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Acknowledgements:
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Example references Journals:
Standard Journal Article
Rampal L and Liew BS. Coronavirus disease (COVID-19) pandemic. Med J Malaysia 2020; 75(2): 95-7.
Rampal L, Liew BS, Choolani M, Ganasegeran K, Pramanick A, Vallibhakara SA, et al. Battling COVID-19 pandemic waves in six South-East Asian countries: A real-time consensus review. Med J Malaysia 2020; 75(6): 613-25.

NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. Lancet 2021; 11; 398(10304): 957-80.

Books and Other Monographs:
Personal Author(s)
Goodman NW, Edwards MB. 2014. Medical Writing: A Prescription for Clarity. 4 th Edition. Cambridge University Press.

Chapter in Book
McFarland D, Holland JC. Distress, adjustments, and anxiety disorders. In: Watson M, Kissane D, Editors. Management of clinical depression and anxiety. Oxford University Press; 2017: 1-22.

Corporate Author
World Health Organization, Geneva. 2019. WHO Study Group on Tobacco Product Regulation. Report on the scientific basis of tobacco product regulation: seventh report of a WHO study group. WHO Technical Report Series, No. 1015.

NCD Risk Factor Collaboration (NCD-RisC). Rising rural body-mass index is the main driver of the global obesity epidemic in adults. Nature 2019; 569: 260–64.

World Health Organization. Novel Coronavirus (2019-nCoV) Situation Report 85, April 14, 2020. [cited April 2020] Accessed from: https://www.who.int/docs/defaultsource/coronaviruse/situationreports/20200414-sitrep-85-covid-19.

Online articles
Webpage: Webpage are referenced with their URL and access date, and as much other information as is available. Cited date is important as webpage can be updated and URLs change. The "cited" should contain the month and year accessed.

Ministry of Health Malaysia. Press Release: Status of preparedness and response by the ministry of health in and event of outbreak of Ebola in Malaysia 2014 [cited Dec 2014]. Available from: http://www.moh.gov.my/english.php/database_stores/store_view_page/21/437.

Other Articles:
Newspaper Article
Panirchellvum V. 'No outdoor activities if weather too hot'. the Sun. 2016; March 18: 9(col. 1-3).

Magazine Article
Rampal L.World No Tobacco Day 2021 -Tobacco Control in Malaysia. Berita MMA. 2021; May: 21-22.

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Symposium on Tropical Medicine and Infectious Diseases (STMID 2024)

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Antimicrobial drug resistance (AMR) – Are we prepared?

Ker Hong Bee

Hospital Raja Permaisuri Bainun, Ipoh

ABSTRACT

Antimicrobial resistance (AMR) is one of the most critical global health challenges of our time, threatening to undermine decades of medical progress. Microorganisms develop resistance when bacteria/viruses/fungi/parasites no longer respond to the antimicrobial therapy. AMR accelerates by misuse/ overuse of antimicrobials and poor infection and prevention measures. Our preparedness to combat AMR, causes, impacts, and current global responses will be highlighted. Only through sustained global action, public awareness, and robust policies can we hope to mitigate the devastating consequences of AMR and secure a future where effective treatments remain available.

Tuberculosis – Prehistoric to present

Irfhan Ali Hyder Ali

Hospital Pulau Pinang

ABSTRACT

Tuberculosis continues to plague humankind from ancient times up to today. The disease, caused by *Mycobacterium tuberculosis* is spreading at an alarming rate and more worryingly, the rates of drug-resistant TB (DRTB) are also on the rise. The Covid-19 pandemic further worsened the TB control globally. Malaysia has not been spared from the spread of the disease as it continues to burden our health system, causing both mortality and morbidity to our patients. Despite the increasing cases, there have been great advancements in TB diagnosis and treatment. These updates are emphasized in the Management of Tuberculosis CPG launched in 2022. New developments in TB management including latent TB infection management, newer drugs for DRTB and other aspects will be covered during this talk. It is hoped that with adequate knowledge and by working together at all levels of health care, we can stem the rise in tuberculosis in Malaysia.

COVID-19 – Persisting challenges

Thilaka Chinnayah@Nadarajah

Division of Disease Control, MOH

ABSTRACT

The world is continuing to experience the COVID-19 pandemic, which has resulted in more than 776 million reported cases and more than 7 million deaths as of 21 July 2024. However, we have often heard a lot of people refer to the pandemic in the past tense. "During COVID," they say, or, "when we were in the pandemic... been repeatedly heard. Whatever it is, the challenges that came with it is still lingering and still poses a risk but we are no longer in the crisis state that we were in 2020. What are the persisting challenges from this COVID-19 pandemic? The five top challenges could be, 1. Balancing the live and livelihood since the COVID-19 pandemic has led to a global health crisis with severe economic and social consequences. 2. The COVID-19 pandemic, threatened to reverse the progress that's been made in the elimination of many chronic diseases. For example, the guardian reported, "Twelve months of COVID-19 has reversed 12 years of global progress against tuberculosis". 3. COVID-19 associated illness, long-term effects from the virus like long COVID which includes pulmonary, cardiovascular and neurological complications, as well as rehabilitation and psychological concerns. 4. Public fear and lack of trust still remain a challenge for health care system in managing future outbreak. And the 5th challenge is restructuring health care system to be more resilient and future pandemic proof.

Behavioural modification effectiveness in the control of mosquito-borne diseases

Osman Ali

Royal College of Medicine Perak, Universiti Kuala Lumpur

ABSTRACT

Mosquito-borne diseases, like malaria, dengue fever, and Zika virus, are still a major public health concern globally, affecting millions of people each year. The primary way to control these diseases has been through vector control interventions, such as insecticide-treated bed nets and indoor residual spraying. Emerging evidence indicates that adding behavioural modification strategies to traditional interventions can significantly improve disease control efforts.

Behavioural modification interventions involve a variety of things, including communication campaigns, health education, community engagement, and socio-cultural outlook. These methods are crucial in motivating individuals and communities to adopt preventive practices and adhere to recommended behaviours that minimize mosquito-human contact and breeding site availability. However, the effectiveness of it in combating mosquito-borne diseases has been inconsistently found by various studies worldwide.

Health communication campaigns in the present day use a variety of channels, including mass media, social media, and community outreach. The aim is to raise awareness, distribute information, and educate communities about mosquito-borne diseases. These campaigns have been proven to be effective in enhancing knowledge, attitudes, and preventive practices, resulting in a reduction in disease transmission rates.

Health education and community engagement initiatives, in conjunction with communication strategies, allow individuals and communities to take responsibility for their health. By supplying resources, knowledge, and skills, these interventions encourage sustained behaviour change and foster a sense of responsibility for disease prevention.
In behavioural modification efforts, it is crucial to address the socio-cultural factors that influence disease transmission. The behaviour of individuals and communities is greatly influenced by cultural practices, gender disparities, and beliefs. By acknowledging these influences, culturally sensitive and appropriate interventions can be tailored to resonate with the target population and improve their effectiveness.

There is a dire need for collaborative efforts among researchers, public health practitioners, policymakers, and communities to develop evidence-based behaviour modification strategies that have lasting impacts on disease control and prevention. Integrating behavioural interventions with traditional vector control strategies can lead to greater success in reducing the burden of these diseases.

Dengue – Updates and prevention strategies

Yong Yean Kong

Xiamen University

ABSTRACT

Dengue disease has become a significant and growing global public health concern, particularly in tropical and subtropical regions of the world. The disease is estimated to cause around 56 million cases and up to 40,000 deaths annually. The primary vectors responsible for dengue transmission are Aedes mosquitoes, which thrive in urban centers, leading to widespread transmission. This situation has been further exacerbated by the impacts of climate change, which have contributed to increased mosquito survival, reproduction, and biting rates, ultimately resulting in longer dengue transmission seasons.

The severity of dengue disease is influenced by interacting factors such as the specific dengue virus strain, the age of the patient, the immune status of the host, as well as host genetic variability. A phenomenon known as antibody-dependent enhancement best explains the correlation between the vascular permeability syndrome and second heterotypic dengue virus infections, as well as infections in the presence of passively acquired antibodies. Growing evidence from in vivo and in vitro studies indicates that the dengue viral non-structural protein 1 (NS1), plays a key role in the pathogenesis of severe dengue disease, triggering endothelial dysfunction, platelet abnormalities, and vascular leakage.

With no effective vaccine or antiviral treatment currently available, the primary focus for addressing the dengue burden has been on implementing preventive strategies. These strategies aim to combat the disease-carrying mosquitoes and reduce human-mosquito interactions. This topic provides a comprehensive summary of the latest developments in dengue research, including updates on epidemiology, pathogenesis, vaccine development, progress in antiviral medication development, novel therapeutic approaches, and advancements in vector control methods.

Zoonotic disease across species borders: DVS role to prevent and control zoonotic diseases

R Pravina Vathi Ramachanderen

Department of Veterinary Services Perak, Malaysia

ABSTRACT

Zoonotic disease are diseases which is transmissible from animals to human. It is estimated that zoonotic diseases account for about 60% of new diseases that are reported worldwide. Over 30 new human diseases have been identified in the previous three decades, and 75% of these are animal-origin pathogens. The increasing volume of international trade, close proximity to animals, transboundary livestock movement within neighbouring countries, massive development and disappearance of forest and wild animal habitats are major contributing factors to the rising threat of zoonotic diseases in Malaysia. Zoonotic infections also pose economic consequences due to loss of animal trade through morbidity and mortality of infected animals and also due to the impact on human health and livelihood. Large number of smallholder ruminant and livestock farms pose as an of the important risk factor for zoonoses in Malaysia. Zoonotic diseases of concern in Malaysia includes Rabies, Highly Pathogenic Avian Influenza, Brucellosis, Leptospirosis, Nipah and Q-fever. Department of Veterinary Services, Malaysia conducts active surveillance for the diseases annually to reduce prevalence of the disease and also to maintain freedom from the disease. Further to that, animal health surveillance is also conducted along the livestock and livestock production chains which includes the entry point, farms, slaughterhouse and processing plants for detection of zoonotic pathogens to ensure the safety of human health and sustain food safety. As human health, animal health and environment are closely connected, the One-Health concept or collaboration across all sectors is crucial to address the existing and emerging zoonotic diseases.

Survival analysis of adult pulmonary tuberculosis patients in Selangor, Malaysia between the years 2013-2019

MH Suhairi[1], M Mohamad[2], MR Isa[2], S Abdul Halim[1]

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ABSTRACT

Introduction: Patients with tuberculosis (TB) continue to die from the disease despite on effective treatment. Understanding the survival of TB patients on treatment is the first step to deciphering the TB-related-death-among-treated-individual conundrum. Preventing TB-related death among TB patients on treatment also has an advantage since the ongoing monitoring and administration of curative treatment enable a window of opportunity for action and a higher chance of success. **Objective:** To assess the 1-year survival of adult pulmonary TB (PTB) patients on treatment in Selangor, Malaysia, from 2013 to 2019 and to compare the survival based on the patients' sociodemographic and clinical features. **Materials and Methods:** We conducted a retrospective cohort study of all adult PTB patients registered in Selangor, Malaysia between 1st January 2013 and 31st December 2019 using MyTB, the national online TB surveillance registry of every TB patient diagnosed and reported in Malaysia. We retrieved the patients' sociodemographic and clinical features at the time of diagnosis, treatment duration, and outcome details. We utilized Kaplan–Meier method to determine the survival function for each categorical variable and Log-Rank test to compare them. **Results:** We enrolled 24570 adult PTB patients, and 595 (2.4%) died from TB during the study period. The mean survival time of the patients at 1 year of treatment was 356.2 days, while the 1-year survival rate was 96.9%. There were significant differences in survival by age group, sex, residing district, residing location, highest education level, employment status, sputum smear AFB at diagnosis, chest radiography at diagnosis, concurrent EPTB involvement, treatment history, and HIV status ($p < 0.001$). **Conclusions:** Our findings propounded that TB patients with sociodemographic and clinical features associated with low survival should be put on close monitoring, effective health education and support, medical optimization from co-morbidities, and a low threshold for medical specialty referral.

Adulticidal efficacy of alpha-cypermethrin against *Aedes albopictus* in Malaysia

O Wan-Norafikah[1,2], A. Farah-Farhani[3], Z Atiqah-Izzah4, S Aliah-Fatihah[3], N.I. Nureen-Afrina[1], CD Chen[5], MS Nurul-Azira[1,2]

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ABSTRACT

Introduction: The use of chemical insecticides such as pyrethroid class continues as the most favoured approach in the vector control programmes in many countries including Malaysia. **Materials and Methods:** The adulticidal efficacy of pyrethroid alpha-cypermethrin for the control of *Aedes albopictus* populations from several types of housing and agrarian sites in Peninsular Malaysia was assessed through the bioassays. *Aedes albopictus* adult female populations from each study site were selected for alpha-cypermethrin 0.05% through the 1 h exposure period. The lethality percentages were recorded at 30 minutes of the bioassays and after 24h recovery time. **Results:** At 30 minutes of selection pressure, the lowest and highest 50% lethal time (LT50) values were displayed by *Ae. albopictus* adults from dengue-risk housing sites (34.19 min) and oil palm plantations (56.53 min), respectively. After 24 h recovery time, field populations of *Ae. albopictus* adults from rubber estates, dengue-free housing sites and dengue-risk housing sites showed almost full susceptibility to alpha-cypermethrin 0.05%. **Conclusion:** These findings implied a positive adulticidal effect of alpha-cypermethrin and its promising utilization in the prospective vector control programme particularly at rubber estates and both types of housing sites chosen in this study.

Cerebral toxoplasmosis presenting as a solitary space occupying lesion

Jamallulail SI[1], Cheng JT[2]

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ABSTRACT

Introduction: *Toxoplasma gondii* is a ubiquitous obligate intracellular protozoa of the phylum apicomplexa which can cause significant human disease. Upon infection of an immunocompetent host, it persists in a dormant form (bradyzoite) mainly in privileged tissue such as neurons and retina. In states of compromised cell mediated immunity, these bradyzoites can reactivate into their infective replicating form (tachyzoite) and cause significant organ damage. **Case Report:** A 42-year-old single Malay man presented with a week history of right sided upper limb weakness with facial asymmetry. Physical examination revealed a right sided hemiparesis accompanied by a right facial droop. Otherwise, he was afebrile, and the rest of his physical examination was unremarkable except for presence of facial seborrhoeic dermatitis and mild oropharyngeal candidiasis. Computed tomography (CT) scan of his brain revealed diffuse white matter oedema of his left fronto-parietal lobe with associated sulcal effacement. He tested positive for the human immunodeficiency virus (HIV) with a CD4+ cell count of 32 cells/µL and toxoplasma immunoglobulin G (IgG) was positive. He was commenced on co-trimoxazole 1.92 g twice daily, empirically treating for cerebral toxoplasmosis. His facial asymmetry resolved within 7 days and his hemiparesis improved with physiotherapy. **Discussion:** Cerebral toxoplasmosis is an important cause for a stroke mimic in immunocompromised patients. It is classically described in patients with CD4+ cell counts of less than 100 cells/µL. Cerebral toxoplasmosis generally appear radiologically as multi-focal ring enhancing lesions on a contrasted CT scan. However, it may present atypically as a solitary space-occupying lesion such as in our case. This condition responds well to folate antagonists such as pyrimethamine combined with sulphonamides or co-trimoxazole, with expected clinical improvement within a fortnight. Other alternative pharmacological treatment regimens are discussed.

Artificial intelligence in healthcare: Knowledge and perceptions among healthcare professionals in a private hospital in Negeri Sembilan, Malaysia

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ABSTRACT

Introduction: Artificial Intelligence (AI) is leading the way in fundamentally transforming the future of healthcare and medicine. Beyond image processing and diagnosis, AI has also been integrated into healthcare products, prognosis, therapy, and patient monitoring. Thus, this study was conducted to determine the knowledge and perceptions of AI among healthcare professionals in a private hospital in Malaysia. **Materials and Methods:** A cross-sectional study was conducted using a validated survey comprised of demographic data, knowledge, and perceptions of AI. Descriptive analysis and a chi-square test were used to analyze the data. A total of 198 respondents consisting of allied health professionals, nurses, doctors, and other healthcare professionals have participated in this study. **Results:** Most of the respondents had poor knowledge of AI, with only 49.0% of the respondents defining AI as the use of computer algorithms to perform tasks that require human intelligence. Most of the respondents (70.2%) had a moderate perception of AI in healthcare. There was a significant association between perceptions of AI with different genders and positions of healthcare professionals ($p<0.05$), with males and pharmacists having higher perceptions of AI. **Conclusion:** The lack of knowledge and perceptions of AI may result in significant issues, particularly considering its anticipated widespread utilization in the future. Thus, emphasize the importance of educational interventions to enhance the understanding of AI among healthcare professionals as they play a vital role in the implementation and adoption of AI in healthcare.

Short-term side effect patterns of COVID-19 vaccines: Type and dosage matters

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ABSTRACT

Introduction: The type of COVID-19 vaccine and the dosage administered appear to significantly influence the nature and frequency of the side effects. In Malaysia, the vaccines against COVID-19 administered were Pfizer-BioNTech, AstraZeneca and Sinovac. Various studies reported that short-term side effects of the COVID-19 vaccine include localized pain, fever, and fatigue, which vary among different vaccine types and doses. **Objective:** To investigate the short-term side effects of COVID-19 vaccine based on type and dosage. **Materials and Methods:** People aged 18 and above participated in a cross-sectional anonymous online survey. Statistical analysis was performed using SPSS software. Fisher's exact test was used to find the association among the categorical variables and check the significance level. **Results:** A total of 416, 137 and 196 responses were analysed for dose 1, dose 2 and dose 3 (booster) respectively. Among the respondents, 65.1% received the Pfizer BioNTech Covid-19 vaccine followed by AstraZeneca (21.6%) and Sinovac (13.2%) for the first dose. Among those who received the Pfizer vaccine at the first dose, the commonest short-term side effects were pain (87.4%), fatigue (56.9%) and myalgia (37.2%), Commonest side effects among those who received AstraZeneca vaccine at the first dose were pain (84.4%), fatigue (83.3%) and fever (76.7%). Meanwhile, pain (69.1%), fatigue (49.1%) and increased appetite (34.5%) were the commonest side effects among the recipients of Sinovac vaccine. The average number of side effects was least after taking Sinovac vaccine. The second dose was reported to have a lower proportion of people with at least one side effect compared to the first dose and booster dose. **Conclusion:** The study's result emphasized the short-term side effects of Covid-19 vaccination among adults. Pain at the injection site was the most common side effect with any type of vaccine and with each dosage.

Diversity and defenses: Exploring the COVID-19 vaccine efficacy among different ethnic groups of Malaysia

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ABSTRACT

Introduction: Number of vaccines, notably Comirnaty (BNT162b2), Vaxzevria (AZD1222), and CoronaVac, were given to Malaysia's multiethnic population to combat the increased disease burden brought on by COVID-19. **Objective:** To evaluate the differences in the duration-dependent antibody responses of two doses of Comirnaty, Vaxzevria, and CoronaVac vaccines across Malaysia's various ethnic groups. **Materials and Methods:** A multicentre prospective observational cohort study was conducted. The follow-up was completed by 242 participants. Peripheral blood samples were taken at week 0, week 2, week 4, week 8, week 12, week 16, week 20, and week 24 following the second dose of vaccination. Covid S-antigen specific IgG antibody was assessed from plasma sample by sandwich ELISA. The assay result was expressed as binding antibody units (BAU) per millilitre (BAU/mL). Kruskal-Wallis test was used to compare the anti-S IgG titre among different vaccines. One-way Anova was used to evaluate differences in antibody titre among the ethnicities. **Results:** Following the second dose, recipients of the BNT162b2 and CdAdOX1 vaccines maintained adequate levels of anti-S-IgG until week 24, whereas the CoronaVac group showed a significant decrease in antibody levels starting as early as week 8 ($p<0.05$). The antibody level after BNT162b2 vaccine peaked at week four after the second dose; in contrast, the anti-S-IgG for CdAdOX1 and CoronaVac vaccine peaked at week two. Across all ethnic groups, the BNT162b2 group continuously displayed greater antibody levels than the other groups. After week 16 of CoronaVac vaccination, there was a significant decrease in antibody in Malay population ($p<0.01$). At week 24, a significant decrease of antibody level was observed in Malay population after CdAdOX1 vaccine. **Conclusion:** All ethnic groups in Malaysia experienced a sustained antibody response to the BNT162b2 vaccine, however the rate of decline was faster for CoronaVac and CdAdOX1 vaccines, especially in the Malay community.

Emerging challenges in malaria knowlesi outbreak control in Muallim District, Perak, Malaysia

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ABSTRACT

Introduction: The zoonotic malaria emerged as major malaria case in Muallim district since 2019 until epidemiological week (EW) 31/2024, highest in 2020, 100% (16 cases) and 2023, 83.3% (12 cases). The incident rate of malaria knowlesi in 2024 for the same EW duration projected 18% reduction (9 per 100,000 population, 78,600 Muallim population), comparatively 11 per 100,000 for 31/2023 EW. The first malaria knowlesi outbreak in Muallim district declared on 25th June 2024. **Objective:** The elimination of P. knowlesi - mediated malaria threatens progress towards elimination and effectiveness of conventional methods of malaria control.The objective of this paper aims to describe the challenges and limitation encountered along the process of controlling the outbreak of malaria knowlesi in Muallim District, Perak, Malaysia. **Materials and Methods:** Epidemiological investigations including risk assessment and vulnerability scoring, sociodemographic and occupational co-relation study, entomological risk assessment to determine the receptivity, active case detection using gold standard blood film for malarial parasite (BFMP), and leader engagement which necessitates urgent control measures. Preventive health education, insecticide treated net and outdoor residual spraying (ORS) are the control measures performed. **Results:** A systematic management and controlling activities carried out preceded by the declare of the outbreak, following a case notified on 23rd June 2024 by Hospital Slim River and a second case identified via active case detection conducted on 24th June 2024 at Diamond Creek Eco Farm Sdn.Bhd, Tanjong Malim, Perak involving 92 cases (Level 1 close contact), among which 96% are foreigners (88 cases).Various method used to control the outbreak, till dated 6th August 2024, no new cases reported. **Conclusion:** Plantation, deforestation and ecotourism tremendous development in Muallim district, Perak, Malaysia coupled with the known availability of wild macaques and Anopheles vectors warrants a significant challenge in the control of malaria knowlesi infection, hence the need to improve the control measures and interagency collaboration at national level.

Knowledge, attitude and barriers towards the implementation of telepharmacy by community pharmacists in Subang Jaya, Selangor

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ABSTRACT

Introduction: Telepharmacy is a type of pharmaceutical service that uses technology to serve patients in a non-face to face environment. It has gained popularity post pandemic as patients who are unable to interact with the pharmacists because of various reasons such as distance, mobility and cost are able to get pharmaceutical service. The implementation of telepharmacy among community pharmacists in Malaysia is limited in comparison with other countries. **Objective:** The aim of this study is to assess the knowledge, evaluate the attitudes and investigate the barrier towards the implementation of telepharmacy among community pharmacists working in Subang Jaya, Selangor. **Materials and Methods:** A cross-sectional study was conducted among the community pharmacists in March 2024, using a survey questionnaire to collect data. **Results:** The collected data were analyzed in terms of frequency and percentage using SPSS version 29. The level of knowledge, attitude, and perceived barriers were determined through Bloom's cut-off points, while associated factors were determined based on statistical significance (p-value ≤ 0.05). A total of 35 responses were obtained, of which 65.7% exhibit a high knowledge, 34.3% possess a positive attitude, and 54.3% have high perceived barriers. Majority of the participants exhibited high knowledge, neutral attitude and high perceived barriers to the implementation of telepharmacy at their outlet. A significant association between pharmacists' perceived barriers and their ethnicity (p-value = 0.015), which is less than 0.05, thereby indicating statistical significance. There was no association between all demographic characteristics with knowledge and attitude towards telepharmacy. **Conclusion:** It can be concluded that the majority of community pharmacists in Subang Jaya have a high knowledge level, a moderate attitude, and high perceived barriers towards telepharmacy implementation. Addressing and overcoming these barriers through strategic planning is necessary to increase the rate of implementation of telepharmacy among the community pharmacists in the country.

Comparison of the performance of a commercial real-time RT-PCR kit with an in-house PCR assay for dengue detection

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ABSTRACT

Introduction: Introduction: Dengue virus (DENV) is the etiological agent of dengue fever. The global statistic indicates a steady trend of dengue pandemic with the highest cases recorded in 2023, affecting more than 80 countries. Rapid confirmation of dengue infection is crucial for timely clinical management. In virology unit Institute for Medical Research (IMR), an in-house ZDC-DENV qRT-PCR test was used to differentiate dengue from other arboviruses infection, without serotyping ability. Concurrently, VIASURE Dengue Virus Real Time PCR Detection Kit (Certest Biotec) was also utilized in the lab to detect as well as serotype DENV. Hence, the aim of this study is to compare the interrater reliability of VIASURE kit against in-house ZDC-DENV qRT-PCR for dengue detection as an alternative standalone assay. **Materials and Methods:** This is a retrospective, single center diagnostic test evaluation study. For data collection, all nationwide samples from September 2023 until January 2024 received in IMR for routine dengue diagnostic qRT-PCR testing were selected. A total of 463 samples, which includes plasma, serum, CSF and tissues samples were tested using VIASURE kit and ZDC-DENV qRT-PCR, respectively. Descriptive statistics and Cohen's κ were used to analyze the data and to determine the agreement between these two diagnostic tests. **Results:** There was a significant agreement between VIASURE kit and ZDC-DENV qRT-PCR, $p<0.001$. A kappa (κ) of 0.904 represents an almost perfect agreement between the two diagnostic tests, $\kappa = 0.904$ (95% CI: 0.866 to 0.943). **Conclusion:** Analyses of data for dengue detection using commercially available VIASURE kit and our in-house ZDC-DENV qRT-PCR showed an agreement in terms of dengue detection. This indicates the reliability of the VIASURE kit as a diagnostic assay for detection and serotyping of DENV. However, testing on more samples and comparison against the gold standard method would provide more conclusive and reliable result.

The unusual suspect: Sporotrichoid spread due to non-tuberculous mycobacterial infection – Lesson from a five-year case

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ABSTRACT

Introduction: Sporotrichoid spread is a clinical condition describing nodular lymphangitis that is classically seen in sporotrichosis, though can also be due to many other diagnoses. Here we present a case of sporotrichoid-lymphocutaneous infection due to. **Materials and Methods:** Here we illustrate a patient who presented with sporotrichoid-lymphocutaneous infection caused by non-tuberculous mycobacterium in which treatment instituted empirically for non-tuberculous mycobacterium based on detection of acid fast bacilli (AFB) in pathologic section and clinical response that ensued. **Results:** 48-year-old mechanic gentleman presented with multiple nodule at the right forearm for 4-month duration. No history of contact with cats, plants, aquatic environment. On examination multiple nodule over right forearm in linear pattern. No initial skin biopsy was performed as he was treated empirically for sporotrichosis for four-month duration with tablet itraconazole after which he defaulted. Within the span of 5 years his symptom gradually worsen with development of extensive plague at the right forearm and left leg region associated with limb contracture. Histopathology showed epitheliod granuloma with AFB detected via Ziehl-Neelsen stain. The skin tissue MTB culture and polymerase chain reaction (PCR) test were negative. Tuberculin skin test was done with positive result (15mm). Clinical resolution was achieved with Doxycycline 100mg twice daily monotherapy for nine months. He was also referred to occupational therapist and plastic surgeon to address the limb contracture. **Conclusions:** Nodular lymphangitis can be due to many condition apart from sporotrichosis. Skin biopsy should be done early as accurate diagnosis is imminent to avoid catastrophic complication.

Environmental molecular detection of *Burkholderia pseudomalei* as a cause of melioidosis in Kedah, Peninsular Malaysia

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ABSTRACT

Introduction: Melioidosis is an infectious disease caused by saprophytic soil bacteria, *Burkholderia pseudomallei* mainly found in tropical region. *B. pseudomallei* can be transmitted predominantly through contaminated soil and water. The aim of the study was to determine the distribution of *B. pseudomallei* by molecular detection method from selected agricultural, school and recreational localities in Kedah, northern Peninsular Malaysia. **Materials and Methods:** A total of 50 soil samples were taken from the surface and 30cm depth. The soil samples were processed for bacterial DNA extraction for genotypic molecular detection by portable RT-PCR thermocycler by using suitable primers. **Results:** The results of RT-PCR showered that paddy field (6/10), palm plantation (4/10), recreational area (3/10), rubber plantation (2/10) and private school (1/10) were positive for *B. pseudomallei* detection. **Conclusion:** The study showered that paddy fields demonstrate the highest detection of *B. pseudomallei*. Agricultural areas and recreational area remains the potential health hazard for melioidosis and precautionary measures need to be address in the prevention of melioidosis

Understanding hand, foot, and mouth disease (HFMD) in Kinta District, Perak: Environmental factors

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ABSTRACT

Introduction: Outbreaks of HFMD are common in childcare settings, including kindergartens, due to the proximity of children and their tendency to engage in activities that promote the spread of the virus, such as sharing toys and touching contaminated surfaces (Hoang et al., 2019). The potential for outbreaks of HFMD in kindergartens can be particularly concerning due to the high transmission rate of the virus and the potential for severe complications in young children. Therefore, understanding indoor environmental risk factors in kindergartens is crucial for effective prevention and control measures. **Materials and Methods:** Indoor environmental factors (humidity, temperature, CO2, UV radiation, and air movement) were measured in 25 kindergarten classes using an Air Quality Tester, UV Radiation Monitor, and CFM/CMM Thermo Anemometer. Measurements were compared between outbreak and non-outbreak kindergartens and against DOSH compliance standards. **Results:** Due to consistently zero readings, indoor UV radiation data were excluded from the analysis. Outbreak kindergartens showed higher mean values for temperature (30.29°C), relative humidity (63.43%), and CO2 mean rank (14.07). Conversely, air movement had a higher mean rank (13.42) in non-outbreak kindergartens. Multiple linear regression indicated no significant association ($p<0.05$) between these environmental factors and epidemic status. Compliance rates to DOSH standards varied between outbreak and non-outbreak kindergartens. Indoor temperatures and indoor air movement levels are crucial in both outbreak and non-outbreak kindergartens. **Conclusion:** Poor indoor environmental factors may contribute to the increased occurrence and transmission of HFMD in kindergartens. Addressing these factors is essential for effective disease prevention and control.

Assessing the relationship between dietary habits and the occurrence of dental caries among UniKL RCMP medical students

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ABSTRACT

Introduction: Dental caries are due to bacteria metabolizing sugars to produce acid that demineralized the tooth structure. Contributing factors include oral health practice and diet. **Objective:** To determine the dietary habits and oral health practices among Universiti Kuala Lumpur Royal College of Medicine Perak (UniKL RCMP) medical students and any relationship with the occurrence of dental caries. **Materials and Methods:** This cross-sectional study used a pretested questionnaire (google form) requesting demographic data (gender, ethnicity, year of study), dietary habits, oral health practices and occurrence of dental caries from UniKL RCMP medical students (total population 749). Minimum sample size calculated was 255 students. After prior ethical approval and student consent, 305 students (61 from each year of study) were selected using a randomizer system to account for non-responders. Data was analysed using SPSS with Chi-square tests used to explore the associations among the study variables (significant for p-value <0.05). **Results:** Two hundred and seventy students (85.5%) responded. The majority were female (172-63.7%) and Malay (264-97.8%), which corresponded to the overall medical students' composition. Significantly more females (49.4%) than males (32%); more Year 5 students (62.7%) compared to Year 1 students (29.6%) skipped meals (p value=0.008). Female students (49.2%) rarely or never took carbonated drinks as compared to male students (19.6%) (p<0.001). Snacking in between meals were significantly related to occurrence of dental caries (p-value = 0.037). Skipping meals, frequency of eating in fast food restaurant, daily sugar, sweets and chocolates intake, weekly carbonated drinks intake and fresh fruit juices intake were not significantly associated with dental caries. **Conclusion:** This study found that snacking in between meal had a significant association with the occurrence of dental carries among UniKL RCMP medical students. Other factors such as taking sugary snacks, carbonated drinks and fast food had no association with the occurrence of dental carries.

Susceptibility patterns, resistance genes, risk factors and outcomes of multidrug-resistant *Pseudomonas aeruginosa* (MDR-PA) in north-eastern Peninsular Malaysia: A multicenter study

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ABSTRACT

Introduction: MDR-PA is one of the emerging nosocomial Gram-negative organisms responsible for high morbidity and mortality. Gradual increase in antibiotic resistance left clinicians with limited therapeutic options. Minimal data exist regarding MDR-PA in Malaysia. Therefore, this study aimed to investigate the resistance genes, antibiotic profiles including activity of ceftolozane-tazobactam (C-T), risk factors and outcomes of MDR-PA infection. **Materials and Methods:** In this case-control study, two hundred subjects were recruited from four major hospitals in Kelantan State of Malaysia between March 2021 and February 2022. One hundred MDR-PA isolates were subjected to C-T disc diffusion testing and conventional multiplex PCR for resistance genes detection. Whereas risk factors and outcomes were analysed by comparing 1:1 case (MDR-PA) and control (susceptible-PA). **Results:** The novel antibiotic, ceftolozane-tazobactam showed the best performance among β-lactams with anti-pseudomonal properties (53.0% resistant rate). The most prevalent gene was OprD (91.0%) followed by bla-NDM-1 (46.0%). None of the isolates carry bla-OXA-48 gene. The factors independently associated with MDR-PA acquisitions were age (OR:1.02; p = 0.028), genitourinary disorder (OR: 6.89; p = 0.001) and central venous catheter (OR: 3.18; p = 0.001). This study also showed MDR-PA acquisitions were associated with microbiological failure (41.1% vs 25.0%; p = 0.001) and mortality (40% versus 6%; p < 0.001). **Conclusion:** The emergence of *Pseudomonas aeruginosa* harbouring bla-NDM-1 gene in Kelantan state population should alarm clinicians since it can spread from person to person, causing an outbreak. Early anticipation in patient at risk of acquiring MDR-PA is crucial to facilitate case detection and infection control measures.

Prevalence of abnormal hearing status and its association with personal factors among workers exposed to noise at a textile factory

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ABSTRACT

Introduction: Exposure to noise among industrial workers may cause abnormal hearing status (permanent standard threshold shift, hearing loss and hearing impairment). Nevertheless, other non-work factors may also contribute to the abnormal status. Among the industries, textile industries is notorious for being one of the noisiest workplace. However, the burden of abnormal hearing status among textile workers in Malaysia is infrequently studied. Thus, the objective of this study is to assess the prevalence of abnormal hearing status and its association with personal factors among workers in a Malaysian textile factory. **Results:** It was found that 152 workers were exposed to noise level above the permissible exposure limit (PEL). Majority of them are between 20-29 years old (30.9%), female (58.6 %), Malay (86.8%), married (72.4%) and received at least secondary education (86.2%). Twenty five percent of them had at least one comorbidity. As for the duration of employment, 52.6% of the workers worked more than 10 years, 19.1% worked for 2-10 years and 28.3% worked for less than 2 years. The prevalence of abnormal hearing status was 45.4%. There were no significant association found between all personal factors with abnormal hearing status on bivariate analysis. However, there was a trend seen between abnormal hearing status and increased in age group. **Conclusion:** As a conclusion, nearly half of the workers had abnormal hearing status and personal factors may not be an important factor that influenced abnormal hearing status among workers exposed to noise above PEL in a textile factory.

Association of ACE2 and TMPRSS2 genetic variants with COVID-19 severity in the Malaysian population

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ABSTRACT

Introduction: Genetic variation among populations influences infection severity, with specific genetic differences shaping individual responses to viral infection. Variants in angiotensin-converting enzyme 2 (ACE2) and transmembrane protease serine 2 (TMPRSS2) play crucial roles in viral entry, modulating infections, and impacting disease progression, particularly in COVID-19. This study aims to determine the association between specific genetic variants in Malaysians COVID-19 patients and disease severity. **Materials and Methods:** This study identified two SNPs (rs2285666 and rs4240157) in ACE2 and one SNP (rs2070788) in TMPRSS2 in COVID-19 patients' blood samples collected at Hospital Sungai Buloh using conventional allele-specific polymerase chain reaction (ASPCR). Human DNA was extracted from 110 clinical blood samples and amplified using pre-designed primer sequences. The selected bands were further validated using Sanger sequencing. Genotypes were compared between non-severe (53 patients) and severe (57 patients) groups. **Results:** Our major findings indicate an association between the TMPRSS2 (rs2070788) G allele and an increased likelihood of developing severe COVID-19 (RR 5.65, OR 6.14, 95% CI:1.32-28.57, $p < .05$). However, no significant association was observed between ACE2 variants (rs2285666 and rs4240157) and COVID-19 severity. **Conclusion:** The data suggest that the G allele at rs2070788 of the TMPRSS2 gene plays a significant role in determining the severity of COVID-19. Further studies with larger cohorts are warranted to provide stronger evidence and enhance our understanding of the genetic factors influencing COVID-19 severity.

An Unexpected consequences of severe rhabdomyolysis induced by *Plasmodium vivax*: Acute respiratory failure with preserved renal function

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ABSTRACT

Introduction: We described a case of a previously healthy young man with *Plasmodium Vivax* induced severe rhabdomyolysis with a creatinine kinase (CK) level of 812,000 U/L leading to acute respiratory failure and subsequent weaning failure. Mix infections with *Plasmodium falciparum* were ruled out by polymerase chain reaction (PCR) and other causes including trauma, heat exhaustion, autoimmune diseases, inflammatory myopathy, drugs, and infections such as leptospirosis and COVID-19 were excluded. **Case report:** He presented with respiratory distress requiring intubation and ventilatory support. There was no heart or lung pathology, fever, metabolic acidosis, anaemia, or drop in consciousness level upon presentation. Extubation was attempted twice during the first week of admission, however, respiratory failure ensued after each attempt requiring reintubation in which one of the episodes was complicated by lung collapse. **Discussion:** The respiratory distress upon presentation and failed extubation episodes were attributed to respiratory muscle weakness secondary to severe rhabdomyolysis. He was successfully extubated after almost two weeks of admission. Despite the extremely high CK level, renal function was unexpectedly preserved without the need for renal replacement therapy. To the best of our knowledge, this is the first reported case of severe rhabdomyolysis induced by *P. vivax* leading to respiratory failure but with preserved renal function. This case highlights that *P. vivax* infection can cause severe rhabdomyolysis and consequently acute respiratory failure due to muscle weakness. Awareness of such complications will guide clinicians' decisions for timely initiation and weaning from mechanical ventilation, hence avoidance of associated complications.

Genetic characterization of hemagglutinin gene of highly pathogenic avian influenza in Malaysia

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ABSTRACT

Introduction: Highly pathogenic avian influenza (HPAI) is a highly contagious disease in poultry which can cause mortality up to 100%. Malaysia has undergone five waves of HPAI H5N1 outbreaks that occurred in 2004, 2006, 2007, 2017 and 2018, involving Peninsular and East Malaysia. The virus's hemagglutinin (HA) protein is responsible for virus attachment to host cell receptor; and mutation in the protein may increase the zoonotic risk of the virus. **Objective:** The objective is to genetically characterize the HA gene of the HPAI viruses in Malaysia. **Materials and Methods:** Five isolates representing Malaysia's five HPAI H5N1 waves were used. HA genes of three viruses were amplified and sequenced. Another two HA nucleotide sequences were obtained from the GenBank. The five nucleotide sequences were then molecularly characterized, aligned and compared with other published sequences. Phylogenetic analysis was constructed using Molecular Evolutionary Genetic Analysis tool. **Results:** Amino acid substitutions were found in all five viruses with the lowest number (6) in the first HPAI wave and the highest (10) in the last wave. These substitutions were associated with phenotypes including increased preferential binding of the virus to the mammalian α-2,6 receptor, decreased virus virulence in mice, as well as enhanced virus replication and transmission via aerosols in ferrets. Despite these, all viruses possessed conserved amino acids at the avian receptor binding sites: glutamine (Q) and glycine (G) at positions 222 and 224 respectively. The phylogenetic analysis revealed that the first HPAI wave belongs to clade 1, the second and third waves to clade 2.3.4.4, and the fourth and fifth waves to clade 2.3.2.1c. **Conclusion:** Though the risk of transmissibility to mammals was found in the HA gene, the zoonotic potential of HPAI viruses should be investigated by analysing the remaining seven gene segments of the virus. In line with this, animal studies should be conducted as well.

Complete genome sequences of Korean/Y439-like low pathogenic avian influenza virus H9N2 isolated from chickens in Malaysia

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ABSTRACT

Introduction: Low pathogenic avian influenza (LPAI) subtype H9N2 is a causative agent that has become an increasing concern due to its impact on poultry and potential public health risks. This H9N2 virus was isolated from chickens in Perak, Malaysia in 2015. **Objective:** To genetically characterize the entire genome of the LPAI H9N2 isolated from chickens in 2015. **Materials and Methods:** All eight influenza genes from the isolate were universally amplified using barcoded primers in a one-step RT-PCR and subsequently sequenced on the Oxford Nanopore MinION Mk1B platform. Nucleotide and amino acid sequences for each gene were compared with other published strains, and phylogenetic analyses were performed. **Results:** The isolate in our study possessed the HA (hemagglutinin) cleavage site motif of PARSKR/GLF with no contiguous multiple basic amino acids, implying that the virus is of low pathogenic strain. Phylogenetic analyses showed that all eight gene segments of the isolate were closely related to the Korean/ Y439-like lineage and had high similarities (95.2 - 99.1%) with the A/chicken/Korea/01310/2001 strain that was isolated in 2001. This virus was also used as a killed vaccine strain in Korea in 2007. No amino acid exchange (Q226L) at the HA receptor binding site indicates that the virus has a greater affinity for binding to the α2,3-linked sialic acid receptors present in avian. However, we observed that the internal genes of this isolate (PB2, PB1, PA, NS, and M) had several amino acid changes related to viral adaptation to mammals. **Conclusion:** In conclusion, the characterized Malaysian LPAI H9N2 is a Korean/ Y439-like virus with possible adaptation of the virus to mammals. These findings provide new insights into the measures that need to be taken as poultry carrying the H9N2 avian influenza virus are considered genetic incubators for the emergence of novel avian influenza viruses that pose a threat to humans.

Preventive measure practise of sexually transmitted disease among gay, bisexual and queer (GBQ) men in Lembah Klang

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ABSTRACT

Introduction: Sexually transmitted diseases (STDs) had become a global public health issue in our country that are mainly caused by activity of Men who have sex with Men (MSM) who mainly populated by the GBQ men. Chi-square test were used to identify the association between the socio-demographic characteristic, sexual practise and preventive method used by these communities. **Materials and Methods:** The sample consist of 304 participants over the age of 18 whose residing in Lembah Klang area. The questionnaires were distributed via social media platform to the GBQ population who had mainly joining the Gaythering activities that had been organized by one Non-Governmental Organization (NGO) known as JEJAKA who consist of GBQ community by assessing their sexual practise and preventive method in hindering from the STD transmission. The survey included five sections for the assessment of each variable: 11 demographic questions, 14 questions on sexual behaviour and sexual history, 5 questions about condom and 7 statement assessing on their condom usage which fall under condom usage section, 4 questions on chem sex and 7 question on the PrEP usage. **Results:** Descriptive statistics shows that the preventive method like condom usage has significant association with the number of respondents who got infected with STD, while PrEP usage has strong association with sex role, age group, sector of occupation and income range. Furthermore, the study also found that the sexual behaviour practise; having multiple sexual partners has remarkable association with number of respondents who got infected with STD and condom usage while the number of respondents who had history of being infected with STD has remarkable association with the number of respondents who received treatment, their education level and ethnicity. **Conclusion:** The practise of GBQ community had the association with the number of STD cases occurred in current times.

A unique case of 4 gastrointestinal opportunistic infection in acquired immunodeficiency syndrome (AIDS) patient

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ABSTRACT

Introduction: Gastrointestinal infections are one of the most common opportunistic infections in human immunodeficiency virus (HIV) patients. It is caused by a wide range of microorganisms. Early antiretroviral therapy (ART) has reduced the overall incidence of opportunistic infections, but it remains the leading cause of morbidity and mortality among patients with late HIV diagnosis and ART-naive individuals. We present a case of a newly diagnosed AIDS patient who had four gastrointestinal opportunistic infections. **Case report:** A 40-year-old newly diagnosed with AIDS presented with diarrhoea, low-grade fever and significant constitutional symptoms for 1 month. He had a history of swimming in the river prior to his illness. On clinical examination, he was cachexic with oral thrush and multiple cervical lymphadenopathies. A microscopic examination of the stool revealed *Cytoisospora belli*. He was treated with trimethoprim/sulfamethoxazole for 10 days and discharged well. After a week, he was admitted for persistent diarrhea and a high-grade fever. Microsporidium was detected on stool examination under microscope. A colonoscopy was performed and showed normal colonic mucosa. Hematoxylin and eosin (H&E) stain of colon biopsy specimen showed intracytoplasmic inclusion bodies with typical 'owl's eyes appearance' suggestive of cytomegalovirus colitis. An acid-fast bacilli stain was also positive. The patient was treated for AIDS with four gastrointestinal infections and was started on intravenous ganciclovir and anti-tuberculosis. Antiretroviral therapy was initiated at 2 weeks of ganciclovir. He recovered and was discharged well with follow-up at the clinic. **Conclusion:** This case illustrates the importance of considering multiple opportunistic infections by various pathogens that may confound clinical presentation, investigation, and management. The clinician should consider other differential diagnoses if the patient failed earlier treatment and decide the best diagnostic and management strategies for a better treatment outcome.

Unlocking the antibacterial potential of zirconium oxide nanoparticles biosynthesized from *Aspergillus niger* against gram negative bacteria

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ABSTRACT

Introduction: Advancements in nanotechnology has been widely accepted in various fields like biomedical, pharmaceutical, biotechnology etc. Green synthesis of nanoparticles is of high interest among the researchers due to their controlled nanoparticle synthesis using natural resources, economical, and ecofriendly to nature. **Objective:** The aim of this study is to explore the synergistic antibacterial activity of *Aspergillus niger (A. niger)* mediated biosynthesis of zirconium oxide nanoparticles (ZrO2NPs) against selected gram negative bacteria. **Materials and Method:** A. niger was isolated from forest soil and species confirmation was done through 18s rRNA sequencing. The ZrO2NPs were biosynthesized from A. niger extracellularly and underwent further analytical characterizations using UV-Visible Spectroscopy, Fourier transform infra-red spectroscopy (FTIR), Scanning electron microscope (SEM), Thermogravimetric analysis (TGA) and Zeta Potential analysis. The synergistic antibacterial activity was evaluated using disc diffusion method, biosynthesised ZrO2NPs was tested against *Escherichia coli* (ATCC 25922), *Proteus vulgaris, Vibrio cholerae* using different antibiotics. **Results:** The characterization results confirm the formation of ZrO2NPs from *A. niger*. The UV-Visible Spectroscopy recorded the maximum absorbance at 266 nm. FTIR analysis showed absorption peak which corresponds to O-H bond, C=O bond, C=C bond, Zr-O-Zr bond and Zr-O bond. SEM analysis revealed that the particles were spherical to irregular in shape. TGA analysis showed that the nanoparticles are highly thermostable at different temperatures. The zeta potential results (-34.1 mV) exhibited good stability of the nanoparticles. The biosynthesised ZrO2NPs showed good commendable synergistic antibacterial activity against *Escherichia coli* compared to the other two tested bacteria. **Conclusion:** To conclude the ZrO2NPs synthesized from *A. niger* shows good characteristics as a nano particle with significant anti-bacterial effects, however further studies is recommended for their comparison with gram positive bacteria and explore their mechanism and toxicity profiles for its biomedical application.

Anthocyanin-based gel from *Clitoria ternatea*: Antimicrobial efficacy against *Streptococcus pneumoniae* and zebrafish toxicity assessment

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ABSTRACT

Introduction: Anthocyanins exhibit antibacterial activity against a broad spectrum of microorganisms by destabilizing plasma membrane and damaging cell structures. They inhibit both Gram-negative and Gram-positive bacteria. This study aims to evaluate the antimicrobial activity of anthocyanins extracted from *Clitoria ternatea* flowers against microorganisms isolated from the eye. The study involves the formulation of a gel using the extracted pigment and an analysis of its toxicity. **Materials and Method:** Anthocyanin was extracted from *Clitoria ternatea* (ACT) flowers by a pH differential method. The organism isolated were identified through biochemical tests and 16s rRNA sequencing. Antimicrobial activity, MIC, and DNA fragmentation assays were performed. The ACT extract was formulated into a gel, with toxicity analysed using zebrafish. **Results:** The highest yield from dry flowers in acidified methanol (DCM) of 15.1129 ± 0.05 µg/g. The swab samples yielded seven and nine colonies, respectively. A single colony was selected for analysis, showing Gram-positive cocci in chains. Biochemical tests were positive for methyl red and negative for Voges-Proskauer, indole, citrate, triple sugar iron, and starch hydrolysis. 16s rRNA sequencing confirmed *Streptococcus pneumoniae*. DCM extract showed a 7 mm zone of inhibition against *Streptococcus pneumoniae*, outperforming other extracts. The MIC was 57.6 µg/ml, and the DNA fragmentation assay showed smudges on the agarose gel, indicating DNA destruction. ACT gel was prepared using Carbopol. The spreadability of the gel was 32 seconds, and it spread uniformly with no solid particles. Since the fish movement, gills, and mouths appeared normal, the gel was considered non-toxic. **Conclusion:** This study concludes that ACT - DCM exhibits potent antimicrobial activity against *Streptococcus pneumoniae* and can be used in eco-friendly gel formulations.

Chromobacterium violaceum, a rare life-threatening soil pathogen

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ABSTRACT

Introduction: *Chromobacterium violaceum* (CV) is a rare, life-threatening bacterial infection mimicking melioidosis in tropical regions. This purplish pathobiont is a facultative anaerobic gram-negative bacillus, commonly found in stagnant water or contaminated soil. It is associated with a high fatality rate despite treatment in tropical and subtropical regions causing minor skin infections to a severe sepsis with multiorgan failure. We report a case of *C. violaceum* in a healthy 11-year-old boy. He was referred to our tertiary care for unresolving proximal right thigh swelling with pus discharge despite administration of broad-spectrum antibiotics. **Case report:** A young boy with no underlying medical illness was referred from a district hospital to our tertiary care for unresolving, painful, right proximal thigh swelling, which persisted for two weeks. Prior to the onset of symptoms, he had a history of swimming in the river however there were no history of injury on the symptomatic leg. On the day of admission to the district hospital, he was septic looking with a temperature of 39℃, pulse rate of 115 beats/min and blood pressure of 98/65 mmHg. Laboratory investigation showed leucocytosis with total white blood cell count of 19 x 10^9/L. Despite empirical treatment with IV cloxacillin and IV cefepime, his condition deteriorated and required oxygen supplementary and inotrope support. Urgent abdominal ultrasound and chest x-rays revealed multiple liver abscesses and minimal pleural effusion. A gram-negative bacilli colony grew on both blood and pus culture, morphologically round, convex with dark violet pigmentation on blood agar. It was identified as *C. violaceum* through matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS). Intravenous ciprofloxacin and amikacin were administered, and by the fifth day of treatment, his clinical condition improved evidence by reducing septic parameters. The treatment was completed in six weeks. **Discussion:** *C. violaceum* is an unusual infection especially in a young age group. A history of exposure to contaminated soil and water with abscess formation despite broad-spectrum antibiotics should prompt the clinician to work on the diagnosis of melioidosis and other possible organisms mimicking melioidosis. Culture and sensitivity from the affected site would be the best to isolate this organism and to initiate the definitive treatment. **Conclusion:** *C.violaceum* bacteremia is highly fatal, hence prompt diagnosis is necessary for the optimal antimicrobial treatment. Combination antimicrobial therapy is a good option in reducing mortality. In this case, the combination of intravenous ciprofloxacin and amikacin improved the patient's condition.

Outbreak at an outdoor camp: Unveiling the *Salmonella paratyphi* B cluster in Batu Kurau, Perak

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ABSTRACT

Introduction: The Crisis Preparedness and Response Centre (CPRC) of the Larut Matang and Selama District Health Office received a notification of food poisoning cases on November 18, 2023, involving six people from a high school in Bagan Serai who attended a course at a training centre in Batu Kurau, Perak. Investigation and active case detection were conducted, revealing the involvement of 49 symptomatic individuals out of 122 attendees. **Objective:** To identify the risk factors and causes of the *Salmonella Paratyphi* B outbreak at the MRCTV training centre in Batu Kurau. **Materials and Method:** A case-control study was conducted. Cases were defined as individuals who ate at MRCTV and developed symptoms on or after November 17, 2023. Controls were individuals who ate at MRCTV but did not develop symptoms. Data collection involved face-to-face interviews using standardized forms, environmental sampling, and clinical sample analysis. HACCP principles were applied to assess food handling practices. **Results:** The attack rate was 40.16%, with 49 symptomatic cases (41 students and 8 teachers). Symptoms included stomach-ache, diarrhea, dizziness, nausea, vomiting, and fever. The suspected source was chicken cooked in soy sauce provided by an outside caterer. Laboratory tests confirmed *Salmonella paratyphi* B in 8 out of 11 clinical samples. Non-compliance in food storage and preparation, as well as poor hygiene practices, were identified as contributing factors. **Conclusion:** The outbreak was linked to food provided by an outside caterer, with chicken cooked in soy sauce being the suspected source. Control measures included closing the restaurant, providing health education, and improving water management at the training centre to prevent future outbreaks.

COVID-19: Infection control measures among radiographers in Malaysia

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ABSTRACT

Introduction: Diagnostic examinations are essential in managing COVID-19 patients. This survey was conducted to assess the behavior of infection control practices pre- and during COVID-19. **Materials and Method:** A cross-sectional study through an online survey was conducted from October 2020 to May 2021. Convenience sampling was used to recruit radiographers from public and private hospitals in Malaysia. The validated survey comprised demographic data and behavioral intentions in practicing infection control measures and was distributed through social media platforms. Descriptive analysis, paired t-test, and one-way ANOVA were used to analyze the data. **Results:** A total of 300 radiographers participated in the study, whereby 45.7% were in the age group of 31–40 years, and 65.7% had 1–5 years of working experience. There was a significant difference in the infection control practice between the pre-COVID-19 pandemic and during the COVID-19 pandemic ($p<0.001$). Gender and the working sector have a significant association with infection control practices ($p<0.05$). At the same time, there are no associations between infection control practices and age, education level, and years of working experience. **Conclusion:** The finding showed that the radiographer in this study improved their infection control practice during COVID-19. Thus, to ensure this good practice is maintained, repetitive training and psychosocial support from management and ministry are necessary. Besides, the development of Artificial Intelligence can be further explored, which might help limit the cross-infection.

Molecular characterisation trends of carbapenemase-producing carbapenem-resistant enterobacteriaceae (CP-CRE) in Malaysia from 2021 to 2023

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ABSTRACT

Introduction: Carbapenemase-Producing Carbapenem-Resistant Enterobacteriaceae (CP-CRE) pose a serious public health threat due to their resistance to multiple antibiotics. These infections, which can lead to severe morbidity and mortality, are primarily transmitted through direct or indirect contact. This mode of transmission significantly impacts patient management in hospital settings. Common Enterobacterales such as *Escherichia coli, Klebsiella spp., Enterobacter spp., Citrobacter spp., Morganella spp., Serratia spp., Proteus spp.* and *Providencia spp.* are frequently identified, with KPC, VIM, IMP, NDM, and OXA-48 being the most prevalent carbapenemase genes contributing to phenotypic resistance in these bacteria. In recent years, the global prevalence of CP-CRE transmission has risen. However, data on CP-CRE cases in Malaysia remain scarce. Therefore, this study aims to underscore the prevalence of CP-CRE cases based on samples submitted to the Bacteriology Unit at the Institute for Medical Research over a three-year period from 2021 to 2023. **Materials and Method:** A total of 7677 received samples were subjected to PCR for species and genes detection. Each PCR run utilized 5 primer sets to detect blaNDM, blaKPC, blaVIM, blaIMP, and blaOXA-48 genes. The annual PCR results underwent comparative analysis. **Results:** The analysis indicates an increasing trend in the prevalence of CP-CRE in Malaysia over these three-year periods. The data revealed that *Klebsiella pneumoniae* is the most common species associated with carbapenemase production and the NDM being the most frequently detected carbapenemase gene. **Conclusion:** This study highlights the need for continuous surveillance and further research to understand the dynamics of CP-CRE transmission and resistance mechanisms, which will contribute to future infection treatment and prevention strategies.

Utilization of *Bacillus subtilis* spores as mucosal vaccine delivery system for antigenic outer membrane proteins (OMPs) of *Acinetobacter baumannii*

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ABSTRACT

Introduction: The emergence of multidrug-resistant (MDR) *Acinetobacter baumannii* seriously threatens global public health and significantly contributes to healthcare costs. This bacterium has become a significant cause of nosocomial infections with limited treatment options. Therefore, alternative approaches are urgently needed to control the infections. Vaccines have shown the potential to reduce antibiotic usage, lessening the overall disease burden of infection and decreasing the spread of antimicrobial resistance. Developing a mucosal vaccine may be advantageous since *A. baumannii* infects various tissues; however, the development process is challenging, resulting in limited availability. **Objective:** This study aimed to establish *Bacillus subtilis* spore displaying antigenic outer membrane proteins (OMPs) of *A. baumannii* as a proof of concept for a subunit oral vaccine. **Materials and Method:** The identification of the antigenic protein within the OMPs was performed using reverse vaccinology. Four identified vaccine targets were utilized to construct recombinant DNA plasmids, propagated and transformed into *B. subtilis*. The recombinant *B. subtilis* was grown and induced into sporulation. The expression of the antigenic protein on the spore surface was detected using immunostaining assay and immunofluorescence microscopy. The spores expressing the OMPs were purified and inoculated into mice orally. The immune response was evaluated in the mice. **Results:** We identified 24 potential OMPs as vaccine targets and selected four OMPs in developing recombinant *B. subtilis*. The success in displaying the antigenic protein on the spore surface of recombinant *B. subtilis* were demonstrated. We assessed two out of four recombinant spore-displayed antigenic OMPs in mice, and the immune responses were evaluated. The findings showed that B. subtilis spore displaying TBDR proteins induced a humoral immune response against A. baumannii without causing toxicity in the mice. It also indicate the ability of the platform to sustain in the harsh physiochemical environment of the mucosa. **Conclusion:** *B. subtilis* spore-displayed OMPs should be further explored as potential mucosal vaccine candidates to prevent and control *A. baumannii* infection.

Infective endocarditis caused by *Abiotrophia defectiva*: A case report from Malaysia

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ABSTRACT

Introduction: Infective endocarditis is caused by *Abiotrophia defectiva*, a rare pathogen associated with potentially life-threatening complications. The clinical manifestation of *A. defectiva* may vary. It is also difficult to isolate the organism. **Case report:** A healthy twenty-three-year-old man who had a history of transient ischemic attack early this year presented to the casualty with febrile and failure symptoms – shortness of breath and orthopnoea. Subsequently, cardiac examination revealed an end diastolic murmur. Echocardiography showed aortic valve and mitral valve regurgitation with vegetation. The blood culture flagged positive after 15 to 18 hours of incubation. The positive blood culture was found to be Gram-positive coccobacilli and identified by matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS) as *A. defectiva.* Hence, the patient started on intravenous Ampicillin (3 grams, 8 hours a day) for three weeks. Due to clinical improvement with the course of antibiotics, the patient was subjected to completion of a 6-weeks course of antibiotics at secondary hospital care. **Conclusion:** Based on this case, it suggests A. defectiva is a rare pathogen but a critical causative organism of infective endocarditis. Early blood culture investigations and using microbial mass spectrometry are crucial to prompt diagnosis.

Phylogenetic analysis of lumpy skin disease virus (LSDV) from outbreak cases in Perak

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ABSTRACT

Introduction: Lumpy skin disease virus (LSDV) is a poxviral pathogen that is currently spreading across Asian countries, posing a significant threat to cattle populations. However, the origin of LSDV in Malaysia are not well documented. **Objective:** This study presents an outbreak investigation involving 910 samples from cattle exhibiting LSD-like clinical signs in Perak, Malaysia. **Materials and Method:** A total of 197 scabs, 166 nasal swabs, 373 blood samples, 159 pooled organs (PO) and 15 meats from species cattle presenting LSD-like clinical signs in Perak were subjected to molecular characterization for LSDV. Molecular detection was carried out using Polymerase Chain Reaction (PCR) based on targeting the p32 attachment protein gene of LSDV. Results: Out of 910 samples, 40.4% (n=368) samples were tested positive for LSDV; scabs (n=152), nasal swabs (n=72), plasma (n=126), PO (n=13), and meat (n=5). Two samples namely 6904/2021 and 7108/2021 from scabs were successfully amplified with a 472 bp amplicon of the specific region of fusion (F) gene and were further sent for sequencing to confirm virus. The phylogenetic analysis was performed by comparing nucleotide sequences of sheep and goat pox viruses as well as the vaccine and field strain of LSDV retrieved from GenBank. **Conclusion:** The phylogenetic analysis showed a 99.7 % homology with LSDV strains from neighboring Asian countries (Thailand and Vietnam), indicating the transboundary spread of the virus. These findings are crucial for LSDV molecular epidemiology and for devising effective control strategies. It is also important by implying continuous monitoring and strain characterization for differentiating vaccine strains from field strains in Malaysia.

The impact of community mobilization on dengue control in Muallim District, Perak, Malaysia: January until june 2024

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ABSTRACT

Introduction: The dengue incident rate in Perak showed a tremendous increase from 41 to 50 per 100,000 population, accounted for 21.9% increment from year 2023 to 2024 until the same epidemiological week 22 (EW22). The figure portrayed the dengue burden as one the major public health problem needing multimodal approach, one health concept and multiagencies collaboration interventions including community mobilization. **Objective:** The objective of this paper is to analyse the correlation of community mobilization and empowerment as an intervention measures compared to routine control measures in relation to Ovitrap surveillance of dengue vector, the impact of climate change, namely environmental temperature and rainfall variation. **Materials and Method:** A systematic and meta-analysis study performed based on variable data collected from Ovitrap surveillance conducted at Tanjong Malim sentinel centre - the Tanjong Malim Bus station and its vicinity, from EW1/2024 until EW 29/2024.60 Ovitrap allocated randomly at the bus station and other surrounding designated area, following which Ovitrap- related indices generated and correlated with environmental variables, community programmes as well as routine control measures. **Results:** The impact of community mobilization, given the instances of Community for Behavioural Impact (COMBI) involvement, health education for the community by Muallim District Health Offices and multiagencies commitment has showed a reduction in Ovitrap indices from 30.9% during EW21 to 11.67% for EW22/2024.The highest rainfall value at EW16/2024 with 31mm projected a relation with increase Ovitrap indices (OI) at EW18 (14.55%), followed by a further rising OI at EW19 (27.27%). Community mobilization activities and programmes scheduled at EW18 brought down the OI for the sentinel Tanjong Malim public attraction centre. **Conclusion:** Community mobilization programmes play a vital role for the dengue control in Muallim District. The holistic and transdisciplinary approaches are necessary to address this global health issues which are influenced by various complex factors.

Preliminary study of multidrug-resistant *Salmonella typhimurium* and its monophasic variant *Salmonella* I 4,12: i :- Isolated from animals in Malaysia

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ABSTRACT

Introduction: *Salmonella typhimurium* is an important animal-associated serovar reported to have zoonotic potential to cause human infections. Global infection cause by the monophasic variant Salmonella I 4,12: i : - has been increasingly reported among humans and animals since the 1990s. This monophasic variant was first identified from animal samples at the Veterinary Research Institute (VRI) Malaysia in 2020. **Objective:** This study used an archived collection of 18 strains, *Salmonella typhimurium* (n=10) and *Salmonella* I 4,12: i :- (n=8) isolated from animals in VRI since 2020 to investigate the antimicrobial resistance. **Materials and Method:** The disc diffusion method was used to assess antimicrobial susceptibility in all 18 isolates. A total of 11 antibiotics were selected based on the monitoring of animal farms according to the Malaysia Action Plan on Antimicrobial Resistance (2022-2026). **Results:** In this study, *Salmonella typhimurium* and *Salmonella* I 4,12: i :- revealed a high level of multidrug resistance, with resistance to three or more antibiotic classes at 90.0% (9/10) and 87.5% (7/8), respectively. Based on the results, it is notable that a monophasic strain isolated from chickens was found to be resistant to the third-generation cephalosporin group of antibiotics, which includes ceftiofur and cefotaxime. On the other hand, all ten *Salmonella typhimurium* strains were susceptible to ceftiofur and cefotaxime. **Conclusion:** The *Salmonella typhimurium* and its monophasic variant isolated from livestock animals in Malaysia were found to be multidrug-resistant.

Evaluation of rabies strain CVS-11 antigen for rabies fluorescent antibody test

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ABSTRACT

Introduction: Re-emerging of rabies in Peninsular Malaysia has been recorded since 2015. Therefore, it is essential to conduct an evaluation of the positive controls in order to ensure the sensitivity and specificity of the positive control slide for the rabies fluorescent antibody test (FAT). **Objective:** The objective of this study is to evaluate the sensitivity and specificity of the positive control brain for the rabies fluorescent antibody test (FAT). **Materials and Method:** A total of 32 Swiss albino mice aged 1-3 days were utilized and divided into two groups: 30 mice for the treatment group and two for the control group. The mice along with their dam were housed in individually ventilated cage at the BSL3-Ag and acclimatized for 3 days prior to rabies inoculation. The positive control rabies brain was obtained from reference strain CVS-11 ATCC of animal origin. Prior to inoculation, all mice were anaesthetized using 1% isoflurane and 30 µl rabies inoculum was administered intracerebrally using a 27G Terumo® Insulin syringe with ¾' needle. Meanwhile, the control group was inoculated intracranially with distilled water in the same amount as the treatment group. Any abnormalities and deaths were monitored and recorded for 21 days post-inoculation. Following this, all mice were humanely culled with an overdose of isoflurane and subjected to brain sampling. Fluorescent antibody tests and nested RT-PCR were conducted on all brain samples from the mice. **Results:** As expected, the results showed that the treatment group tested positive for rabies based on the intensity and distribution of rabies antigen on the slide. Conversely, the control group tested negative for rabies. The correlation between FAT and nested RT-PCR are consistent. **Conclusion:** In conclusion, the treatment brain demonstrated high sensitivity and specificity confirming its suitability for reliable and repeatable fluorescent antibody testing.

A study of drug compliance, HIV co infection and rifampicin resistance in tuberculosis patients in a tertiary hospital

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ABSTRACT

Introduction: Tuberculosis (TB) is an ancient infectious disease caused by the bacterium Mycobacterium tuberculosis (Mtb). Despite decades of research and advancements in its diagnosis and treatments, TB still leads among the causes of deaths from infectious diseases. Some key issues being prolonged treatment courses, inadequate drug intake, and the high dropout rate of patients during the treatment course. As per the World Health Organization (WHO) reports, about 8.5% of the multi-drug resistant tuberculosis (MDR-TB) cases were extremely drug-resistant (XDR), where resistance to two of the key second-line Mtb drugs is also present. At the same time, only 55% of the reported MDR-TB and 30% of the reported XDR-TB cases were treated successfully. **Objectives:** To study and evaluate age, gender, site involvement, compliance and Rifampicin sensitivity and incidence of HIV co-infection in Tuberculosis patients. **Materials and Method:** A case series, observational study was conducted in a government tertiary care hospital in Salem among patients registered under National Tuberculosis Elimination programme (NTEP) who attended the hospital between January 2020 to December 2023. Clinical examination and relevant investigations were carried out and rifampicin resistance, association with HIV and treatment default rate was studied. **Results:** There was an increase in number of cases detected each year, affecting all age groups with majority of the patients being males. In the study, 8510 cases were pulmonary tuberculosis and 3734 cases were extra pulmonary. Defaulters were 2%. Rifampicin sensitivity was 97.43% and resistance was found in 2.57% patients. HIV co-infection was found to be in 4.57% of patients. **Conclusions:** The study shows an increase in number of cases detected with majority of cases being males and primary infection being pulmonary tuberculosis. Treatment default rate was at 2%.

Seroprevalence of dengue infection in tertiary care hospital in Salem District

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ABSTRACT

Introduction: Dengue viruses (DENV) continue to circulate worldwide, resulting in a significant burden on human health. There are four antigenically distinct serotypes of DENV, an infection of which could result in a potentially life-threatening disease. Although one dengue vaccine is approved for dengue-immune individuals and has modest efficacy, there is still a need for therapeutics and vaccines that can reduce dengue morbidities and lower the infection burden. There have been recent advances in the development of promising drugs for the treatment of dengue. **Objective:** To determine the seroprevalence of Dengue infection in patients admitted to a tertiary care hospital and to identify the risk factors and clinical outcomes associated with Dengue infection in this population. **Materials and Method:** This is a cross-sectional study which involves 1173 patients. This study was conducted over a period of six months from January 2024 to June 2024. The serum samples were collected from patients presented to the OPD with the history of fever more than 3 days with retro orbital pain, bleeding gums and petechiae to GMKMCH at Salem. The serum samples were tested for IgM antibodies for Dengue infection by using IgM capture ELISA Kit, from NIV (National Institute of Virology) Pune and the ELISA was done as per the manufacturer's instructions. **Result:** In the present study out of 1173 suspected dengue cases, 117 (10%) were positive and 1056 (90%) were negative. Out of 117 confirmed positive cases, the demographic details showed that 72 (61.5%) were male and 45 (38.5%) were female. **Conclusion:** The findings of this study are expected to contribute to better patient outcomes through timely diagnosis and management of this potentially life- threatening condition.

Molecular detection of *Mycobacterium leprae* from skin biopsies of clinically suspected leprosy patients - A prospective cohort study

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ABSTRACT

Introduction: Leprosy is considered as a rare and exotic diagnosis, something the clinician will see only once or twice in a career. Recently, leprosy patients suspected of acquiring the disease autochthonously have been seen throughout India. The study aims to use Real Time Polymerase Reaction (qPCR) to molecularly diagnose *Mycobacterium Leprae* (M. Leprae) from skin biopsies of probable leprosy patients who attend a tertiary care hospital in the Salem district. **Materials and Method:** The present study is a prospective cohort study conducted over the period of 6 months (Jan – June 2024). Forty OPD cases showing cardinal signs of leprosy are included for detecting *M. leprae* specific repetitive regions (RLEP). Patients with other dermatological lesions were excluded from the study. Ethical clearance was obtained from institutional ethical committee (GMKMC&H/114/EC/2023-86). Under local anaesthesia, 3.5mm of tissue from marked area is collected from the patient using punch biopsy & placed in tube containing 70% ethanol. All selected patients also underwent Slit skin smear. From the collected sample, DNA extraction was done and qPCR was performed. Data was analyzed using SPSS software 22.0. **Result:** Among 40 cases, 16 (40%) were confirmed positive for M. leprae DNA & 24 (60%) were identified negative. Of these 16 (40%) positive cases, 9 (22.5%) were male and 6 (15%) were female. It is substantially higher in >40 years of age group with variation in the bacterial load. The positivity rate was higher in multibacillary compared to paucibacillary type. The present study reports 40% of punch biopsy & 10% slit skin smear yielded detectable results using PCR amplification. The clinical and epidemiological features of leprosy patients are analyzed using the Chi square test, which showed statistical significance ($p<0.04$). **Conclusion:** Our study concludes that qPCR will be helpful for detecting leprosy cases with clinical findings in the field. The study confirms a 40% positivity with 100% specificity.

Histopathology of unspecified *Leptospira sp.* (Field Isolates) isolated from diagnostic samples in the guinea pig

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ABSTRACT

Introduction: The Veterinary Research Institute lab received several samples for leptospira isolation after a pony in Perak tested serological positive for *Leptospira sp.* A strain of unspecified *Leptospira sp.* was isolated from sawdust samples and further identified using PCR and partial sequencing. **Objective:** The objective was to study the pathogenicity of the isolated *Leptospira* strain. **Materials and Method:** Guinea pigs were chosen for the study as they replicate the pathological changes seen in humans and other animals. The guinea pigs weighing between 140 and 250 grams were utilized, divided into two groups and housed with unlimited access to food and water. Group 1 was inoculated with an unspecified *Leptospira sp.*, while Group 2 inoculated with pathogenic *Leptospira interrogans*. These animals were being observed for 14 days. After observation period, the animals were culled, and histopathology tests were performed. **Result:** Histopathology in Group 1 revealed partial atelectasis, emphysema, and interstitial pneumonia in the lung. The liver exhibits congestion, bleeding, fatty liver, cell necrosis, and fibrin infiltration. The kidney has mild bleeding and congestion. The spleen was haemorrhagic. On the other hand, Group 2 depicts the outcomes of fibrin infiltration, bleeding, loss of alveolar architecture, and a fatty liver. This group's kidneys are haemorrhagic. In addition, there is splenic congestion and bleeding. **Conclusion:** This study demonstrates that *Lepstospira sp.* in both study groups did not exhibit clinical indications during the study period, but histology revealed significant pathological changes in several organs that indicate unspecified Leptospira belongs to a pathogenic strain and shows a similar pattern to pathogenic *Leptospira sp.* This suggests that histopathology can be an alternative diagnostic method for leptospirosis in animals.

Pseudomonas aeruginosa infective endocarditis and biofilm challenges: Confronting the barriers

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ABSTRACT

Introduction: Infective endocarditis (IE) caused by *Pseudomonas aeruginosa (P. aeruginosa)* is extremely uncommon. It occurs in about 3% of the cases of endocarditis. Although antibiotic therapy is generally successful, treating P. aeruginosa infections associated with biofilms poses significant challenges. In this study, we present a case of *P. aeruginosa* infective endocarditis that proved difficult to treat, despite the strain showing no antibiotic resistance. **Case report:** A forty-five-year-old man with a history of intravenous drug abuse presented with a fever and lethargic. The physical examination at the presentation is unremarkable. Laboratory investigation reveals elevated septic parameters alongside leukocytosis and high CRP levels. A blood culture taken revealed *P. aeruginosa* which was susceptible to all tested antibiotics. After one week on IV Piperacillin/ tazobactam (Tazosin), patient showed no clinical improvement and complaining of palpitations. During the cardiac examination, a pansystolic murmur was detected. Subsequent echocardiography (ECHO) confirmed vegetation on the tricuspid valve associated with severe tricuspid regurgitation. Then, he was treated as IE based on Duke major criteria. The antibiotic treatment was intensified with IV Meropenem. However, his blood cultures repeatedly isolated *P. aeruginosa* throughout his two months admission, and the vegetation on the tricuspid valve enlarged to 4 cm. Therefore, the patient was referred to the cardiothoracic surgery team and underwent valve repair surgery due to the failure of medical therapy and the presence of persistent vegetation larger than 2 cm. **Discussion/Conclusion:** The intricate composition of *P. aeruginosa* biofilms enhances its pathogenicity by promoting resistance to treatment. This complex structure, consisting of exopolysaccharides, DNA, and proteins, acts as a barrier that prevents both the body's immune response and antimicrobial medications from effectively penetrating it. Consequently, this barrier facilitates the establishment of chronic infections that are highly resilient to elimination. This aspect of biofilm formation explains the clinical challenges encountered in managing *P. aeruginosa*-related Infective Endocarditis.

Investigation of non typhoidal *Salmonella* (Multi Drug Resistance Organism) outbreak in a Malaysia tertiary hospital

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ABSTRACT

Introduction: On 22nd November 2023, Temerloh District Health Office received notification of a possible Non Typhoidal *Salmonella* (NTS) Multi Drug Resistance Organism (MDRO) outbreak amongst infants in Special Care Nursing (SCN) dan Neonatal Intensive Care Unit (NICU) at a hospital. The investigation aimed to verify the diagnosis, identify cases, determine epidemiological characteristics, identify associated risk factors, and initiate control measures to manage the outbreak. **Materials and Method:** Case were defined as infants with a history of admission to SCN / NICU of affected hospital including SCN / NICU staff during the period of 24th October 2023 to 9th December 2023 who exhibited symptoms of diarrhoea and/or signs/symptoms of sepsis and/or were confirmed positive for NTS MDRO through laboratory testing. Epidemiological, environmental and laboratory investigations were performed. Data were analysed using Microsoft Excel. **Results:** The number of exposures in this outbreak is 684, and 34 cases fulfill the operational outbreak case definition criteria (30 infants and 4 adults). These cases range from as young as two days old to 58 years old, with the majority being infants less than a month old. In terms of gender, 17 are male (50%) and 17 are female (50%). A total of 15 (44.1%) cases had diarrhea, 6 (17.6%) cases had rapid breathing, 5 (14.7%) cases had fever, 4 (11.8%) cases were less active, 2 (5.9%) cases had vomiting, 1 (2.9%) case had poor feeding, while 7 cases were asymptomatic. A total of 19 cases were confirmed positive through laboratory tests. The attack rate was 4.97%. Transmission of the infection is via the fecal-oral route, and the causative agent was tbacterium Non-Typhoidal *Salmonella* (MDRO). **Discussion:** The outbreak ended on 9th December 2023. The cause of the outbreak was non-compliance with infection prevention and control practices. Understanding and adhering to infection control practices are crucial for preventing the spread of infectious diseases, especially in healthcare settings.

Antimicrobial activities of psychrotrophic and pyschrophillic fungi isolated from arctic soil

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ABSTRACT

Introduction: Compounds from Arctic fungi, a form of microbial natural products, have shown significant potential in pharmacotherapy applications. Prior to pure compound isolation, comprehensive screening for antimicrobial capabilities is essential to identify promising fungal strains. **Objective:** This study aims to detect and evaluate the inhibitory action of psychrotrophic and pyschrophillic fungi isolated from Arctic soil in Svalbard Island, Norway against pathogenic bacteria, including *Staphylococcus aureus, Klebsiella pneumoniae, Escherichia coli, Bacillus subtilis, Salmonella typhimurium* and *Pseudomonas aeruginosa*. **Materials and Method:** Ten pyschrophillic and nine psychrotrophic fungal strains were subjected to a liquid-liquid extraction process to obtain crude extracts. The extracts were then tested using the Kirby-Bauer disk diffusion assay, minimum inhibitory concentration (MIC), and minimum bactericidal concentration (MBC) tests. High-performance liquid chromatography (HPLC) was conducted to establish a metabolite chromatogram of the crude extracts. **Results:** Two out of nine pyschrotrophic fungi, namely isolate D3-1 showed antimicrobial activity against all tested bacteria except *P. aeruginosa*, while isolate E3-2 inhibited only *K. pneumoniae*. At a concentration of 0.05 µg/ml, both strains did not exhibit MIC and MBC values. Three out of ten psychrophilic fungal extracts (B1C1, D2CD22, and D3C1) were able to inhibit the growth of *S. typhimurium*, *E. coli, B. subtilis,* and *S. aureus*. These three extracts were then tested to determine their minimum inhibition concentration (MIC) and minimum bactericidal concentration (MBC). The MIC for B2C2 was 125 µg/ml against *S. aureus,* 250 µg/ml by D2CD22 against *B. subtilis* and *S. aureus*, and for D3C1, the MIC was 500 µg/ml against all tested strains. HPLC analysis revealed the presence of multiple peaks, representing different metabolites. **Conclusion:** This research provides insights into the antimicrobial potential of psychrotrophic and psychrophillic fungi from Arctic soil, highlighting the need for further investigation to identify and isolate specific bioactive compounds.

Effects of aerobic exercise on physical activity and cardiovascular fitness among students in UniKL RCMP

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ABSTRACT

Introduction: In the modern era, many individuals lead sedentary lifestyles, often spending considerable time on video games and remaining inactive during leisure periods. This makes it challenging to implement significant lifestyle changes. **Objective:** To determine the effect of power walking combined with short jogging on heart rate (HR), blood pressure (BP), and quality of life (QOL) among students at UniKL RCMP. **Materials and Method:** This experimental study involved students from UniKL RCMP, primarily healthy young individuals. Participants completed consent forms before the study and the WHOQOL-Bref questionnaire at the beginning and end. The experimental group (15 participants) engaged in both fast walking and jogging, while the control group (15 participants) only performed fast walking. **Results:** In the experimental group, there were significant differences in systolic blood pressure (SBP) ($p = 0.013$), HR ($p = 0.000$), social connections (SC) ($p = 0.000$), domain 1 (D1) ($p = 0.000$), and domain 2 (D2) ($p = 0.000$). However, diastolic blood pressure (DBP) ($p = 0.073$), domain 3 (D3) ($p = 0.137$), and domain 4 (D4) ($p = 0.170$) did not show significant differences. In the control group, there were no significant differences in SBP ($p = 0.055$), DBP ($p = 0.844$), D3 ($p = 0.339$), and D4 ($p = 0.083$), but there were significant differences in HR ($p = 0.001$), SC ($p = 0.000$), D1 ($p = 0.003$), and D2 ($p = 0.000$). **Conclusion:** Combining power walking with short jogging significantly improved participants' cardiorespiratory fitness, physical activity, and overall quality of life compared to power walking alone.

Acute gastroenteritis and accompanied bacteremia caused by extended-spectrum beta-lactamase producing *Salmonella enterica* serovar kentucky sequence type 198: A case report from India

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ABSTRACT

Introduction: *Salmonella enterica* serovar Kentucky is polyphyletic serovar of non-typhoidal salmonella (NTS), which can cause infections by consumption of poultry products. The infections are usually self-limiting in immunocompetent individuals but causes severe invasive infections in immunocompromised, elderly and in pediatric population which requires immediate medical attention. Antimicrobial resistance among the NTS serotype Kentucky, sequence type ST 198 which has been reported globally since its emergence in northern Africa. In India, ST 198 clones resistant to fluoroquinolones have been documented. To the best of our knowledge, this is the first report of extended-spectrum beta-lactamase (ESBL)- producing *Salmonella enterica* serovar Kentucky which is multi locus sequence typed (MLST), from a case of acute gastroenteritis and accompanied bacteremia. **Case report:** A 55-year-old female presented to the emergency room with severe abdominal pain, diarrhea for two days and a high-grade temperature. She had a high total count with a negative Widal test. Stool culture and blood cultures were sent for microbiological analysis, which grew Salmonella. VITEK 2 system identified as Salmonella group. but could not biochemically differentiate it from *Salmonella paratyphi* B and *typhimurium*. The isolate was typed with polyvalent O sera and belonged to the serogroup C2. The isolate was sent to the regional laboratory for confirmation and MLST typing. The sequence type identified was ST 198. The susceptibility pattern revealed ESBL with first line drug resistant and susceptible to Co-trimoxazole. **Conclusion:** Patient recovered on day 5 of hospitalization after de-escalation of ceftriaxone and with addition of piperacillin – tazobactam in the regimen. The sequence type revealed the global travel of the bacteria. NTS has the strong ability to acquire resistance genes from other enteric bacteria in the gut where the possibility of the lateral gene transfer is high. These highlight the significance of NTS in the human infections.

Study on the hepatitis B virus vaccine response among HIV-1 infected individuals in Salem

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ABSTRACT

Introduction: Hepatitis B virus (HBV) infection is a significant public health concern, and its prevention through vaccination is crucial. Suboptimal responses to the vaccine have been observed, and further research is needed to address and improve vaccine efficacy. This study investigates the immunogenicity of HBV vaccination in HIV-infected individuals, focusing on CD4+ T-cell counts and anti-HBs antibody responses. **Materials and Method:** This study was conducted at the ART Centre, Government Mohan Kumaramangalam Medical College & Hospitals and enrolled 165 participants (84 adults and 81 children) to evaluate their immune response to HBV vaccination. Demographic data collection and anti-HBs titre levels were done at baseline, and participants received the HBV vaccination series. Following the final dose, investigations were conducted to assess their immune response, including CD4+ T-cell counts and HIV viral load. The Institutional Ethics Committee approved the study protocol. **Results:** Among the 165 participants, 70% had undetectable HIV viral loads. Of 165 vaccinated, 17 were identified as non-responders, characterized by anti-HBs titers <10 mIU/mL. Adult non-responders (n=10) had baseline CD4+ T-cell counts ranging from 55-1634 cells/µL (median: 844 cells/µL), with 1 participant having a viral load <150 copies/mL, 5 having <600 copies/mL, and 4 having >10,000 copies/mL. Child non-responders (n=81) had baseline CD4+ T-cell counts ranging from 72-2146 cells/µL (median: 1109 cells/µL, IQR: 480-689), with 1 participant having a viral load <150 copies/mL, 3 having <1000 copies/mL, and 2 having >10,000 copies/mL. **Conclusion:** This study investigated the immunogenicity of HBV vaccination in individuals co-infected with HIV. The findings revealed suboptimal immune responses to HBV vaccination, highlighting the need for targeted strategies to enhance vaccine efficacy. Further analysis of single nucleotide polymorphisms (SNPs) among non-responders may uncover genetic factors contributing to non-responsiveness, ultimately informing public health interventions aimed at reducing the burden of HBV co-infection in HIV-infected individuals

Cluster of acute febrile illnesses from a neglected tropical infection in Pekan, Pahang: Epidemiological report and its challenges

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ABSTRACT

Introduction: Among tropical infections that are endemic within the Asia-Pacific region is a neglected disease caused by the Orientia tsutsugamushi bacteria commonly known as scrub typhus. Despite being one of the most common causes of Acute Febrile Illness, most clinical and public health protocols in Malaysia have largely overlooked this disease. This study aims to provide an epidemiological report of a scrub typhus cluster in Pekan, Pahang and describe the challenges faced in its management. **Materials and Method:** During the monsoon season of 2023, an outbreak investigation was conducted to identify cases presenting with acute undifferentiated febrile illness. The investigation involved assessing cases, contacts, and environmental variables. Samples were gathered from both patients and the surrounding area. Responsive control measures were continuously adjusted based on evolving findings throughout the outbreak period. **Results:** A total of five cases fit the criteria for the cluster's case definition. All cases had fever, and almost half had headache, myalgia, and maculopapular rash. Only one case had an eschar lesion. All cases (100%) exhibited a fourfold surge in IgG titers in consecutive serum samples, a clear indication of rickettsia infection. One case tested positive for rickettsial infection via PCR, while other tropical infection tests were negative. Environmental investigation revealed infestation of rodents with chiggers but absence of Rickettsia pathogens. Identified risk factors include exposure to vectors and engagement in activities during the monsoon and flood season. **Conclusion:** Our report revealed that scrub typhus is a public health problem in Pekan, Pahang, emphasizing the need for better surveillance and control measures. Optimizing vector control and dynamic health education are crucial to manage the endemicity of this infection. Policymakers and healthcare stakeholders can leverage these insights to devise targeted interventions and enhance the region's capacity to respond to this neglected tropical infection.

Evaluating the invitro antibiofilm activity of *Aerva lanata* against gram-positive and gram-negative bacteria

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ABSTRACT

Introduction: Biofilms are syntrophic communities of microorganisms comprising both Gram-negative and Gram-positive bacteria. Biofilm formation plays a critical role in urinary tract infections and presents a significant challenge in clinical settings due to increased resistance to conventional antibiotics. This study evaluated the antibiofilm activity of the whole plant extract of *Aerva lanata (A. lanata)* against *Staphylococcus aureus (S. aureus)* and *Escherichia coli (E. coli)*. **Materials and Method:** The plant *A. lanata* was collected from the CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Trivandrum, Kerala. Ethanol extract of the whole plant was used to test against *S. aureus* and *E. coli* biofilms, with comparisons made to control or untreated bacterial cells. The biofilm samples were treated with different concentrations of the extract: 62.5 µg, 125 µg, 250 µg, 500 µg, and 1000 µg. Biofilm activity was assessed using the crystal violet assay and bacterial viability (live dead cell assay) was checked using a fluorescence microscope (Olympus CKX41 with Optika Pro5 CCD camera). **Results:** The biofilm treated with A. lanata showed over 80% inhibition against *S. aureus* and *E. coli*, demonstrating the efficacy of A. lanata against biofilm formation by both Gram-positive and Gram-negative organisms. **Conclusion:** Plant extract of *Aerva lanata* has shown to effectively inhibit biofilm formation, suggesting its potential use as a natural alternative to synthetic drugs. The extract's significant biofilm activity and lower side effects, combined with its cost-effectiveness, highlight its promise as a natural source of antibiofilm agents, offering a potential alternative to current treatment strategies.

Sensitivity and specificity of in-house rose bengal plate test for the detection of brucellosis antibody in cattle, sheep, and goats

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ABSTRACT

Introduction: Brucellosis is a disease that can infect both livestock and humans through consuming contaminated products. This bacterial infection can lead to various health issues such as infertility, recurrent fever, orchitis in men, or miscarriage in pregnant women. Since 2018, the Malaysian Veterinary Protocol (PVM) has outlined that livestock should be screened using the Rose Bengal Plate Test (RBPT). Currently, commercial RBPT kits are being used by field veterinary authorities for screening purposes. The Veterinary Research Institute (VRI) has also undertaken small-scale RBPT antigen production to assess technical capability in producing good performance of RBPT in-house antigens. **Objective:** To evaluate diagnostic sensitivity and specificity of the in-house RBPT antigen in cattle, sheep, and goats. **Materials and Method:** A total of 340 cattle sera, 232 goat sera and 153 sheep sera were subjected to testing with the in-house RBPT and CFT following the DVS Manual for Serology Laboratory. The antigens used in all assays are *Brucella abortus* S99 and *Brucella melitensis* M16. The specificity and sensitivity of each RBPT test were evaluated against the CFT, considered as the gold standard. **Results:** The result indicated that the sensitivity of the in-house RBPT was 96.70% in cattle, 94.70% in goats, and 90.00% in sheep, respectively. The specificity was 97.20% in cattle, 98.0% in goats, and 98.0% in sheep. False-negative results may occur in the early stages of infection and through the ingestion of colostrum from the reactor dam. False-positive results could be attributed to the cross-reactivity of antibodies to *Yersinia enterocolitica* type 0.9 and *Escherichia coli* 0:157H. **Conclusion:** In conclusion, the in-house RBPT demonstrated very good specificity in all three species, however, the assay exhibited lower sensitivity in sheep compared to cattle and goats, which showed good sensitivity

The change in perceptions, attitudes and practices towards preventive measures of COVID-19, is it behind the recent increase in the number of cases among university students in Malaysia?

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ABSTRACT

Introduction: Based on DOSM, the number of COVID-19 cases started to spike since December 2023 after a long period of having a low number of cases over the last 2 years. This increase in the number of cases left us wondering what stands behind it and what are the causing factors. Therefore, we decided to study the perceptions, the attitudes, and the practices of COVID-19 preventive measures among the university students in Malaysia. We assumed that there has been a little bit of relaxation and ignorance about the preventive measures which might have led to the current increase in the number of positive cases. **Materials and Method:** Our study was cross sectional study based on a structured online questionnaire. The sample size was 383. **Results:** A total of 383 responded to the survey of whom majority of the respondents were female (76%) and from private university (63%). Most of the students have good perception (57.7%), good attitude (71.3%) and good practice (63.2). Moreover, a significant association was found between student's practices towards COVID-19 preventive measures and COVID-19 infection in the past 6 month (p=0.047) and a significant association between student's attitudes towards COVID-19 preventive measures and being a private university student (p=0.002). **Conclusion:** There is some level of relaxation in perceptions, attitudes, and practices towards COVID-19 preventive measures among university students in Malaysia. We need to emphasize always the importance of COVID-19 preventive measures through mass media and social activities which involve youths and University students.

Dengue virus detection in cerebrospinal fluid among patients presented with central nervous system infection

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ABSTRACT

Introduction: Dengue infection is a tropical viral disease caused by dengue virus (DENV) which is a *Flaviviridae* with four serological types (DENV 1–4). With expanding clinical spectrum of dengue fever, a rising number of central nervous system (CNS) infection has been documented. Neuroinvasion during dengue infection is supported by viral antigen discovery in brain postmortem samples, dengue-specific antibodies, and a positive polymerase chain reaction (PCR) test in cerebrospinal fluid (CSF). **Objective:** This study aimed to determine the frequency of DENV detection in CSF samples from patients with CNS infection that were sent to Virology lab, Institute for Medical Research for routine PCR serotyping **Materials and Method:** Dengue Real-Time RT-PCR results from 2022-2024 were screened from the laboratory data and filtered by sample type and clinical diagnosis. The frequency of DENV detection and serotype in CSF samples was calculated and analysed based on demography and clinical presentation. **Results:** Between 2022 and 2024, 137 CSF samples were obtained for dengue PCR testing and serotyping. Meningoencephalitis (38.0%) was the most common diagnosis, followed by meningitis (20.0%), encephalitis (17.0%), seizure (6%), encephalopathy (6%), and fewer than 2% of other neurological illnesses. Six (4.4%) were identified as dengue positive, with serotyping revealing two DENV 1 cases, two DENV 2, and one of each DENV 3 and DENV 4. Three cases were paediatrics with median age 10 (IQR=5.3) and another three were adults with median age 37 (IQR=27.0). Four (66.7%) of these were diagnosed for encephalitis, one (16.7%) for seizure and one (16.7%) for meningoencephalitis. The median PCR cycle threshold (CT) value was 32.0 (IQR =1.7) indicating moderately low dengue viral load in CSF samples. **Conclusion:** DENV detection in CSF is of great importance for neurological diagnostic accuracy, early diagnosis of neuroinvasive dengue and clinical discrimination between viral and bacterial CNS infection that can be accomplished with routine molecular assays.

Capturing the misidentified *Streptococcus pseudopneumoniae*: A retrospective analysis of the non-typeable *Streptococcus pneumoniae*

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ABSTRACT

Introduction: *Streptococcus* species, particularly *Streptococcus pneumoniae*, are significant human pathogens responsible for respiratory infections. However, pitfalls laboratory diagnosis, certain species such as *Streptococcus pseudopneumoniae* are occasionally misidentified as *S. pneumoniae* due to similarities in classical microbiological characteristics like colony morphology, Gram stain results, optochin susceptibility, and bile solubility. Notably, *S. pseudopneumoniae* exhibits a higher resistance rate to antimicrobial agents, which warrants the need for accurate identification. This study aims to re-evaluate diagnostic methods to accurately identify and differentiate *S. pseudopneumoniae* from non-typeable *S. pneumoniae*. **Materials and Method:** *Streptococcus pneumoniae* isolates were received at the Bacteriology Unit, Institute for Medical Research between the year 2017 to 2022. The database was screened for isolates that were non-typeable using the Quellung method. Out of 121 isolates archived at -80°C, only 10 were viable isolates to be subjected to phenotypic (hemolysis, Gram stain, bile solubility, optochin test) and genotypic analysis (PCR screening for cpsA, lytA, AliB-like ORF2 and ypdB genes) to detect *S. pseudopneumoniae*. **Results:** A total of 6 α-hemolytic, Gram-negative diplococci that were resistant to optochin and bile insoluble were presumptively identified as *S. pseudopneumoniae*. Further genotypic analysis confirmed 4 of these as *S. pseudopneumoniae* which were cpsA and lytA gene negative. The isolates were AliB-like ORF2 and ypdB gene positive. All 4 confirmed *S. pseudopneumoniae* were isolated from the respiratory specimens of adult patients (aged 30 to 49) from West Malaysia. Further antimicrobial susceptibility testing indicated a MIC_{90} for penicillin at 0.50 µg/mL and resistance to erythromycin and clindamycin. **Conclusion:** The findings underscore the necessity of further characterizing pneumococcal isolates that are optochin-resistant and bile insoluble to accurately identify *S. pseudopneumoniae*. Correct identification is crucial for ensuring accurate surveillance to better understand the epidemiology and clinical impact of this bacterium in Malaysia.

Hemorrhagic septicaemia: Trend of seropositive cases in Malaysia from 2015 to 2022

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ABSTRACT

Introduction: Hemorrhagic septicemia is an acute disease caused by the bacteria *Pasteurella multocida* serotypes B:2 (Asian) and E:2 (African). This disease causes acute septicemia in cattle and buffaloes. Hemorrhagic septicemia (HS) outbreaks can occur at any time, but the frequency of the disease increases during the rainy season. **Objective:** To study HS trends in the country based on serodiagnostic cases sent to the Veterinary Research Institute (VRI), Ipoh from 2015 to 2022 using the ELISA technique. **Materials and Method:** Random serum samples from animals with and without HS vaccination were received at VRI for *Pasteurella multocida* IgG antibody detection using an in-house indirect ELISA kit. A BioTek 800 TS microplate reader was used to enumerate the ELISA Unit (EU) percentage in order to confirm the presence of IgG antibodies against the HS organism. **Results:** Between 2015 and 2022, a total of 261 cases were received at VRI. Of the 3576 samples, 85.9% (3070) were from cattle, 11.0% from buffalo, 2.4% from sheep, 0.4% from goats, and 0.3% from rabbits. The IgG antibodies against the HS organism were detected in 13.5% (16/118 cases) in 2015; 17.4% (12/69 cases) in 2016; 4.8% (2/42 cases) in 2017; 20% (1/5 cases) in 2018; zero detection in 2019 (2 cases) and 2020 (8 cases); 33.3% (3/9 cases) in 2021; and 36.4% (4/11 cases) in 2022. Based on the geographic distribution of seropositive cases, Perak reported the highest antibody detection with 33 cases, followed by Kedah and Terengganu with 2 cases each, and Kelantan with 1 case. Over the period of study, cattle contributed 94.2% of positive cases, whereas buffalo and rabbits contributed 1.9% and 3.8%, respectively. **Conclusion:** Hence, the trend of seropositive cases has been shown to be unstable over the past 8 years. Thorough post-vaccination monitoring and detailed screening of naïve herds are important to provide valuable epidemiological information about the disease.

In-silico identification of the putative internalin (pIn) Group B *Streptococcus* (GBS) ST283 as a putative zoonotic virulence factor (PZVF) via whole genome sequence (WGS) data of diseased fish and human GBS isolates

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ABSTRACT

Introduction: Group B *Streptococcus* (GBS) ST283 caused bacteremia and meningitis in freshwater fish. Alarmingly, consuming contaminated fish products led to foodborne infection in humans, who also presented bacteremia and meningitis. A previous proteomic study identified internalin protein for the first time in the proteome of GBS from fish and humans, suggesting it as a putative zoonotic virulence factor (PZVF). Therefore, this study intended to identify and characterize the structure of putative internalin (pIn) of GBS ST283 by comparing it to those of other GBS lineages, other streptococcal species and non-streptococcal species' proteins. **Materials and Method:** This study analyzed five Malaysian GBS ST283 WGS data from diseased fish and humans which are available in NCBI; BioProject PRJNA 293392 from a previous study. The WGS assembly, annotation, and identification of pIn were performed via The Bacterial and Viral Bioinformatics Research Center (BV-BRC). The homologous pIn was mined from the BV-BRC database, UniprotKb, NCBI, and literature. A phylogenetic tree was constructed using MEGA software. **Results:** pIn was identified among a total of 1426 identical proteins. The phylogenetic tree showed that pIn was inferred to be related to group B leucine-rich (Blr) and conserved in GBS isolated from fish and humans. pIn was also associated with homologous proteins of *L. monocytogenes, S. pyogenes, and S. suis*. **Conclusion:** pIn of GBS ST283, homologous to Blr is structurally related to zoonotic streptococcal and non-streptococcal species, suggesting that pIn may have zoonotic potential. Therefore, pIn can be proposed as a molecular target for treatment and prevention at the fish farm level which eventually can curb the infection in the human population.

Diagnosis of animal tuberculosis in veterinary research institute, Malaysia

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ABSTRACT

Introduction: Tuberculosis (TB) is a zoonotic and infectious disease caused by members of *Mycobacterium*. The disease is globally distributed and has the potential to cause public health implications and economic losses. In animals, TB is often reported in ruminants, particularly cattle, however other animal species also might be infected with the disease. The status of TB in animals in Malaysia is still scarce, and the occurrence of positive cases remains unknown due to the limitation of the conventional isolation method. This paper aimed to update the diagnosis of TB in animal specimens received in Veterinary Research Institute (VRI), Ipoh for the year 2022 to 2023 based on real-time PCR method. **Materials and Method:** Lung and lymph node samples were processed and subjected to decontamination according to the WOAH Terrestrial Manual, 2022. The sediment obtained from the sample processing step was subjected to real-time PCR detection using LyteStar™ TB/NTM PCR Kit according to the manufacturer's protocol (ADT Biotech©, Korea). **Results:** A total of 169 lung and lymph node samples were tested for TB for the year 2022 to 2023. About 18.9% (32 out of 169) samples were positive for Non-tuberculous *Mycobacterium* (NTM) but, all the samples were negative for pathogenic Mycobacterium Tuberculosis Complex (MTBC). However, Non-tuberculous *Mycobacterium phocaicum*, were detected in lung and lymph node samples from imported caprine with a clinical history of lung abscess and death. **Conclusion:** This study showed presence of animal TB including NTM for the year 2022 to 2023 based on real-time PCR method.

Tracking the outbreak of *Brugia malayi* lymphatic filariasis at rural areas of two adjacent Districts in Perak, Malaysia

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ABSTRACT

Introduction: Lymphatic filariasis (LF) is a neglected tropical arthropod-borne disease caused by nematode parasites with potentially tremendous morbidity. Its prevalence peaked in 1950s with *Brugia malayi* (BM) became the prominent microfilaria in Malaysia. Since then, Malaysia has implemented LF control activities with observable reduction of microfilariae detection at LF endemic areas. In 2019, there was a reported microscopically confirmed LF case found incidentally during malaria routine surveillance activity in Batang Padang district with subsequent ascertained LF outbreak involving two adjacent districts in Perak. **Objective:** This paper aims to describe a comprehensive LF outbreak investigation, control and surveillance using an integrated vector management approach in Batang Padang and Muallim district, Perak, Malaysia. **Materials and Method:** A field investigation was carried out following the incidental finding of BM filariasis case at Kampong Sanding in Batang Padang and extended to Kampung Pisang in Muallim district. Epidemiological investigation included active case detection using BM rapid test and night blood survey, while entomological risk assessment was conducted to determine vector and receptivity. Control measures comprised of close contact tracing, chemotherapeutic treatments, and vector control, along with risk communication and continuous LF surveillance. **Results:** A total of eleven filariasis cases was detected with overall attack rate of 2.1%. Kampung Pisang in Muallim district had the highest cases (81.8%), while Kampung Sanding in Batang Padang was the extension of infection spread through an established epidemic linkage between the two localities. *Mansonia spp* was the main identified arthropod at both localities with high vector receptivity. Successful control was achieved through each single-case chemotherapy, vector control and continuous surveillance, with subsequent zero case detected over five years. **Conclusion:** Continuous LF surveillance for community in high receptivity areas is crucial to ensure the success of LF elimination in Malaysia through early case detection and treatment, hence reduces associated disease burdens.

Men's awareness of cervical cancer: A qualitative study among male staff in UniKL RCMP

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ABSTRACT

Introduction: Cervical cancer, originating from cells in the cervix, poses a significant health risk for sexually active women due to its association with HPV. Despite this, awareness among men regarding cervical cancer remains limited, with little information available on male involvement in its prevention. This study aimed to investigate men's awareness of cervical cancer to gain deeper insights into their perspectives and highlight their pivotal role in prevention efforts. **Objectives:** This study explores the knowledge, attitudes, and awareness of male staff at UniKL RCMP regarding cervical cancer, as well as their perceived roles in its prevention. **Materials and Method:** A qualitative approach was employed, involving focus group discussion with 13 participants, guided by the principle of data saturation. Semi-structured interview guides were utilised, and thematic analysis was conducted for data interpretation. **Results:** Participants generally indicated awareness of cervical cancer but lacked sufficient knowledge about its etiology and preventive measures. Many remained uncertain about their specific roles in preventing cervical cancer. Awareness levels varied based on participants' educational backgrounds and experiences. Additionally, several barriers hindering men's involvement in disease prevention were identified. **Conclusion:** This study highlights the inadequacy of male awareness and knowledge regarding cervical cancer prevention. While participants acknowledged a role for men in prevention efforts, their current awareness levels may not effectively contribute to disease prevention. Strategies are therefore warranted to enhance awareness and knowledge among men regarding cervical cancer prevention.

Detection of *Leptospira sp.* in experimentally infected guinea pigs

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ABSTRACT

Introduction: Leptospirosis is a contagious disease affecting animals and humans, caused by infection with pathogenic members of the genus Leptospira. Laboratory diagnosis of leptospirosis can be complex and involves tests that fall into two groups. One group of tests is designed to detect anti-leptospiral antibodies, while the other group is intended to identify leptospires, leptospiral antigens or leptospiral nucleic acid in animal tissues or body fluids. **Objective:** This study aimed to detect *Leptospira sp.* using polymerase chain reaction (PCR) in experimentally infected guinea pigs. **Materials and Method:** Guinea pigs were divided into two groups: Group 1 was inoculated with unspecified *Leptospira*, while Group 2 was inoculated with *Leptospira interrogans*. Both groups were observed for 21 days. Sawdust samples were collected every two days post-inoculation starting from day 3. On day 15, all guinea pigs were culled and organ samples were collected. All samples were subjected to PCR. **Results:** Sawdust samples from day 3 and day 10 post-inoculation from Group 1 tested positive, whereas sawdust samples from Group 2 tested negative. The PCR results for internal organs from both groups (Group 1 and 2) were also negative. **Conclusion:** This study provides insight into the pathogenicity of unspecified *Leptospira sp.* (field isolates) isolated from diagnostic samples in guinea pigs.

Factors associated with advanced chest X-ray lesions among orang asli with tuberculosis in Batang Padang District, Perak

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ABSTRACT

Introduction: Morbidity and mortality rates of Tuberculosis (TB) among indigenous peoples are significantly greater than those of the dominant populations. The National Strategic Plan aims for Malaysia to be a TB-free country by 2035. Therefore, it is vital to ensure timely universal access to quality-assured diagnosis and treatment of TB. Delaying in TB diagnosis among the Orang Asli (OA) can result in a more advanced stage of the disease when it is finally detected, facilitates transmission in households and congregate settings, and leads to advanced chest X-ray (CXR) lesions. **Objective:** To determine the prevalence of advanced CXR lesions and the associated factors among the OA population with TB in Batang Padang, Perak. **Materials and Method:** This cross-sectional study used data from 71 OA patients recorded in the National TB Registry (NTBR) from 2018 to 2023. Descriptive analysis and logistic regression were used to describe the sociodemographics of TB patients among the OA and identify the factors associated with advanced CXR lesions. **Results:** The prevalence of advanced CXR lesions was 47.9%. Significant factors of advanced CXR lesions were age > 60 years old (OR: 4.772, 95% CI: 1.174, 18.997), smokers (OR: 4.538, 95% CI: 1.583, 13.008), and smear-positive TB (OR: 5.1, 95% CI: 1.491, 17.539). Despite being insignificant, other factors, such as sex, hometown, education level, job status, diabetes status, and distance to the nearest Primary Health Clinic should be considered by researchers for practical and theoretical reasons. **Conclusion:** This study's implications extend beyond academia and have a practical impact on healthcare providers, policymakers, and community organizations. The early TB case-detection efforts require solid multisectoral partnerships. Enhanced public-private partnerships can have a significant effect by ensuring the execution of recommended smoking cessation programs among the OA population and tracking the high-risk older adults, ensuring no one is left behind. Future research should include a mixed-methods study to investigate the social, behavioral, and clinical determinants of advanced CXR lesions further.

Factors associated with delay in dengue diagnosis in Manjung District, Perak

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ABSTRACT

Introduction: Dengue fever, caused by the dengue virus, is a significant public health concern in tropical and subtropical regions worldwide. Prompt diagnosis is crucial for effective patient management, timely treatment, and public health response. Objective: This study aims to determine the factors associated with delays in dengue diagnosis in Manjung District, Perak. **Materials and Method:** A cross-sectional study was conducted using a universal sampling method to include all patients with a confirmed diagnosis of dengue registered in the e-Dengue v2 system from January 2023 until June 2024. The patients were stratified into two categories based on the number of days from onset to diagnosis: those diagnosed early (within 3 days or less, ≤3 days) and those diagnosed after 3 days (≥4 days), defined as delayed. Sociodemographic and clinical characteristics were analysed using logistic regression to ascertain any significant associations. **Results:** A total of 838 patients were enrolled in the study, of which 221 (26.4%) experienced delays in dengue diagnosis. The mean duration between symptom onset and diagnosis was 2.9 days (SD = 2.1). Multivariate analysis revealed several significant associations with diagnostic delay: female gender was associated with an adjusted odds ratio (OR) of 1.41, while treatment at a private clinic was linked to an adjusted OR of 0.40. In contrast, treatment at a health clinic was associated with an adjusted OR of 1.61, indicating notable differences in diagnosis delays based on gender and treatment facility. **Conclusions:** The findings suggest that female patients and those receiving treatment at health clinics are more likely to experience diagnosis delays, while those treated at private clinics tend to receive a quicker diagnosis. These insights can inform public health strategies and resource allocation to enhance early diagnosis and management of dengue fever, ultimately reducing the risk of severe complications. Furthermore, this highlights the need for targeted interventions to improve diagnostic timeliness.

Perception towards 2nd booster of COVID-19 (4th Vaccine) among Universiti Kuala Lumpur Royal College of Medicine (UniKL RCMP) staffs

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ABSTRACT

Introduction: COVID-19 is a global health issue and caused economic crisis around the globe. The infection which is prevalent in Malaysia has cause authorities to encourage its population to have the 2nd booster. Increasing public understanding, acceptance and uptake of booster shots against COVID-19 is needed to help in managing the spread of COVID-19. **Materials and Method:** This cross-sectional study was conducted among the staff of UniKL RCMP between 1st April- 3rd May 2024. The minimum sample size required was 169 based on 300 staff number, anticipatory frequency of 50% with 95% confidence level. A non-probability sampling method, convenience sampling was used for this research through which we managed to obtain 175 respondents. The data collection was done via a self-administered online questionnaire using Google Form. The link to the Google Form questionnaire was sent to the respondent's WhatsApp and was self-administered online anonymously. The WhatsApp number of the staff was obtained from People Management and Team Culture Department of UniKL RCMP. **Results:** From the 175 respondents, 124 were females (70.9%) and 51 were male (29.5%). There were 114 respondents (65.1%) who were not willing, while only 61 respondents (34.9%) were willing to take COVID-19 booster dose. Regarding education, 88 respondents (50.3%) have educational level of undergraduates/ bachelors, 48 respondents (27.4%) of secondary, 38 respondents (21.7%) of postgraduate/ masters/ PhD and 1 respondent (0.6%) of primary. In this study, no significant association was found between educational level and perception. **Conclusion:** The prevalence of acceptance of 2nd booster of COVID-19 (4th vaccine) among staffs in UniKL RCMP is low. There is no significant association between educational level and perception of 2nd booster of COVID-19 (4th vaccine) among staffs in UniKL RCMP.

Impact and projection of 1.5^{0}C/2.0^{0}C global warming on selected climate-sensitive infectious diseases in Kelantan

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ABSTRACT

Introduction: Global warming (GW) of 1.5^{0}C/2.0^{0}C is defined as an increase in global average temperature of 1.5^{0}C/2.0^{0}C compared to the pre-industrial period (1850-1900). Malaysia is not exempted from experiencing GW. Previous studies indicate Kelantan is the most vulnerable state to the impact of GW. Variations in meteorological factors due to GW are closely related to incidence of Climate-Sensitive Infectious Disease (CSID) including dengue, malaria and leptospirosis. Studies on CSID's projection of 1.5°C/2.0°C GW according to Representative Concentration Pathway (RCP) scenario were vigorously conducted. However, local studies on this topic were scarce. **Objective:** To assess the impact of GW 1.5^{0}C/2.0^{0}C and to project the incidence of CSID based on RCP8.5("worst case scenario") and RCP4.5("moderate case scenario"). **Materials and Method:** This ecological study involves monthly data: i) CSID cases (dengue, malaria, leptospirosis) (2011-2020), ii) meteorological observation (temperature, rainfall and relative humidity) (2011-2020), and iii) climate model (validation: 2011-2020) and (projection: 2021-2040). Analysis was conducted using Generalized Additive Model to develop the best prediction model and projection of CSID's cases. **Results:** Temperature, relative humidity and rainfall have a non-linear impact on dengue, malaria and leptospirosis. Dengue cases in Kelantan are projected to increase by 242.3% at GW of 2.0°C (RCP8.5). The highest dengue incidence rate projected is 12,186 per 100,000 (2040: 2.0°C/RCP8.5). Malaria cases are projected to increase by 2.8% at GW of 1.5°C (RCP4.5). The highest malaria incidence rate projected is 5.1 per 100,000 (2026 and 2029: 1.5°C/RCP4.5). Leptospirosis cases are projected to increase by 80.9% at GW of 2.0°C (RCP8.5). The highest projected leptospirosis incidence rate is 100.8 per 100,000 (2036: 2.0°C/RCP8.5). **Conclusion:** Number of cases and incidence rates of CSID are projected to increase under specific GW and RCP. These findings can be a reference for agencies involved in formulating policies and preparedness for CSID's control on GW of 1.5°C/2.0°C.

Managing dengue outbreak in Sepang District, Selangor: What we have done after COVID-19

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ABSTRACT

Introduction: Dengue, a vector-borne viral illness transmitted by *Aedes* mosquitoes is always a major health concern in Malaysia with its highest concentration of cases in Selangor due to high and dense population. In 2022, after the COVID-19 restriction movement era, dengue cases and outbreak started to rise back. In 2023, Sepang District Health Office have applied several strategies to overcome the incoming trend. This paper aims to elaborate further the strategies that have been implemented in Sepang district. **Materials and Method:** Using the e-dengue system, the confirmed dengue cases registered in Sepang district between 1st January 2022 and 31st December 2023 were included in the study while the outbreaks data were derived from Sistem Pengurusan Wabak Denggi (SPWD) supported by Sepang's Dengue Operational Room daily report. The minutes of Sepang Epidemiology Review meeting, Sepang District Dengue Action meeting and other dengue control measures documents were reviewed. **Results:** In 2022, 1,541 dengue cases were registered with 67 outbreaks which 54 of them were Wabak Terkawal (WT), 0 Wabak Tak Terkawal (WTK) and 1 Hot Spot (HS). Despite the escalating number to 2,341 of registered cases in 2023, the number of outbreaks were much reduced to 15 outbreaks (14 WT and 1 HS). From the early 2023, emphasize were made on dengue sporadic cases by ensuring the control measures (Pemusnahan Tempat Pembiakan (PTP), Semburan Ruang Termal (SRT), larviciding with 200-meter radius) for these cases were done within 3 days once the cases registered. This can be done by analysing the cases per locality, mobilizing staff from other units, enhance collaboration with agencies and local council as well as empowering the communities. Training and encouragement to the staff also being done regularly. **Conclusion:** The vector control activities were efficient when all activities are successfully implemented on the right time and place with adequate logistics while the effectiveness depend on successful elimination of the infective larval and adult stage vectors. However, enough resources are fundamental in enabling these strategies to work.

Helicobacter pylori infection in patients with chronic urticaria in Yangon General Hospital, Myanmar

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ABSTRACT

Introduction: Urticaria is characterized by a skin lesion that presents as a wheal-and-flare reaction, where localized intracutaneous edema (wheal) is surrounded by a red area (erythema) that is typically itchy (Kaplan, 2012). Urticaria is a common condition, affecting an estimated 15% of the population at some point in their lives. **Objective:** The aim of this study was to investigate the association between *Helicobacter pylori* infection and chronic urticaria. The diagnosis of urticaria in all patients was primarily based on history taking, physical examination, and serological analysis. **Materials and Method:** This hospital-based cross-sectional comparative study was conducted from August 2020 to July 2021, involving 46 patients with chronic urticaria attending the outpatient department of Dermatology at Yangon General Hospital and 46 healthy, age- and sex-matched controls. A serological study was performed on both groups, utilizing a rapid one-step test for the qualitative detection of antibodies to *H. pylori* in human serum or plasma. **Results:** Twenty patients with chronic urticaria (43.48%) tested positive for *H. pylori* in the serological test. In contrast, only 8 out of 46 healthy individuals (17.39%) were seropositive, while 38 (82.61%) tested negative. The findings revealed a statistically significant difference (p=0.007), with *H. pylori* seropositivity being 3.654 times higher in patients with chronic urticaria compared to the control group (95% CI: 1.399-9.540). **Conclusion:** Despite some limitations, this study provides valuable insights into a relatively large series of clinical presentations and the appearance of urticaria patients attending a dermatology clinic over the course of a year. It also offers an estimate of the relationship between urticaria and *H. pylori* infection.

Candida species distribution from various clinical specimens in a tertiary hospital in Selangor

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ABSTRACT

Introduction: Prevalence of *Candida* infections are increasing worldwide due to escalating numbers of immunocompromised individuals. It poses a significant challenge in terms of patient outcome and management. Thus, local epidemiological data on *Candida spp* is crucial to predict the emerging trends of the infection. **Materials and Method:** Data on *Candida* species isolated from clinical specimens were retrospectively collected by using the laboratory information system (LIS) from 1st January 2021 until 12th July 2024. *Candida spp* isolates were identified by germ tube or/and VITEK2 YST identification card. **Results:** A total of 122 *Candida spp* were isolated from various clinical specimens. The most common species isolated is *C. albicans* (45%) followed by *C. tropicalis* (14%), *C. glabrata* (13%), *C. parapsilosis* (10%) and *C. guilliermondii* (3%). About 15% of *Candida spp* isolates were not further speciated and classified as non albicans. *C. albicans* isolates were isolated mostly from non-sterile specimens i.e vaginal swab (17.2%) and urine (11.5%) specimens, while non albicans isolates were mostly isolated from sterile specimens in blood cultures specimens (23.8%). The most frequent species isolated from sterile specimens was *C. tropicalis* (25%). A total of 39 isolates (32%) were isolated from critical ill wards (ICU and CICU) specimens. **Conclusion:** Though *Candida albicans* is the predominant isolate, the emergence of non-albicans species in sterile samples is becoming increasingly common, highlighting the need for updated diagnostic and treatment approaches to address this evolving challenge in clinical settings.

Awareness of human immunodeficiency virus disease among the local community in Ipoh, Perak

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ABSTRACT

Introduction: One of the biggest threats to global public health is the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). Although there are fewer new HIV cases in Malaysia, there is still much work to be done to reach zero new infections. Society must have adequate knowledge regarding HIV to prevent infection, improve control and outcome of the disease. **Objective:** Assess the level of knowledge of HIV disease among the local community in Ipoh and the association between sociodemographic factors (gender, age, ethnicity, highest education level). **Materials and Method:** This cross-sectional study was conducted at Padang Polo and Taman D.R. Seenivasagam in April 2024. Convenience sampling was used. Three-hundred-and-eighty-four responses were collected using a self-administered questionnaire. The questionnaire was available in English and Malay with two components - sociodemographic characteristics and the HIV Knowledge Questionnaire-18, a validated instrument for assessing HIV knowledge. Statistical Package for Social Science was used to analyze the data. Descriptive statistics were performed, and chi-square test was used to identify the association between sociodemographic factors and level of knowledge of HIV disease. A p value of <0.05 is statistically significant. **Results:** Males (49.5%) and females (50.5%) were equally represented. The majority were Malay (90.9%) and had received tertiary education (86.2%). Gender and level of knowledge of HIV was statistically significant($p=0.015$), with males (26.6%) having better knowledge than females (20.8%). There was also a statistically significant association ($p=0.010$) between ethnicity and the level of knowledge of HIV but due to insufficient representation from other ethnic groups, the result from this survey cannot be applied to the general Ipoh community. No association was found between education level and age and the level of knowledge of HIV ($p=0.163$, $p=0.740$ respectively). Knowledge gaps identified in this study were mostly concerning the modes of transmission of HIV. **Conclusion:** On-going efforts to close the knowledge gaps found in this study are necessary to increase HIV literacy, particularly among the vulnerable population.

Understanding sexually transmitted diseases (STDs): A study on knowledge and attitudes among students

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ABSTRACT

Introduction: Sexually transmitted diseases (STDs) are recognized as a significant contributor to the worldwide burden of illness and a serious public health issue globally. As per the World Health Organization (2022), sexually transmitted diseases (STDs), also known as sexually transmitted infections (STIs), are caused by the spread of various bacteria, viruses, and parasites through sexual activities such as vaginal, anal, and oral sex. The incidence of STDs among younger demographics, such as college students, is progressively rising. In Malaysia, the incidence of STDs, excluding HIV and AIDS, has experienced a significant increase in recent years, as reported by the HIV/STI Section of the Ministry of Health Malaysia in 2016. The objective of this study is to ascertain the level of knowledge and attitude regarding STDs among diploma nursing students. **Materials and Method:** A quantitative cross-sectional study was conducted using a questionnaire to assess nursing students' knowledge and attitude towards sexually transmitted diseases (STDs) among 182 diploma nursing students from UniKL RCMP. **Results:** The finding showed, 2 (1.1%) had good knowledge, fair knowledge category had the most respondents, with 166 (91.2%) and poor knowledge group had 12 participants (7.7%) respectively from the 182 participants. Majority of the respondents, 123 (67.6%), had a positive attitude regarding STDs, 34 students (18.7%) had a passive attitude about STDs, whereas 25 students (13.7%) had a negative attitude. The Pearson's correlation coefficient was 0.226 (p=0.002), indicating a positive relationship between knowledge and attitude. **Conclusion:** The study emphasized the significance of education and training in enhancing nursing students' understanding and attitudes regarding STDs.

Candida auris: A global health threat identified in Malaysian Hospitals

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ABSTRACT

Introduction: *Candida auris* has emerged as a formidable global health threat, characterized by its multi-drug resistance, high transmissibility, and significant mortality rates. In this study, we aiming to understand characteristics, genetic relatedness and resistance profiles of local *C. auris* isolates. **Materials and Method:** A total of seven suspected Candida auris isolates were isolated from clinical specimens and subjected to various identification methods such as conventional, biochemical and molecular methods. Molecular analysis using polymerase chain reaction (PCR) targeting specific fungal genes (ITS and LSU regions). The DNA was extracted and amplified, followed by Sanger sequencing for species identification. Additionally, phylogenetic analysis was employed to study genetic relatedness among *C. auris*, reference and other genetically related isolates. Antifungal susceptibility testing was performed to assess the susceptibility profile of *C. auris* isolates against commonly used antifungal agents. **Results:** Utilizing various identification techniques, we accurately identified seven *C. auris* isolates and differentiate them from other closely genetic related species. Phylogenetic analysis showing the genetic relationships between our local, global and type strains of *C. auris* isolates, as well as genetically closely related species. Our antifungal susceptibility pattern highlights a concerning prevalence of antifungal resistance, particularly to commonly used treatments such as fluconazole and amphotericin B. **Conclusion:** This study highlights the critical importance of improving diagnostic tools and developing new antifungal treatments to address the growing threat of *C. auris* in Malaysia. Phylogenetic analysis suggests that Malaysian isolates may be connected to global clonal lineages, indicating potential cross-border transmission. These findings stress the need for rigorous infection control and effective surveillance to prevent the spread of this pathogen.

Thermal and heart rate changes among personal protective equipment (PPE) wearers in a 6-minute walk test

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ABSTRACT

Introduction: During COVID-19 healthcare professionals were at risk of thermal stress while wearing Personal Protective Equipment (PPE) on physical activity. They experienced symptoms of discomfort such as headache, dehydration due to excessive sweating may decrease both cognitive and work efficiency. Previous studies explored the thermal effects of wearing facemask and PPE on physical activities of varying intensity and duration. **Objective:** To evaluate the changes on temperature and heart rate during a 6-Minute Walk Test (6-MWT) while wearing different kinds of PPE. **Materials and Method:** This study involved 90 participants aged between 18-27 years and standardized 6-MWT, a submaximal exercise test as an intervention. A quasi-experimental design, subjects were randomly assigned to either Control, Facemask, or PPE group; a pre-test and post-test measurements of heart rate, blood pressure, aural temperature, and oxygen saturation were done. A 6-Minute Walk Work (6-MWW) (distance x body weight), an improved outcome measure for 6MWT was calculated and data analysed using one-way ANCOVA. **Results:** Mean differences in heart rate [15.15±4.49;17.82±3.40; 21.65±5.88 (BPM)] and temperature [0.04±0.09; 0.04±0.02; 0.38±1.5 (0C)] among three groups respectively, before and after 6-MWT. PPE group showed significant differences in both heart rate and aural temperature ($p<0.05$). Interestingly, 6-Minute Walk Distance (6-MWD) and 6-MWW [25970.63±7097.18; 27957.24±7936.64; 25328.16± 6873.17(Kg.m)] were less in PPE group than other groups. The energy was expended as rise in aural temperature rather than work or functional capacity. **Conclusion:** The increased responses in thermal and heart rate were significant in a group with PPE than without PPE due to an increased metabolic rate and the existence of thermal microclimate while wearing PPE. This study recommends designing appropriate cooling strategies to minimise the side effects of wearing PPE while in longer working environment.

A rare case of dengue & malaria co-infection

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ABSTRACT

Introduction: Being tropical, vector-borne infections are common in Malaysia, especially Dengue fever. However, Dengue and Malaria co-infections are relatively rare. A meta-analysis by Kotepui et al. between 2009 and 2019 covering India, Brazil, French Guiana, Pakistan and Peru revealed a higher risk of severe disease among patients with co-infections. Hence, it is a crucial and clinically challenging dilemma to identify co-infections promptly. These cases also leverage public health concerns to determine the presence of multiple vectors within a common locality or human migration as a transmission source between different localities, hosting more than one pathogen concurrently. **Case Report:** A 33-year-old Iban gentleman presented with fever, chills, rigour and headache for a few days. He visited the Solomon Islands from March to June 2024 and returned to Malaysia several days before the onset of current symptoms. His blood counts suggested a viral infection; he proceeded with a Dengue rapid test, which revealed immunoglobulin-M (IgM) and immunoglobulin-G (IgG) positive. Blood film for malarial parasite (BFMP) was taken due to the travel history to the Malaria endemic region, which showed the presence of Plasmodium vivax. The patient was then admitted to a tertiary hospital for further management. He was given intravenous hydration and commenced on anti-malarial drugs. He was discharged well within a week without requiring intensive care. Epidemiological assessment in this case revealed that this patient had Malaria symptoms during his stay in the Solomon Islands. However, he did not comply with the initial treatment. A field assessment encompassing two kilometres from his residence in Malaysia revealed no presence of a Malaria vector, which was hence declared an imported infection. **Discussion:** A high index of suspicion coupled with sound clinical acumen is required to identify a co-infection as they manifest overlapping clinical features. Comprehensive history-taking is pivotal in establishing the epidemiological links and potential sources of infection, as establishing either imported or local infection status takes precedence in planning vector-control programmes.

Knowledge, attitude and practice towards blood donation among undergraduate automotive engineering technology students in UniKL MFI campus

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ABSTRACT

Introduction: Human blood is an important component of human existence, and there are currently no replacements. Blood donation is a vital part of worldwide healthcare related to blood transfusion as a life-sustaining and life-saving procedure as well as a form of therapeutic phlebotomy as a primary medical intervention. This study aimed to assess the knowledge, attitude, and practice towards blood donation among undergraduate automotive engineering technology students. **Materials and Method:** A quantitative cross-sectional study design was conducted, with 141 respondents selected through convenience sampling. Data was analyzed using descriptive statistics, Chi-square tests assessed the associations between socio-demographic variables and knowledge, attitude and practice level on blood donation. **Results:** The results showed that 54.6% of the participants had adequate knowledge about blood donation, 77.3% displayed a negative attitude toward blood donation and 70.9% of the participants reported high level of blood donation practice. Significant associations were found with the group of gender on knowledge (p=0.002) and attitude level (p=0.040). There was no significant association with the group of gender and practice level (p=0.063). Socio-demographic characteristics, year of study and age group also showed insignificant association with the knowledge, attitude and practice level of the participants. **Conclusion:** In conclusion participants had a sufficient understanding on blood donation, exhibited a negative attitude towards it. This study emphasizes the importance of targeted educational campaigns and promotional activities within universities to foster a positive attitude and higher participation rates in blood donation among students.

Ticks seen shopping at convenience store; fear factor?

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ABSTRACT

Introduction: Ticks infestation (Acari: Ixodidae) is a threat either to an animal or other vectors such as birds, rodents or even to humans. This is a case study of ticks creating fear among shoppers and neighbouring office occupants nearby a convenience store which was heavily infested with ticks in Bidor, Perak. It led to work routine disturbances, frequent cleaning for tick control, businesses were affected and caused distress even among the customers. **Materials and Method:** Upon a report being lodged to the Entomology & Pest Unit in the district health office, a team began investigations on 23rd of December 2023. Field visit with environmental risk assessment was done. Sampling techniques of direct sampling via visual examination and tick collection from the building premises with dragging method were used. Dragging method was used for the active collection of ticks whereby a cloth is dragged across and regularly checked for the presence of ticks. **Results:** Upon analysis, it was shown that dominant species was *Rhipicephalus sanguineus*, which is also known as Brown Dog Ticks. Areas visited by stray dogs were seen to have high infestations from creek of buildings to rooftop. The infestation was seen involving an area of 100 meters. A total of 410 ticks were obtained, including 33 eggs, 17 larvae, 152 nymphs, and 208 adults. The high number of stray dogs led to the infestations of ticks in the buildings. **Conclusion:** Although there are reports of ticks, biting humans and causing diseases in other countries, it is not commonly reported in this region. Fear towards the ticks, or entomophobia may lead to mental health issues among people frequenting the shops, shop workers and even cleaners around the area. Fortunately, the multiagency collaboration led to resolution of this tick infestation.

Leptospirosis environmental control and surveillance in Bukit Wang Eco-Park, Jitra, Kedah

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ABSTRACT

Introduction: Leptospirosis, a potentially fatal disease caused by the bacterium *Leptospira*, is transmitted through direct contact with water or soil contaminated by the urine of infected animals. The disease is commonly linked to high-risk occupations, home environments, and recreational activities. In the Kubang Pasu district, Bukit Wang Eco-Park, a popular recreational spot, has faced challenges with leptospirosis outbreaks due to its high visitor traffic and environmental conditions. Effective control measures for leptospirosis encompass eliminating pathogenic agents, modifying environmental conditions, boosting host immunity and reducing infected host populations. **Objective:** The objective of this project is to develop and implement effective strategies to reduce the risk of leptospirosis and enhance public health protection. This involves collaboration with various agencies, including the Kedah State Forestry Department and the Kubang Pasu District Office. **Materials and Method:** A comprehensive assessment and risk analysis of Bukit Wang Eco-Park has been conducted by collecting and analyzing data from 2022. **Result:** An outbreak of leptospirosis was declared on June 19, 2023, with 7 cases reported (4 confirmed and 3 probable). The affected individuals, predominantly male, exhibited symptoms such as fever, vomiting, and diarrhea. Environmental assessments identified contamination sources in the park's upper areas. Immediate control measures were implemented, including park closure, environmental sampling, health education campaigns, and ongoing surveillance. Water and soil samples from two locations tested positive for pathogenic *Leptospira*. **Conclusion:** The interventions have led to positive changes, reducing the spread of leptospirosis within the eco-park. However, to sustain these improvements, it is crucial to maintain and effectively implement control measures consistently. Long-term preventive strategies will be essential to ensuring the continued safety of park visitors and protecting public health.

Preliminary sequence-level analysis of SARS-CoV-2 variants: Identifying signature regions contributing to variant specificity

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ABSTRACT

Introduction: SARS-CoV-2, the virus responsible for COVID-19, has evolved into multiple variants with varying transmissibility, pathogenicity, and vaccine efficacy. These variants are defined by mutations in the viral genome, particularly in regions affecting host cell binding and immune evasion. Identifying these mutations is crucial for vaccine development and understanding variant-specific behavior. **Objective:** This study aims to perform a preliminary sequence-level analysis of various SARS-CoV-2 variants to identify specific genomic regions that contribute to the distinct characteristics of each variant. **Materials and Method:** Sequence data from several SARS-CoV-2 variants, including Alpha, Delta, and Omicron, were aligned using a manual approach. The alignment focused on comparing nucleotide sequences to identify conserved and variable regions that could serve as signature regions for each variant. Key nucleotide differences were analyzed to understand their potential impact on variant specificity. **Results:** The alignment revealed several key genomic positions where nucleotide variations were present among the SARS-CoV-2 variants. For example, significant differences in nucleotide composition were observed in the initial regions of the sequences, particularly between the Alpha variant and other SARS-related coronaviruses. These variations suggest potential signature regions that may influence the unique characteristics of each variant, such as increased transmissibility or immune evasion. **Conclusion:** This preliminary analysis identified signature regions within the SARS-CoV-2 genome that likely contribute to the specificity of different variants. These findings provide valuable insights into the functional differences between variants, although further research is required to fully understand their implications. Continuous monitoring and analysis of SARS-CoV-2 mutations are essential for managing the ongoing pandemic and preparing for future variants.

From failure to triumph: Managing HCV in the non-compliant elderly with DOTS

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ABSTRACT

Introduction: Hepatitis C virus (HCV) is a significant global health challenge, affecting millions worldwide. The World Health Organization aims to eradicate HCV by 2030 through improvements in prevention and treatment. In 2019, Malaysia's Ministry of Health introduced guidelines promoting rapid initiation of direct-acting antivirals (DAAs) for managing Chronic Hepatitis C, targeting sustained virologic response (SVR) at 12-weeks of treatment. Despite enhanced access to DAAs and updated protocols, achieving SVR remains difficult, especially among vulnerable populations like the elderly in nursing homes. **Case report:** We present a case of a 67-year-old man living alone independently in a shelter home. Despite being asymptomatic, he tested positive for HCV during a routine check-up due to a history of intravenous drug use. His initial HCV viral load was 3,114,886IU/mL, and was started on a 12-week course of Sofosbuvir and Daclatasvir. But, the viral load was still 2,761,725IU/mL. His APRI score was 0.4, with normal liver enzymes and ultrasound of the hepatobiliary system. Poor compliance due to social issues, namely living in a homeless shelter without supervision for medications intake, lack of family support, and travel difficulties to clinic, led to failure in achieving SVR-12. To address this, we implemented the Direct Observational Therapy System (DOTS) at Klinik Desa and encouraged peer support from Persatuan Warga Emas Sejahtera Tanjung Malim (PERWARA). These measures successfully improved compliance, resulting in SVR after 24 weeks of DAA therapy. **Discussion:** DAAs have almost 99% cure rate but require strict compliance. DOTS, successfully used for tuberculosis, may enhance adherence to HCV medication and ensure successful treatment. **Conclusion:** Addressing factors contributing to HCV treatment failures in special populations is crucial. Implementing these strategies into national guidelines can help healthcare systems meet the specific needs of these groups and enhance treatment success.

A leptospirosis outbreak at a detention centre in Batang Padang District, Perak, Malaysia – A threat to health of the inmates

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ABSTRACT

Introduction: Leptospirosis is a neglected, re-emerging tropical disease classified as a food-water-borne disease caused by *Leptospira* with wide-spectrum clinical presentations. Its incidence and endemicity in Malaysia vary by exposure characteristics of individual localities. Batang Padang district has recorded a significant disease burden related to notifications of suspected leptospirosis cases over years. In April 2022, a leptospirosis outbreak involving inmates of a detention centre in Batang Padang district during COVID-19 pandemic transition was reported in Malaysia. **Objective:** This paper aims to describe the management of a leptospirosis outbreak involving a detention centre in Batang Padang district from epidemiological perspective combining integrated vector management approach. **Materials and Method:** Following two reported leptospirosis cases involving hospitalized inmates from one detention centre, an investigation consisted of epidemiological and environmental risk assessment based on epidemiologic triad of leptospirosis was carried out. All affected inmates were identified based on leptospirosis case definitions during an active case detection together with clinical investigations. Environmental risk assessment investigated evidence for rodent and other animals' infestation and food-water-borne disease hazards. Appropriate measures suggested according to hierarchy of control measures. **Results:** A total of 284 inmates were symptomatic and classified as epidemic-linked leptospirosis with the attack rate of 39.7%. Among the proxy clinical testing, 2(28%) cases were probable leptospirosis with positive serological test and 6(60%) cases were confirmed leptospirosis with Leptospira-microscopic agglutination test. Two rodents of Norwegian rats were caught and tested negative for Leptospira. Environmental assessment found high risk for leptospirosis infection within the cells and food preparation areas. **Conclusion:** Although the causal plausibility was partially established, however the epidemiological and environmental risk assessment had pointed the risks of getting leptospirosis that threatened inmates' health and wellbeing in the detention centre. Engineering control that referred to repair of structural defects was the main measure to prevent infection risk at the detention centre.

Phenotypic versus genotypic resistance in MTB: Evaluating agreement for isoniazid and rifampicin

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ABSTRACT

Introduction: Isoniazid (INH) and rifampicin (RIF) are essential drugs for tuberculosis (TB) treatment. The emergence of drug-resistant Mycobacterium tuberculosis strains challenges tuberculosis prevention efforts. Phenotypic drug susceptibility testing (DST) takes many weeks or months to produce results, whereas genotypic approaches such as the line probe assay (LPA) provide quick detection of resistance mutations. **Objective:** The aim of this study is to assess the concordance between phenotypic and genotypic resistance profiles for INH and RIF in Mycobacterium tuberculosis isolates. **Materials and Method:** We tested a total of 285 Mycobacterium tuberculosis isolates for phenotypic DST by solid or liquid methods and assessed for genotypic resistance using the GenoType MTBDRplus assay (Hain Lifescience, Germany). We analyzed the concordance between these methods. **Results:** Of the 285 isolates, 257 (90.2%) had high concordance between phenotypic and genotypic DST results for INH and RIF. Out of them, 144 isolates showed susceptibility to both INH and RIF, with no resistance mutations detected. In contrast, the remaining concordant cases (113) identified mutations related to resistance to either INH, RIF, or both drugs. However, 28 isolates (9.8%) displayed phenotypic resistance without corresponding mutations identified by LPA. **Discussion:** These discordant cases suggest potential alternative mechanisms of resistance or limitations in the current genotypic detection methods. Even though there is a high concordance between LPA and phenotypic DST, the presence of discordant cases, where phenotypic resistance is not associated with known genotypic mutations, emphasizes the importance of maintaining phenotypic testing. These findings highlight the importance of comprehensive approaches in TB diagnostics to identify all resistance mechanisms. Further research is necessary to understand these discordant cases and improve genotypic detection accuracy.

A brief historic literature review of the world health organization and five of its members on their COVID pandemic responses in light of commentary by Sun Tzu's art of war

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ABSTRACT

Introduction: Public health issues, in particular infectious diseases, are national security issues. In fact, there are many similarities between infectious disease outbreaks and organised warfare between nation – states. According to this mechanistic reasoning, outbreaks and warfare should be generally comparable, albeit with adjustments. Using the recent CoViD – 19 pandemics as an example, some political leaders did embrace the idea of warfare against the pandemic. The Art of War by Sun Tzu is the "prototype" of the military mindset, has been confirmed to be the earliest military treatise in history, and is relevant even today in diverse fields. Thus it should be the yardstick to measure militarised responses to outbreaks as well. **Materials and Method:** For six polities (the World Health Organization, China, USA, Malaysia, Sweden and Israel) a literature review of significant points of each polity's response during the CoViD pandemic (total 24 documents) was conducted with the relevant points of each polity's CoViD response narrative compared with relevant excerpts of the Art of War. **Results:** Apart from Israel, the polities' measures as described in the literature and in light of the Art of War were found to be delayed, inadequate and ineffectual, which led to the pandemic being drawn out both worldwide and in those nations. This was in direct contradiction to the principles in the Art of War. Military resources and military mindsets were either not used, or not used in full, being subordinated to civilian concerns. **Conclusion:** Deployment of military resources and methods against the CoViD pandemic described in the literature generally did not fulfil the principles of the Art of War. Several key points where the disease could be checked were not taken advantage of, with resultant prolongation of the pandemic and unnecessary increase in morbidity and mortality.

MTB lineage distribution in paediatric population - A whole genome sequencing analysis

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ABSTRACT

Introduction: Paediatric TB accounts for 8% of total TB cases in India. Among the 9 lineages of M. tuberculosis (MTB), lineage 1(L1) is most common in South India and lineage 2(L2), Lineage 3(L3) and lineage 4(L4) are spread over the Northern region. While studies on whole genome sequencing (WGS) in paediatric tuberculosis (TB) is already limited, reports on lineage distribution gains least attention. With the recent studies in adult population demonstrating the association between lineage and drug resistance, characterization of MTB isolates at lineage level is crucial in children. In this study, we aimed to look at the phenotypic and genotypic drug resistance pattern of MTB isolates and their association with lineage distribution. **Materials and Method:** A total of 14 paediatric MTB isolates obtained between the years 2017-2023, were subjected to phenotypic drug susceptibility test (DST) and WGS. The output data in FastQ was mapped to H37Rv reference genome using NIRT CAMRespred Bioinformatics tool and poor quality samples were filtered by Trimmomatic software. A phylogenetic tree was generated using RAxML tool. **Results:** Among the 14 samples, 13 were included for the analysis as one sample was excluded due to poor quality. Sequence analysis revealed around 44 mutations in 6 samples and when their association with phenotypic and genotypic drug resistance was explored, a high level of discordance was observed. While all the 6 samples were sensitive by phenotypic DST, the mutations identified in them by WGS needs further analysis to demonstrate its significance. Lineage distribution analysis identified, L1 in eight samples, L4 in three samples and L2 in two samples and around 12 mutations were seen in L4, 23 in L1 and 9 in L2. **Conclusion:** The study findings indicate that L1 is dominant among the paediatric population. This is in agreement with our earlier findings in adult population, and this paves pathway for further transmission dynamics study. However, discordance between mutations identified and phenotypic DST requires further investigation to check its role in drug resistance.

Effect of social media addiction towards sleeping pattern and knowledge acquisition among students

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ABSTRACT

Introduction: In recent decades, social media has revolutionised the atmosphere. It appears to be interactive. People use social media because they can learn and obtain information with a click. For students, persistent social media use or addiction might have negative impacts. This study examines how social media addiction affects nursing students' sleep and knowledge. **Materials and Method:** A sample of 284 nursing students, including bachelor and diploma programme from UniKL (RCMP). Data was collected through a questionnaire comprising demographic information, the social media addiction scale, the Pittsburgh Sleep Quality Index (PSQI), and knowledge acquisition measures. Statistical analysis correlation and ANOVA were conducted to assess the relationship between the variables. **Results:** Social media addiction was found to have a weakly positive connection with student sleep habits (0.019, p = 0.749). Pearson coefficient of 0.568 (p=0.000) demonstrated a relationship between social media addiction and knowledge. ANOVA showed age group and knowledge acquisition mean p=0.001. Bachelor students were more addicted to social media and gained more knowledge than Diploma students. There were no gender disparities found in social media addiction or sleep habits. However, male students learnt more. Sleep patterns also indicated no significant differences. **Conclusion:** In conclusion, this study shows the complex links between social media addiction, sleeping patterns, and knowledge acquisition among UniKL RCMP nursing students. Social media addiction affects knowledge but not sleep quality.

Public health challenges: The rising trend of malaria *Plasmodium knowlesi* in Hulu Selangor

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ABSTRACT

Introduction: *Plasmodium knowlesi* is a zoonotic malaria carried by *Macaca fasicularis* and *Maccaca nemestrina*. Humans are infected by *Anopheles* mosquito bites. Hulu Selangor is the largest district in Selangor, with 45 percent of its forest reserves in mountainous terrain and rivers. Apart from the industrial sector and agriculture, eco-tourism is also booming as an economic driver. Hulu Selangor is the most endemic area for malaria *Plasmodium knowlesi* in Selangor. It remains one of the main public health challenges in Hulu Selangor. **Objective:** This study aims to determine the distribution and contributing factors for malaria *Plasmodium knowlesi* in Hulu Selangor. **Materials and Method:** A cross-sectional study using secondary data extracted through the VEKPRO and CDCIS e-notification systems from 2015 to 2023. Data analysis was done descriptively using Excel version 2021. **Results:** A total of 151 Malaria *Plasmodium knowlesi* cases were reported from 2015–2023, with four (4) deaths. The incidence of malaria *Plasmodium knowlesi* in Hulu Selangor in 2023 was 9 per 100,000 population. There was an increasing trend of malaria *Plasmodium knowlesi* from 2015 to 2019. However, the cases decreased dramatically during pandemic COVID-19 (2020–2022), with eight (8) cases in 2022 and increasing to 22 cases in 2023. Majority of cases were male, aged 18–40 years old, Malaysian citizens, and the main sources of infection were at the orchard and camp site, followed by the plantation area. The most common activities related to malaria *Plasmodium knowlesi* infection were recreational (37%), followed by agricultural (18%) and working and staying in malaria-prone areas (17%). **Conclusion:** Malaria *Plasmodium knowlesi* is one of the public health challenges in Hulu Selangor, with an increasing trend post-pandemic COVID-19. Socio-economic and eco-tourism activities contribute to the malaria infection. Therefore, an integrated approach should be applied by relevant agencies to the targeted community to curb malaria cases and prevent malaria mortality in Hulu Selangor.

Factors associated with healthy longevity among elderly in Ipoh, Perak

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ABSTRACT

Introduction: Healthy longevity is a result of a person's ability to live a long life maintaining good health. It correlates to differences in genetics, lifestyle, and overall well-being. **Objective:** The study aims to examine factors associated with longevity among elderly aged 80 years and older, including lifestyle, social, and spiritual beliefs, in Ipoh, Perak. **Materials and Method:** The mixed method study, in which five elderly aged 85 and above were selected conveniently through snowballing method for the in-depth interview. They were asked about their lifestyles and life experiences in coping to the aging period. For the quantitative part, 55 elderly people were selected using a convenience sampling method. They were subjected to assisted self-filled questionnaire to get information on their sociodemographic status, lifestyles, current morbidity and coping experience with aging. **Results:** The healthy aging and longevity among respondents were associated with a variety of interrelated factors. The qualitative component of the study had shown that proper dietary intakes, active living and adequate sleep were elements in their life. Early interventions to health issues, access to high-quality healthcare and maintaining social ties and interaction help them to cope with their life. In the quantitative components, most of them have been physically active (61.8%), following recommended food intakes, never smoke (70.9%) or drink alcohol (76.4%). However, almost 90% of them were co-morbid with good compliance of medication and good control of their disease (76.4%). Most of the respondents have a good relationship with relatives, friends and a community (more than 60%). High spirituality and feeling gratitude were practiced by 72% of respondents. **Conclusion:** Maintaining physical and mental health by practicing proper dietary intakes, active lifestyles, avoiding smoking and excessive alcohol usage, as well as by enhancing social and spiritual health can help to prevent undesired outcome of aging and preserve longevity.

Detection of fetal cytomegalovirus syndrome burden among newborn in parallel to serostatus of their mothers attending Tertiary Care Hospital, Salem District

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ABSTRACT

Introduction: Neonatal diseases are entirely unique among human diseases due to the dramatic physiological transition from fetal to neonatal life. As a result, there will inevitably be more occurrences of fetopathy and more babies delivered with congenital abnormalities. The study aimed to determine the prevalence of fetal cytomegalovirus syndrome in live births in correlation with the mothers' serostatus for CMV infection. **Materials and Method:** The present study was a prospective cohort study for the period of 6 months (Jan–June 2024). Sixty pregnant women with bad obstetric history and fetus with < 2kg (IUGR) and abnormal ultrasound presentation were included in the study. Mother and fetus without risk were excluded from the study. Written informed consent & ethical clearance was obtained (GMKMC&H/114/EC/2023-84). Under aseptic condition, 3ml of blood specimen collected from antenatal pregnant women for detection of CMV IgM, IgG & IgG avidity using ELISA. Saliva/ urine were collected from the neonates of IgM Positive pregnant mother and Real Time PCR was carried out. Data was analyzed using SPSS software 22.0. **Results:** In the present study, among 60 antenatal pregnant women, 8(13.3%) showed IgM CMV reactive. Of the 8 CMV positive cases, 7(11.6%) exhibited high avidity for IgG and 1(1.7%) had low avidity. Neonates whose expectant mothers tested positive for CMV had births with intrauterine death (6), anomalous baby (1) and alive (1). The clinical and epidemiological features of pregnant women & newborn are analyzed using the ONE WAY ANOVA, which is statistically insignificant ($p<0.50$). **Conclusion:** Our diagnosis is primarily based on the antenatal pregnant women and their newborn's CMV infection which found to be 13.3% of positivity in Salem district. About 10% of affected deaths are caused by CMV and happen in utero. Hence, robust testing of this infection and their genetic play could be a preventive strategy for CMV genetic disease in newborn.

Influence of medical TV shows on medical students' perceptions and attitude

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ABSTRACT

Introduction: Medical drama has been one of TV most popular genres since their inception. These shows often depict medical professionalism, ethics and realism. The portrayal of the medical field in such entertainment has raised concerns about its potential impact on the perceptions, attitudes, and knowledge of individuals pursing medical education, particularly medical students. **Materials and Method:** A cross-sectional study through an online survey was conducted on both preclinical and clinical year medical students from Universiti Kuala Lumpur Royal College of Medicine Perak (UniKL RCMP). Descriptive analysis and a chi-square test were used to analyze the data. **Results:** Among the 299 students surveyed, the majority agreed that TV medical dramas positively influence their perceptions of how medical healthcare works in reality. The majority of respondents also agreed that TV medical dramas have influenced their attitude, decision regarding medical specialties, study motivation and educational impact. Medical TV shows also provide memorable and retained medical information; however, most respondents felt that they do not serve as a preferred method of learning. **Conclusion:** These research findings support the notion that medical TV shows are highly popular among medical students, who hold favourable views towards these shows and draw inspiration from them. Medical TV shows have a positive impact by enhancing their understanding of clinical practices and ethical considerations in medicine. However, it remains crucial for students to watch these shows with mindfulness, so as not to be overly influenced by the exaggerated portrayal of medicine in these dramas.

Sexual and reproductive health knowledge, information-seeking behaviour and attitudes among female students in a private Medical University in Malaysia

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ABSTRACT

Introduction: Sexual and reproductive health (SRH) significantly impacts overall health and quality of life. This study examines SRH knowledge, information-seeking behaviour, and attitudes among female students at UniKL RCMP in Malaysia. The focus is on addressing risky sexual behaviour, which contributes to unwanted pregnancies, STIs, and pregnancy-related complications, particularly among females. **Materials and Method:** This is a cross-sectional study, comprising observational based research. It was conducted by distributing the online questionnaire to the female students of UniKL RCMP. All the questions in the questionnaire were then computed as the variables of this study. Analysis was done in SPSS 29 using appropriate statistical tests, $p<0.05$ was considered as significant. **Results:** Of 156 students, most are knowledgeable about SRH, with medical students being more informed. While socializing with the opposite sex is widely accepted, physical intimacy is not and most believe females should remain virgins until marriage. Religiousness significantly influences sexual norms. Students prefer seeking SRH advice from doctors, avoiding the internet due to misinformation concerns. **Conclusion:** This study underscores the significance of SRH education among female university students. Targeted educational interventions can empower young women to make informed decisions about their sexual and reproductive health.

Impact of metabolic stress on serum inflammatory and adipocytokine levels in young and aged rats

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ABSTRACT

Introduction: Lipid dysregulation, adipocytokine imbalance and inflammation are the key players in many diseases like diabetes, atherosclerosis and age-associated degenerative diseases. The current lifestyle, characterized by a Western diet rich in lipids and fructose that satisfies a major part of caloric requirements, leads to obesity and inflammation, which contribute to the manifestation of degenerative diseases. Therefore, the aim of the current study is to evaluate the inflammatory and adipocytokine status in lipid and glucose metabolism derangements. **Materials and Method:** Young and aged male Wistar rats were divided into five major groups and fed with high fat diet followed by intraperitoneal injection of low dose of streptozotocin (30 mg/kg). The fasting blood glucose was measured 3 days after the streptozotocin injection. The rats with the fasting blood glucose 16.7 mmol/L were considered diabetic and selected for further studies. Rats were sacrificed, and the blood samples were collected in respective test tubes for the separation of plasma and serum samples. Evaluation of the serum levels of leptin, Resistin, Visfatin, Il-1α, Il-1β and Il-6 were done by ELISA. **Results and Conclusion:** Assessment of adipocytokine and inflammatory markers alteration in the various experimental groups reveal that aging combined with high fat diet feeding contributed the maximum alteration in adipokines and inflammatory markers followed by young rats stressed with high fat diet, fructose and STZ.

Impact of lumbar stabilization exercises on pain and quality of life in physiotherapy students with lower back pain: A cross-sectional study

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ABSTRACT

Introduction: Lower back pain is a common issue influenced by factors like age, physical activity, posture, and work conditions. Lumbar stabilization exercises have been shown to alleviate this pain by strengthening spinal support muscles, enhancing trunk stability, and improving overall quality of life. This study aimed to evaluate the impact of lumbar stabilization exercises on the severity of lower back pain and the overall quality of life in adults with this condition. **Materials and Method:** A cross-sectional design was employed, targeting physiotherapy students aged 18 to 30 at University Kuala Lumpur Royal College of Medicine Perak (RCMP). Convenience sampling was used to recruit participants, with a minimum sample size of 205 determined by the Krejcie and Morgan table. Data were collected through a Google Form questionnaire, which included sections from the Roland-Morris Low Back Pain and Disability Questionnaire, the International Physical Activity Questionnaire, and demographic questions. IBM SPSS Statistics Version 23 was used for data analysis, including descriptive statistics and chi-square tests. **Results:** Out of 123 participants, 75 (61.0%) reported experiencing lower back pain. Following lumbar stabilization exercises, 43.1% reported a significant reduction in pain, with 33.3% feeling neutral, and smaller percentages noting worsening pain (3.3% "worst" and 1.6% "very worst"). Statistical analysis showed a significant improvement in quality of life ($p = 0.026$). **Discussion:** Regarding exercise application, 80.5% of respondents used lumbar stabilization exercises to manage their pain, while 19.5% did not. The mean application value was 1.20 with a standard deviation of 0.398, indicating widespread use among those with lower back pain. These results suggest that lumbar stabilization exercises are effective in reducing lower back pain and improving overall quality of life.

Engaging communities in rabies prevention: A study of knowledge, attitudes, and perceptions (KAP) in Perak

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ABSTRACT

Introduction: Rabies, a preventable yet fatal zoonotic disease, remains a significant public health concern in many regions, including Perak. To support the government's goal of a rabies-free Malaysia by 2030, understanding community knowledge, attitudes, and perceptions (KAP) is crucial for tailoring effective prevention strategies. **Objective:** The aim of this study is to assess the public's knowledge, attitudes, and perceptions concerning rabies transmission and prevention in Perak. **Materials and Method:** A cross-sectional online survey was conducted in Perak from February to May 2023. 121 participants aged 18 and older completed a validated 21-item questionnaire assessing knowledge, attitudes, and perception regarding rabies. Data were analysed using SPSS, with descriptive statistics and Bloom's taxonomy applied to categorise responses. **Results:** The majority of respondents were young adult females (n=92, 76.0%) with a bachelor's degree (n=87, 71.9%). Most participants were Malay (n=98, 81.0%) and had a monthly income below RM4,850 (n=89, 73.9%). The majority lived in terraced houses (n=71, 58.7%) without pets (n=71, 58.7%). The majority of participants exhibited satisfactory knowledge (71.1%), positive attitudes (n=68), and favourable perceptions (n=100; 82.6%) about the prevention and transmission of rabies. Furthermore, a substantial majority of participants (n=88) indicated their inclination to receive the vaccine, with 63.6% strongly supporting the necessity of rabies vaccination. A substantial proportion of the respondents (n=72) who were surveyed are also of the opinion that rabies can be prevented. **Conclusion:** This study reveals positive public knowledge, attitudes, and perceptions of rabies prevention in Perak. However, targeted interventions are needed to address specific groups and boost vaccination rates, contributing to Malaysia's goal of becoming rabies-free.

Assessing the reliability and validity of a questionnaire on knowledge, perceptions, and practices regarding hand, foot and mouth disease (HFMD) among Malaysian parents: A pilot study

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ABSTRACT

Introduction: Hand, Foot and Mouth Disease (HFMD) is a common viral infection that primarily affects young children under 5 years old. The disease can spread rapidly through close contact, making it crucial for parents to have adequate knowledge and adopt appropriate preventive measures. To address this gap, a comprehensive questionnaire was developed to evaluate knowledge, perceptions and practices related to HFMD among Malaysian parents. Before conducting the main study, a pilot study was deemed necessary to assess the feasibility, reliability and validity of the questionnaire. **Objective:** The primary objective of this pilot study was to determine the reliability and internal consistency of the questionnaire items, ensuring they effectively measure the intended constructs related to HFMD. **Materials and Method:** This study involved 38 parents who provided informed consent to participate. Data were collected using a structured questionnaire, which was subsequently analysed for reliability using Cronbach's Alpha via SPSS software. Each domain of the questionnaire; knowledge, perception and practice was analysed separately to derive Cronbach's Alpha values, with a minimum acceptable threshold set at 0.7 for reliability. **Results:** The analysis revealed varying levels of internal consistency across the domains. The knowledge section, consisting of 20 items, yielded a Cronbach's Alpha of 0.638, indicating moderate reliability. Notably, three items were excluded due to zero variance, while the perception section achieved a high reliability score of 0.797, demonstrating strong internal consistency. The practice section also showed good reliability with a Cronbach's Alpha of 0.747. **Conclusion:** The findings suggest that while the knowledge section requires refinement, the overall instrument shows promise for further research into HFMD awareness and prevention among Malaysian parents.

Isolated splenic tuberculosis: A rare case and it's literature review

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ABSTRACT

Introduction: Tuberculosis is a common disease worldwide, especially in underdeveloped countries. It is now re-emerged also in developed countries due to illegal immigrants and in AIDS patients. The common presentation is pyrexia of unknown origin. **Case Report:** We presented a 27-year-old man who was admitted for the investigation of pyrexia of unknown origin (PUO) with pain and tenderness at the left upper quadrant of the abdomen for two months duration. **Results:** All other diagnostic investigations were non-informative apart from the fine needle aspiration biopsy from the splenic area that revealed classical chronic granulomatous inflammation containing typical Langhan giant cells. **Treatment:** Patient responded well to the anti-tubercular treatment with complete recovery. **Conclusion:** Awareness should be taken for isolated splenic tuberculosis in cases presented with pyrexia of unknown origin without pulmonary symptoms.

Improving embelin's drug potential: Synthesis and determination of conjugation ratio of starch aldehyde-embelin conjugate

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ABSTRACT

Introduction: The starch aldehyde-embelin conjugate (SAEC) presents a novel approach to enhancing the pharmacological properties of embelin, a natural compound with limited solubility and bioavailability. **Objective:** This study aimed to synthesize the starch aldehyde-embelin conjugate (SAEC) and determine its conjugation ratio through Fourier transform infrared (FTIR) spectroscopy. **Materials and Method:** Embelin was conjugated with starch aldehyde using an acid-catalyzed condensation reaction, and the conjugation ratio was determined using Ultraviolet-Visible UV-Vis spectroscopy. FTIR analysis was performed to confirm the conjugation by detecting characteristic functional groups, including the expansion of the O-H bond, which indicates new bond formation between embelin and starch aldehyde. **Results:** The conjugation ratio of 100 mgEE/g was achieved, indicating successful conjugation. FTIR analysis further validated this by showing an expansion of the O-H stretching peak at 3400 cm^{-1}, suggesting increased hydrogen bonding due to new bond formation. Additionally, the shift in the C=O stretching peak from 1730 cm^{-1} to 1720 cm^{-1} confirmed the participation of aldehyde groups in the reaction. The formation of new bonds was confirmed by new ether (C-O) signal at 1050 cm^{-1}. UV-Vis spectroscopy showed absorbance changes indicating alterations in embelin's electronic environment caused by conjugation. **Conclusion:** The synthesized SAEC exhibited improved stability and a high conjugation ratio, suggesting its potential for enhanced therapeutic applications. Future research should focus on optimizing the conjugation ratio, assessing in vivo stability, and exploring embelin's full pharmaceutical potential.

Screening of bioactive components of durian and mangosteen and analyzing their interactions with SARS-CoV-2 protein by computational studies

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ABSTRACT

Introduction: The COVID-19 pandemic has necessitated a global search for viable therapies and prevention methods. In this quest, computational investigations have played a key role by enabling rapid screening of potential therapeutic candidates. **Objective:** This research aimed to screen various bioactive compounds found in durian and mangosteen and analyze their interactions with SARS-CoV-2 using computational approaches. **Materials and Method:** Bioactive compounds of the durian and mangosteen were retrieved from PubChem, and Maestro Schrödinger sitemap was used to investigate the interactions and binding affinities of these possible compounds with the selected SARS-CoV-2 protein – 3CLpro. Furthermore, using SwissADME, an open-access tool, the pharmacokinetic, drug-like, and medicinal chemistry features of the selected compounds were predicted. **Results:** Following Lipinski's rule of five, 24 bioactive compounds from durian and mangosteen were shortlisted. After individual docking, compounds with the greatest interaction energies were chosen as lead compounds. Among the top bioactive compounds from durian, kaempferol had the highest docking score of -7.687 kcal/mol, with two hydrogen bond interactions. Chrysanthemin – the top bioactive compound from mangosteen – had a docking score of -7.311 kcal/mol, forming five hydrogen bond interactions with Asp 187, Thr 26, Hip 163, Asn 142, and Gly 143. **Conclusion:** Kaempferol and chrysanthemin are promising bioactive compounds that may inhibit SARS-CoV-2 protein targets and could serve as potential therapeutic candidates.