgery session of 41st APAN Conference held in January 2016
ILBS faculty delivering talk on HPB Surgery session in 42nd APAN Conference held in August 2016

ILBS Faculty participating in HPB Surgery session in 42nd APAN Conference held in August 2016

ILBS organized session on "IgG4 related Cholangiopathy / Non-Variceal Bleed Management " in 42nd APAN session held in Aug 2016

ILBS Faculty participating in Endoscopy (ECE) session held in Nov 2016

ILBS Faculty participating in ECE conference in March 2016

ILBS Faculty participating in Endoscopy session of 41st APAN Conference held in January 2016
Fire and Security Department

The Institute has a well trained and adequately equipped Fire and Security department to tackle any kind of disaster/emergency in the hospital. The main aim of the Fire & Security department of the Institute is to provide best protection to the patients, staff, visitors and the hospital assets from both natural and manmade and various emergencies. Regular training is conducted to make the staff well versed with the handling of the equipment as per the Emergency.

The Security department provides support the medical staff to carry out unhindered patient care as per the policy of the Institute. The security department is assisted by an outsourced security agency to provide round the fire & security cover.

The Hospital is well equipped with various security equipments like CCTV System & Access Control System, HHMD, Underbelly mirror, Walkie Talkie sets, fire alarm systems etc.

Fire Fighting System of the Institute is as per National Building Code, Part-IV & Delhi Fire Service Act 2007 rule 2009. The staff is well trained to operate the fire fighting equipments installed in the Institute. Mock Fire drills are conducted twice a month by the Fire & Security staff and is assisted by the Engineering, Housekeeping and Medical Operations department of the Institute. Mock drills on various Emergency Codes are conducted as per the NABH Policy & norms.

The Fire Fighting System of the Institute comprises of Fire extinguishers as per BIS-2190 which includes hose reel on all floors, wet riser system with landing values on all floors, down comer system, yard hydrant system, automatic sprinkler system, manually operated electric fire alarm systems, automatic detection and alarm system, underground static water storage tank, terrace water tank and fire pump room equipped with fire pumps of required capacity and numbers.

The department observes Fire Service Week from 14th to 20th April every year. Various activities are carried out to educate the staff about the Fire (Identification, Prevention, Protection and Control) through presentations & drills. This year also a live fire evacuation drill was conducted on 14th April 2016 in the presence of Delhi Fire Service Officials during Fire Service Week. The Institute has the requisite fire clearance from Delhi Fire Service.

The Fire & Security Staff of the Institute is duly supported by Shri Ved Prakash, General Manager (Engineering):-

<table>
<thead>
<tr>
<th>Years</th>
<th>Types Of Drills</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>2</td>
<td>41</td>
</tr>
<tr>
<td>2015</td>
<td>2</td>
<td>47</td>
</tr>
<tr>
<td>2016</td>
<td>2</td>
<td>51</td>
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<tr>
<th>Faculty members</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lt. Col R.S Singh</td>
<td>Dy. Head Operations (NM/HR)</td>
</tr>
<tr>
<td>Mr. Amit Gautam</td>
<td>Assistant Manager (Fire &amp; Security)</td>
</tr>
<tr>
<td>Mr. Parmod Sharma</td>
<td>Senior Executive (Fire &amp; Security)</td>
</tr>
<tr>
<td>Mr. Mukul Bhardwaj</td>
<td>Junior Executive (Fire &amp; Security)</td>
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</tbody>
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Photo Gallery
The President of India, Sh. Pranab Mukherjee, awarding postdoctoral degree on the occasion of convocation day, 2016.

Seminar by Dr. Stefan Wiktor, Lead WHO Global Hepatitis Programme on the occasion of World Hepatitis Day.

Sh. Satyendra Jain, Hon. Minister of Health and Family welfare, GNCTD, Delhi at the inaugural function of Hepatitis Day.

Prof. V. Ramalingaswamy Oration delivered by Prof Yehuda Shoenfeld, Tel Aviv University.

Sh. Amitabh Bachchan and other dignitaries championing the cause on World Hepatitis Day, 2016.

Prof. Ashutosh Sharma, Secretary DST and Dr G S Sandhu, Secretary UGC, lighting the lamp on occasion of students Induction programme.
Round table discussion on action plan for hepatitis virus free India.

Dr. Richard Moreau, Director INSERM, interacting with students and faculties in the morning class.

Poster presentations by school students on Hepatitis day.

Reaching the community through ECHO programme.

Swatch Bahart Abhiyan, 2016

International Day of Yoga 2016.
Dr. Didier Samuel, Université Paris-Sud, France, discussing liver transplant outcomes at the 2nd Indo-French Meeting, 2016.

Prof Benjamin Schneider, Director of the Pediatric Hepatology (Texas Children Hospital, Houston), addressing the audience through live video streaming in CSPLD annd Prof. S K Sarin mediates the question and answer session.

WHO viral hepatitis training programme, 2016.