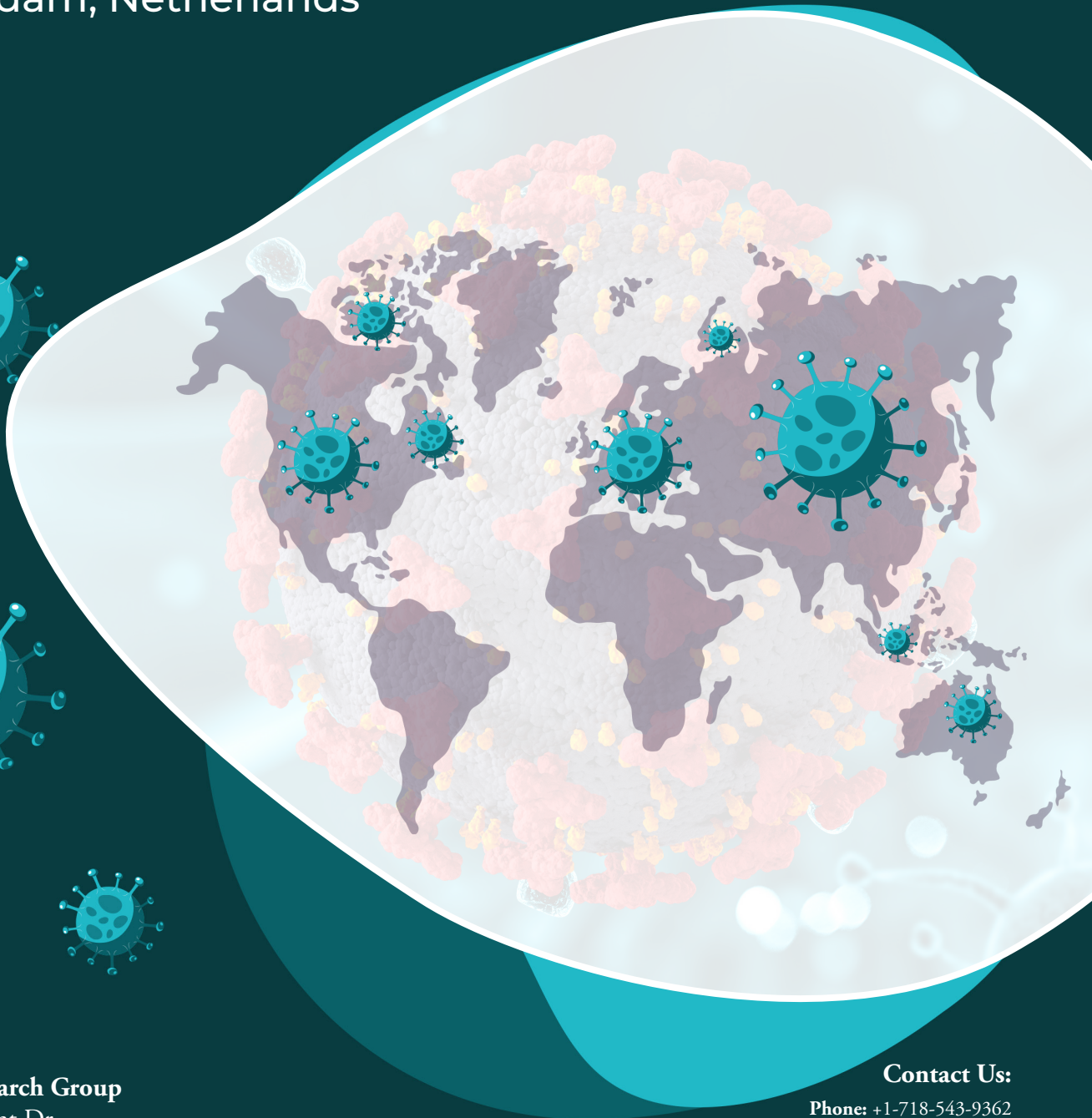


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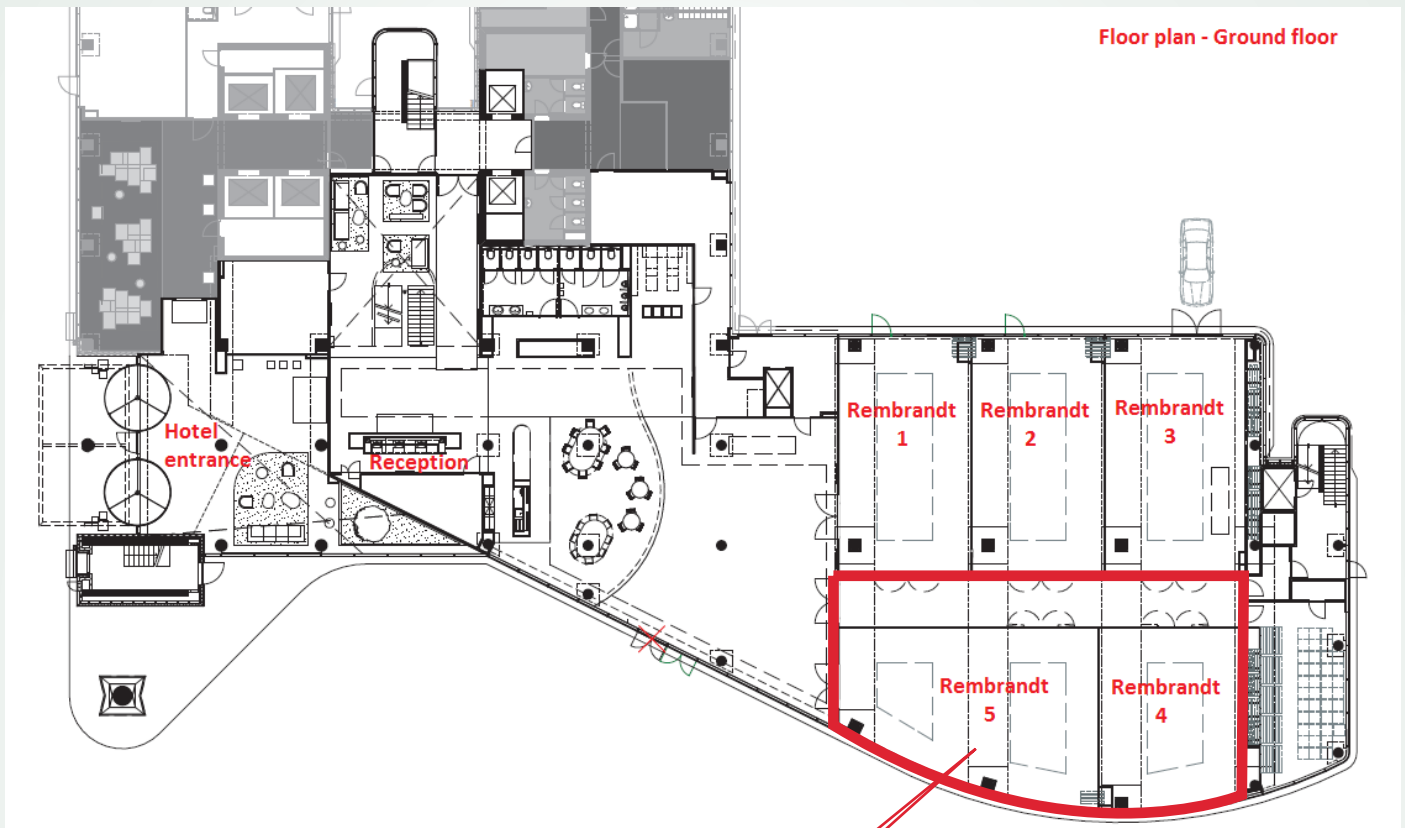
# INFECTIOUS DISEASES

October 03-04, 2024

Holiday Inn Amsterdam – Arena Towers,  
Amsterdam, Netherlands



# *Floor Map*



*Conference Hall*



## *Wi-Fi Details:*

**Username:** Holiday Inn

**Password not required** - Open Wi-Fi

# ***Scientific Program***

6<sup>th</sup> European Congress on

# Infectious Diseases

Day 1 - October 03, 2024

Meeting Hall : Rembrandt 4+5

08:00 - 08:45 Registrations

08:45 - 09:00 Opening Ceremony and Introduction

## Keynote Presentations

09:00 - 09:40 Antiviral Drugs and Viral Resistance at the Time of Pandemics: Current Status and Perspectives

**Jocelyn Yelle, Antiviral InteliStrat, Canada**

09:40 - 10:20 A Methodology for Remote Microwave Sterilization Applicable to the Coronavirus and Other Pathogens using Radio Frequency Signals and Antennas

**Symon Podilchak, The University of Edinburgh, United Kingdom**

Networking & Refreshments: 10:20 - 10:45 @ Pre Function Area

## Oral Presentations

Session Chair **Jocelyn Yelle, Antiviral InteliStrat, Canada**

Session Co-Chair **Othman Jamal Nassrullah, University of Sulaimani, Iraq**

**Sessions:** Emerging Infectious Diseases | Preventive Medicine | Epidemiology | Infectious Diseases Pathology | Corona Virus & SARS-CoV-2 | Infectious Diseases | Bacteriology and Parasitology | Infectious Diseases Case Reports

10.45 - 11.10 Advancing Infectious Disease Diagnosis: Current Practices and Future Potential of Metagenomics in Pathology

**Umberto Maccio, University Hospital of Zurich, Switzerland**

11.10 - 11.35 A Case of Infant Bacteremia Caused by Bordetella Pertussis

**Xueping Zhu, Children's Hospital of Soochow University, China**

11:35 - 12:00 Filling a Gap in Transfusion Medicine Education and Research

**Cees Th. Smit Sibinga, University of Groningen, Netherlands**

12.00 - 12.25 Post-COVID-19 Non-Traumatic Iliopsoas Hematoma: A Case Report

**Mohannad Ali Alghamdi, Imam Abdulrahman bin Faisal University, Saudi Arabia**

12.25 - 12.50 Genotypic Analysis of Klebsiella Pneumoniae among Patients Admitted in Critical Care Settings in a Tertiary Care Center of Bangladesh

**Mahade Hassan, Chattogram Maa O Shishu Hospital Medical College, Bangladesh**

Group Photo: 12.50 - 13.00

Lunch: 13:00 - 14:00 @ Restaurant

14.00 - 14.25 Cardiorespiratory Capacity of Runners and Cyclists in Comparison with the Untrained Population with Regard to Risk Factors Related to the Current Declining Physical Fitness

**Jaroslav Novak, Charles University, Czech Republic**

14.25 - 14.50 Mpox virus review

**Othman Jamal Nassrullah, University of Sulaimani, Iraq**

## 6<sup>th</sup> European Congress on **Infectious Diseases**

14.50 - 15.15 *Suppression of Viral Load by Baicalin in Japanese Encephalitis Virus Infected Embryonated Chick Through Regulation of Multiple Signalling Pathways*  
**Tapti Sengupta, West Bengal State University, India**

15.15 - 15.40 *Recent Prevalence of Microorganism and Emergence of Bacterial Resistance in ICU of a Tertiary Care Hospital of Bangladesh*  
**Montosh Kumar Mondal, Bangbadhu Sheikh Mujib Medical University, Bangladesh**

15.40 - 16.05 *Severe Acute Pancreatitis Complicated by Acute Pulmonary Embolism: A case report*  
**Mohammad Rabiul Halim, Asgar Ali Hospital, Bangladesh**

**Networking & Refreshments: 16:05 - 16:30 @ Pre Function Area**

16:30 - 16:55 *In vivo Biological Validation of in silico Analysis: A Novel Approach for Predicting the Effects of TLR4 Exon 3 Polymorphisms on Brucellosis*  
**Antonio Gentile, University of Naples Federico II, Italy**

16:55 - 17:20 *Comparative Analysis of Helminth Parasites as Bioindicators of Heavy Metal Accumulation in Freshwater Catfish: Clarias batrachus versus Clarias gariepinus*  
**Vikram Satwarao Deshmukh, Yeshwant Mahavidyalaya Nanded (M.S.), India**

### Poster Presentations

IDP-01 *The Evolution on Transmission Dynamic of the SARS-CoV-2 Omicron Variant in Finland from Pandemic to Endemicity*  
**Jiahui Zhu, University of Helsinki, Finland**

IDP-02 *SIR and SIS Epidemic Dynamics on Social Random Net-works*  
**J. Leonel Rocha, CEAUL. DM, ISEL-Engineering Superior Institute of Lisbon, Portugal**

IDP-03 *Clinical Image Report of a Patient with Cerebral Schistosomiasis*  
**Osamah AlAmeen, Hamad Medical Corporation, Qatar**

IDP-04 *Co-Infection of Cytomegalovirus and Epstein-Barr Virus in an Immunocompetent Patient: Case Series and Literature Review*  
**Osamah AlAmeen, Hamad Medical Corporation, Qatar**

IDP-05 *Transmission of Drug-Resistant Mycobacterium tuberculosis Isolates between Finnish- and Foreign-Born Cases 2014-2021: A Molecular Epidemiological Study*  
**Jiahui Zhu, University of Helsinki, Finland**

IDP-06 *Infectious Mononucleosis Complicated by Splenic Infarction*  
**Osamah AlAmeen, Hamad Medical Corporation, Qatar**

**Day-1 Concludes followed by Award Certifications**



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# Infectious Diseases

Day 2 - October 04, 2024

Meeting Hall : Rembrandt 4+5

Keynote Presentations

- 9.00 - 9.40 Clinical Features of 83 Cases of Cerebral Sparganosis  
**Xueqiang Yan, Guangzhou Panyu District No.2 People's Hospital, China**
- 9.40 - 10.20 Exploring the Antimicrobial and Antinematodal Potential of *Chrozophora rottleri* and *Adhatoda zeylanica*: A Phytochemical Approach  
**Vikram Satwarao Deshmukh, Yeshwant Mahavidyalaya Nanded (M.S.), India**

Networking & Refreshments: 10.20 - 10.45 @ Pre Function Area

Oral Presentations

- Session Chair **Jocelyn Yelle, Antiviral InteliStrat, Canada**
- Session Co-Chair **Vikram Satwarao Deshmukh, Yeshwant Mahavidyalaya Nanded (M.S.), India**
- Sessions:** Clinical Infectious Diseases | Emerging Infectious Diseases | HIV, AIDS, STD's & Clinical Research | Infectious Diseases Case Reports | Bacteriology and Parasitology | Infectious Diseases
- 10.45 - 11.10 An Agent-Based Model of Infectious Diseases that Incorporates the Role of Immune Cells and Antibodies  
**Shigeaki Ogibayashi, Chiba Institute of Technology, Japan**
- 11.10 - 11.35 Can Ursodeoxycholic Acid Prevent SARS-CoV-2 Infection or Reduce the COVID-19 Severity? Current Knowledge and Unresolved Issues  
**Fanping Meng, The Fifth Medical Center of Chinese PLA General Hospital, China**
- 11.35 - 12.00 Normal Pressure Hydrocephalus in HIV 1 Infected Patient  
**Oussaima El Dbouni, Aman Hospital, Qatar**
- 12.00 - 12.25 Rare Location of Post-Herpetic Neuralgia - When Infection Turns into Pain  
**Alexandra Soares, USF Receber e Cuidar / ULS Castelo Branco, Portugal**
- 12.25 - 12.50 Status as a Man who has Sex with Men, Sex, and HIV Associate with the Gut Microbiome in Chennai, India  
**Siva Subramaniyan Gnanaskandan, Sri Ramachandra University, India**

Lunch: 12.50 - 14:00 @ Restaurant

- 14.00 - 14.25 Brucellosis and the One Health Approach: A Re-Emerging Overlooked Zoonotic Threat Infectious Disease  
**Nahla Omer Eltai, Qatar University, Qatar**
- 14.00 - 14.50 Epidemiological Situation of Cutaneous Leishmaniasis in Morocco  
**Fatima Zahrae El Bakri, University Ibn Tofail, Morocco**
- 14.50 - 15.15 A Pilot Study on Pathogenic Multi-Drug Resistant Non-Tuberculous Mycobacteria Isolated from Household Waste Waters and Nosocomial Environments of Kolkata: Looming Threat to SDG Directives  
**Tapti Sengupta, West Bengal State University, India**

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# Infectious Diseases

15.15 - 15.40 Vitamin D in Athletic Performance Reflection on the Relationship between Vitamin D Saturation and Immune Abilities

**Jaroslav Novak, Charles University, Czech Republic**

15.40 - 16.05 Phage-Mediated Lipid A Modification as a Tool for LPS-Based Conjugate Vaccines: A Lesson from Salmonella rissen

**Paola Cuomo, University of Naples Federico II, Italy**

Networking & Refreshments: 16:05 - 16:30 @ Pre Function Area

E-Poster Presentations

IDEP01 Trends of Infective Endocarditis in Pregnancy

**Karolina Viquez, IU Health Ball Memorial, USA**

IDEP02 Impact of Extensively Drug-Resistant NDM-Producing Klebsiella Pneumoniae on the Healthcare System: An Overview from a Tertiary Hospital in United Arab Emirates (UAE)

**Ahmad Subhi, Al-Qassimi Hospital, United Arab Emirates**

Day-2 Concludes followed by Award Certifications and Vote of Thanks

# ***Virtual Program***



6<sup>th</sup> European Congress on**Infectious Diseases**

Virtual Program (British Summer Time Zone)

Day-1 | October 03, 2024

10:45 - 11:00 Introduction

## Oral Presentations

11:00 - 11:25	Combined Therapeutic Plasma Exchange and Continuous Renal Replacement Therapy in Children with Dengue-Associated Acute Liver Failure and Shock Syndrome <b>Thanh Nguyen Tat, Woolcock Institute of Medical Research, Vietnam</b>
11:25 - 11:50	An Open Observational Non-Interventional Multicenter Study of the Effect on Quality of Life of Kagocel when used in Patients with Acute Respiratory Viral Infections in Routine clinical Practice in the Republic of Kazakhstan (ARMAN-2024) <b>Bakhyt Kosherova, Medical University of Astana, Kazakhstan</b>
11:50 - 12:15	Antimicrobial, Anticancer, and Antioxidant Activities of Maize and Clover Pollen Grains Extracts: A Comparative Study with Phytochemical Characterizations <b>Heba Barnawi, University of Hail, Saudi Arabia</b>
12:15 - 12:40	Clinical Characteristics and Risk Factors for COVID-19 Deaths in West Bank <b>Duha Hamamdeh, Al-Quds University, Palestine</b>
12:40 - 13:05	Detection of Borrelia burgdorferi in off-season Questing Ticks: Lyme-Carrying Ticks Live Longer and Spread Farther <b>Alessandra Mistral De Pascali, The Greater Romagna Area Hub Laboratory, Italy</b>
13:05 - 13:30	Knowledge and Attitudes Towards HIV in Latin American Students. An Exploratory Review <b>Carola Montecino Bacigalupo, University of the Americas, Chile</b>
13:30 - 14:00	COVID-19 and Influenza Co-Infection among Tb Patients under Treatment in Selected Chest Clinics in the Post-Pandemic Ambience <b>Alexander Martin-Odoom, University of Ghana, Ghana</b>
14:00 - 14:30	A New Approach to Eliminating Viruses <b>Vladimir Zajac, Formerly scientist at the Cancer Research Institute, Slovakia</b>
14:30 - 15:00	Detection of Mycobacteria in Children's Stool Samples Using Multiplex PCR in Bamako, Mali <b>Mohamed Sinaba, University of Science of Technical and Technology of Bamako, Mali</b>



***Day-1***  
***Keynote Presentations***

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## ANTIVIRAL DRUGS AND VIRAL RESISTANCE AT THE TIME OF PANDEMICS: CURRENT STATUS AND PERSPECTIVES

**Jocelyn Yelle**

*Antiviral InteliStrat, Canada*

### Abstract

The extraordinary success of antibiotics to treat microbial infections has been tarnished in recent years by the development of resistance to virtually each of these compounds. The need for new antibiotic molecules to maintain control of pathogens has become an urgent but often neglected priority. In parallel, sadly, a similar situation has developed in the fight against viral infections. Resistance to antiviral drugs has been observed with Herpes, Influenza, HIV, Hepatitis B, Hepatitis C (HCV) and Corona viruses, among others. HIV resistance to antiretroviral drugs targeting the viral reverse transcriptase, protease and integrase enzymes has been well documented and still represents, more than 40 years after the discovery of the virus, a formidable challenge to health providers. More recently, new antiviral drugs and antibodies were developed to help control the SARS-CoV-2 Coronavirus responsible for COVID-19. They have faced the same resistance issue: while enzyme inhibitors such as Paxlovid, Molnupiravir, Emseltrovir and Xiannuoxin are still being prescribed, most monoclonal antibodies initially approved against the SARS-CoV-2 virus, including Evusheld, Bamlanivimab, Etesevimab and Bebtelovimab have seen their respective Emergency Use Authorizations revoked due to loss of neutralizing activity against viral variants. The resistance problem is further amplified by the high probability of a new viral pandemic in the next few years or decades. As of today, our arsenal of antiviral drugs (about 150 compounds, mostly designed for HIV and HCV) is clearly insufficient and the number of viral targets must be expanded in order to protect our populations. This presentation will compare and summarize the various mechanisms of drug resistance used by different virus families to evade inactivation with a view on new viral targets and molecules in development to better control this growing problem.

### Biography

Jocelyn Yelle, M.Sc., Ph.D., is a virologist specializing in Retroviruses and Herpesviruses, with a marked interest in antiviral drug discovery. Born in a small town near Montreal, Canada, he holds an M.Sc. and a Ph.D. degree in Virology from the Armand-Frappier Institute, a Montreal-based research center modeled on the Pasteur Institute in Paris. During his M.Sc. studies, he investigated the role of endogenous Retroviruses in cell transformation in animal models, while his Ph.D. thesis focused on the ability of certain DNA sequences of human cytomegalovirus to immortalize and transform normal cells into cancer cells. As a postdoctoral fellow at the Clinical Research Institute of Montreal, he explored the ability of tumor suppressor genes to reverse the cancer state in cell culture. He launched his academic career in the early 1990s, investigating HIV's ability to establish persistent infections in human cell cultures. He then started collaborating with a chemist colleague, mounting a comprehensive, multidisciplinary research program focusing on small molecules as potential drugs for HIV/AIDS treatment. With his colleague, he later launched Pharmacor Inc., a small biopharmaceutical company, to pursue the same goals. Some of these molecules were eventually acquired by Merck & Co. for further development. He is the Founder and President of Antiviral InteliStrat Inc., a consultancy firm that provides scientific advice, analyses of research projects, and counseling, locally and abroad, to biotech/pharma industries and hospital-based organizations. The firm also owns a proprietary database that contains scientific information on antiviral drugs and vaccines, which can be accessed online upon subscription. During his career, he has authored or co-authored over 34 peer-reviewed scientific publications and presented his research and results to national and international scientific meetings. His name also appears on 8 U.S. patents related to experimental drugs for HIV/AIDS. In recent years, Dr. Yelle worked for a 6-month period as senior Consultant for the Global Vaccines Clinical Laboratories vaccine division of GlaxoSmithKline Biologicals (GSK) in Belgium to identify issues affecting optimal day-to-day operations at the GSK sites of Rixensart and Wavre. He also provided his virology expertise as External Reviewer for the Infectious Diseases grant program offered at the King Abdulaziz City for Science and Technology (KACST), Kingdom of Saudi Arabia.

# INFECTIOUS DISEASES

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## A METHODOLOGY FOR REMOTE MICROWAVE STERILIZATION APPLICABLE TO THE CORONAVIRUS AND OTHER PATHOGENS USING RADIO FREQUENCY SIGNALS AND ANTENNAS

**Symon K. Podilchak**

*University of Edinburgh, United Kingdom*

### Abstract

The presentation will report on recent developments which have looked at using electromagnetic and radio frequency (RF) concepts to kill the coronavirus and other pathogens. Basically, the aims of the research work have been to develop a safe, rapid, remote, and automatic sterilization technique for ambulances and other medical assets using antennas. The developed methodology has been shown experimentally to neutralize the coronavirus in a laboratory setting, and the talk will review these fundamental and scientific concepts for a wider audience. The methodology and the fundamental scientific concepts have been reported in a peer-reviewed IEEE journal. The technique also requires a thin liquid layer for pathogen denaturing, and this layer can have a color change indicator for operational visualization. The principal motivation for the research is to reduce the time it takes to disinfect an ambulance, currently from about 45 minutes to less than 5 minutes. This has obvious benefits for the health care sector in those ambulances, could be cleaned automatically requiring no physical human interaction. The technology, once fully matured, has applications in the sanitization of other pathogens, not just the coronavirus, and can be useful for restaurants, care homes, trains, planes, and educational settings.

### Biography

Symon K. Podilchak received the B.A.Sc. degree in Engineering Science from the University of Toronto, in 2005, and the M.A.Sc. and Ph.D. degrees in Electrical Engineering from Queen's University, Kingston, Canada, in 2008 and 2013, respectively. From 2013 to 2015, he was an Assistant Professor with Queen's University. In 2015, he joined Heriot-Watt University, Edinburgh UK, as an Assistant Professor, and became an Associate Professor in 2017. He then joined The University of Edinburgh, as a Senior Lecturer with the School of Engineering in 2019. His research interests include antennas, RF/microwave circuits, and wireless power transmission, as well as, the applications of these topics to the health, safety and sustainability of humanity





***Day-1***  
***Oral Presentations***

# INFECTIOUS DISEASES

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## ADVANCING INFECTIOUS DISEASE DIAGNOSIS: CURRENT PRACTICES AND FUTURE POTENTIAL OF METAGENOMICS IN PATHOLOGY

### Umberto Maccio

University Hospital of Zurich, Switzerland

### Abstract

**Background:** Pathologists frequently diagnose infectious diseases in their work. Therefore, it is crucial for infectious disease specialists to be familiar with current practices in anatomical pathology laboratories, including the potential and limitations of various techniques, to ensure the best diagnosis for patients.

**Objective:** To present a case-based review of current practices for diagnosing infectious disorders in a pathology laboratory and to discuss upcoming techniques.

**Methods:** The advantages and limitations of the following analyses are discussed and compared: conventional microscopic analysis, special stains (Brown-Brenn, Grocott, Ziehl-Neelsen), immunohistochemistry, and PCR-based molecular analysis. Additionally, the potential and challenges of implementing metagenomics are discussed.

**Results:** Conventional Microscopic Analysis: Hematoxylin-eosin staining can suggest infectious pathology through specific cellular alterations (e.g., HSV, CMV, Adenovirus, or Measles) or characteristic inflammation patterns (e.g., necrotizing granulomatous inflammation associated with Mycobacterial infection). In some cases, pathogens are directly identified (e.g., *Giardia lamblia*).

**Special Stains:** Techniques like Brown-Brenn or Ziehl-Neelsen can increase diagnostic sensitivity but do not provide definitive identification of the etiological agent.

**Immunohistochemistry and Molecular Analysis:** Morphological suspicions can be confirmed through targeted immunohistochemical analysis (e.g., for HHV8), in situ hybridization (e.g., EBER for EBV), or PCR on paraffin-embedded material using specific primers based on pathological suspicions.

**Advanced Analyses:** These include specific PCR panels for clinical presentations (e.g., respiratory infection panels), targeted or untargeted metagenomics analysis.

**Conclusion:** Pathology plays a critical role in diagnosing infectious diseases. The advent of metagenomics offers significant potential to meet clinical and research needs, although its implementation is still forthcoming.

### Biography

Umberto Maccio is board certified in Surgical and Molecular Pathology and works as attending physician at the University Hospital of Zurich in Switzerland, affiliated with the University of Zurich, where he is lecturer in pathology. He graduated summa cum laude from Medical School at the University of Turin in Italy, and completed his residency in Pathology and the fellowship in Molecular Pathology at the University Hospital of Zurich, where he served also as chief resident. After the residency, he completed the Master of Science in Omics Data Analysis at the University of Padua, Italy. His main diagnostic and research focuses are autopsies, breast and molecular pathology.

## A CASE OF INFANT BACTEREMIA CAUSED BY BORDETELLA PERTUSSIS

**Xueping Zhu**

*Children's Hospital of Soochow University, China*

### Abstract

*Bordetella pertussis* is a gram-negative coccobacillus that primarily causes respiratory tract infections, with haematogenous infections being uncommon and primarily observed in adults with a history of immunodeficiency or immunosuppressive drug use. Such infections have not been documented in infants. This article presents a case study of a 3-month-old infant diagnosed with pertussis bacteraemia. The infant initially presented with symptoms including paroxysmal spasmodic cough, fever, irritability, moaning, poor appetite, cyanosis, respiratory distress, and other severe infections. The infant was hospitalized with a diagnosis of “severe pneumonia” and received symptomatic treatments including anti-infection and respiratory support. However, the infant’s symptoms did not demonstrate significant improvement. Further optimization of metagenomics next-generation sequencing (mNGS) testing on peripheral blood and alveolar lavage fluid resulted in a definitive diagnosis of severe pertussis and pertussis bacteraemia. Effective treatment with anti-*Bacillus pertussis* was successful. In cases of severe pertussis with sepsis-related symptoms in children, vigilance for *B. pertussis* bacteraemia should be maintained even if blood cultures are negative. Early diagnosis with mNGS can facilitate precise anti-infective therapy and improve outcomes in these patients.

### Biography

Xueping Zhu has a long history of research and clinical work in various specialties of paediatrics. She has conducted several basic and clinical studies on early life infectious diseases, with a special focus on early life sepsis and its aetiology. She is concerned about the immediate and long-term prognosis of these children. The child is of concern because of his rare pertussis bacteraemia, which is difficult to detect by blood culture because *Mycobacterium pertussis* is usually confined to respiratory tract infections and has a long culture period. Therefore, it is important to improve mNGS in children with suspected pertussis bacteraemia

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# INFECTIOUS DISEASES

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## FILLING A GAP IN TRANSFUSION MEDICINE EDUCATION AND RESEARCH

**Cees Th. Smit Sibinga**

*University of Groningen, Netherlands*

### Abstract

After the outbreak of the HIA/AIDS epidemic in the early 1980s, attention was focused on the restructuring and reorganization of nationally supported safe and sustainable blood systems. Networking and human capacity building in transfusion medicine were developed through World Health Organization (WHO) initiatives. Educational materials like Aide Mémoires and distance learning materials (DLM, paper and digital) were created for the primary functions of the vein-vein blood transfusion chain. However, the management, legislative and governance aspects as well as the applied health science research in transfusion medicine were not addressed. In 2000 WHO initiated the creation of an Academic Institute for International Development of Transfusion Medicine at the Faculty of Medical Sciences of the University of Groningen in the Netherlands. The Institute would focus on the development of a postgraduate Master course in management of transfusion medicine and the development of research programs for transfusion medicine related health sciences. To implement the academic postgraduate educational and scientific program into the blood supply practice an International Quality Management (IQM) development organization was created focused on quality management, governance, legal frameworks and organizational structures, functioning as a non profit consulting service and actively guiding applied health science research in transfusion medicine.

### Biography

Cees Th. Smit Sibinga is a University of Groningen graduate (1965), clinical haematologist (1971), PhD University of Groningen (1972) and specialist of Transfusion Medicine (1975); FRCP Transfusion Medicine Edinburgh 1992, FRCPath Transfusion Medicine London 1995. He is special professor of International Development of Transfusion Medicine at the University Medical Centre Groningen and University of Groningen. He has been involved in the development of Transfusion Medicine and quality systems and management for economically restricted (poor economics) countries since 1980 through his work with the World Health Organization (WHO), the World Federation of Haemophilia (WFH) and the International Consortium for Blood Safety (ICBS). Cees Th. Smit Sibinga is the former Medical Director and founder of the Dutch Regional Blood Bank in Groningen (1976, northern part of the Netherlands), IQM Consulting for International Development of Quality Management in Transfusion Medicine (2001), the Dutch Sanquin Consulting Services and the Academic Institute for International Development of Transfusion Medicine in Groningen (2001), and the AABB Consulting Services Division, Bethesda, MD, USA (2002), all non-for-profit. For 28 years he has served as the Managing Director of Sanquin Division Blood Bank Noord Nederland in Groningen, the Netherlands (1976-2004). Since 1993 his Blood Bank did incorporate the WHO Collaborating Centre for Blood Transfusion and the WFH International Hemophilia Training Centre (cryoprecipitate) in Groningen. In 2001 the Blood Bank became the first Collaborating Centre of the International Consortium for Blood Safety (ICBS). When he left in 2004, these functions were no longer continued.



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## POST-COVID-19 NON-TRAUMATIC ILIOPSOAS HEMATOMA: A CASEQ1 REPORT

**Mohannad Ali Alghamdi**

*Imam Abdulrahman Bin Faisal University, Saudi Arabia*

### Abstract

**Background:** Critically ill COVID-19 patients have an elevated risk of experiencing hypercoagulable conditions. Currently, many COVID-19 patients have been administered anticoagulation or antiplatelet therapies to lower the risk of systematic thrombosis. Iliopsoas hematoma is a potentially fatal and rare complication of bleeding disorders or anticoagulation therapy which sometimes grows to become clinically significant. The main purpose of this case review is to emphasize the importance of diagnosing iliopsoas hematomas and the possibility of antiplatelet contribution to its development.

**Case Presentation:** We are reporting a rare presentation of non-traumatic iliopsoas hematoma in a non-anti-coagulated patient. The patient is a 59-year-old male, with known type-2 diabetes, on oral hypoglycemic medications, 3-weeks post-COVID-19. He had started aspirin 81 mg orally, once daily, to prevent thrombotic events associated with COVID 19 infection, with no anticoagulant use and no other medications. He came in through the ED, presenting with two weeks history of progressive right lower limb weakness in which an iliopsoas hematoma diagnosis was confirmed based on radiological investigation.

**Conclusion:** The possibility of iliopsoas hematoma should be considered in non-anticoagulated patients with noninherited or acquired coagulation disorders presenting with limb weakness. The link between antiplatelet use in a COVID-19 patient and the development of soft tissue bleeding (e.g., iliopsoas hematoma) must be studied further.

## GENOTYPIC ANALYSIS OF *KLEBSIELLA PNEUMONIAE* AMONG PATIENTS ADMITTED IN CRITICAL CARE SETTINGS IN A TERTIARY CARE CENTER OF BANGLADESH

**Md. Mahade Hassan**

*Chattogram Maa O Shishu Hospital Medical College, Bangladesh*

### Abstract

**Introduction:** Worldwide, infections continue to be one of the leading causes of mortality associated with intensive care units. In critically ill patients, respiratory infections, particularly ventilation-associated pneumonia (VAP) and community-acquired pneumonia (CAP), are prevalent and can be life-threatening. which is largely associated with *Klebsiella pneumoniae*, a multidrug-resistant organism. The species typically infects humans by integrating into the human gastrointestinal microbiota, although it also colonizes the respiratory tract. The high rate of acute infection is a direct result of the organism's extensive virulence spectrum, which is explicitly attributed to the plasmid-associated gene. Additionally, the bacteria's polysaccharide vesicles enable it to significantly evade the immune system. Furthermore, the organism swiftly acquires the extended-spectrum beta lactamase or carbapenemase gene, which results in resistance to third-generation cephalosporin or carbapenem. This significantly reduces the treatment options. In addition, there is a growing number of strains that are reported to produce carbapenemases of functional class A (KPC), class B (NDM), and class D (OXA-48), as well as co-producing more than one type of carbapenemas. Wyres et al. have demonstrated that antibiotic resistance is linked to specific genetic determinants for distinct genetic lineages of the organism. By comprehending the resistance pattern, it is possible to prevent the development of additional resistance.

**Objective:** The presence of *Klebsiella pneumoniae* in intensive care units (ICUs) substantially contributes to mortality. To effectively manage infections and prevent complications, it is essential to possess a comprehensive understanding of the regional antibiotic resistance pattern. The objective of this research was to ascertain the resistance pattern and genotypic composition of a *Klebsiella pneumoniae* sample towards frequently prescribed antibiotics.

**Methods and Materials:** A cross-sectional study was conducted at the Chittagong Ma-O-Shishu Hospital, Chattogram. Tracheal aspirates were collected from intubated ICU patients. 50 patients were selected whose inoculation culture contained isolated *Klebsiella pneumoniae* growth, and their susceptibility to antibiotics was evaluated. PCR was utilized to determine the genotype of samples, specifically KPC, OXA-48, NDM, qnrB, aadB, and sul-2 genes. Data was visualized using SPSS V25 and Microsoft Excel.

**Result:** The majority of frequently prescribed antibiotics exhibited substantial resistance. The minimum resistance observed was 1.2% towards colistin whereas all samples were resistant to ampicillin, cefotaxime and cefuroxime. Among genotype, aadB genes were present in every sample, with NDM having the fewest number of resistant enzyme-producing genes (37.74%). Samples that contained the resistant gene exhibited a considerably greater frequency of resistance. A considerable rate of mortality was noted, as an estimated 44% of the patients succumbed to their infection while in the hospital.

**Conclusion:** The study emphasizes the high mortality rate and significant antibiotic resistance pattern in critically ill patients in Bangladesh. It is imperative to exercise antibiotic stewardship in order to prevent the emergence of additional resistance.



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## Biography

I am distinguished internal medicine and intensive care physician with over 13 years of experience in Bangladesh and Singapore. I hold MBBS from Chittagong University, an MRCP from the Royal College of Physicians, UK, and an FRCP from Edinburgh, UK. Currently I am working as an Associate Professor and In-Charge of ICU and acute medicine unit at Chattogram Maa O Shishu Medical College Hospital, I am recognized for expertise in managing critical care units and my proficiency in advanced medical procedures such as mechanical ventilation, bed side Ultra sonogram, Echocardiogram and advance hemodynamic monitoring. I have received numerous accolades, including the Best Consultant Award during the COVID-19 era, and is certified in Basic (BLS) and Advanced Life Support (ACLS) by both the American Heart Association and the Singapore Resuscitation Council. I am also a dedicated researcher with multiple international publications on critical topics, including antibiotic resistance and COVID-19 treatment. My commitment to medical excellence and patient care is reflected in extensive training and professional achievements. Aspiring to build an international-quality critical care unit, my aims are to work in renowned medical institutions to further advance the field of critical care medicine.

# INFECTIOUS DISEASES

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## CARDIORESPIRATORY CAPACITY OF RUNNERS AND CYCLISTS IN COMPARISON WITH THE UNTRAINED POPULATION WITH REGARD TO RISK FACTORS RELATED TO THE CURRENT DECLINING PHYSICAL FITNESS

**Jaroslav Novak**

*Charles University, Czech Republic*

### Abstract

Physical activity plays a crucial role in preventing various illnesses. It helps to reduce the risk of major health issues such as heart disease, stroke, type 2 diabetes, and certain cancers and also contributes to better mental health. In addition to these benefits, staying active helps maintain a healthy weight, strengthens bones and muscles, and enhances brain health. Last but not least exercise makes the immune system function better. Physical activity helps our body trigger the right amount of immune response to effectively shut down the infection. A number of studies have shown that serious inflammatory responses to COVID-19 that caused hospitalization and death were least likely to be found among those who were physically active. Physical activity also makes our body react efficiently to vaccines. For untrained individuals with sedentary lifestyles, it is important to assess current level of fitness before starting regular training. Evaluating initial fitness level can help establish attainable fitness goals. Determination of dynamic models of physiological parameters is fundamental for training methodology not only for the effective training process of competitive athletes, but also for safe, professionally led training for leisure time athletes. Optimization of free model parameters could be used as important information about the health condition of the subject with special reference to the cardiorespiratory capacity and fitness age. While the fitness parameters of racing cyclists and runners can reach up to twice the level of norms of the averagely fit healthy untrained population, for a significant part of the population due to a sedentary lifestyle these parameters are below average. However, the idea that “the more physical activity, the better” does not apply. Even in high-performance athletes, extremely demanding sports performance, or a condition referred to as “overtraining”, can weaken immune abilities. Such conditions can decrease cellular immunity and increase susceptibility to infection. When using pharmaceuticals referred to as immunomodulators, whether they are immunostimulants or immunosuppressants, the list of doping substances prohibited by the World Anti-Doping Agency (WADA) must be respected for athletes.

### Biography

Jaroslav Novák, M.D., Ph.D. was born in 14. 8. 1941 in Pilsen. In 1964 he graduated from the Faculty of Medicine of Charles University in Pilsen. In 1973 he completed a three-year coaching school at the Faculty of Physical Education and Sport at Charles University in Prague. Since graduation, he has been involved in sports medicine, mainly as an assistant professor at the Department of Sports Medicine at the Faculty of Medicine of Charles University in Pilsen. He has published about 500 professional and scientific papers, of which more than a hundred in foreign journals. He has lectured at dozens of congresses in Europe and overseas. In 2015 he defended his dissertation “Cardiorespiratory Fitness of the Sporting Population”. As a doctor and coach, he worked for many years with national water polo teams. To this day, he is still active in sports in the “masters” categories. He and his wife Helena have three adult children and five grandchildren.

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## MPOX VIRUS REVIEW

**Othman Jamal Nassrullah**

*University of Sulaimani, Iraq*

### Abstract

A review of Mpox highlights its growing significance as a global health concern, particularly in the context of emerging infectious diseases. Initially identified in 1958 among laboratory monkeys, Mpox was later confirmed in humans in 1970 in the Democratic Republic of the Congo. Historically confined to Central and West Africa, the virus has shown a concerning ability to spread beyond these regions, with outbreaks reported in Europe, the Americas, and Asia in recent years. The Mpox virus belongs to the Orthopoxvirus genus, the same group that includes the smallpox virus. It is less virulent than smallpox but can still cause severe illness, particularly in children, pregnant women, and immunocompromised individuals. The clinical presentation typically involves fever, headache, muscle aches, and a distinctive rash that progresses from macules to papules, vesicles, pustules, and finally scabs. Transmission occurs primarily through close contact with infected animals or humans. Human-to-human transmission can happen through respiratory droplets, direct contact with body fluids or lesions, and, less commonly, via contaminated objects. The recent global spread has been linked to increased international travel, human encroachment on wildlife habitats, and possibly changes in the virus itself, though more research is needed to confirm this. The response to Mpox has included the use of smallpox vaccines, which offer some cross-protection due to the genetic similarities between the two viruses. Additionally, newer vaccines specifically targeting Mpox have been developed, and antiviral treatments are being explored to manage severe cases. One of the main challenges in controlling Mpox is the lack of widespread awareness and preparedness in non-endemic regions. Public health measures such as early detection, isolation of cases, contact tracing, and vaccination are crucial to prevent large outbreaks. However, the stigma associated with the disease and misinformation can hinder these efforts. In summary, Mpox is a re-emerging zoonotic disease with the potential for significant public health impact, especially as it spreads to new regions. Continued surveillance, research, and public health preparedness are essential to manage and mitigate the risks associated with this virus. As the world becomes more interconnected, the importance of global cooperation in addressing such diseases cannot be overstated.

### Biography

The team leader of the vaccination campaign team of animals with D.C Holland organization (NGO) for 7 months period (2001). Training course of veterinary medicine knowledge with Holland organization (DC) for 2-week period. The team leader of the vaccination treatment team of the Food & Agriculture Organization (FAO) for 5-year period. Training course in laboratory diagnosis with FAO for 3 months period. Head of veterinary laboratory diagnosis for 2-year period supervised by FAO. The team leader of the surveillance team of infectious disease with FAO for 6 months period. Lecturer in Kalar technical institute, veterinary department for 3 years. Manager of the private veterinary clinic for 6 years Head & teacher in the veterinary department in a secondary agriculture school. Head of teaching quality assurance of veterinary medicine college 4 years Member of the college council as representative faculties 2 years



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## SUPPRESSION OF VIRAL LOAD BY BAICALIN IN JAPANESE ENCEPHALITIS VIRUS INFECTED EMBRYONATED CHICK THROUGH REGULATION OF MULTIPLE SIGNALLING PATHWAYS

**Tapti Sengupta**

*West Bengal State University, India*

### Abstract

Suitable recognition of invasive microorganisms is a crucial factor for evoking a strong immune response that can combat the pathogen. Toll-like receptors (TLRs) play a pivotal role in the induction of this innate immune response through stimulation of interferons (IFNs) that control viral replication in the host via distinct signalling pathways. Though the antiviral property of *Scutellaria baicalensis* (Chinese skullcap) has been established, yet the role of its active component baicalinin modulating various factors of the innate immune branch has not been investigated until date. Thus, the present study was conducted to assess the antiviral effects of baicalin and its immunomodulatory role against Japanese encephalitis virus (JEV) infections in embryonated chick. Pre-treatment with baicalin showed a significant decrease in the viral loads of chorioallantoic membrane (CAM) and brain tissues. Molecular docking analysis revealed that baicalin binds to the active site of non-structural protein 5 (NS5) that has enzymatic activities required for replication of JEV, making it a highly promising chemical compound against the virus. The binding contributions of different amino acid residues at or near the active site suggest a potential binding of this compound. Pre-treatment with the baicalin showed significant upregulation of different TLRs like TLR3, TLR7, and TLR8, interleukins like IL-4, and IL-10, as well as IFNs and their regulatory factors. However, virus-infected tissues (direct infection group) exhibited higher TLR4 expression as compared to baicalin pre-treated, virus-infected tissues (medicine pre-treated group). These results indicate that baicalin contributes much to launch antiviral effects by remoulding the TLR and IFN signalling pathways that are involved in sensing and initiating the much-needed anti-JEV responses.

### Biography

Tapti Sengupta Associate Professor and HOD in the Department of Microbiology at West Bengal State University, 24 Pgs North, Kolkata, West Bengal, India. Tapti Sengupta B.F.Sc (gold Medalist), Master of Fishery Science in Pathology and Microbiology (Gold Medalist), Ph.D., National Eligibility Test (NET Qualified), MBA in Strategy, PG in Human Rights (IIHR, New Delhi: Gold Medalist). My Mission is Nurturing, Mentoring and Motivating young minds towards research and education to work for a healthy and sustainable environment. I am currently working as an Associate Professor and HOD in the Department of Microbiology at West Bengal State University, 24 Pgs North, Kolkata, West Bengal, India, and have been in teaching and research since, 2005 (18+ years). Being a single child of my parents, I started my convent schooling from a small town, Ranchi, Jharkhand. I further pursued my higher studies from Kolkata, West Bengal, India. Adjusting in a metro City was a bit difficult and I craved for the greens and hills of my birthplace. This gave me the impetus to work for Climate change, environment and one health platform, strongly speaking against the use of over-the-counter drugs, Global spread of Anti-Microbial Resistance (AMR), and to work on zoonotic diseases and highlight the importance for green auditing and green supply chain and Bioremediation. I have about 15 book chapters in Springer and Elsevier and more than 50 Publications. I have attended various International and National Conferences. I received the Young Scientist Award in 2019 and International Distinguished Faculty In Microbiology Award in 2023. My career started as a Fisheries Professional focusing on aquatic animal pathogens, Multi Drug Resistance (MDR) in environmental and nosocomial microbes especially NTMs, along with understanding their mode of transmission in MDR and XDR strains and Phytoremediation for Upper Pulmonary Tract Infections. I started the pilot project on Non Tuberculous Mycobacteria in West Bengal, associated with Tuberculosis infections, which was funded by Department of Science and Technology and Biotechnology, Government of India and West Bengal and Collaborative projects funded by Indian Council of Agricultural Research (ICAR), New Delhi, and have worked in various districts of West Bengal and the Ganga river pollution monitoring system throughout India to study the effects of Global Warming. I have tried to convince farmers to report their health issues so that a proper drug regimen can be built to prevent overuse of drugs and in turn Drug Resistance in environment. I am currently working on carbon sequestration, environmental modelling, bioremediation and environmental biotechnology. India has a rich history of medicinal plants and harvesting this knowledge and their

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potential for the greater benefit, is my goal. I have travelled to places to gather knowledge and data on ethnomedicinal plants and am working on the documentation, which is lacking in our country. I am an avid researcher and have been guiding Masters' and Ph.D. scholars who are also working on related fields and are well placed worldwide. Being a National Service Scheme (NSS) Program Officer of WBSU since 2010, we have Adopted Villages where regular survey and camps are organised to spread awareness on Thalassemia, AIDS, Covid -19 protocols and a green and safe environment. I have completed my Basic Mountaineering course from ABVIMAS, Manali, Himachal Pradesh, India and also rock climbing and enjoy Himalayan expeditions. I am a solo traveller, a trekker, an explorer and I try to interact with localists and spread awareness in the High-Altitude villages for upgrading life and ecosystem. I try to mentor and inculcate in young minds the need for proper mental health, women education, hygiene, to be first generation learners, and put emphasis on soft skills and cultivate passion in them for entrepreneurship, by exploring Indigenous Technology Knowledge. I humbly thank the organizers for conducting a wonderful conference and giving me an opportunity to present my work.

## RECENT PREVALENCE OF MICROORGANISM AND EMERGENCE OF BACTERIAL RESISTANCE IN ICU OF A TERTIARY CARE HOSPITAL OF BANGLADESH

**Montosh Kumar Mondal**

*Analgesia and Intensive Care Medicine, Bangladesh*

### Abstract

**Background:** Antibiotic resistant bacterial nosocomial infections are a leading problem in intensive care units (ICU).

**Objective:** To study the pattern of microorganism and bacterial resistant to antibiotic in the ICU of Bangabandhu Sheikh Mujib Medical University of Bangladesh.

**Methods:** This study was conducted in ICU of Bangabandhu Sheikh Mujib Medical University of Bangladesh from July 2023 to June 2024. Total number of samples were 563. The samples of tracheal aspirate, blood and urine for culture and sensitivity was collected from the patients admitted in ICU. All bacteria were identified by standard microbiological methods and their antibiotic sensitivity was performed using disk diffusion method and automated microbial identification system with MIC.

**Results:** Total number of samples were 563. Samples of tracheal aspirate was 201, positive culture 161(80.10%), most frequent identified organism was Acinetobacter 39.45% followed by Pseudomonas 31.06 %, Klebsiella 18.01%, Proteus 7.45%, E. Coli 1.86%, Enterococcus 0.62%, Staphylococcus 0.62% and Streptococcus 0.62%. Samples of blood culture was 180, positive culture was 31(17.2%), most frequent identified organism was Pseudomonas 48.39%, followed by Acinetobacter 19.35%, Staphylococcus haemolyticus 16.13%, *E. Coli* 6.45%, Salmonella 6.45% and Klebsiella 3.23%. Samples of urine culture was 182, positive culture was 66(36.26%), most frequent identified organism was Pseudomonas 21.21%, followed by Enterococcus 15.15%, Acinetobacter 13.64%, Candida 12.12%, *E. Coli* 7.58%, Proteus 6.06% and 6.45% and Streptococcus 6.06% .

**Conclusion:** From this study we concluded that most common site of infection was respiratory tract and most prevailing organism was Acinetobacter and Pseudomonas and antibiotic-resistant infection is increasing and at present around 8.4% organisms were resistant to all antibiotics.



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## SEVERE ACUTE PANCREATITIS COMPLICATED BY ACUTE PULMONARY EMBOLISM: A CASE REPORT

**Mohammad Rabiul Halim**

*Asgar Ali Hospital, Bangladesh*

### Abstract

Acute pancreatitis is a painful condition in which the pancreas becomes inflamed and edematous usually for a short period of time. Pulmonary embolism due to severe acute pancreatitis is a rare but serious condition. A 68-year-old patient got admitted in gastroenterology department of a tertiary care hospital of Dhaka, Bangladesh with chief complaints of severe abdominal pain for 5 hours and several episodes of vomiting for same duration. After admission relative investigation and examination were done. His USG revealed swollen oedematous pancreas with peripancreatic fluid collection, bilateral renal parenchyma changes with cortical cyst. Patient's Glasgow Imrie score was 3, Numeric pain score (NRS) was 4, Urine output was normal. The patient was categorized into severe acute pancreatitis. The patient was treated with antimicrobials, proton pump inhibitors, analgesic, and fluid resuscitation. But patient's medical condition deteriorated and oxygen demand increased. Due to susceptibility of pulmonary embolism and worsening of patient's condition a thrombolysis was done. Severe acute pancreatitis complicating with pulmonary embolism is a fatal condition.<sup>1</sup> Early diagnosis and treatment are fundamental for treating this dreadful condition. When Patient with acute pancreatitis exhibits dyspnoea, leg oedema and thromboembolic events, pulmonary embolism should be suspected. Following early diagnosis, thrombolysis is necessary to combat this situation.

## IN VIVO BIOLOGICAL VALIDATION OF IN SILICO ANALYSIS: A NOVEL APPROACH FOR PREDICTING THE EFFECTS OF TLR4 EXON 3 POLYMORPHISMS ON BRUCELLOSIS

**Antonio Gentile**

*University of Naples Federico II, Italy*

### Abstract

**Background:** Toll-like Receptor 4 (TLR4) recognizes lipopolysaccharide (LPS) from Gram-negative bacteria. Upon ligand binding, TLR4 forms homodimers through its dimerization domain, bringing the cytosolic domains closer to initiate signal transduction and activate the immune response. Despite its structural importance, the TLR4 gene is highly polymorphic, with ClinVar reporting 76 Single Nucleotide Polymorphisms (SNPs). Classical methods for assessing the impact of SNPs on protein function, such as alanine scanning, are reliable but time-consuming, costly, and low throughput. Emerging in silico approaches, such as Molecular Dynamics Simulations (MDS), instead, offer a faster and cost-effective screening. However, experimental validation remains necessary.

**Objective:** This study aims to strengthen *in silico* studies and provide a rapid workflow to assess the effects of TLR4 SNPs on protein function, using *Brucella abortus* infection as a model.

**Methods:** 194 Mediterranean water buffaloes were enrolled. Within this group, 20 positive and 20 negative animals were sequenced for TLR4. SNPs in TLR4 conserved domains were selected for MDS analysis and their effects on TLR4/TLR4 quaternary structure was evaluated through kinetic (RMSD, RMSF, RoG, H-bonds) and energetic (electrostatic and potential energy analysis) parameters, using GROMACS. Finally, to validate in silico results, a case-control study was achieved on the remaining 154 buffaloes, through as PCR.

**Results:** The MDS analysis revealed that two SNPs c.672 A > C and c.902C > G causing the amino acid substitutions N224K and R301T respectively, are associated to *Brucella abortus* infection susceptibility (OR = 1.59, p-value = 0.041; OR = 1.64; p-value = 0.033).

**Conclusion:** This study proposes MDS analysis as a promising and faster approach than the classical one for evaluating SNPs effects on protein function. However, case-control study is still necessary for provide biological evidence of *in silico* results.

### Biography

Antonio Gentile is a PhD student at the University of Naples "Federico II". As a medical biotechnologist, Dr. Antonio Gentile concentrated his research activity on exploring cellular signaling pathways involved in the regulation of the innate immune response. The emergent threat of *Brucella abortus* (*B. abortus*) infection in both animals and humans has driven his interest on the intracellular signals governing the chronic inflammation due to *B. abortus* macrophage colonization. In particular, he used in vitro and in silico MDS techniques to obtain a more comprehensive insights of the biological processes occurring during immune response. He focused his attention on multidisciplinary approaches as a promising alternative for diagnosis and therapies, especially in a context of emergent infections.

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## COMPARATIVE ANALYSIS OF HELMINTH PARASITES AS BIOINDICATORS OF HEAVY METAL ACCUMULATION IN FRESHWATER CATFISH: CLARIAS BATRACHUS VERSUS CLARIAS GARIEPINUS

**Vikram Satwarao Deshmukh**

*Yeshwant Mahavidyalaya Nanded (M.S.), India*

### Abstract

**Objective:** This study aims to evaluate helminth parasites as bioindicators of heavy metal pollution by comparing their prevalence and impact in two freshwater catfish species from contrasting environmental conditions.

**Methods:** The research focused on two fish species: the wild catfish *Clarias batrachus* from the relatively unpolluted Tisgaon freshwater dam and the cultured African catfish *Clarias gariepinus* from the heavily polluted backwater reservoir of the Godavari River near Nanded city. Helminth infections and heavy metal accumulation in fish tissues were analyzed to assess their relationships.

**Results:** *Clarias batrachus* from Tisgaon were found to be infected with helminths, specifically the cestode genus *Lytocystus*, but exhibited no significant levels of carcinogenic heavy metals. Conversely, *Clarias gariepinus* from the polluted reservoir showed no helminth infections and had elevated levels of carcinogenic heavy metals. This indicates that helminths are prevalent in less polluted environments and their absence in polluted environments correlates with higher heavy metal accumulation.

**Conclusions:** The findings suggest that helminth parasites are effective bioindicators of heavy metal pollution in aquatic ecosystems. The presence of helminths in less polluted environments and their absence in more polluted environments may reflect the level of heavy metal contamination, providing a valuable tool for environmental monitoring and assessment.

### Biography

Vikram Satwarao Deshmukh is Junior Lecturer (Zoology) in the Department of Biology, Yeshwant Mahavidyalaya Nanded-431602, Maharashtra, India. He holds Doctor of Philosophy (Ph.D.) in Zoology, specializing in Applied Parasitology, Fishery, from Yeshwant Mahavidyalaya Nanded-431602 Maharashtra, India. He joined in Department of Zoology Yeshwant Mahavidyalaya Nanded, Maharashtra, India. He also established his mile stone in academia and research. During his career Dr.Vikram Deshmukh more than 25 research and review papers in different peer reviewed and high impact factor National and International journals. There are several honors/awards and recognitions like Young Scientist Award, Emerging scientist award, Best Paper & its Presentation Award, Silver Educator Award, conferred upon him by esteemed Institutions and Universities of International repute. He has participated & presented his research contribution in 24 national and international conferences. He is life member in various scientific and academic bodies, steering committees. Dr. Vikram Deshmukh is a members of International Society of Zoological Sciences, Member & Fellow of IAZ, Member of CRSD, Editor & Reviewer of 05 five reputed Journals. He has presented his research in several National and International conferences and published abstracts of his innovative and applicable research findings. Dr. Vikram Deshmukh specialized in Applied Parasitology, Fisheries, Molecular Biology, Taxonomy; Physiology & Biochemistry He is also expert in handling of sophisticated instruments for biochemical applicability on field Molecular Biology & Biochemistry. His outstanding guidance skill encourages the students to attain their aim.

***Day-1***  
***Poster Presentation***



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## THE EVOLUTION ON TRANSMISSION DYNAMIC OF THE SARS-COV-2 OMICRON VARIANT IN FINLAND FROM PANDEMIC TO ENDEMICITY

Jiahui Zhu

*University of Helsinki, Finland*

### Abstract

**Background:** Tracking the evolution and transmission dynamic of SARS-CoV-2 omicron variant from pandemic to endemicity is vital to understand evolutionary trajectories, evaluate the public health measure, and project future epidemics. Controversy has arisen over whether omicron variant undergoes endemicity that drives annual epidemics. Published Finnish data on evolution and transmission dynamic of SARS-CoV-2 omicron variant remains limited.

**Method:** In this research, we collected Finnish sequencing data of omicron variant and COVID-19 surveillance data from pandemic (23.11.2021-31.05.2022) to transition period (01.06.2022-31.12.2022), and to potential endemicity (01.01.2023-30.06.2023). Phylogenetic tree was constructed and linked with mutations to reveal the evolution of omicron from pandemic to endemicity. Effective reproduction number ( $R_t$ ) was calculated to quantify the population-level transmissibility of SARS-CoV-2 during study periods, and a multivariable log-linear regression model was planned to be fitted to identify epidemiological drivers associated with transmissibility of SARS-CoV-2.

**Preliminary progress:** A total of 22,828 SARS-CoV-2 omicron whole-genome sequences with high coverage from Finland (November 2021 to June 2023) were included in the analysis. During the study period, six dominant circulating omicron subvariants of omicron variant were detected (BA.1, BA.2, BA.5, BQ.1, XBB). The dominant circulating omicron subvariants in pandemic (BA.1 and BA.2) were significantly different from that in transition period (BA.5) and potential endemicity (BQ.1 and XBB). The convergent evolution of omicron variant occurred from pandemic to the potential endemicity. The effective reproduction number ( $R_t$ ) oscillated around 2.5 in pandemic, while  $R_t$  oscillated around threshold 1 in the potential endemicity. The research is ongoing.

**Significance:** The research is expected to yield insights into the genetic and epidemiological characteristics of the omicron variant in transition from pandemic into potential endemic, project the future epidemiology of COVID-19, and inform public health policy.

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## SIR AND SIS EPIDEMIC DYNAMICS ON SOCIAL RANDOM NETWORKS

**J. Leonel Rocha**

*CEAUL. DM, ISEL-Engineering Superior Institute of Lisbon, Portugal*

### Abstract

Dynamic processes analysis in random contact networks explains the evolution of real propagation and diffusion phenomena, namely ideas, information, influence and epidemics. Understanding the effect of connections in a given population, allows us to comprehend and identify how diseases are likely to spread from one individual to another, concerning several different aspects. In this sense, social contact networks can be modelled using complex random networks, where epidemic phenomena are simulated through the SIS and SIR models. The epidemic threshold dynamics are analyzed, depending on the global dynamics of the network structure. The main contribution of this work is the relationship established between the epidemic threshold and the topological entropy of the social contact networks. In addition, a relationship between the basic reproduction number and the topological entropy is also stated. The trigger of the infectious state is studied, where the probability value of the stability of the infected state after the first instant, depending on the degree of the node in the seed set, is proven. Some numerical studies are included and illustrate the implementation of the probabilistic procedures introduced, complementing the discussion on the choice of the seed set.



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## CLINICAL IMAGE REPORT OF A PATIENT WITH CEREBRAL SCHISTOSOMIASIS

**Osamah Al-Ameen**

*Hamad Medical Corporation, Qatar*

### Abstract

Neuro-schistosomiasis is one of the most severe manifestations of *Schistosoma* infection. We present t an MRI image of a patient who presented with a headache and was found to have a space-occupying lesion on an MRI of the brain that was suggestive of neuro-schistosomiasis and was successfully treated without invasive testing.

**Case Presentation:** A 31-year-old Filipino lady presented with symptoms of a worsening headache associated with dizziness, nausea, and vomiting for a 3-day duration head CT revealed a right occipitoparietal mass lesion. A contrast-enhanced MRI of the brain revealed a right medial parieto-occipital cortical irregular curvilinear/punctate-enhancing lesion with significant adjacent surrounding subcortical/white matter edema, suggests parasitic infection. CSF studies were normal, along with stool and urine ova and parasites. However, serology for *Schistosoma mansoni* was positive. She was empirically treated with praziquintel 50 mg/kg in divided doses and albendazole 400 mg BID along with dexamethasone 8 mg for 4 weeks, then tapered and discontinued.. Her symptoms gradually improved after 6 weeks, and a repeat MRI revealed significant regression of the right parieto-occipital lesion. She was symptom-free at 3 months of follow-up.

**Discussion:** The diagnostic evaluation of neuroschistomiasis must include an imaging study, preferably an MRI. Neuro-schistosomiasis imaging findings are typically one or more grouped hyperintense lesions with punctate or nodular enhancement and a heterogeneous internal structure surrounded by edema and mass effect. In a previous review of 33 patients with cerebral schistosomiasis, MRI scans showed a characteristic pattern of single or multiple lesions compromising multiple intensely enhancing nodules, sometimes with areas of linear enhancement. Although a definitive diagnosis can only be made through brain biopsy, this characteristic pattern of clustered nodular enhancement may be useful for non-invasive diagnosis and to avoid unnecessary surgery, which was the case in our patient.

### Biography

Osamah AlAmeen is a PGY-4 medical resident in the internal medicine department at Hamad Medical Corporation in Qatar. He, did his M.D program at the University of Al-Nahrain in Baghdad , Iraq. He joined the internal medicine residency program at hamad medical corporation in 2021. Osamah's research interests include infectious diseases and cardiology and he made several publications

## CO-INFECTION OF CYTOMEGALOVIRUS AND EPSTEIN-BARR VIRUS IN AN IMMUNOCOMPETENT PATIENT: CASE SERIES AND LITERATURE REVIEW

**Osamah AlAmeen**

*Hamad Medical Corporation, Qatar*

### Abstract

**Introduction:** Infectious mononucleosis (IM) due to EBV or cytomegalovirus (CMV) mononucleosis are common infection throughout the world; with a 60%-100% seroprevalence worldwide Rarely, Immunocompetent patients may develop a severe infection that manifests with multiple organ involvement, co-infection with other Viruses could be the explanation for severe and multi-systemic infection. The simultaneous infection by multiple herpesviruses is extremely rare, and because of this, there are limited existing cases published in the literature. Herein, we report a case of an immunocompetent young patient who presented with continuous spikes of fever and high Liver enzymes, eventually after a thorough investigation turned serologically positive for the simultaneous presence of CMV and EBV infections.

### Case Presentation:

**Case1:** A 24-year-old with a negative past medical history presented with a 3-week history of fever, chills, and generalized weakness. His vital signs were significant for persistent fevers reaching 38.5 C and tachycardia of 120 beats/min. His physical examination mainly unremarkable. Initial blood tests revealed leukocytosis with left shift and high liver enzymes. Blood cultures and infection work-up including hepatitis, HIV serologies, malaria, TB, and brucella were negative. However, the peripheral smear showed atypical lymphocytes and further work-up showed CMV and EBV viremia. Abdominal CT showed Splenomegaly with hypodensities. Immunocompromised state was excluded as well with negative HIV and autoimmune diseases. the patient was started on IV ganciclovir for 5 days and the initial antibiotics were discontinued. The patient showed clinical improvement and the fever subsided with liver enzymes improvement and his viral loads significantly decreased. After that, the patient was discharged on oral valganciclovir. He was symptoms free at the two-week follow-up.

**Case 2:** A middle-aged female with an unremarkable past medical history presented with five days history of fever, flu-like symptoms, and abdominal discomfort which then progressed to jaundice. Her vital signs were normal and her physical examination was unremarkable. Labs were significant for high liver enzymes with AST, and ALT in the range of 400s U/l along with hepatosplenomegaly on abdominal imaging. Further testing showed positive EBV and CMV IgM antibodies. However, subsequent PCR testing showed positive EBV with high titer and negative CMV. The patient was treated conservatively and recovered during follow up and did not require antiviral therapy.

**Discussion:** Cytomegalovirus causes a wide spectrum of diseases in healthy and immunosuppressed hosts. However, sometimes, symptoms can be prolonged with fever lasting for more than 3 weeks in immunocompetent patients with primary CMV infection. Severe CMV infection in immunocompetent patients can carry a significant risk in this population and may be more common than previously assumed Simultaneous EBV-CMV infection is uncommon and is usually found in immunosuppressed patients. In a review, 28 hospitalized patients with mononucleosis syndromes tested positive for CMV and EBV

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IgM antibodies and around 50% of them had multiple co-morbidities and were immunocompromised. Another study also concluded that simultaneous EBV-CMV reactivation occurred mainly in immunosuppressed patients receiving chemotherapy. Our first patient could have developed EBV reactivation in the context of an acute CMV infection and it could be similar to the case described by Olson where their patient was immunocompetent but recovered slowly without the use of antivirals.

**Conclusions:** Co-infection of EBV and CMV in an immunocompetent patient is uncommon and can sometimes result in a diagnostic dilemma. Primary CMV viremia can occur in immunocompetent patients. Treatment with appropriate anti-viral should be considered to prevent complications and improve symptoms. However, further studies will be required to assess the need for anti-CMV therapy in immunocompetent patients with symptomatic CMV infections.

## Biography

Osamah AlAmeen is a PGY-4 medical resident in the internal medicine department at Hamad Medical Corporation in Qatar. He did his M.D. program at the University of Al-Nahrain in Baghdad, Iraq. He joined the internal medicine residency program at Hamad Medical Corporation in 2021. Osamah's research interests include infectious diseases and cardiology and he has made several publications.

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## TRANSMISSION OF DRUG-RESISTANT MYCOBACTERIUM TUBERCULOSIS ISOLATES BETWEEN FINNISH AND FOREIGN-BORN CASES, 2014-2021: A MOLECULAR EPIDEMIOLOGICAL STUDY

**Jiahui Zhu**

*University of Helsinki, Helsinki, Finland*

### Abstract

**Background:** Data on the molecular epidemiological characteristics and transmission of drug-resistant Mycobacterium tuberculosis (MTB) in low-incidence settings with immigration from high-incidence settings is limited.

**Method:** We included 115 drug-resistant (DR) MTB isolates with whole-genome sequencing data isolated in Finland between 2014 and 2021. Potential transmission clusters were identified using a threshold of 12 single-nucleotide polymorphisms (SNPs). Highly related clusters were identified using a threshold of 5 SNPs.

**Result:** Of the 115 DR MTB isolates, 31 (27.0%) isolates were from Finnish-born cases and 84 (73.0%) were from foreign-born cases. The proportion of multidrug-resistant (MDR) MTB isolates (30/84, 35.7%) from foreign-born cases was higher than that of MDR MTB isolates from Finnish-born cases (8/31, 25.8%). The 115 DR MTB isolates were classified into four lineages, including lineage 1/Indo-Oceanic, lineage 2/East-Asian, lineage 3/East-African-Indian, and lineage 4/Euro-American. The lineage 2 (40/115, 34.8%) and lineage 4 (40/115, 34.8%) were prevalent lineages. The lineage diversity of DR MTB isolates was significantly different by regions of birth. DR MTB isolates from Finnish-born cases were classified into four lineages, with a dominant lineage 4. Isolates from Asia-born cases were mainly lineage 1, while most isolates from eastern European-born and sub-Saharan African-born cases were lineage 2 and lineage 3/Delhi-CSA, respectively. A total of 25 (21.7%) isolates were classified into eight potential transmission clusters ( $\leq 12$  SNPs). The largest potential transmission cluster included nine lineage 3 isolates from patients notified between 2017 and 2020 and all, except one with an unknown country of birth, originating from sub-Saharan Africa. Within this cluster, three isolates from Eritrean-born patients and one isolate from Ethiopian-born patient were highly related. Four clustered isolates were from Finnish born patients and three of them were closely related to foreign-born patient isolates and one was possibly related. Two MDR-TB clusters were found, both consisted of two isolates of lineage 2 and 4, respectively, from foreign-born patients.

**Conclusion:** Transmission of drug-resistant MTB isolates between Finnish- and foreign-born persons is not negligible. Monitoring transmission dynamics of drug-resistant TB is of importance to inform tuberculosis management and control in low-incidence settings with increasing immigration.



## INFECTIOUS MONONUCLEOSIS COMPLICATED BY SPLENIC INFARCTION

**Osamah AlAmeen**

*Hamad Medical Corporation, Qatar*

### Abstract

Splenic infarction is an uncommon complication in patients with infectious mononucleosis (IM). Here, we describe a young, healthy male who presented with persistent abdominal pain and fever after Epstein virus (EBV) infection and was then found to have a splenic infarct on an abdominal CT scan with contrast. He was managed conservatively and improved with supportive care.

### Case Presentation:

A 17-year-old man with a negative past medical history presented to the emergency department in Qatar with symptoms of fever and vomiting for 4 days. His initial physical examination was unremarkable, apart from a fever of 38.4 Celsius. Initial labs showed leukopenia, mild thrombocytopenia, and mildly elevated liver enzymes. His hepatitis workup revealed positive EBV IgM, and he was ultimately diagnosed with infectious mononucleosis. He improved after a few days of supportive treatment and was discharged home. He presented again with a persistent fever and left upper quadrant abdominal pain one week later. He underwent an abdominal ultrasound, which showed hepatosplenomegaly with multiple hypoechoic lesions and no evidence of peri-splenic collection. CT abdomen with contrast showed hepatosplenomegaly with multiple peripheral wedge-shaped, non-enhancing areas seen in the spleen, suggestive of a splenic infarct. He improved with supportive care and was discharged in a stable condition. On follow up one month later showed complete resolution of symptoms and splenic size reduced from 20 cm to 16 cm.

**Discussion:** Infectious mononucleosis presents as a triad of fever, pharyngitis, and lymphadenopathy, often accompanied by malaise, myalgias, and fatigue. Splenic infarction is a rare complication of IM due to EBV infection. Among all imaging modalities, computed tomography scans have the highest sensitivity. The exact pathogenesis of the splenic infarct in infectious mononucleosis has not been determined. Some suggest that a transient hypercoagulable state, caused by a decrease in the levels of protein C and protein S, is compounded by an increase in the size of the spleen, resulting in an infarct. The use of computed tomography in our patient helped in the early diagnosis splenic infarcts, which could be necessary in order to prevent potential complications such as rupture, abscess, and sepsis.

### Biography

Osamah AlAmeen is a PGY-4 medical resident in the internal medicine department at Hamad Medical Corporation in Qatar. He did his M.D. program at the University of Al-Nahrain in Baghdad, Iraq. He joined the internal medicine residency program at Hamad Medical Corporation in 2021. Osamah's research interests include infectious diseases and cardiology and he has made several publications.





***Day-2***  
***Keynote Presentation***



## CLINICAL FEATURES OF 83 CASES OF CEREBRAL SPARGANOSIS

**Xueqiang Yan**

*Guangzhou Panyu District No.2 People's Hospital, China*

### Abstract

**Background:** Sparganosis is a zoonotic parasitic disease caused by the mid-taenia stage of the tape-worm *Spirometra mansoni* in the human body. Cerebral sparganosis is caused by the larvae of tape-worm *Spirometra mansoni* parasitizing in the brain. It is prevalent in Southeast Asian countries, and is common in southern China. Cerebral sparganosis accounts for about 10% of sparganosis in China. Sparganoides swim in the brain tissue and survive for a long time. The most clinical symptoms are epilepsy. At present, there are few case reports of large samples of cerebral sparganosis, and the evolution of the disease, treatment methods and prognosis are inconsistently reported. This article retrospectively analyzes 83 cases of cerebral sparganosis diagnosed in Guangdong Sanjiu Brain Hospital from July 2004 to January 2020. The clinical data of patients with sparganosis are summarized and analyzed to provide information for the treatment of cerebral sparganosis.

**Objective:** To analyze the clinical features, treatment and prognosis of cerebral sparganosis, providing reference for clinical management.

**Methods:** Clinical data of 83 patients with cerebral sparganosis in Guangdong 999 Brain Hospital from July 2004 to January 2020 were collected, and the general conditions, clinical manifestations, laboratory examination, imaging features, treatment and prognosis were analyzed. Statistical analysis was performed using the SPSS 19.0 software.

**Results:** The 83 patients came from different areas of China, including 46 from Guangdong Province, 12 from Hunan Province, 11 Guangxi Province, 8 Jiangxi Province and 6 other Provinces (municipalities/autonomous regions). There were 48 males and 35 females. The youngest case was 8 years old and the oldest was 71. The longest course of disease was 360 months and the shortest was 2 days. A clear history of unhygienic diet was found in 68.7% (57/83) patients. The main clinical symptoms were epilepsy (84.3%, 70/83), headache (32.5% , 27/83), mild limb hemiplegia (26.5% , 22/83), speech disorder (10.8%, 9/83), visual impairment (7.2%, 6/83), and paresthesia (6%, 5/83). All patients received Routine blood examination was provided for all patients, and found an increase of leukocyte count in 7 of 83 cases, 9 cases with increased eosinophils count, and 4 cases with increased lymphocytes. C-reactive protein detection was performed in 27 cases, and 2 cases showed elevation. Serological detection of metacercaria antibody by ELISA was performed in 80 patients, and 77 cases showed positive results. Detection of antibody against metacercaria in cerebrospinal fluid was examined by ELISA for 46 cases, of them 23 cases were found positive. Seventy patients were examined by electroencephalogram, 30 cases showed abnormal slow wave, and 17 cases had epileptiform discharge and clinical seizure. Calcification was observed on CT scan of 41 cases. Brain MRI enhancement showed tunnel sign-like changes in 75 cases and beading-like enhancement in 83 cases. Fifty-eight patients were treated with surgery, and 43 white flat cotton threadlike live worms were obtained from 42 of them. At follow-up of 3 months to

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8 years, 52 cases were cured, 6 cases were still progressing or not cured; 55 patients with epilepsy who underwent surgery were followed up, of them 80% (44/55) reached the modified Engel classification class I. Twenty-five cases were treated with praziquantel, and at follow up for 3 months to 8 years, 7 cases were cured, 18 cases were still progressing or not cured. Eleven patients with epilepsy were treated with praziquantel and followed up, and only 27.3% (3/11) reached the modified Engel class I.

**Conclusion:** Epileptic seizures are the main clinical manifestations of cerebral sparganosis. Clinical diagnosis can be made based on serum immunological examination and imaging features. Surgery is an effective approach to remove live worms and cure the disease.

## Biography

Xueqiang Yan , Deputy Chief Physician Education experience : I am Graduated from Zhengzhou University School of Medicine with a postgraduate degree. I have been engaged in clinical work in neurosurgery at a tertiary brain specialty hospital for nearly 20 years, with solid theoretical foundation and rich clinical experience; I used to engaged in clinical, scientific research and teaching work on brain tumors in the early days; and worked in Beijing Tiantan Hospital and Beijing Sanbo Brain Hospital successively. In Beijing Xuanwu Hospital, I have completed sub-professional training, and accumulated rich clinical experience in the diagnosis and treatment of brain tumors, cerebral hemorrhage, brain trauma, cerebrovascular disease, carotid stenosis, moyamoya disease, pediatric cerebral palsy, cerebral sparganosis, etc., with a high professional and technical level. Research experience and publications: Undertaken 2 scientific research projects in Guangdong Province, obtained 13 medical device invention patents, 4 patent transformations, and participated in the preparation of 1 book. Published more than ten papers. academic appointment: Standing Member of the Cranial Nerve Disease Branch of the Guangdong Precision Medicine Association. Young Member of the Neuro-Oncology Professional Committee of the Guangdong Anti-Cancer Association. Member of the Neurosurgery Professional Committee of the Guangdong Elderly Care Association. The First Neurosurgery Professional Committee of the Guangdong Provincial Hospital Association Member. Member of the Stroke Management Branch of Guangzhou Hospital Association. Member of the Medical Device Management Professional Committee of the China Medical Education Association



## EXPLORING THE ANTIMICROBIAL AND ANTINEMATODAL POTENTIAL OF *CHROZOPHORA ROTTLEI* AND *ADHATODA ZEYLANICA*: A PHYTOCHEMICAL APPROACH

**Vikram Satwarao Deshmukh**

*Yeshwant Mahavidyalaya Nanded (M.S.), India*

### Abstract

**Objective:** This study aims to screen the phytochemical composition of methanol extracts from *Chrozophora rottleri* and *Adhatoda zeylanica* and to evaluate their potential in controlling nematode and microbial growth.

**Methods:** The research involved analyzing methanol extracts of *Chrozophora rottleri* and *Adhatoda zeylanica* for their phytochemical content, specifically focusing on phenolics and flavonoids. The extracts were tested for their antinematodal and antimicrobial activities to assess their effectiveness in controlling nematodes and microbial growth.

**Results:** The methanol extracts of both plants exhibited high levels of phenolics and flavonoids. The extracts demonstrated significant antinematodal and antimicrobial activities, indicating their potential as natural remedies for controlling parasitic and microbial infections.

**Conclusions:** The findings suggest that *Chrozophora rottleri* and *Adhatoda zeylanica* have substantial phytochemical content and are effective in controlling nematode and microbial growth. This highlights their potential use in alternative medicine for managing parasitic and microbial infections.

### Biography

Vikram Satwarao Deshmukh is Junior Lecturer (Zoology) in the Department of Biology, Yeshwant Mahavidyalaya Nanded-431602, Maharashtra, India. He holds Doctor of Philosophy (Ph.D.) in Zoology, specializing in Applied Parasitology, Fishery, from Yeshwant Mahavidyalaya Nanded-431602 Maharashtra, India. He joined in Department of Zoology Yeshwant Mahavidyalaya Nanded, Maharashtra, India. He also established his mile stone in academia and research. During his career Dr. Vikram Deshmukh more than 25 research and review papers in different peer reviewed and high impact factor National and International journals. There are several honors/awards and recognitions like Young Scientist Award, Emerging scientist award, Best Paper & its Presentation Award, Silver Educator Award, conferred upon him by esteemed Institutions and Universities of International repute. He has participated & presented his research contribution in 24 national and international conferences. He is life member in various scientific and academic bodies, steering committees. Dr. Vikram Deshmukh is a member of International Society of Zoological Sciences, Member & Fellow of IAZ, Member of CRSD, Editor & Reviewer of 05 five reputed Journals. He has presented his research in several National and International conferences and published abstracts of his innovative and applicable research findings. Dr. Vikram Deshmukh specialized in Applied Parasitology, Fisheries, Molecular Biology, Taxonomy; Physiology & Biochemistry He is also expert in handling of sophisticated instruments for biochemical applicability on field Molecular Biology & Biochemistry. His outstanding guidance skill encourages the students to attain their aim.



***Day-2***  
***Oral Presentations***

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## AN AGENT-BASED MODEL OF INFECTIOUS DISEASES THAT INCORPORATES THE ROLE OF IMMUNE CELLS AND ANTIBODIES

**Shigeaki Ogibayashi**

*Chiba Institute of Technology, Japan*

### Abstract

One of the essential features of agent-based modeling is that a set of indispensable factors exists for the emergence of qualitative features of the phenomenon. By analyzing why such a set of factors is indispensable, we can understand the causal mechanism of the phenomenon's emergence. This paper constructed an agent-based infection model focusing on recovery process modeling and obtained the following results. The model assumes the role of fever and antibodies as the effect of immunity increases with an increasing number of viruses, and antibodies emerge when the immunity is insufficient to keep up with virus replication. The agent movement is assumed to be random. The present model reproduced the qualitative features of the chronological pattern well regarding the numbers of newly infected, newly recovered, and total infected agents observed in the real world.

The effect of fever is indispensable for the pandemic convergence for the wide range of virus replication rates. The role of antibodies is not indispensable for the emergence of this feature, but it increases the upper limit of virus replication rate for pandemic convergence. Measuring body temperature is more effective in identifying potentially infected individuals than a PCR test because fever is a sign of infection, and it also provides information about the severity of infection status, while PCR tests only offer dichotomous information. The effectiveness of the countermeasures, such as identifying and isolating the severely infected individuals, official movement regulation, wearing masks, and providing ventilation, are all reproduced and confirmed in the model. However, the most economically effective countermeasure is that many individuals in the system recognize their current infection status by monitoring body temperature, i.e., how it is higher than their normal body temperature, thereby self-controlling their movement behavior.

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## CAN URSODEOXYCHOLIC ACID PREVENT SARS-COV-2 INFECTION OR REDUCE THE COVID-19 SEVERITY? CURRENT KNOWLEDGE AND UNRESOLVED ISSUES

**Fanping Meng**

*The Fifth Medical Center of Chinese PLA General Hospital, China*

### Abstract

A recent study revealed that the inhibition of the farnesoid X receptor using ursodeoxycholic acid (UDCA) significantly reduces angiotensin-converting enzyme 2 expression. Therefore, considerable attention has been paid to the use of UDCA to prevent severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and reduce the severity of the disease. This review comprehensively summarizes the role of angiotensin-converting enzyme 2 in SARS-CoV-2 infection and the potential role and mechanisms of UDCA in the prevention of SARS-CoV-2 infection or reinfection. It also discusses unresolved issues and the potential use of UDCA in the treatment of patients with coronavirus disease.

### Biography

Fanping Meng, MD, is the director of department of Biological Therapy, No.5 medical center, PLA general hospital. He is also a associate Professor of Peking university. He obtained his medical degree from the fourth military medical University and his Post doctor training under the Mount Sinai Hospital in Toronto, Canada. He is the member of the Stem Cell and Liver Injury Repair Group of the Tissue Repair and Regenerative Medicine Branch of the Chinese Medical Association, the member of the Standing Committee of the Liver Disease Branch of the Beijing Medical Association, and the member of the Infectious Disease Committee of Chinese Research Hospitals. He served as an associate editor of *Frontiers in Immunology*.

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## CASE REPORT: NORMAL PRESSURE HYDROCEPHALUS IN HIV 1 INFECTED PATIENT

**Oussaima El Dbouni**

*Aman Hospital, Qatar*

### Abstract

In 1963, normal pressure hydrocephalus (NPH) was described for the first time characterized by the classical triad of gait disturbances, cognitive impairment, and urinary incontinence due to the accumulation of cerebrospinal fluid (CSF) in the central nervous system (CNS) without any obstructive lesion. Currently, the treatment of choice is to do shunting that has benefit over conservative treatment; especially when the NPH is idiopathic and not reversible due to a primary cause. Subarachnoid or intraventricular hemorrhage (due to trauma or vascular anomalies) and acute or chronic meningitis (due to infectious, inflammatory, or neoplastic causes) are the most common secondary causes of NPH that lead to the excess of CSF in the CNS. Only two present case reports have showed a possible link between NPH and human immunodeficiency virus. One of them was concerned with HIV-1 and the other with HIV-2. In this case report, we discuss the second reported presentation in a 32-year-old male patient with HIV-1 infection who presented with symptoms consistent with NPH. Our patient was presented with the typical triad of NPH confirmed on MRI. He had very low Cd4 count extensive work up was negative. After HAART patient CD4 count increased progressively, and patient improved clinically and by imaging. In our case as the 2 other cases, the hydrocephalus was of non-obstructing type which may be attributed to either ventriculitis or plexitis with an inflammatory exudate. Thus, one possible explanation in our case could be the direct effect of inflammatory cells in the CSF, affecting CSF turnover or hemodynamics.

### Biography

Oussaima EL Dbouni obtained her MD and Internal Medicine degree at the Lebanese University, she then specialized in Infectious Diseases at the American University of Beirut, she traveled to France where her main activity was centered on HIV patients.... She joined RHUH in 2012 as consultant then she was Program Director of Internal Medicine Department, she was part of the COVID team then became the director of the vaccination center for COVID. Currently she is Head of Infectious Diseases Division, Chairperson of the Infection Control Committee and Director of the antimicrobial Stewardship Program at Aman Hospital, Doha, Qatar.

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## RARE LOCATION OF POST-HERPETIC NEURALGIA - WHEN INFECTION TURNS INTO PAIN

**Alexandra Soares**

*USF Receber e Cuidar / ULS Castelo Branco, Portugal*

### Abstract

**Background:** Herpes zoster (HZ) results from reactivation of latent varicella-zoster virus in the posterior dorsal root ganglia following a primary varicella infection. HZ mainly affects the thoracic region and face. The appearance of the disease in the lower limbs is rare. Post-Herpetic Neuralgia is the most common complication of HZ infection. It is characterized by neuropathic pain distributed in the dermatome affected by the infection, generally one to six months after the appearance of the vesicles.

**Case Description:** We describe the case of a female patient, 56 years old, who went to her family doctor because of painful vesicles on the sole of her left foot that had been developing for 2 days. She was treated with antibiotics and ibuprofen. Three days later, she went to the Emergency Department due to persistent pain and was observed by Dermatology who diagnosed HZ (with some lesions in the healing phase) and started valacyclovir 1000 mg 8/8h and metamizole 575 mg 8/8h. Fifteen days later, she went to the family doctor again due to intense burning pain in the left lower limb that worsened at night. She presented allodynia and hyperalgesia from the left lower limb to the root of the thigh. Pregabalin 75 mg every 12 hours and tramadol + paracetamol were started in SOS with a subsequent increase in the dose of pregabalin to 100 mg 12/12h due to the maintenance of pain. Two months after the acute episode, the pain persisted, so it was decided to increase the dose of pregabalin (150 mg 2 id) with almost complete resolution of the pain.

**Conclusion:** HZ is a self-limited disease, but complications and permanent sequelae can occur, the most common being Post-Herpetic Neuralgia. Early and adequate treatment of HZ with antiviral drugs accelerates the healing of skin rashes, reduces the intensity of pain and the occurrence of Post-Herpetic Neuralgia. In the present case, the infrequent anatomical manifestation of HZ was decisive for the delay in diagnosis and the use of antivirals in the acute phase. The importance of being alert to the possibility of infection in less frequent locations is highlighted, thus allowing early diagnosis and treatment, in an attempt to prevent Post-Herpetic Neuralgia, optimize the approach to pain in the acute phase and prevent its chronicity.



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## STATUS AS A MAN WHO HAS SEX WITH MEN, SEX, AND HIV ASSOCIATE WITH THE GUT MICROBIOME IN CHENNAI, INDIA

**Siva Subramaniyan Gnanaskandan**

*Sri Ramachandra University, India*

### Abstract

**Background:** Biological sex, status as a man who has sex with men (MSM), and HIV collectively impact the gut microbiome although their individual effects are unclear. Reports from high income countries have shown higher relative abundance of *Prevotella* in MSM compared to others.

**Objective:** To characterize gut microbiomes by HIV, sex, and MSM status in Chennai, India.

**Methods:** We collected stool from 60 MSM and 60 women: 30 of each sex were people living with HIV (PWH) on ART and virally suppressed; 30 of each were people living without HIV (PWoH). Stool DNA was extracted (Qiagen) and sequenced (Illumina MiSeq), targeting 16S V3-V4 amplicons. QIIME2 was used with dada2 for denoising with taxonomy classification to the SILVA database via RESCRIPt. Classify-sklearn generated Amplicon Sequence Variants. Taxonomy from phylum to species was determined using taxa collapse. Diversity was compared by Wilcoxon rank-sum tests, taxa abundance was analysed using Mann-Whitney tests and MaAsLin2 with BH correction ( $p < 0.05$ ).

**Results:** Median (range) ages of MSM and women were 40 (21-64) and 41 (25-56) years. PWH women had lower alpha diversity than PWoH women ( $p < 0.0001$ ); this distinction was not observed among MSM. Beneficial bacteria – *Dialister*, *Megasphaera*, *Dorea* – were significantly more abundant in MSM groups and PWoH women ( $p < 0.01$ , BH adjusted) compared to PWH women. Conversely, bacteria linked to gut inflammation – *Acinetobacter*, *Rubrobacter* – were higher only in PWH women ( $p < 0.01$ ) compared to MSM groups and PWoH women. Notably, *Slackia* and *Howardella*, were enriched only in MSM and not in heterosexual women, irrespective of HIV. *Prevotella* and *P. copri* were significantly enriched only in PWoH women compared to others.

**Conclusion:** In a low-income setting, significant differences in alpha diversity and taxa were found among between women by HIV status, and between MSM and women. Future research should explore associations between specific taxa and immune activation in PWH.

### Biography

G Sivasubramaniyan is a dedicated microbiologist and virologist specializing in gut microbiome research. As a PhD scholar, he has advanced the understanding of the interactions between HIV, MSM status, and gut health. His research has focused on the gut microbiome of people living with HIV (PWH) and uninfected individuals in South India, highlighting unique microbial signatures influenced by gender, HIV status, and sexual behavior. His research has utilized techniques like MaAsLin2 and QIIME2 to analyze microbial data, revealing significant findings among homosexual men (MSM) and heterosexual women in gut health and dysbiosis. In his experimental work, he has explored the role of NF-kappa B p65 in virally suppressed HIV-infected individuals and investigated inflammatory markers such as HS-CRP. In addition to their research, he actively contributes to academic discussions, presenting findings at international conferences and publishing in reputable journals.

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## BRUCELLOSIS AND THE ONE HEALTH APPROACH: A RE-EMERGING OVERLOOKED ZONOTIC THREAT INFECTIOUS DISEASE

**Nahla Omer Eltai**

*Qatar University, Qatar*

### Abstract

**Background:** Brucellosis is a significantly neglected zoonotic disease endemic in many countries. It affects a wide range of various food animal species, leading to economic losses due to the customary sacrifice of infected animals. The leading causes of human infection are consumption of unpasteurized milk or meat or contact with infected animals.

**Objective:** To assess the seroprevalence and identify risk factors associated with brucellosis in food animals in Qatar. Additionally, the study aims to explore demographic characteristics, prevalent symptoms, causative species, antibiotic susceptibility, and risk factors related to human brucellosis.

**Methods:** 248 camel, 246 sheep, 246 goat blood samples, and 196 human blood culture samples have been collected. Rose Bengal test and competitive-enzyme-linked immunosorbent assay were performed to determine animal brucellosis seroprevalence. The polymerase chain reaction was used to identify *Brucella* spp. E-test was used to investigate antibiotic susceptibility against 8 antibiotics. Regression models were used to perform univariable and multivariable risk factors analysis for both animal and human brucellosis.

**Results:** Seroprevalence was 20.6%, 16.7%, and 2.4% in camels, sheep, and goats, respectively. Univariable analysis showed that old age and the female in camels and young age in sheep were associated with a higher prevalence of brucellosis. Consumption of raw milk was the leading cause of human brucellosis (58.6%). Most human patients were adults (74%), mainly males (80.6%). South Asian patients constituted a significant percentage (42.9%), followed by Qatari patients (28.6%). The most common symptom was fever (91.9%). The causative agent in all patients was *B. melitensis*, and none of the samples showed antibiotic resistance.

**Conclusion:** The alarming prevalence of brucellosis in animals, particularly camels and sheep, underscores the urgency for disease control in food animals to mitigate its transmission to humans. Implementing measures that raise awareness about the risks associated with consuming raw milk is imperative.

### Biography

Nahla Omer Eltai; is a researcher of infectious diseases at Qatar University, Biomedical Research Center (BRC), She received her Ph. D. from Humboldt University, Berlin, Germany. Dr. Eltai is currently leading the microbiology research at BRC. Her research and teaching experiences have been fostered by several years of intensive work at state-of-the-art and multidisciplinary institutions; Dr. Eltai has published over 45 papers in peer-reviewed journals and was awarded a patent on her discovery.

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## EPIDEMIOLOGICAL SITUATION OF CUTANEOUS LEISHMANIASIS IN MOROCCO

**Fatima Zahrae El Bakri**

*University Ibn Tofail, Morocco*

### Abstract

Cutaneous leishmaniasis has been considered as public health problem in Morocco which is a parasitic infection caused by several species belonging to the genus *Leishmania*, It is transmitted by the bite of certain species of sand-fly, causing a spectrum of clinical pathology in humans ranging from disfiguring skin lesions to fatal visceral Leishmaniasis. In Morocco, the cutaneous leishmaniasis (CL) is due to three different species: *Leishmania major*, *Leishmania tropica* who is responsible in majority of the cases of CL get in our country distributed in an endemo-epidemic way and *Leishmania infantum* who generate sporadic cases. Epidemiology is affected by environmental, migratory and climatic factors, especially in the semi-arid and the arid pre-Saharan regions. We report in this work, data of the epidemiological monitoring of the CL due to *Leishmania tropica* and *Leishmania major* done in the Three regions most infect by the parasite, Marrakech, Tanger- Tetouan- Al Houceima, Fes- Meknes, and urban Region also the rural area of Rabat Sale Kenitra Region. The clinical presentation depends on factors associated with the virulence of the parasite, with individual immune response and with the site of lesions. Although each type of leishmaniasis may have its own specific cutaneous signs and endemic regions, the most common presentations are crusted, ulcerated nodules and plaques.

### Biography

El Bakri Fatima Zahrae studied Microbiology and molecular biology at Ibn Tofail university, Kenitra, Morocco; I completed my graduated studies in Medical Biotechnology at medical and pharmacy school, Rabat, Morocco, I joined the ibn Tofail universities for the phd research in Parasitology and Bioinformatic, Science and technology.



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## A PILOT STUDY ON PATHOGENIC MULTI DRUG RESISTANT NON TUBERCULOUS MYCOBACTERIA ISOLATED FROM HOUSEHOLD WASTE WATERS AND NOSOCOMIAL ENVIRONMENTS OF KOLKATA: LOOMING THREAT TO SDG DIRECTIVES

**Tapti Sengupta**

*West Bengal State University, India*

### Abstract

Non tuberculous mycobacteria (NTM) are mostly pathogenic and have been isolated even from nosocomial environment, thus being ubiquitous in nature. They are known to cause pulmonary and skin infections in humans and animals, also known as mycobacteriosis or fish tuberculosis. With globalization, a worldwide surge in antibiotic resistant NTM infections has been noticed. A pathogen having no documented treatment regime and showing MDR traits is of concern especially for India and third world countries, having a high number of Tuberculosis infected patients. In this context, our current study was conducted to identify a variety of pathogenic NTMs including *Mycobacterium fortuitum*, *M. chelonae*, *M. avium*, *M. simiae*, *M. kansasii*, *M. abscessus* and *M. intracellulare* from household wastewater in the suburbs of Kolkata District of West Bengal, India. It is a pilot study from this State. A total number of 66 NTM samples belonging to seven species were isolated and the numbers were significant ( $p < 0.05$ ) statistically. The antibiotic profiling of the isolated samples was done by broth microdilution method against various documented antibiotics viz Isoniazid, Rifampicin, Ethambutol, Amikacin, Streptomycin, Moxifloxacin, Ciprofloxacin, Clarithromycin and Doxycycline as per Clinical and Laboratory Standard Institute (CLSI) guidelines, at the recommended doses for mycobacterial species. Majority of the isolates were resistant to the first line drugs except for seventeen numbers, which were susceptible. The NTM species were sensitive to Ciprofloxacin (72%), Clarithromycin (67%), Moxifloxacin (51%) and Amikacin (41%). Majority of them showed resistance towards Streptomycin and Doxycycline. Though the antibiotic sensitivity of the tested NTM species showed varied results and was slightly different from the reported results for *M. tuberculosis*, the drug sensitivity test results of the isolated species were quite alarming and requires immediate attention. Often found as associated pathogens with Tuberculosis infections, the NTMs have been ignored as pathogens to a large extent due to insufficient documentation. The rapid spread of antibiotic resistance species, especially in the environment is primarily due to horizontal gene transfer and is a threat coming under the One Health Platform and is also a challenge for the Sustainable Development goals set by UNO.

### Biography

Tapti Sengupta Associate Professor and HOD in the Department of Microbiology at West Bengal State University, 24 Pgs North, Kolkata, West Bengal, India. Tapti Sengupta B.F.Sc (gold Medalist), Master of Fishery Science in Pathology and Microbiology (Gold Medalist), Ph.D., National Eligibility Test (NET Qualified), MBA in Strategy, PG in Human Rights (IIHR, New Delhi: Gold Medalist). My Mission is Nurturing, Mentoring and Motivating young minds towards research and education to work for a healthy and sustainable environment. I am currently working as an Associate Professor and HOD in the Department of Microbiology at West Bengal State University, 24 Pgs North, Kolkata, West Bengal, India, and have been in teaching and research since, 2005 (18+ years). Being a single child of my parents, I started my convent schooling from a small town, Ranchi, Jharkhand. I further pursued my higher studies from Kolkata, West Bengal, India. Adjusting in a metro City was a bit difficult and I craved for the greens and hills of my birthplace. This gave me the impetus to work for Climate change, environment and one health platform, strongly speaking against the use of over-the-counter drugs, Global spread of Anti-Microbial Resistance (AMR), and to work on zoonotic diseases and highlight the importance for green auditing and green supply chain and Bioremediation. I have about 15 book chapters in Springer and Elsevier and more than 50 Publications. I have attended various International and National Conferences. I received the Young Scientist Award in 2019 and International Distinguished Faculty In

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Microbiology Award in 2023. My career started as a Fisheries Professional focusing on aquatic animal pathogens, Multi Drug Resistance (MDR) in environmental and nosocomial microbes especially NTMs, along with understanding their mode of transmission in MDR and XDR strains and Phytoremediation for Upper Pulmonary Tract Infections. I started the pilot project on Non Tuberculous Mycobacteria in West Bengal, associated with Tuberculosis infections, which was funded by Department of Science and Technology and Biotechnology, Government of India and West Bengal and Collaborative projects funded by Indian Council of Agricultural Research (ICAR), New Delhi, and have worked in various districts of West Bengal and the Ganga river pollution monitoring system throughout India to study the effects of Global Warming. I have tried to convince farmers to report their health issues so that a proper drug regimen can be built to prevent overuse of drugs and in turn Drug Resistance in environment. I am currently working on carbon sequestration, environmental modelling, bioremediation and environmental biotechnology. India has a rich history of medicinal plants and harvesting this knowledge and their potential for the greater benefit, is my goal. I have travelled to places to gather knowledge and data on ethnomedicinal plants and am working on the documentation, which is lacking in our country. I am an avid researcher and have been guiding Masters' and Ph.D. scholars who are also working on related fields and are well placed worldwide. Being a National Service Scheme (NSS) Program Officer of WBSU since 2010, we have Adopted Villages where regular survey and camps are organised to spread awareness on Thalassemia, AIDS, Covid -19 protocols and a green and safe environment. I have completed my Basic Mountaineering course from ABVIMAS, Manali, Himachal Pradesh, India and also rock climbing and enjoy Himalayan expeditions. I am a solo traveller, a trekker, an explorer and I try to interact with localists and spread awareness in the High-Altitude villages for upgrading life and ecosystem. I try to mentor and inculcate in young minds the need for proper mental health, women education, hygiene, to be first generation learners, and put emphasis on soft skills and cultivate passion in them for entrepreneurship, by exploring Indigenous Technology Knowledge. I humbly thank the organizers for conducting a wonderful conference and giving me an opportunity to present my work.



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## VITAMIN D IN ATHLETIC PERFORMANCE REFLECTION ON THE RELATIONSHIP BETWEEN VITAMIN D SATURATION AND IMMUNE ABILITIES

**Jaroslav Novak**

*Charles University, Czech Republic*

### Abstract

Vitamin D receptors (VDRs) were found nearly in every nucleated cell of our bodies including the musculoskeletal system. Active form of vitamin D - calcitriol - affects osteoblast function through various mechanisms, for example regulation of phosphate homeostasis. In muscle tissue, it affects the proliferation of muscle cells and muscle growth. It affects an influx of calcium ions into the cell, regulation of the intra- and extracellular levels of this ion, homeostasis of phosphorus-containing compounds and the stimulation of parathyroid hormone (PTH) secretion. In this way, it can affect muscle force, strength and contraction rate. Vitamin D may also affect the diameter and number of type II muscle fibers (fast twitch fibers). It stimulates the synthesis of specific muscle proteins, which may result in increased muscle mass and strength. The ability to perform short high-power exercises such as sprints, jumps, rapid changes of movement, direction or stopping, is closely associated with type II fibers. Vitamin D may regulate mitochondrial function, dynamics and enzyme function in muscle cells. Vitamin D deficiency negatively affects muscle function and contributes to proximal muscle weakness with a reduction in type II muscle fibers. Vitamin D supplementation increases muscle fiber size, VDR percent in type II fibers, and the intramyonuclear VDR concentration. Moreover, vitamin D supplementation may have positive effects on muscle strength by increasing mitochondrial function and inhibiting muscle atrophy. Vitamin D saturation depends on a number of factors, including the availability of sunlight, latitude, skin color, nutritional habits, clothing, training environment, etc. In several of our studies, we have monitored vitamin D saturation in football players, ultramarathon runners, ice-cold water swimmers, and other groups of athletes. Regardless of the nature of the sport, a significant proportion of athletes were always hyposaturated, more significantly in the early spring months. This corresponded to a meta-analysis involving 2313 professional athletes, which showed that 56% of the athletes had an inadequate 25(OH)D concentration and that these were significantly lower during the winter period. Vitamin D also affects both innate and adaptive immunity. VDRs are found in most cells of the immune system, including regulatory T cells, neutrophils, dendritic cells, B cells and macrophages. Vitamin D has been found to increase gene expression for broad-spectrum antimicrobial peptides (AMPs), which are important regulators of innate immunity. It also contributes to the immunomodulatory effect on T and B cells in acquired immunity. AMPs are crucial proteins for innate immunity and help defend against acute infections, including influenza and the common cold. Studies have shown negative associations between vitamin D levels and the incidence of upper respiratory tract infections (URTI) in athletes especially during high-intensity exercise or prolonged and strenuous training periods. Clinical studies have demonstrated that vitamin D deficiency is related to morbidity in infectious diseases and the onset or progression of autoimmune diseases. Vitamin D supplementation has been utilized to protect against or treat some inflammatory diseases.

Current evidence supports the links between vitamin D and COVID-19 and the benefits of vitamin D supplementation for managing or treating this condition. Most of the literature reports improved COVID-19

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prognosis and outcomes with sufficient vitamin D concentrations, with or without supplementation. Vitamin D deficiency should be corrected wherever possible since it is safe and the potential for toxicity is strongly outweighed by the potential benefits in relation to protection from COVID-19.

## Biography

Jaroslav Novák, M.D., Ph.D. was born in 14. 8. 1941 in Pilsen. In 1964 he graduated from the Faculty of Medicine of Charles University in Pilsen. In 1973 he completed a three-year coaching school at the Faculty of Physical Education and Sport at Charles University in Prague. Since graduation, he has been involved in sports medicine, mainly as an assistant professor at the Department of Sports Medicine at the Faculty of Medicine of Charles University in Pilsen. He has published about 500 professional and scientific papers, of which more than a hundred in foreign journals. He has lectured at dozens of congresses in Europe and overseas. In 2015 he defended his dissertation "Cardiorespiratory Fitness of the Sporting Population". As a doctor and coach, he worked for many years with national water polo teams. To this day, he is still active in sports in the "masters" categories. He and his wife Helena have three adult children and five grandchildren.

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## PHAGE-MEDIATED LIPID A MODIFICATION AS A TOOL FOR LPS-BASED CONJUGATE VACCINES: A LESSON FROM SALMONELLA RISSEN

**Paola Cuomo**

*University of Naples Federico II, Italy*

### Abstract

**Background:** *Salmonella enterica* serovar *Rissen* (*S. Rissen*) is an emerging causative agent of food-borne diseases. The current emergence of antibiotic resistance makes necessary alternative therapeutic strategies. Several high-impact studies demonstrate the critical role of the lipopolysaccharide (LPS)-O-antigen in protective immunity against *Salmonella*, suggesting smooth LPS as an attractive candidate for developing effective vaccines and immunotherapies against *Salmonella*. However, the toxicity of LPS-Lipid A moiety represents a significant challenge for the development of LPS-based vaccines.

**Objective:** This study explores the phage-resistant strain of *S. rissen* ( $R^R$ ) as a potential tool for the production of an effective Lipopolysaccharide (LPS)-based vaccine.

**Methods:** DOC-PAGE, NMR and mass spectrometry analyses were employed to investigate the effect of phage resistance on the structure of both the LPS-O-antigen and Lipid A. Successively, RT-qPCR and NMR-based metabolomics techniques were combined to explore the impact of phage resistance on bacterial fitness and virulence. Finally, to determine whether lysogeny-induced remodeling of LPS affects the host's immune response, *in vivo* studies were conducted.

**Results:** Results displayed that  $R^R$  synthesizes a pool of smooth LPS, with a higher content of under-acylated variants of Lipid A (penta- and tetra-acylated forms) than the phage-sensitive strain ( $R^W$ ), which dampen the inflammatory response in mice, evoking, in parallel, a specific antibody response that provides protection against *S. Rissen* ( $R^W$ ) infection.

**Conclusion:** This study proposes phage-resistance as a potential biological alternative to conventional chemical, enzymatic or genetic manipulations for producing under-acylated variants of LPS and, suggests it as a promising strategy for developing LPS-based vaccines vs *Salmonella* infection.

### Biography

Paola Cuomo is a Post-Doctoral Research Fellow at the University of Naples "Federico II", where she also completed her PhD in Biotechnology. Her research activity is mainly focused on exploring the role of cellular metabolism in the regulation of innate immune responses. During the PhD, Dr. Cuomo concentrated her activities on understanding the intracellular signals governing the inflammatory processes implicated in *Helicobacter pylori* infection. In particular, she aimed to identify and characterize novel therapeutic agents to control *Helicobacter pylori* infection, through modulation of the innate immune response. The challenges encountered, and the advances achieved in this field, stimulated her curiosity towards phage therapy as a promising alternative for managing bacterial infections, especially in a context of emergent antibiotic resistance. This interest is driven by a fervent desire to mitigate the burden of bacterial infections and inflammatory-associated diseases on individuals and society.

***Day-2***  
***e-Poster Presentation***



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## TRENDS OF INFECTIVE ENDOCARDITIS IN PREGNANCY

**Karolina Viquez**

*IU Health Ball Memorial, USA*

### Abstract

**Background:** Maternal infective endocarditis (IE) occurs in 1 in 100,000 pregnancies, yet maternal and fetal mortality can reach 33% and 30%, respectively. With the increase in intravenous drug use (IVDU), the epidemiology of IE has changed affecting the morbidity and mortality of mother and fetus. We aimed to identify pregnant females with IE to better understand disease characteristics, treatment and outcomes.

**Methods:** Patients with IE admitted between 2010-2020 were retrospectively reviewed. Individuals who were pregnant at admission were identified. Baseline characteristics, laboratory, microbiology, imaging results and short-term outcomes were recorded.

**Results:** Among 1810 patients with IE, 24 were pregnant at the time of diagnosis (1.3%). Table 1 contains characteristics of the patients and pregnancy outcomes. The median maternal age was 29 years and median gestational age was 25 weeks and 3 days. All patients were active IVDU, and tricuspid valve was involved in 71% of cases. *Staphylococcus aureus* was identified in 62.5% of cases. It's interesting to see a rise in gram negative organism accounting for 20.8% of IE in pregnancy. Maternal death occurred in two patients (post-delivery), the incidence of fetal death was 11% (septic abortion).

**Conclusion:** Maternal and fetal mortality in our cohort of pregnant females was markedly less than reported previously. Prompt diagnosis, timely antibiotic initiation and a multidisciplinary approach may contribute to our findings. Further study is warranted to explore long-term outcomes of IE on newborns given that 1 in 3 infants were born preterm.

### Biography

Karolina Viquez-Beita is an internal medicine physician, currently working at Ball Memorial Hospital. She is passionate about research and medical literature, she firmly believes that research, case reports and conferences are wonderful and fun ways to gain and share knowledge with colleagues around the world. She also enjoys working with students and medical residents



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## IMPACT OF EXTENSIVELY DRUG-RESISTANT, NDM-PRODUCING KLEBSIELLA PNEUMONIAE ON THE HEALTHCARE SYSTEM: AN OVERVIEW FROM A TERTIARY HOSPITAL IN UNITED ARAB EMIRATES (UAE)

**Ahmad Subhi**

*Al-Qassimi Hospital, United Arab Emirates*

### Abstract

Infectious disease management in a tertiary care hospital is becoming more difficult due to increasing antimicrobial resistance, resistant bacteria are rapidly emerging worldwide, leading to a significant decrease in antibiotics' efficacy. As a result, bacterial infections have become a threat again after decades of treatment with antibiotics. The antibiotic resistance crisis stems mainly from the overuse and misuse of antibiotics, poor infection prevention and control, and a lack of well-developed and direct antibiotic stewardship programs. Despite the effort to develop new antibiotics and infection control measures to combat the multi-drug-resistant bacteria, but the emergence of antibiotic resistance remains a critical global health challenge. This crisis poses a significant clinical and financial burden on the healthcare system, patients, and their families. *Klebsiella pneumoniae* is a gram-negative bacillus of the Enterobacteriaceae family that can harbor mutations in the NDM and AmpC genes, which confer resistance to ceftazidime/avibactam and aztreonam antibiotics, respectively.

**Methods:** In this retrospective case analysis, we investigated the rates of XDR *Klebsiella pneumoniae* sensitivity and resistance to ceftazidime/avibactam and aztreonam antibiotics in the period from January to July 2023. The electronic medical record application Power chart was used to identify all the study participants and determine the antibiotic sensitivity and/or resistance status of XDR *Klebsiella pneumoniae* isolates from different cultures to ceftazidime/avibactam and aztreonam.

**Results:** A total of 159 patients' culture results in which XDR *Klebsiella pneumoniae* was isolated were included in the study. Approximately 53% of isolated bacteria from all cultures were resistant to both ceftazidime/avibactam and aztreonam. Further analysis showed that 66% of blood cultures, 54% of urine cultures, 55% of sputum cultures, and 34% of other cultures harbored XDR *Klebsiella pneumoniae* strains that are resistant to both antibiotics.

**Conclusion:** XDR *Klebsiella pneumoniae* isolates from different culture sources demonstrated resistance to both ceftazidime/avibactam and aztreonam in more than 50% of samples, indicating the presence of both NDM and AmpC gene mutations in more than half of all isolates. Most importantly, antibiotic stewardship programs emphasizing the rational and effective use of antibiotics should be implemented to reduce patients' morbidity and mortality, as well as the financial burden on the healthcare system, without aggravating antimicrobial resistance.

***Virtual  
Oral Presentations***

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## COMBINED THERAPEUTIC PLASMA EXCHANGE AND CONTINUOUS RENAL REPLACEMENT THERAPY IN CHILDREN WITH DENGUE-ASSOCIATED ACUTE LIVER FAILURE AND SHOCK SYNDROME

**Thanh Nguyen Tat**

*Woolcock Institute of Medical Research, Vietnam*

### Abstract

**Background:** Pediatric acute liver failure (PALF) and dengue shock syndrome (DSS) are fatal complications in patients with severe dengue. Currently, clinical data regarding plasma exchange (TPE) and continuous renal replacement therapy (CRRT) for managing these complications are limited.

**Objective:** To compare single-intervention CRRT with the combined TPE and CRRT in reducing mortality in children with DSS and dengue-associated acute liver failure.

**Methods:** A single-center, retrospective study was conducted to assess a change in clinical practice at our hospital. We assessed a before versus after practice change of using combined TPE and CRRT (2018 to 2022) versus CRRT alone (2013 to 2017) in managing children with dengue-associated acute liver failure and shock syndrome. Clinical and laboratory data were reviewed from PICU admission, before and 24h after CRRT and TPE treatments. The main study outcomes were 28-day in-hospital mortality, hemodynamics, clinical hepatoencephalopathy, and liver function normalization.

**Results:** A total of 34 children with a median age of 10 (IQR: 07-11) years underwent standard-volume TPE and/or CRRT treatments. Combined TPE and CRRT (n =19), versus CRRT alone (n =15), was associated with lower proportion of mortality 7/19 [37%] versus 13/15 [87%], difference 50% [95% CI: 22 – 78 %, P < 0.01]. Use of combined TPE and CRRT was associated with significant improvements in clinical hepatoencephalopathy, liver transaminases, coagulation dysfunction, serum lactate and ammonia levels, and haemodynamics (all presented with P values < 0.001).

**Conclusion:** Children with dengue-associated PALF and shock syndrome who underwent combined interventions of TPE and CRRT had better survival and clinical outcomes than those treated with single-intervention CRRT. Rapid normalization of liver function and biochemistry, and recovery of neurological status were markedly observed in patients undergoing combined interventions.

### Biography

I am Thanh Nguyen Tat, M.D, PhD, and an infectious disease specialist. I have been working as a clinical researcher in pediatric and adult infectious diseases, mainly in pediatric and tropical disease studies, for 15 years at the Children Hospital 2, the Oxford University of Clinical Research Unit (OUCRU), Vietnam and currently Woolcock Institute of Medical Research, Vietnam. My key research interests include Pediatrics, PICU, dengue, tuberculosis, HIV/AIDS, invasive mycoses (talaromycosis, histoplasmosis and cryptococcosis), viral hepatitis, epidemiology, novel diagnostics and clinical trials. I have oriented myself towards becoming an independent researcher in tropical diseases, particularly dengue. I aim to conduct high-impact studies to improve dengue diagnosis, prognosis and management to reduce the global burden of this disease in endemic countries. It is my great honour to deliver a presentation at this conference, and I am very thankful.

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## AN OPEN OBSERVATIONAL NON-INTERVENTIONAL MULTICENTER STUDY OF THE EFFECT ON QUALITY OF LIFE OF KAGOCEL WHEN USED IN PATIENTS WITH ACUTE RESPIRATORY VIRAL INFECTIONS IN ROUTINE CLINICAL PRACTICE IN THE REPUBLIC OF KAZAKHSTAN (ARMAN-2024)

Bakhyt Kosherova<sup>1</sup>, Duisenova A<sup>2</sup>, Zhunosov E<sup>1</sup>, Kulzhanova Sh<sup>1</sup> and Abuova G<sup>1</sup>

<sup>1</sup>Medical University of Astana, Kazakhstan

<sup>2</sup>Kazakh National Medical University, Kazakhstan

### Abstract

**Background:** The incidence of acute respiratory viral infections (ARVI) in 2023 in Kazakhstan was 14583 cases per 100,00 people. Standard therapy of ARVI includes antiviral medications, including Kagocel, which induces the production of IFNs in almost all immune cell populations involved in the antiviral response.

**Objective:** Multicentre observational prospective study aimed to evaluate the changes in quality of life and treatment adherence when prescribing Kagocel in complex therapy with antipyretics and antiseptics within 24 to 72 h from the onset of symptoms of mild to moderate ARVI.

**Methods:** 1000 adult patients (319 males and 681 females; were enrolled. Kagocel, 12 mg, tablets, was prescribed to all patients within 24–72 h from the onset of ARVI symptoms.

**Results:** According to EQ-5D-3L questionnaire at baseline 41.8% of patients reported no difficulty with daily activities and no pain, discomfort, or anxious depressive state. In the mild ARVI group, EQ-5D-3L revealed a statistically significant improvement (increase from  $84.3 \pm 10.0$  to  $90.4 \pm 5.1$  by day 3, and to  $95.7 \pm 4.9$  by day 6). In the moderate ARVI group, EQ-5D-3L also revealed a statistically significant improvement (increase from  $70.4 \pm 13.6$  to  $85.4 \pm 8.2$  by day 3, and to  $99.1 \pm 3.7$  by day 6). When the treatment was initiated within 24 or 24–72 h from the onset of ARVI manifestations, symptoms eventually resolved by day 6 in 98.3% and 87.8% of cases, respectively. No adverse events were reported.

**Conclusion:** Oral administration of Kagocel to patients with ARVI was efficient, safe and led to a significant reduction in the incidence of ARVI symptoms in groups with mild or moderate symptoms of ARVI, as well as in gender and age subgroups.

### Biography

Bakhyt Kosherova is one of the leading infectious disease specialists in Kazakhstan, who has many years of experience in research, evaluation, teaching and administration in both hospitals and educational institutions. The key area of her work is the assessment and improvement of health and well-being of the population in the direction of infectious diseases, including the improvement of etiopathogenetic therapy of infectious diseases. A striking example is the integration of protocols for Covid-19 during the pandemic. She also built a model for predicting the risk of vaccine-preventable infections (measles, viral hepatitis B) in the Republic of Kazakhstan.



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## ANTIMICROBIAL, ANTICANCER, AND ANTIOXIDANT ACTIVITIES OF MAIZE AND CLOVER POLLEN GRAINS EXTRACTS: A COMPARATIVE STUDY WITH PHYTOCHEMICAL CHARACTERIZATIONS

**Heba Barnawi, Husam Qanash, Abdu Aldarhami, Ghaida Alsaif, Bandar Alharbi, Majed N Almashjary, Alhomidi Almotiri, And Abdulrahman S Bazaid**

*University of Hail, Saudi Arabia*

### Abstract

The failure to treat infectious diseases due to the continual emergence of drug-resistant microbes poses a huge and serious challenge for human health globally. Currently, the discovery and development of natural therapeutic compounds are attracting considerable attention from researchers worldwide. In this project, two types of pollen grains (maize and clover) were evaluated for potential antimicrobial activities. Extracts of both pollen grains were purified using HPLC, which has been shown to have numerous phenolic and flavonoid compounds. Pyrocatechol and methyl gallate were detected in high concentrations (1145.56 and 1056.57  $\mu\text{g/mL}$ , respectively) in the maize extract, while caffeic acid, quercetin, and kaempferol (464.73, 393.05, and 390.93  $\mu\text{g/mL}$ , respectively) were among the compounds observed at high concentrations in the clover pollen grains extract. *Staphylococcus aureus*, *Escherichia coli*, *Salmonella typhi*, and *Candida albicans* were more sensitive to the clover pollen grains extract with inhibition zones of  $22 \pm 0.2$ ,  $18 \pm 0.1$ ,  $29 \pm 0.3$ , and  $42 \pm 0.4$  mm compared to the size of the inhibitory zones caused by the maize pollen grains extract ( $19 \pm 0.3$ ,  $15 \pm 0.4$ ,  $27 \pm 0.1$ , and  $22 \pm 0.4$  mm, respectively). Moreover, lower MIC values for the clover pollen grains extract were recorded against *C. albicans* ( $1.97 \pm 0.04$   $\mu\text{g/mL}$ ), *S. aureus* ( $62.5 \pm 1.00$   $\mu\text{g/mL}$ ), and *E. coli* ( $62.5 \pm 0.07$   $\mu\text{g/mL}$ ) than the MICs caused by the maize pollen grains extract. The use of a transmission electron microscope revealed that the *E. coli* that had been treated with the clover pollen grains extract showed changes in its cell walls compared to that treated with the maize pollen grains extract. The clover pollen grains extract exhibited a stronger antioxidant potential, with an  $\text{IC}_{50}$  value of 22.18  $\mu\text{g/mL}$ , compared to an  $\text{IC}_{50}$  value of 54.85  $\mu\text{g/mL}$  for the maize pollen grains extract, via a DPPH scavenging assay. Regarding anticancer activity, the maize pollen grains extract was revealed to be more effective in terms of inhibiting the human colon cancer cell line HCT-116, with an  $\text{IC}_{50}$  value of  $67.02 \pm 1.37$   $\mu\text{g/mL}$ , compared with the observed toxicity caused by the clover extract, with an  $\text{IC}_{50}$  value of  $75.03 \pm 1.02$   $\mu\text{g/mL}$ . Overall, the clover pollen grains extract demonstrated potent antibacterial and antioxidant activities, but not anticancer activity, when compared to the maize grains extract. Thus, the current findings related to both types of pollen grains (clover and maize) highlight their potential therapeutic applications for the treatment of certain infectious diseases and malignancies.

### Biography

Heba barnawi is an assistant Professor of Microbiology in faculty of Applied Medical Sciences at the University of Hail, Saudi Arabia. Has her expertise in higher education and research in microbiology.



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## CLINICAL CHARACTERISTICS AND RISK FACTORS FOR COVID-19 DEATHS IN WEST BANK

**Duha Hamamdeh**

*Al-Quds University, Palestine*

### Abstract

**Background:** Many risk factors have been associated with severe outcomes and death from COVID-19 disease. In Palestine, the incidence of COVID-19 was 8.96%, the COVID-19 mortality rate was 0.1%, and deaths due to COVID-19 showed case fatality ratio of 1.04% until the 31st of December 2021. Study Problem & Justification: The mortality rate among the population in West Bank related to COVID-19 requires an accurate analysis of risk factors causing death, and MOH has published statistics about active, recovered, and fatal cases, but without any analysis of the exposures or causes. Therefore, we would like to conduct a study in Palestine to understand clinical characteristics and risk factors for deaths. Aim &

**objectives:** This study aims to understand the clinical characteristics and risk factors for COVID-19 that resulted in death in West Bank. Its objectives are understanding the demographic characteristics, medical history, and complications of COVID-19 deaths. In addition, analyzing indicators of COVID-19 progression and evaluating the correlation between a medical intervention and deaths in different hospitals. Study

**methodology:** A retrospective cohort study targeted the files of 1001 COVID-19 deaths 15 hospitals in West Bank from March 1, 2020 to December 31, 2021. Descriptive, univariate at  $p$ -value  $< 0.05$ , and multivariate analysis with (95% CI) were performed using SPSS software.

**Results:** The mean age of sample was 68 years, with range 17-100 years, half of them were males (57.5%). A+ blood group was dominant (33.6%). The mean of stay duration in the hospital was 12.9 days, while the mean of survival days was 15.9 days. Also, 99.1% of patients received supplemental oxygen, 94.6% received non-invasive O<sub>2</sub> while 56.3% received invasive O<sub>2</sub>, and the mean of initiation of giving the non-invasive O<sub>2</sub> was one day from admission while the mean of initiation the intubation was 7 days from admission. All patients had signs and symptoms, 82.9% of patients had comorbidities. Pulmonary infiltrates were the most reported radiological finding with percentage of 60.2%. Also, on average, the first abnormal laboratory test results manifested by day 4 following the admission. In terms of medications, Dexamethasone was administrated to 82.7% of patients while Enoxaparin was received by 83.5% of them. Additionally, antibiotics were given to 97.1% of the patients, despite only 19.1% of them having co-infection. Also, the analysis showed a significant relationship through comparison between age and gender with the variables, and the findings indicated that individuals in the age range of 61-8- years, having diabetes, having cancer, and developing septic shock experienced a significant decrease (95% CI) in survival days, with reductions of 1.27 folds (127%), 1.202 folds (120%), 1.320 folds (132%), and 1.309 folds (130%) respectively. On the other hand, living in the southern West Bank, receiving intubation, having hypothyroidism, and receiving Tocilizumab experienced a significant increase (95% CI) in survival days, with increase of 0.799 folds (79.9%), 0.74 folds (74%), 0.46 folds (46%), 0.74 folds (74%) respectively.

**Conclusion:** This study is the first one in Palestine that highlighted the COVID-19 deaths from all governorates of West Bank and identified their clinical characteristics and investigated the possible risk

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factors related to COVID-19 deaths attending the hospitals. Most of our findings were consistent with other international studies. Based on the findings of this study, it was observed that the old age, male, A+ blood group, comorbidities, and additional complications were related to COVID-19 mortality. Each of age and gender had an effect on some study variables. The indicators such as radiological investigation and laboratory tests showed abnormal findings that predicted to worse COVID-19 prognosis. In addition, the time factor clearly appeared in our study, as survival days, duration days in hospitals, and O2 supply timing as some variables significantly affected survival days since COVID-19 diagnosis. Therefore, the timely identification of COVID-19 severity by biomarkers would help to provide the appropriate intervention on time. Regarding intervention, the majority of hospitals adopted a similar treatment protocol, involving the administration of corticosteroids, anticoagulants, mineral and vitamin supplements, antivirals, and antibiotics. However, these treatments did not show a substantial impact on survival days, with the exception of Tocilizumab.

## Biography

Duha Hamamdeh earned her B.S in Nutrition and Food Processing from Hebron University in 2016, followed by a Diploma in Palestinian Studies from the Academy of Refugee Studies in 2017. She completed her MS in Infectious Diseases Prevention and Control at Al-Quds University in 2023. From 2016 to 2018, she volunteered at Al-Jebrini Dairy & Food Industries Company, Yatta Health Directorate, Al-Ahli Hospital, and various local radio stations. Since 2018, she has worked in the School Health Department at Yatta's Education Directorate. In 2019, she joined the Palestinian Center for Policy Research and Strategic Studies, where she has contributed to research and published papers on public policy. Hamamdeh's work reflects her strong interest in writing, research, and health education.

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## DETECTION OF BORRELIA BURGdorFERI IN OFF-SEASON QUESTING TICKS: LYME-CARRYING TICKS LIVE LONGER AND SPREAD FARTHER

Alessandra Mistral De Pascali

The Greater Romagna Area Hub Laboratory, Italy

### Abstract

**Introduction:** Ticks are widely distributed throughout the world and serve as hosts for numerous pathogens, making them important contributors to zoonotic infections. *Borrelia burgdorferi* is a bacterial species that causes an emerging zoonotic tick-borne disease known as Lyme disease. Transmission cycles of the pathogen involve multiple host groups and are strongly influenced by environmental variables. The occurrence of Lyme disease is highly seasonal and the annual appearance of cases in spring is modulated by the weather conditions of the preceding months. Our work aims to understand the behaviour of the ticks during the winter months in Emilia-Romagna (Northeast Italy) in order to identify the presence of *Borrelia burgdorferi* in ticks and define the risks of out-of-season transmission of Lyme disease.

**Materials and Methods:** Tick collection sites were distributed along the city of Bologna (Emilia-Romagna region), specifically in the northern Apennines and suburban hill areas. The ticks were all morphologically identified as *Ixodes ricinus*. Ticks were pooled by stage and sampling site, homogenized through scalpels and pestles and DNA was extracted using TANBead<sup>®</sup> Nucleic Acid Extraction Kit (Taiwan Advanced Nonotech Inc.). DNA were screened for *Borrelia burgdorferi sensu latu* by Real-Time PCR targeting the 23S rRNA gene. Pools that tested positive by Real-Time PCR were sequenced using Illumina based 16S Metagenomics Sequencing (Arrow Diagnostics).

**Results:** Questing ticks were sampled regularly during the period from February 2 to February 13, 2024. During the sampling period, a max temperature of 15°C and a min temperature of 0°C, with a mean humidity of 88%, has been registered. 157 ticks were collected including 6 adults (4%), 5 larvae (3%) and 146 nymphs (93%) that were divided into 27 pools. The pools were tested in Real-Time PCR for detection of *B. burgdorferi* *sl* DNA and 4 pools (15%) were resulted positive with a mean Cycle threshold (ct) of 30. 1 out of 4 pools, as a pilot sample, was sequenced identifying the presence of *Borrelia burgdorferi sensu strictu*, along with 140 other microorganisms.

**Discussion and Conclusions:** Warming winters are changing arthropod behaviour patterns and will have important consequences for the spread of vector-borne infectious diseases. Our results show a preliminary picture of the circulation of *Borrelia burgdorferi* in the winter season, demonstrating the importance of considering off-season transmission cycles of the infection and the impact of climate change on life cycle of ticks. There is therefore an urgent need to turn the spotlight on the possibility of transmission of vector-borne diseases all over the year, improving the clinical identification of symptoms and microbiological diagnosis

### Biography

Graduated in Health Biology, she obtained a PhD in Medical Microbiology with a project on Leishmaniasis. Researcher at the Department of Medical and Surgical Sciences of University of Bologna (UNIBO), she is currently working on Italian NRRP project "One Health Basic and Translational Research Actions Addressing Unmet Needs on Emerging Infectious Diseases (INF-ACT)". Her scientific interests are focused on human-environment-animal interactions in the study of vector-borne diseases, with particular focus on the impact of climate change.

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He is currently working on Italian nationwide projects for genomic characterization of vector-borne pathogens through Next Generation Sequencing. Specifically, he is working on characterization of circulating Arboviruses at the human-vector interface and reservoir animals attarverso WGS. In addition, she is engaged in a Lyme Disease surveillance project in Emilia-ROmagna (northeastern Italy) through molecular analysis of ticks. Professor of Clinical Microbiology in Bachelor of Nursing. She also has been lecturer during the Winter School “One Health, unifying perspectives on climate change” held in Bologna, and for the UNIBO PhD course “Future earth, climate change and societal challenges”. She has been part of the One Health Self steering committee of the UNAEUROPA Alliance, alliance of 11 European Universities. She is the author of a cartoon on vector-borne diseases published on Youtube during One Health Day 2022 ([https://www.youtube.com/watch?v=M8mmEHa8u\\_E](https://www.youtube.com/watch?v=M8mmEHa8u_E)). Finally, she participated in the writing of the MOOC (in progress) “Artificial intelligence and (One) health” in collaboration with colleagues from UNA EUROPA’s One Health Focus Area.



6<sup>th</sup> European Congress on

# INFECTIOUS DISEASES

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## KNOWLEDGE AND ATTITUDES TOWARDS HIV IN LATIN AMERICAN STUDENTS. AN EXPLORATORY REVIEW

**Carola Montecino Bacigalupo**

*University of the Americas, Chile*

### Abstract

**Introduction:** According to World Health Organization (WHO) estimates, by the end of 2022, approximately 39 million individuals were estimated to be living with Human Immunodeficiency Virus (HIV) globally. In Chile, the most recent data provided by the Institute of Public Health (ISP) for the year 2022 reveal a 7% increase in HIV cases in the country, with a total of 5,401 new diagnoses, with an incidence rate of 25 cases per 100,000 people.

**Objective:** To determine the level of knowledge and attitudes of Latin American university students regarding HIV prevention and self-care.

**Methodology:** A systematized review was carried out using the PRISMA methodology for exploratory type review (scoping Review), the databases Web of Sciences, Scopus, PubMed and Scielo were reviewed. A review period of 10 years was established, considering articles in Spanish, English and Portuguese. The search keywords were “HIV”, “university students”, “knowledge”, “awareness”, “prevalence”, “risk factors”, “prevention”, “intervention”, “treatment”, “attitudes”. These were combined with Boolean operators such as “AND” and “OR” to give search algorithms such as “HIV AND university students AND knowledge”, “HIV OR AIDS AND prevention AND university students”.

**Discussion:** The perception of HIV among university students in Latin America reveals interesting patterns and variations in understanding and attitudes towards this disease. Despite differences in the social contexts of each country, common trends emerge that highlight the need for specific educational and intervention strategies to address the lack of knowledge and negative attitudes identified in student populations.

**Conclusion:** These studies emphasize the need for context-specific approaches to improve HIV education and attitudes in university settings. Inclusiveness, destigmatization and the promotion of comprehensive sexuality education emerge as crucial elements in the design of effective prevention and awareness strategies for Latin America.

### Biography

Carola Montecino Bacigalupo is an associate professor at the School of Nursing, Universidad de las Americas, Chile. She is a PhD candidate in economics at the University of Leida, Spain. Her research interests are Public Health, Epidemiology, Oncology and Health Economics. She participates in activities of international health associations with the purpose of analyzing and improving some processes related to public policies.



## COVID-19 AND INFLUENZA CO-INFECTION AMONG TB PATIENTS UNDER TREATMENT IN SELECTED CHEST CLINICS IN THE POST-PANDEMIC AMBIENCE

**Alexander Martin-Odoom**

*Hamagen Molecular Laboratory Consult Ltd, Ghana*

### Abstract

**Background:** Co-infection has been recorded in tuberculosis (TB) and influenza patients in Ghana, but there is little information on co-infection of SARS COV-2 infected patients and influenza, though tuberculosis (TB) patients can contract influenza and COVID-19, just like any other person. However, patients with TB may be at an increased risk of severe illness if they contract influenza or COVID-19 due to their weakened immune system. People with TB who have underlying medical conditions, such as HIV/AIDS and diabetes, are more susceptible to influenza and SARS COV-2 infections. Similarities in the symptoms of TB, Influenza and SARS COV-2 infections make diagnosis and treatment more complicated. Therefore, it has become important to precisely diagnose and differentiate between these infections at the point of care in Ghana and thus accurately determine the disease burden for each, avoiding misclassification.

**Objective:** The aim of the research was to determine the occurrence of COVID-19 and influenza co-infection among TB patients in selected chest clinics in the post-pandemic period.

**Methods:** A total of sixty-one (61) TB positive patients were enrolled for the study from the city of Accra, a heavy COVID 19 burden city during the pandemic. Sputum samples from these participants were collected and was tested for COVID-19 and influenza. Rapid diagnostic combo kits were used to detect the presence of either infectious agent.

**Results:** Out of the 61 TB positive participants under treatment for TB, none was positive for COVID-19 but 34 (55.7%) were positive for Influenza Type A whilst 29 (47.5%) tested positive for Influenza Type B.

**Conclusion:** The presence of Influenza virus Type A and B in the TB patients under treatment complicates the expected treatment outcomes. These findings should necessitate a change in the patientcare pathway.

### Biography

A Consultant Clinical Virologist, a Senior Lecturer at the University of Ghana. His research areas span across Emerging and Re-emerging Infectious Viral diseases, Respiratory Tract Viral diseases, HIV Drug Resistance, Prevention of Mother-To-Child transmission of HIV, and Viral pathogenesis. An experienced consultant in diagnostic health system strengthening and analysis, Infectious diseases research, and policy development. His field of expertise covers Infectious Diseases, Diagnostic Laboratory Systems and Laboratory Systems Strengthening.

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## A NEW APPROACH TO ELIMINATING VIRUSES

**Vladimir Zajac**

*Formerly scientist at the Cancer Research Institute, Slovakia*

### Abstract

Large amounts of the novel coronavirus are still being detected in sewage around the world, despite the fact that the epidemic is already on the decline. What is the explanation? New and new variants of the new coronavirus are appearing. Where do they come from? From China or Hong Kong? How about the most common one - the flu virus. It threatens people in autumn and winter, then disappears. Where? And it will return again in autumn. We do not yet know adequate answers to these questions. Every virus is a parasite that cannot exist on its own and is fully dependent on its carrier. This is the basic condition of its existence. The parasite must have its host, and thus is a living cell. Based on many years work with BLV in stables, I came to the conclusion that the carrier of the virus is a bacterial cell. We tested this assumption and confirmed it with the results. This idea was then tested on the HIV model in the laboratory of Prof. Flossie Wong-Staal, (UCSD). With this model, too, we managed to prove that its host can be bacteria and yeasts of the intestinal tract. Evidence was confirmed at the DNA level and on protein level. Similarly, we monitored the presence of novel coronavirus in the intestinal tract of infected individuals. Rectal swabs were taken from 30 people who overcame infection with the new coronavirus two-four weeks ago. The results show that the vast majority of patients (83%) who have overcome the infection, the virus is still present in their intestinal tract and can induce a de novo infection in a patient and infect others. Only five patients (17%) did not show signs of the presence of the new coronavirus even 28 days after infection. Carriers of the new coronavirus have not yet been identified. Viruses can exist in these carriers for months or years, reproduce and mutate in them. The mutant can arise in one individual and pass on to other individuals. In the case of variant Omicron, a longer time is needed before 30 mutations could occur in the spike protein. It can be assumed that this number of mutations can occur between 10 and 20 years. The predecessor of Omicron can be dated back to the first SARS-1 epidemic. Based on these results, it was concluded that many, if not all viruses can be transmitted by bacteria, yeast, or by other unicellular organism. After each viral infection, a part of the virus in the majority of infected people passes into the intestinal tract hidden in carriers, which is its biggest weakness. By identifying the carrier and its subsequent elimination, we will also destroy the virus. The viral load localized in the intestinal tract is thus constantly increasing worldwide, which represents a biological time bomb for the human population, as it will be the source of an increase in diseases, including cancer. So the gate has been opened and what should come next? The above-mentioned fundamental discovery opens a new way - a comprehensive analysis of the contents of the intestinal tract is needed to identify the inducers of several diseases, especially degenerative ones. Future research with subsequent application in clinical practice should be oriented in this direction, which will result in a significant improvement in the health status of the human population. This is a fundamental change in the diagnosis and treatment of diseases - New Medicine - for diseases that humanity has not yet dealt with.

### Biography

Vladimir Zajac has completed his PhD. in 1982 at the Cancer Research Institute of Slovak Academy of Sciences in Bratislava (Slovakia), where he worked as the Head of Department of Cancer Genetics from 1996 to 2010. He joined the Medical Faculty of the Comenius University as Associate Professor of Genetics in 2007. He has published 77 works, mostly in renowned journals, and is the author of chapters in four professional books. He is the editor of the book "Bacteria, Viruses and Parasites in the AIDS Process" (In Tech, 2011).

## DETECTION OF MYCOBACTERIA IN CHILDREN'S STOOL SAMPLES USING MULTIPLEX PCR IN BAMAKO, MALI

**Mohamed Sinaba, O. Diallo and F. Coulibaly**

*University of Science of Technical and Technology of Bamako, Mali*

### Abstract

**Background:** According to the World Health Organization (WHO), over 60% of tuberculosis (TB) cases in children are either not reported or not diagnosed. The main challenge lies in obtaining sputum samples necessary for current tests, which is particularly difficult in young children.

**Objective:** To evaluate the diagnostic performance of multiplex PCR for detecting mycobacteria in children's stool samples, providing a potentially more practical and less invasive alternative to sputum samples.

**Methods:** A cross-sectional study was conducted from January to June 2022. Children suspected of having tuberculosis, recruited from the pediatric service at CHU Gabriel Touré, were included. Two stool and sputum samples were collected on different days (Day 1 and Day 2). Multiplex PCR, a home-made molecular technique using the ABI Fast 7500 Dx machine for semi-quantitative real-time PCR, was used to detect mycobacteria from DNA extracted using a specific capture method with probes. Sputum culture on BACTEC/MGIT medium served as the reference method.

**Results:** We included 20 children suspected of having tuberculosis, with a sex ratio of 3. Most of the children (70%) were aged 1 to 12 months. The TB/HIV co-infection rate was 15%. The diagnostic performance of multiplex PCR in detecting mycobacteria in stool samples compared to culture showed a sensitivity of 54.6%, specificity of 55.6%, positive predictive value of 60%, and negative predictive value of 50%.

**Conclusion:** Given the low sensitivity and specificity results, the use of multiplex PCR for detecting mycobacteria in stool samples should not be considered as the sole diagnostic method in children. However, combined with existing diagnostic tools, this method could improve the detection rate of tuberculosis cases in suspected children.

### Biography

Mohamed Sinaba is a researcher specializing in diagnostic methods in clinical microbiology. He works at the Applied Molecular Biology Laboratory of Mali (LBMA). With extensive experience in research and diagnostics of infectious diseases, he is dedicated to improving detection techniques to better meet the clinical needs of vulnerable populations. His current work focuses on evaluating molecular technologies for faster and more accurate diagnostics, especially in children.

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