

DEPARTMENT OF PATHOLOGY

The **Department of Pathology & Laboratory Medicine** of this hospital has well equipped laboratories, which cater to the need of all the patients, indoor as well as outdoor. With Cloud based software, Computerized data management and automation, patient reports are available on mobile at a click!! Separate laboratory units exist for Molecular diagnosis, Clinical Pathology, Haematology, Microbiology, Biochemistry, Histopathology, Cytology and Immunology under single roof. **NABL accreditation** is granted for Molecular Lab ,Hematology ,Biochemistry ,Immunology . Molecular Lab has state of art biosafety level 3 facility and set up; first of its kind in Indian railways. **Two DNB** Post graduated seats sanctioned since 2020, Final practical examination of DNB students conducted successfully twice!!

MANPOWER

- **IRHS Doctors:**
 - **Dr. Yoganand Patil**, Sr.DMO [MD (Pathology), DPB, FCPS, DHM],Head of department
 - **Dr.Mrunal Kesari** DMO [MD (Pathology), DNB (Pathology)]
- **Visiting Doctors:**
HVS for Microbiology engagement under process
- **Resident Doctors: 3**
- **Laboratory Technicians: 15**

SERVICES PROVIDED

- Collection of Ward & OPD Samples: From 8 AM to 10.30 AM.
- Emergency Ward & ICCU Investigations: Samples received at all times & all investigations done on urgent basis. Laboratory is open round the clock 24/7. throughout the year.

Nature of investigations done in different Labs:

1. Clinical and Haematology Unit:

In addition to routine Urine, Stool, Hb, CBC, ESR, MP, RBC morphology. Special tests such as Reticulocyte count, PT, APTT, INR, G6PD, D-Dimar, FDP, Fibrinogen, Osmotic Fragility, Sickling, Strip tests for malarial antigen detection, Bone Marrow aspiration reporting, Semen analysis under Phase Contrast microscope, Urine for leptospira in Dark Field Microscopy done regularly.

2. Clinical Chemistry (Biochemistry) Unit:

Biochemical examination of Serum, Fluids, CSF and Urine are done, apart from routine tests, Lipid profile, Renal profile, Liver function tests, Cardiac enzymes, Glycosylated Hb, Electrolytes, Blood Gas Estimation, Iron studies, serum Magnesium done regularly.

3. Immunology Unit:

Hepatitis B Markers such as HbsAg, Anti HbsAg, HbeAg and Anti Hbe, Anti HBc and Australia antigen. Spot test for HBsAg.

Hepatitis C Markers – IgM Anti HCV, Hepatitis A marker - Anti HAV IgM Hepatitis E marker - Anti HEV IgM, Tests for HIV - Spot, ECLIA, ELFA.

Cancer Markers - CEA, AFP, and PSA, ANA - by Indirect Fluorescent Assay.

CRP, RAF, Blood grouping, Rh typing, Du test, Coombs Test - Direct and Indirect.

Leptospira Antibody spot test, VDRL test.

Dengue IgG & IgM Card test & Dengu NS1 Antigen test.

4. Microbiology Unit:

Routine Culture and Sensitivity of Urine, pus, sputum, throat swab, CSF. Widal, Blood culture for pyogenic and Salmonella by Bactec 9050. Fungal stain & culture. AFB culture of Sputum, pus, and tissue biopsies, CSF examination for Cryptococci. Split skin smear for Leprabacilli, Gram stain, ZN stain for AFB, Fluorescent stain for AFB, Albert stain. Detection of Mycobacteria and resistance to drugs based on genetic amplification using cartridge based technology in Gene expert. Automated system for identification of organisms and its sensitivity to antibiotics with Minimum Inhibitory Concentration.

5. Histopathology Unit:

Surgical and Gynaec specimens and Gastroenterology endoscopic biopsies are grossed, processed and reported here. Routine H&E staining and special stains like Fite, Fluorescent AFB, PAS, AB-PAS, Reticulin, Masson Trichrome and Pearls done regularly. Cryostat is available for doing Frozen Section for intraoperative reporting.

6. Cytology Unit:

FNAC, USG guided FNAC, PAP smears for cervix, and cytology of fluids are reported regularly. FNAC of breast, lymph node, thyroid, soft tissue swellings, parotid lumps, USG guided liver aspiration, brush cytology of CBD, etc are done routinely. Liquid based cytology.

7. Molecular lab: Detection of virus, bacteria and organisms based on target genes, genetic disorders, cancer detection based on genetic sequences. Target gene can be detected as well as Quantified. Example Viral load of HBV. Covid testing can be done by using RTPCR. Thermofischer Quantstudio 7, Kingfisher Flex. This technology is based on nucleic acid amplification and detecting the amplicons simultaneously using fluorescent probes. Biosafety level 3 laboratory standards are maintained.

Advanced automated equipments as per ISO NABL standards are available.

. Maintenance and calibration of Equipments, reporting is as per NABL standards.

Quality assurance done by Internal and External Quality Control Procedures.

Total Work Done in Various Units of the Dept. of Pathology

Type of Tests	2017	2018	2019	2020	2021	2022
Biochemistry	444543	436859	593396	91140	575544	736862
Clinical & Haematology	201784	185065	209614	322224	170363	191940
Microbiology	10661	12086	13842	2975	12660	15561
Immunology	50293	49000	69719	30816	58547	84945
Histopathology	1593	1219	1359	532	837	1212
Cytology	1471	1197	1135	387	1222	1618
RTPCR					31881	10224
Rapid Antigen Test Covid					15588	4715
Accula					50	28
Total	710354	685426	889065	448074	866692	1047239

ACHEIVEMENTS AND ACTIVITIES

- **NABL** accreditation for Pathology in sections of Molecular Lab ,Hematology ,Biochemistry ,Immunology.
- **DNB student** in Pathology passed out in first attempt. **DNB Pathology** has sanctioned one primary and one secondary postgraduate seats in Pathology.
- State ofart **Molecular lab with Biosafety level -3** started with RT-PCR facility. It is first of its kind in Indian Railways. This technology is based on nucleic acid amplification and detecting the amplicons simultaneously using fluroscent probes.Biosafety level 3 laboratory standards are maintained. Any pathogen like Corona virus can be detected in JRH Lab. Inauguration done by **General Manager** ,WR on 27 January2021. Provided Covid antigen testing, antibody testing and swab testing for railway beneficiaries.
- **Gene expert** machine also installed. It is used for Tuberculosis detection and resistance to rifampicin.
- **ICMR** accreditation for Covid testing by RTPCR

- Participated in External Quality Programme in CMV Vellore for Microbiology Culture and Sensitivity ,EQAS CMC Vellore for HCV and Hematology,**AIIMS**
- Laboratory software installed .Patients and doctors are receiving reports on mobile with the mobile app. Turnaround time has reduced. Digitalisation saves papers so ecofriendly.
- Approved centre for conduction of practical examinations of DNB postgraduate students.
- Successfully conducted final practical examination of DNB twice
- Cytology Laboratory has been accredited by The *Indian Academy of Cytologists (IAC)*
- Cytology Unit of Dept. of Pathology is part of “*External Quality Assurance Programme*” with PGI, Chandigarh
- Pathology Department has been recognized by SNTD University Mumbai for Internship training of the DMLT students.
- Organized IAPM mid year MAPCON conference “An update in Endocrine Pathology” on 14 and 15 April
- Organized 4 day IA & QMS training as per ISO 15189:2022bfrom 7th -10th June 2023 conducted by MELAP
- Biomedical Waste license obtained till 2027 from MPSCB
- Antibiotic Policy formulated for hospital by Hospital Infection control Committe

Teaching Facility

- **DNB (Diplomate of National Board)**has sanctioned one primary and one secondary postgraduate seats in Pathology.
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- **Practical training for DMLT** is imparted to students of Maharashtra Institute & SNTD Women’s University, Mumbai. Five students from each college are posted for a four months period by rotation.
- **MCI recognized House post** - 1 /per term

DEPARTMENT OF PATHOLOGY RESEARCH AND ACADEMIC WORK

- 2022: Chapters contributed in **textbook** “Hospital Associated Infections” by Dr.Mrunal Kesari
- Poster: Mucinous cystic tumor mimicking hydatid cyst (MPAICON2020)

DEPARTMENTAL RESEARCH PAPER PUBLICATIONS

Sr. No.	Article Type	Article Title	Journal Name
1	Original Research Paper	Prevalence Of COVID19 Infection In Health Care Workers In First Wave Of Pandemic And Role Of Hospital Infection Control Committee In Subsequent Waves Of Pandemic	Journal Of Preventive Medicine And Holistic Health
2	Original Research Paper	Biochemical And Haematological Parameters Predicting Severity Of COVID 19 Infection: Lessons From First Wave Of Pandemic	Indian Journal Of Pathology And Oncology
3	Original Research Paper	Post Vaccination Covid Infection in Health Care Workers at a Tertiary Care Centre: A Retrospective Cohort Study	International Journal Of Contemporary Medical Research
4	Original Paper	Rhino-orbital mucormycosis: could it be an indicator of past covid infection	Global Journal For Research Analysis
5	Case Report	Rare Case Of Multilocular Cystic Renal Neoplasm Of Low Malignant Potential With Chronic Pyelonephritis	Journal Of Clinical And Diagnostic Research
6	CASE REPORT	Uterine Submucosal Lipoleiomyoma Detected In Common Case Of Uterine Prolapse	Paripex-Indian Journal Of Research (Pijr)
7	Original Research Paper	Role Of Cycle Threshold Values Of RTPCR And Computed Tomography Severity Score In Covid 19 Pandemic	Global Journal For Research Analysis
8	Original research Paper	Impact Of Vaccination On Covid Infection In Health Care Workers In Western Zone Of Indian Railway	Paripex - Indian Journal Of Research
9	Case report	Antrochoanal Polyp in an Unusual Case of Follicular Ameloblastoma of Maxilla: A Case Report	International Journal Of Head And Neck Surgery
10	Case report	Multifocal Nodular Oncocytic Hyperplasia with Oncocytosis of Parotid Gland - A Case Report	Acta Scientific Otolaryngology
11	case series	Clinical And Histopathological Analysisnevus Lipomatosus Cutaneous Superficialis 9 Cases	Global Journal For Research Analysis
12	Case report	Papillary Thyroid Carcinoma Presenting As Metastatic Cystic Lateral Neck Swelling: A Diagnostic Challenge	International Journal Of Scientific Research
13	Case report	A Rare Case of Sinonasal Ameloblastoma with Immunohistochemistry	Journal of Contemporary Medical Research Vol. 6, Issue 10, October 2019)
14	Case Report	Ochronotic Arthritis	Bombay Hospital Journal, (Vol. 53, No.2, April 2011)

15	Case Report	Choroidal melanoma metastasizing to the biliary system: A diagnostic dilemma.	Indian J Med Oncol, Oct-Dec 2009, Vol 30, Issue 4
16	Case Report	Disseminated Histoplasmosis mimicking Laryngeal carcinoma from Central India	Indian Journal of Pathology & Microbiology, 2006
17	Case Report	Non- alcoholic steatohepatitis in type 2 diabetes mellitus.	Journal Gastroenterology Hepatology 2004
18	Case Report	Helicobacter pylori in peptic ulcer disease and non ulcer dyspepsia.	JAPI
19	Case Report	Hyperurecemia in Tuberculosis patients	Indian Medical Gazette