POST-DOCTORAL CERTIFICATE COURSE (PDCC) IN INFECTIOUS DISEASE MICROBIOLOGY

Introduction:

All India Institute of Medical Sciences, Rishikesh is one of the SIX Apex healthcare institutes being established by the Ministry of Health & Family Welfare, Government of India under the *Pradhan Mantri Swasthya Suraksha Yojna* (PMSSY). With the aim of correcting regional imbalances in quality tertiary level healthcare in the country and attaining self sufficiency in graduate and postgraduate medical education and training, the PMSSY planned to set up these AIIMS in under served areas of the country. These institutions are being established by an Act of Parliament on the lines of the original All India Institute of Medical Sciences, New Delhi.

In the recent years, the concept of specialization/sub-specilization has emerged in almost all disciplines of medicine throughout the world. Infectious diseases are on rise both in developed and developing countries, especially after recent development in medicine (e.g. solid organ and bone marrow transplants, aggressive cancer therapy etc.) and acquired immunodeficiency syndrome (AIDS) pandemic. Emergence of susceptible population, advent of many new microbial species as pathogen and re-emergence of old infectious agents have made the situation more problematic and complicated. Most of the developed worlds have infectious diseases division run by clinical microbiologists however developing countries are trailing behind because of lack of development in the field of infectious diseases, though the major brunt of these illnesses are borne by them. There is a need for early, appropriate diagnosis of infectious diseases including the emerging and re-emerging ones and their management.

So far, no separate training program on infectious disease exists in India. The problem of infectious disease being taken a new dimension, there is a need to develop a well-planed structured course in the form of PDCC (Infectious Disease). Accordingly, the details of curriculum are being formulated.

AIM: To train Medical Microbiologists in becoming Clinical microbiologists and to provide them expertise in the field of infectious diseases.

OBJECTIVES:

1. To create experts who can diagnose and treat patients with infectious diseases.
2. To develop laboratory skills to carry out and report on investigations in patients with infectious disorders
3. To promote the importance of excellence in teaching and research in infectious diseases.
4. To provide thorough knowledge about the epidemiology and control of hospital infections.

Need for the course:

Infectious disease is a major killer in the developing world including India hence there is a need to create experts in the field. Tertiary care centers like AIIMS Rishikesh should train desired manpower for appropriate diagnosis and management of these infections. The persons trained in the field should know the details of the prevalent infectious diseases, their mode of transmission and preventive measures and carry out more focused research in relevant diseases in the country so as translate research into clinical inputs for the betterment of human health. All the major countries of the World have centres for infectious disease as separate entity where patients with serious infectious complications are managed in a better way by clinical microbiologist.

The proposed one year post MD training will be targeted for the senior residents/ young faculty members and state medical doctors who are actively .involved in teaching under and post graduate students in the diagnosis and management of patients with infections. The super specialty nature of our Institute will suit to start the above course in order to · meet the challenges of infectious diseases. Having the basic knowledge of Microbiology, the trainees will be able to tackle the problems of infectious diseases including the emerging and reemerging ones in a better way.

Infrastructure available:

The department of Microbiology was started in March 2013. Today the department has six faculty members. Since the inception, the department is catering clinical diagnostic services, surveillance of nosocomial infections with formulation of antibiotic policy etc. The department is also involved in research as per needs of the institute, society and the country. All modem diagnostic facilities on infectious diseases are available. All the disciplines/ subspecialities of microbiology are fully functional to meet the training programme of PDCC (Infectious Disease). The disciplines like general hospital, · emergency and other super specialities are already existing to meet the requirement for the training. The dept. of Microbiology has been running M.D. (Microbiology) and PhD programmes since 2016 and 2017 respectively

Course details:

1. Name of the course: Post Doctoral Certificate Course (PDCC) in Infectious Disease
2. Duration: One year
3. Number: Two students per year
4. Eligibility: The course is open for candidates holding the following degrees- MD (Microbiology), MD (General/Internal Medicine), MD (Pediatric) from a MCI recognized Institution. Age limit 35 years.
5. Mode of Selection: Through all India open entrance test
6. Selection process: Selection process will start through an all India advertisement. The examination will have written test and viva voce. The written examination will be based on multiple choice questions drawn from Microbiology and Medicine in relation to infectious diseases. Candidates securing more than 50% marks in written test will be asked to appear for departmental practical and viva voce examination which will judge the practical skill, clinical aptitude, decision making ability and problem solving potential. This will follow the Institute's rules applicable to other PDCC courses.

7. Posting: 4 months in Microbiology laboratory -and 6 months in IPD Wards. The posting of IPD would also include ward round of Nephrology, Urology, Gastroenterology, Neurology, Neurosurgery, ICU, Endocrinology and consultation on call. In addition, the candidate will be posted for 7 days each in the departments of Pathology, Transfusion medicine, Biochemistry and Radiodiagnosis .
8. Course Faculty: Faculty of Microbiology and of medical and surgical.
9. Tuition fees: As per academic Board decision.
10. Academic & Teaching Activities: Each candidate is expected to participate in journal clubs, seminars, group discussion, case discussion, morbidity-mortality meeting and combined grand round. The candidate has to attend conference/workshops/CME on topics related to infectious diseases. The candidate will undergo observer ship on specialized lab techniques in Institutes of Excellence like, NIV,PGI Chandigarh ,AIIMS etc.
11. Evaluation: The candidates are expected to maintain a logbook of at least 50 clinical case reports of the patients diagnosed and treated for infectious diseases in the hospital. In addition, each candidate will undergo laboratory assessment periodically by the faculty of the department following Institute procedure in this regard. The result of the internal assessment will be made available to the examiners at the time of examination. At the end of 12 calendar months there will be a certifying examination comprising of a theory (Two papers) and practical examination. Each Theory paper will have 100 marks.
12. Practical examination will consist of practical & viva voce. The practical will have the following:

Spotting (10)	20 Marks
Long case (1)	35 Marks
Short Case (2)	30 Marks (15 marks/ case)
Viva	15 Marks

In order to qualify, the candidate must score 50% in the theory and practical separately.

Examiners: Institute rules will be followed in this regard. In brief, there will be two external examiners and two internal examiners.

Clinical Posting Roster for PDCC Infectious Diseases
(Time -8:30 am- 01:00 pm)

S.No	IPD/OPD/Department	Duration
1.	Medicine ward	1 Month (28.07.2018-28.08.2018)
2.	HDU/ICU	1 Month (29.08.2018-28.09.2018)
3.	Dermatology	1 Month (29.09.2018-28.10.2018)
4.	Orthopaedics ward	1 Month (29.10.2018-28.11.2018)
5.	General Surgery ward	1 Month (29.11.2018-28.12.2018)
6.	Gynaecology and Labour room	15 days (29.12.2018-6.01.2019)
7.	Urology Ward	7 days (7.01.2019-13.01.2019)
8.	Radiodiagnosis	8 days (14.01.2019-21.01.2019)
9.	Oncology and Haemato-oncology	1 Month (22.01.2019-22.02.2019)
10.	Neurology and Neurosurgery ward	15 days (23.02.2019-10.03.2019)
11.	NICU and Paediatric ward	1 Month (11.03.2019-10.04.2019)
12.	RICU and Pulmonary ward	1 Month (11.04.2019-10.05.2019)
13.	Burns and Plastic surgery ward	1 Month (11.05.2019-10.06.2019)
14.	ENT OPD and ward	7 days (11.06.2019-17.06.2019)
15.	Eye OPD and ward	7 days (18.06.2019-24.06.2019)
16.	Pathology	6 days (25.06.2019-30.06.2019)
	Biochemistry	7 days (01.07.2019-07.07.2019)
	Transfusion Medicine	7 days (08.07.2019-14.07.2019)
	Pharmacology	7 days (15.07.2019-21.07.2019)

Course for Clinical Postings

Clinical Course will include the Epidemiology, diagnosis, pathogenesis, management and preventive aspects of the following infective conditions:

- PUO
- Bacteremia & fungemia.
- Acute Febrile illness including Exanthematous fevers
- HIV/AIDS
- Tuberculosis
- Acute respiratory infections-Upper and lower .
- Encephalitis/Meningitis
- Acute flaccid paralysis including Guillain-Barre syndrome.
- Acute and chronic diarrhoea, gastroenteritis, food poisoning.
- UTI, Sexually transmitted Infections and Reproductive tract infections.
- Ear and Eye, soft tissue and bone infections
- Zoonosis

- Vector borne diseases
- Hospital acquired Infections: CAUTI, BSI CLABSI, SSI, VAP, HAP etc. including surveillance.
- Infections in immunocompromised Patients-Cancer, AIDS, transplant recipients, Geriatric population, diabetics etc.
- Antifungal/ Antimicrobial prophylaxis during neutropenia & immunodeficiency.
- Antibiotic stewardship.
- Outbreak Investigation

Techniques to be observed

S.No.	**Department**	
1.	Pathology	Cytopathology Histopathology Immunohistochemistry Focus on-Diagnosis/Identification of microbes in histologic sections
2.	Biochemistry	Immunology PCR
3.	Radio diagnosis	Ultrasound guided aspirations
4.	Pharmacology	Antibiotic usage Serum drug analysis HPLC
5.	Transfusion Medicine	Screening for Blood transfusion acquired infections HIV screening HCV screening NAAT ECi Vitros

Laboratory Posting in Department of Microbiology
Time: 02:00 PM onwards

S. No.	Department	Duration	Date
1.	Bacteriology,	2 Months	28/7/2018 to 27/10/2018
	Anaerobic	1 Month	
2.	Serology	2 Months	28/10/2018 to 27/1/2019
	Immunology	1 Month	
3.	Mycology	1 Month	28/1/2019 to 27/3/2019
	Mycobacteriology	1 Month	
4.	Parasitology	2 Months	28/3/2019 to 27/5/2019
5.	Molecular Biology	1 Month	28/5/2019 to 27/6/2019
6.	Virology	1 Month	28/6/2019 to 27/7/2019

Techniques to learn and perform during Laboratory Posting in Department of Microbiology

S.No.	Department	Techniques to learn and perform
1.	Bacteriology, Anaerobic	Proper Sample receiving –Acceptance and rejection criteria. Staining techniques Culture techniques Identification tests Antibiogram profile Maintaining of stock culture and lyophilisation Techniques of air, water, and OT samples surveillance HICC Surveillance activities- Anaerobic Culture techniques -Beck Man coulter Automated analysers: BACTEC, Phoenix, MicroScan MALDI-TOF
2.	Serology Immunology	Automated ELISA: Hbsag, HIV, HCV, TORCH, Total IgE, HAV, HEV, Anti CCP, Scrub Typhus Rapid tests Autoimmunity profile Immuno Fluorescent assays Allergy testing-Skin prick test ICTC
3.	Mycology Mycobacteriology	KOH mount and other microscopic techniques Fungal culture media preparation of SDA, CMA, PDA, Chrome agar etc. Slide culture Antifungal Susceptibility ZN smear examination –conventional and modified CB NAAT Conventional solid culture and MGIT for Mycobacteria
4.	Parasitology	Saline and iodine mount, Peripheral blood smear for haemoparasites Newer rapid diagnostic techniques
5.	Molecular Biology	PCR DNA hybridization Gene sequencing Microarray system-Biofire
6.	Virology	Tissue culture and other methods of virus isolation and diagnosis Molecular diagnosis Animal handling

LIST OF BOOKS AND JOURNALS

List of Books

S, No.	Name of Books/Publisher	Author/Edited by
1.	Clinical Microbiology seventh edition, Published by Edward Arnold	E Joan Stokes, G L Ridgway and M W D Wren
2.	Medical Mycology, a practical approach, IRL Press	E G V Evans & M D Richardson
3.	Anaerobic Microbiology, A practical approach, IRL press	P N Levett
4.	Bacterial pathogenesis, a molecular approach, ASM press	Abigail A. Salyers and Dixie D. Whitt
5.	Text book of Medical Parasitology, Text and color Atlas	Subash C. Parija
6.	Bailey Scott's Diagnostic Microbiology 9th edition Mosby	Ellen Jo Baron, Lance R Peterson & Sidney M Finegold
7.	Molecular Cloning , a laboratory manual 2nd edition CSH press	J Sambrook, E F Fritsch & T Maniatis
8.	AIDS causes and prevention, Mittal publications	T B L Jaiswal
9.	Medial Mycology 3ra edition, W B Saunders Company	John W Rippon
10.	Mackie & McCartney, .Practical Medical Microbiology 13th edition, Churchill Livingstone	J G Collee, J P Duguid, A G Fraser & B P Mannion
11.	Text book of Microbiology, Orient Longman 4th edition	R Ananthanarayan & C K J Panikar
12.	Topley & Wilson, Principles of Bacteriology, Virology and immunity 9th edition, Edward Arnold	M Tom Parker & Leslie H Collier
13.	Current protocol immunology	J E Coligan, A M Kruisbeek, A H Margulies, E M Shevach & W Strober
14.	.Gradwohl's Clinical Laboratory methods and Diagnosis gth edition, B I Publications Ltd	A C Sonnenwirth & L Jarett
15.	Clinical Microbiology procedures hand book, ASM press	H D Isenberg -
16.	Manual of Clinical Microbiology 5tn edition, ASM press	A Balows, W J Hausler, K L Herrmann, H D isenberg & H J Shadomy
17.	Diagnostic Cytopathology, Churchill Livingstone	Winifred Gray
18.	Principles and Practice of Infectious diseases, 4th edn, Churchill	G. L. Mandell, John E bennett, R. Dolin

	Livingstone.	
19.	Park's textbook of Preventive and Social Medicine, 15th edn, Banarsi das Bhanot publishers.	K. Park

List of Journals	
1.	Infection & Immunity.
2.	Bull WHO
3.	Nature Medicine
4.	Am J Epidemiology
5.	J Infection Disease.
6.	J Virological Method.
7.	J Clin Microbiology (Virology). .
8.	Antimicrobial Agents & Chemotherapy.
9.	J. Immunology.
10.	New Engalnd J Med.
11.	J Clin Microbiology.
12.	JAMA.
13.	PLOS
14.	IJMM
15.	IJMR
16.	Tropical Parasitology