MICROBIOLOGY

S.No.	Topics
Bacterial aetiology in acute undifferentiated fevers	
1.	Detection of baseline antibody titre against scrub typhus in endemic states.
2.	Estimating aetiological fraction of scrub typhus among patients with acute encephalitis syndrome.
3.	Estimate the prevalence and risk factors using serology or Polymerase chain reaction-based assay for Brucellosis / Scrub typhus / typhoid in acute undifferentiated febrile illness presentations in a community.
4.	Assessment of diagnostic accuracy of serology Vs. blood culture Vs. Polymerase chain reaction for Brucellosis / Scrub typhus / typhoid infections.
5.	Epidemiology of Brucellosis / Scrub typhus / typhoid / leptospira infections among acute undifferentiated fevers and assessing antimicrobial resistance patterns of *Salmonella* Typhi/*Salmonella* Paratyphi.
Nosocomial infections and drug resistant infections:	
6.	Identification of species and antimicrobial resistance pattern of urinary isolates from catheter associated infections in intensive care patients by MALDI-TOF MS (Matrix Assisted Laser Desorption/Ionization-time of flight mass spectrometry) vs. Conventional methods and correlate with their clinical outcomes.
7.	Estimation of incidence/prevalence of Catheter associated urinary tract infection / Surgical site Infection / Ventilator associated pneumonia / Central line associated blood stream infection in their particular Institutions/hospitals.
8.	What are the attributable risk factors and clinical outcomes for Hospital acquired pneumonia / Ventilator acquired pneumonia?
9.	Profiling the causative agents of Ventilator associated pneumonia in a healthcare setting along with characterization of their sensitivity profile.
10.	Study of colistin resistance among Gram-negative bacteria.
11.	Detection of hVISA (Heterogenous Vancomycin intermediate *Staphylococcus* aureus) among the MRSA (Methicillin resistant *Staphylococcus* aureus) isolates by different phenotypic and genotypic methods and evaluating effective antibiotics against these organisms.
12.	Phenotypic and genotypic study of Fosfomycin resistance in Multi Drug Resistant urinary isolates.
13.	Resistance and heteroresistance to Colistin in Carbapenamase producing Gram-Negative Infections from Adult Intensive Care Units.
14.	Prevalence of multidrug resistant bacterial isolates from sepsis patients in Intensive Care Units of a tertiary care hospital.

15.	A study on the microbiological profile including antibiogram of blood stream infections in patients admitted in intensive care units of a tertiary care hospital.
16.	Sensitivity profile of bacteria causing surgical site infections in a hospital.
17.	Epidemiology, antimicrobial resistance and risk factors for acquisition of hospital acquired infection among patients admitted to a tertiary care hospital.
18.	Detection of carbapenem resistant *enterobacteriacae* in tertiary care hospital and tracing the source of the infection.
19.	Point prevalence study of colonization with multidrug resistant organism (Carbapenem-resistant Enterobacterales, methicillin resistant *Staphylococcus* aureus and vancomycin resistant *Enterococci*), associated risk factors and outcomes among new admissions in tertiary care hospital/district hospital/primary health centre.
20.	Characterization of high-level aminoglycoside resistance and vancomycin resistance among enterococcus species isolated in various clinical specimens in hospitals.
21.	Role of different synergistic phenotypic methods to evaluate efficacy of newer beta lactam-lactamase inhibitors.
22.	Evaluation of direct microbial identification and antimicrobial susceptibility testing for early diagnosis of blood stream infections.
23.	To study the phenotypic and genotypic expression of mecA gene of *Staphylococcus* infections isolated from Blood stream infections and correlate with the clinical outcome.
Mycobacterial infections	
24.	What is the prevalence and susceptibility pattern of non-tubercular Mycobacteria in pyogenic infections?
25.	Epidemiology and correlation between type of non-Tuberculous Mycobacteria isolates and clinical outcomes from a tertiary Care centre.
26.	To study the clinico-radiological and microbiological parameters with delayed sputum conversion at the end of intensive phase of anti-tubercular treatment in pulmonary Tuberculosis.
27.	Prevalence of latent tuberculosis using Mantoux test as a tool - A population based study.
28.	Prevalence of Latent Tuberculosis / tuberculosis infection in contacts of patients with Active Tuberculosis.
29.	Incidence of tuberculosis or extra pulmonary tuberculosis in children - cohort study.
Urinary infections	
30.	Antimicrobial resistance in pathogens causing community acquired and hospital acquired urinary tract infections.
31.	Is there an association of antibiotic resistance and virulence factors of uropathogenic *Escherichia* coli?

Genital Infections	
32.	Clinico-etiological profile of genital infections in sexually active females of reproductive age group with special reference to *Mycoplasma* species.
33.	To study Genital tract infections with special focus *Chlamydia* trachomatis and *Neisseria* gonorrhoeae in women attending infertility clinic at a tertiary care centre in a city.
34.	Study of vaginal carriage of Group B *Streptococci* and molecular characteristics.
Other bacterial infections	
35.	Antibiotic susceptibility patterns of *Propionibacterium* acnes isolates in patients with acne vulgaris.
36.	Phenotypic and genotypic drug resistance of *Helicobacter* pylori isolates from Peptic ulcer disease patient.
37.	Incidence and prevalence of acute typhoid fever and chronic carriage reporting to tertiary care facility from a defined catchment area.
38.	Variable Virulence Factors in *Burkholderia* pseudomallei as a causative agent for Melioidosis in Human beings.
39.	Predictability of sepsis biomarkers in determining the treatment and mortality among patients of Intensive care unit.
40.	Application of Integrative omics to identify conserved and pathogen-specific responses of sepsis-causing bacteria.
41.	Prevalence and risk factors for Community acquired pneumonia (respiratory syncytial virus / tuberculosis) in a geographical block area.
42.	Monitoring the pre-analytical issues that can improve blood culture yield and reporting (Request raised by Clinician, Time and method of collection by the patient care providers, Time of receipt at the laboratory, Volume of blood collected, Time of loading the bottle in the incubator, Time of report preliminary and Final report issued, Time appropriate action taken by the doctor).
HIV & co-infections	
43.	Burden, clinical profile of patients, drug resistance patterns of Human Immunodeficiency Virus-Tuberculosis co-infection across diverse geographical settings of India.
44.	Screening of Cryptococcal antigenemia among Human Immunodeficiency Virus positive patients with CD4 count <200 cells/mm^3 in low resource setting tertiary care hospital.
Hepatitis virus	
45.	Sustained virological response to direct acting antiviral therapy in chronic hepatitis c patients with compensated and decompensated liver cirrhosis: a pilot study.
46.	To study the seroprevalence of Hepatitis-B and Hepatitis-C virus and correlate the serological markers in multi transfused thalassemia patients.

47.	Distribution of Hepatitis-C virus genotypes in pregnant women across various geographical settings in India.
Respiratory viruses	
48.	Study on profile of Influenza viruses in patients suspected of acute respiratory infections.
49.	Prevalence and molecular epidemiology of Respiratory Syncytial Virus in the pediatric population in a hospital attending outpatient departments with Upper Respiratory Tract Infections.
50.	Disease burden of Respiratory Syncytial Virus among newly admitted geriatric patients with diagnosis of community acquired pneumonia or new pneumonia in hospitalized patients.
51.	Study on profile of viruses causing influenza like illness and severe acute respiratory infections.
Other viral Infections	
52.	Epidemiology of Chikungunya and Dengue Fever*, serotype distribution and complications among acute febrile illnesses presenting to a tertiary care facility (*ELISA / Polymerase chain reaction based testing methods).
53.	Correlation between dengue serology and clinical warning signs of dengue fever presentations, to compare severity prediction based on different clinical classification systems.
54.	Prevalence and molecular epidemiology of human papilloma virus in Indian women with cervical cytological abnormalities.
55.	Viral infections in renal transplant patients.
56.	Association of viruses with aplastic anaemia: a hospital based observational study.
Histoplasmosis	
57.	Burden estimation of Histoplasmosis based on serology*, clinical symptoms, histology and culture in Eastern India.
58.	Epidemiology, molecular detection of *Histoplasma* capsulatum DNA in clinical specimens, detection of urinary antigen and culture in patients attending a tertiary care hospital with suspected histoplasmosis.
Candidial infections:	
59.	Epidemiology, molecular characterization and detection of drug resistance in *Candida* auris isolated from invasive blood stream infection.
60.	Speciation and antifungal susceptibility of candidemia in Intensive Care Units settings of a hospital.
61.	Prevalence of candidiasis in immunocompromised patients and associated risk factors.
62.	What are prevalent species of *Candida* in the community among immunocompromised individuals and their drug resistance patterns?
63.	Is colony Polymerase chain reaction useful in decreasing the turnaround time for detection of candida from clinical specimens among patients in the Intensive Care Units?

64.	Detection of azole antifungal drug resistance phenotypes in Aspergillus species isolated from clinical specimens.
Skin infections	
65.	A study on prevalence and antifungal susceptibility pattern of superficial mycosis in a tertiary care Hospital.
66.	Burden of recalcitrant onychomycoses in hospital setting and identifying change in its etiological profile to non-dermatophytic or terbinafine resistant infections.
67.	Epidemiology and clinico mycological profile of chronic dermatophytosis and antifungal susceptibility of clinical isolates.
Other fungal infections	
68.	Identification of environmental sources (indoor and outdoor inhabitations) of mucoralean spores? (Ex. Burning of cow dung cake or industrial oxygen).
PARASITOLOGY	
69.	Speciation and genotyping of *Echinococcus* species isolates in hydatid disease and clinico-demographic correlates.
70.	Genotyping of Cryptosporidium species and clinico-demographic correlates.
71.	Clinical and molecular study of intestinal coccidian parasites in kidney transplant patients.
72.	Molecular characterization of antimalarial drug resistance against *Plasmodium* falciparum.
ANTIMICROBIAL STEWARDSHIP	
73.	Approach to the Implementation of antibiotic stewardship program in a tertiary care hospital.
74.	Epidemiology of patients attending health care facility in a geographical area, empiric antibiotic use and length of hospitalization.
75.	Monitoring diagnostic stewardship - appropriate indication for blood/urine tests, method of collection of sample, timing, volume and site preparation, and review of reports.
MISCELLANEOUS TOPICS	
76.	Comparison of culture suitability and cost-effectiveness between bronchoalveolar lavage and protected specimen brush samples of lower respiratory infection cases.
77.	Evaluation of efficacy of established sepsis biomarkers to predict neonatal sepsis when detected from non-invasive samples like saliva and urine.
78.	To compare different phenotypic methods in evaluation of polymyxin resistance in blood stream infections.
79.	Assessing incidence of Needle stick injury among healthcare workers and correlating with Knowledge, Attitude and Practice analysis and seropositivity of blood borne infections.
80.	Clinical microbiological study of post-surgical infections in orthopaedic trauma patients in a tertiary care institute.

81.	Clinical microbiological study based on culture/Polymerase chain reaction of anaerobic infections from brain abscess patients.
82.	Aetiology and Biofilm Formation of Orthopaedic Implant Infections
83.	To establish basic microbiology laboratory procedures for patients attending the primary health care and minimize the medical expenditure of the patient.
84.	Profiling respiratory pathogens in patients attending a healthcare setting with complaints of lower respiratory tract infections.