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AO 001

## Physical Outcomes Following Tele-Physiotherapy versus Supervised Physiotherapy Exercise Program among Grade 1 & 2 Knee Osteoarthritis According to the Malaysian Version Physiotherapy Osteoarthritis Based Care Protocol: A Randomised Controlled Trial

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### ABSTRACT

Knee Osteoarthritis is one of the most burdensome musculoskeletal conditions reported worldwide which affect 250 million female adults globally. Due to the COVID pandemic the continuity of physiotherapy delivery was affected and different initiatives and technologies were introduced including videoconferencing to overcome the issue. Various studies have shown that Tele-Physiotherapy knee osteoarthritis has significant correlation with decreasing the level of disability following joint pain, stiffness, muscle weakness and instability leading to inactivity and eventually contributes to an increase in mortality rate; improve care and reduce costs. To compare physical outcomes following Tele-Physiotherapy Versus Supervised Exercise Program Among Grade 1 & 2 Knee Osteoarthritis according to The Malaysian Version Physiotherapy Osteoarthritis Based Care protocol (PTOA-BCP). This study is a Randomised Controlled Trial study with pre and post-test research design in comparing the efficacy between Tele-physiotherapy (TP) versus Supervised Physiotherapy Exercise Program (SPEP) among 60 subjects with grade 1 & 2 Knee Osteoarthritis in Perak, Malaysia. There were significant changes in all the physical outcome measures within the TP and SPEP group at  $p < 0.001$ , partial  $\eta^2 = .07$  after physiotherapy intervention but not between the groups with  $p > 0.001$ , partial  $\eta^2 = .031$ . Both Tele-physiotherapy and Supervised Physiotherapy Exercise Program are effective in managing Grade 1 & 2 Knee Osteoarthritis. The success varies depending on the geographical, financial and patient's technology accessibility towards the program. However, in view of the pandemic situation it is the best solution to provide similar physiotherapy care and rehabilitative programs for OA patients.

**Keywords:** Exercise for knee osteoarthritis; physiotherapy osteoarthritis-based care protocol; supervised physiotherapy exercise program; tele-physiotherapy on arthritic patient

AO 002

## Crossing Linguistic Borders: Validating the Communicative Effectiveness Index in Malaysia's Linguistic Diversity

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### ABSTRACT

Stroke significantly impacts communication, necessitating a standardised tool to assess the functional communication abilities of individuals with aphasia. The Communicative Effectiveness Index (CETI) is a widely used tool for assessing functional communication but lacks validated versions in Malaysian's key languages, limiting its applicability in the country's multilingual and culturally diverse population. This study aimed to translate, culturally adapt, and validate CETI in Malay, Mandarin and Tamil to support its use in Malaysia. This cross-sectional study was conducted in three phases: (i) translation, cultural adaptation of CETI; (ii) face validity; and (iii) content validity assessments. Linguistic validation involved nine translators (speech-language pathologists (SLPs) and professional translators) through forward/ backward translation and clinician review, followed by cognitive debriefing. Face validity was assessed by 41 Malay, 10 Mandarin and 10 Tamil native speakers (caregivers, spouses or SLPs who communicate with persons with aphasia) using the face validity index (FVI). Thirty SLPs rated the translated CETI using the Content Validity Index (CVI) and Content Validity Ratio (CVR). Various grammatical and semantic issues were encountered during the translation process but resolved with expert consensus. The FVI for Malay, Mandarin and Tamil versions were excellent, with average FVI and k scores ranging from 0.93 and 1.00, indicating strong agreement and clarity. The Scale-CVI values for Malay averaged 0.98 for Relevance, 0.98 for Clarity, 1.00 for Completeness, and 1.00 for Consistency, while Mandarin averaged 0.93, 0.97, 0.98 and 0.99, respectively, and Tamil averaged 0.96, 0.97, 0.98 and 1.00., indicating excellent content validity across all languages with varying degrees of expert agreement. The Malay, Mandarin and Tamil version of CETI were well developed and can be adopted in clinical, community, and educational

settings. Further psychometric testing including construct validity and reliability involving larger samples of multi-ethnic Malaysian stroke survivors are warranted.

**Keywords:** Communicative Effectiveness Index (CETI); cross-cultural adaptation; functional communication; post-stroke aphasia; reliability; validation

AO 003

## Changes in Binocular Vision Functions in Children Wearing Myopia Control Spectacle Lenses for 36 Months

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### ABSTRACT

Myopia, also known as near-sightedness, is a global health issue linked to sight-threatening eye diseases. Myopia control strategies in children, such as Defocus Incorporated Multiple Segments (DIMS) lens, have been shown to slow myopia progression. However, the special design of these spectacle lenses may affect binocular vision (BV) functions. BV is the ability of both eyes to work together to maintain clear and comfortable single vision, especially during near tasks. This study investigates changes in BV functions in children wearing DIMS lenses for 36 months. Twenty-three Malay myopic children aged 7-12 years were prescribed DIMS lenses and followed for 36 months. Clinical measurements included stereopsis, near point of convergence (NPC), phoria, amplitude of accommodation (AA), and lag of accommodation (LA). Assessments were performed at baseline and after 12, 24, and 36 months of DIMS lenses wear. Data were analysed using repeated-measures ANOVA, with  $p < 0.05$  considered statistically significant. Significant changes in BV function were observed after 36 months of wearing DIMS lenses. The AA decreased by 1.81 diopters (D), consistent with the expected age-related decline in accommodative ability. Conversely, the lag of accommodation improved, reducing from +1.22 D to +0.85 D, indicating enhanced accuracy in near focusing. NPC receded from 4.9 cm to 6.4 cm, showing a slight decline in near convergence ability. Stereopsis (depth perception) improved by 10 seconds of arc, though the change was not clinically significant. Distance and near phoria remained stable, suggesting maintained eye alignment. These findings indicate that long-term DIMS lens wear may lead to adaptations in BV functions. Regular monitoring, especially of NPC, is recommended to ensure optimum BV functions over time. Wearing DIMS lenses for 36 months resulted in changes in BV functions in myopic children, but without compromising visual comfort.

**Keywords:** Binocular vision functions; children; DIMS lenses; long-term wear; myopia control

AO 004

## A National Analysis of Cancer Mortality in Malaysia using Years of Life Lost

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### ABSTRACT

Cancer is a significant public health concern and a leading cause of premature mortality in Malaysia. Mortality counts alone may underestimate its societal burden, especially when cancer affects younger individuals. The years of life lost (YLL) metric provides a more comprehensive measure by quantifying premature deaths in relation to life expectancy. This study aimed to estimate the YLL due to cancer in Malaysia for the year 2023. This cross-sectional study used 2023 mortality data for cancers (ICD-10 codes C00-C97 and D00-D48), obtained from the Department of Statistics Malaysia (DOSM). A total of 30 specific cancer types were included. Analyses were conducted using R statistical software. YLL was calculated by multiplying the number of deaths at each age by remaining life expectancy at that age and sex, using life tables from DOSM. YLL estimates were calculated by sex and for the ten leading cancer types. In 2023, a total of 32,691 cancer-related deaths were recorded in Malaysia, resulting in 597,292 YLL in total, 283,781 (47.5%) in males and 313,511 (52.5%) in females. However, death counts showed a higher proportion in males (51.7%) than females (48.3%), suggesting that longer life expectancy among females leads to higher YLL. The leading causes of YLL were colon and rectum cancer (83,023), tracheal, bronchus, and lung cancer (78,064), breast cancer (72,812), and liver cancer (52,782). Cancers such as leukemia, cervical cancer, brain cancers ranked higher in YLL than in death counts, indicating a greater impact at younger ages. Prioritising interventions for cancers with both high mortality and early onset may significantly reduce the national YLL burden. Cancer remains a major cause of premature mortality in Malaysia. YLL provides a more informative measure of its burden than mortality counts alone. Public health strategies should target early detection, especially for cancers affecting younger populations.

**Keywords:** Burden of disease; cancer; Malaysia; population health; premature mortality



AO 005

## Early Mobilisation Supervised Resistance Training Impact on Quality of Life on Adolescent Patients with Congenital Heart Disease Following Cardiac Surgery in IJN

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### ABSTRACT

Early mobilisation is essential for recovery after congenital heart surgery, improving functional capacity and reducing postoperative complications. However, patients with congenital heart disease (CHD) often have lower physical activity and psychological well-being preoperatively, making early mobilisation challenging. Evidence on optimal exercise protocols for adolescents with CHD post-surgery is limited. This study evaluated the effectiveness of early mobilisation and supervised resistance training on physical well-being and quality of life based on International Classification of Functioning, Disability, and Health (ICF) components in adolescents with CHD post-surgery. This quasi-experimental study involved 54 adolescent patients, who received early mobilisation and supervised resistance training for upper and lower limbs starting the first postoperative day. ICF questionnaire components were evaluated preoperatively and one month post-discharge. The 54 patients (50% male) had a mean age of  $14.6 \pm 2.4$  years. All 21 ICF components showed significant improvements ( $p = 0.001$ ). Early mobilisation combined with supervised resistance training significantly improved holistic well-being reflected to ICF components in adolescents with CHD following cardiac surgery.

**Keywords:** Aerobic capacity; congenital heart disease (CHD); early mobilisation; International Classification of Functioning (ICF); psychological well-being

AO 006

## From Lego Blocks to Building Standards: Constructing OT Credentialing in Public Health

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### ABSTRACT

Credentialing and privileging are essential processes to ensure competency, accountability, and specialisation among healthcare professionals. However, in the context of occupational therapy (OT) within the Malaysian public health system, these processes remain underdeveloped, lacking standardisation and clarity. This study aimed to explore current challenges and opportunities in implementing credentialing and privileging for OTs, and to develop a preliminary framework that can guide future policy and practice. This qualitative exploratory study was conducted in two phases. In Phase 1, semi-structured interviews were conducted with stakeholders, including clinical occupational therapists, unit heads, and public health administrators, using purposive sampling. Data were analysed using thematic analysis to identify key patterns and systemic issues. In Phase 2, an initial credentialing and privileging framework was drafted based on emergent themes and aligned with national occupational structures. Expert validation (Phase 3) is planned for future implementation. Four themes emerged from the interviews: (i) Ambiguity in role definition and competency expectations, (ii) Structural and policy-level barriers, (iii) Readiness and support for structured progression, and (iv) Elements of a fit-for-purpose framework. These findings informed the development of a three-tier credentialing structure (Novice, Competent, Advanced), supported by six competency domains and specialisation pathways for privileging. The proposed framework emphasises contextual suitability to Malaysia's public health system while offering a structured career development path for OTs. The study presents a preliminary framework for OT credentialing and privileging, grounded in real-world insights from public health practitioners and managers. While expert validation is pending, this framework provides a strategic starting point for enhancing professional standards, role clarity, and service delivery in occupational therapy. Future phases will focus on refining and validating the model through national-level expert consensus.

**Keywords:** Credentialing; framework development; occupational therapy; privileging; public health



AO 007

## Targeted Kinetic Chain Exercises Improve Muscle Strength and Gait Biomechanics in Mild Knee Osteoarthritis: A Randomised Controlled Trial

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### ABSTRACT

Early detection and timely exercise intervention are critical in managing mild knee osteoarthritis (OA). Initiating targeted exercise in the early stage can improve muscle strength and walking biomechanics, potentially slowing OA progression. Open kinetic chain (OKC) and closed kinetic chain (CKC) exercises are common physiotherapy strategies, though their comparative effects remain underexplored. Home-based programs are practical and sustainable in long-term care. This study aimed to compare the effects of OKC and CKC exercise interventions on knee muscle strength and walking gait in individuals with early-stage knee OA. Sixty-six participants aged 50 with mild knee OA were randomised into OKC, CKC, or education-only (EDU) groups. All completed an 8-week home-based program following a physiotherapist-led session. Knee flexion and extension strength, step length, stride length, walking speed, and joint ROM were assessed before and after the intervention. No significant baseline differences were observed. Post-intervention, the OKC group showed significant improvement in knee extension strength (right:  $p = 0.009$ ; left:  $p = 0.016$ ), and the CKC group improved knee flexion strength (right:  $p = 0.002$ ; left:  $p < 0.001$ ). Between-group comparisons confirmed OKC and CKC were more effective than EDU (right flexion:  $p = 0.008$ ; left extension:  $p = 0.044$ ). These findings support evidence that OKC effectively targets quadriceps, while CKC improves co-contraction and joint stability. Both OKC and CKC groups showed significant improvements in step length, stride length, and walking speed ( $p < 0.05$ ). OKC also improved knee flexion during gait phases, and CKC increased ankle dorsiflexion-indicating better neuromuscular control and dynamic mobility. Early implementation of OKC and CKC exercises significantly improves muscle strength and gait biomechanics in mild knee OA. By integrating structured, kinetic chain-specific home exercises early in the disease course, physiotherapists can play a vital role in maintaining joint function and promoting long-term independence in ageing populations.

**Keywords:** Home exercises program; gait biomechanics; knee osteoarthritis; muscle strength; physiotherapy

AO 008

## Getting the Building Blocks Just Right: A Framework to Justify the Occupational Therapy Workforce in Primary Health Care under the Ministry of Health Malaysia

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### ABSTRACT

Occupational therapy (OT) services in Malaysia progressively shifting towards a more integral role within the evolving primary health care system. This transition reflects a growing emphasis on addressing emerging population health needs, particularly in addressing ageing, mental health issues, non-communicable diseases (NCDs), developmental disorders, and functional disabilities. However, workforce allocation remains uneven and inadequately aligned with the rising clinical demands and outreach needs. This study aims to develop a needs-based justification framework for the strategic deployment of OT personnel across Klinik Kesihatan. A secondary data analysis was conducted using workforce and service delivery records from the Ministry of Health Malaysia between 2021 and 2024. Descriptive statistics were used to map current OT deployment by clinic type and position grade (U5–U10), while trend analysis was conducted to identify areas of service underutilisation and workforce shortage. Caseload estimates were calculated based on common clinical conditions such as diabetes, stroke, dementia, autism, and depression. International benchmarks were used for comparative reference. A justification framework was developed by integrating factors such as caseload demand, outreach responsibilities, and appropriate role delineation across occupational therapy position grades. Findings revealed a significant mismatch between existing OT staffing and actual service needs, particularly in areas of elderly care, mental health, and early intervention for children. Super Type 1 clinics, managing more than 2,000 patients daily, demonstrated critical gaps in OT coverage despite high complexity. The proposed framework recommends stratified staffing ranging from 1 to 21 OT personnel per clinic, tailored by clinic type and program demands. Each position (grade) is matched with specific clinical functions and monthly workload estimates. This study provides a structured, evidence-based model for OT workforce planning in primary care. It aligns with Malaysia's public health transformation and global calls such as WHO Rehabilitation 2030, ensuring that occupational therapy becomes a strategic enabler in community health.

**Keywords:** Community health; occupational therapy; primary care; public health planning; workforce justification

AO 009

## Sex Determination by Radiological Measurements of Femur and Humerus

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### ABSTRACT

Sex determination is a crucial aspect of forensic anthropology, a branch of forensic science that identifies and examines human skeletal remains, especially sexually dimorphic traits, which are physical characteristics that differ between males and females. This research utilises X-ray images to analyse skeletal features and determine an individual's sex and variations exhibited between different racial groups. Long bones, such as the femur and humerus, are beneficial for sex assessment as they show significant sexual dimorphism. A total of 200 X-ray images were collected from the Department of Radiology, Hospital Canselor Tuanku Muhriz (HCTM). Available demographic data include age, gender, and race (Malay, Chinese, Indian). Four skeletal parameters-Vertical Head Diameter of the Humerus (VDH), Epicondylar Breadth of the Humerus (EBH), Vertical Head Diameter of the Femur (VDF), and Epicondylar Breadth of the Femur (EBF)-were measured to analyse differences between sexes and racial groups. The study employs Linear Discriminant Analysis (LDA) as a statistical method for sex classification. The results indicate significant differences between males and females, with males exhibiting higher measurements. However, no notable differences were observed among racial groups. Sex determination was conducted using linear discriminant analysis (LDA), identifying EBH as the most effective individual parameter. The highest accuracy rates, exceeding 85%, were achieved using the combinations EBH + EBF and VDH + EBF. To enhance the reliability of the results, posterior probability was applied, offering confidence scores for each classification. These findings can contribute to forensic science by providing a statistically sound and precise method for sex determination in the Malaysian population, thereby reinforcing the credibility of forensic evidence presented in legal investigations.

**Keywords:** Anthropology; femur; humerus; long bones; linear discriminant analysis; Malaysia; sex

AO 010

## The Effectiveness of Different Prescriptions of Sit-to- Stand Training in Post-Stroke Rehabilitation: A Systematic Review and Meta-Analysis

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### ABSTRACT

Sit-to-stand (STS) training is essential in post-stroke rehabilitation, yet variations in training prescriptions and outcomes warrant a thorough synthesis to inform clinical practice. Thus, this review elucidated the current evidence on the prescriptions and parameters of STS training and its effects on physical and functional outcomes in post-stroke survivors. This review followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive literature search was conducted across five electronic databases: PubMed, Web of Science, EBSCO Medline, Cochrane Library, and Scopus. The preferred keywords were 'stroke AND sit-to-stand.' Inclusion criteria were: (i) randomised controlled trials (RCTs) assessing STS training effects in post-stroke patients, (ii) reporting on clinical outcomes, (iii) published in English, and (iv) no restrictions on publication date. Methodological quality of selected studies was evaluated using the PEDro scale and the Cochrane risk of bias tool, and meta-analysis was performed with Review Manager software. Ten RCTs (published from 2008 to 2021) with moderate to high quality (PEDro score > 4-9/10) involving 384 post-stroke adults were included in the analysis. Our review found that STS training protocols varied, incorporating task-specific practice, resistance training, and balance exercises, with intensities ranging from low to moderate, and frequencies of 3 to 5 sessions per week over 4 to 12 weeks. Key outcomes assessed were static and dynamic balance, sit-to-stand performance metrics, functional mobility, and lower limb strength. Most trials reported significant improvements in clinical outcomes following specific STS training compared to conventional rehabilitation. Meta-analysis revealed significant improvements in balance performance, functional mobility, and STS task duration following STS training compared to conventional rehabilitation. STS training significantly enhances balance, functional mobility, and STS performance in post-stroke patients. Despite variability in protocols, standardising STS training parameters may further improve therapeutic outcomes and streamline rehabilitation practices.

**Keywords:** Cerebrovascular accident; hemiparesis; hemiplegia; rehabilitation; sit-to-stand; standing up; stroke

AO 011

## Transforming Geriatric Care in Primary Healthcare: Aligning with Malaysia's Health White Paper

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### ABSTRACT

15% of the Malaysian population is expected to be over 60 years old by 2030. Limited and underdeveloped rural healthcare infrastructure restricting access elderly people to essential services. The Health White Paper outlines a transition to primary and community healthcare services, integrating Preventive, Curative, and Rehabilitative (PCR) care with a focus on Accessibility, Mobility, and Affordability (AMA). To develop actionable strategies to enhance primary healthcare services for the elderly, emphasising PCR while addressing AMA challenges. This study employs a desktop review and SWOT-TOWS analysis to evaluate national policies, international models, and best practices in geriatric care, aiming to generate innovative strategies tailored to Malaysia's current healthcare landscape including panel sessions (Multi discipline Senior Manager MOH). Shortage of allied health professionals, hospital overcrowding, high dependency on curative care, contributing to the overburdened healthcare system. These findings underscore the need to develop rehabilitation hubs in community spaces and care centres to support functional recovery, and active ageing through structured programmes and social engagement ie; My Occupational Engagement Home Program (MYHOeME), Community Geriatric (GeKo), PAWE (elderly activity), Cognitive Stimulation Therapy (CST). Reduce financial barriers by deploying low-cost digital tools, providing subsidies for elderly healthcare, and supporting mobile health units. Public-Private Partnership and NGOs to make preventive and curative care more affordable. Ageing-in-place initiatives ensure comprehensive support for elderly populations in both rural and urban settings. By leveraging technological innovations, multi-sector partnerships enhance holistic elderly care. Malaysia can transition to a community-based healthcare model that integrates AMA with PCR care.

**Keywords:** Accessibility, mobility, and affordability (AMA); preventive, curative, and rehabilitative (PCR)

AO 012

## Preliminary Outcomes of Individual Parents Coaching for Young Children with Autism Spectrum Disorder in Hospital Putrajaya

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### ABSTRACT

Parent-Mediated Intervention (PMI) has garnered significant recognition in neurodevelopment but remains underexplored in Malaysia. The current standard of intervention in Malaysia is very much child-oriented such that parents are often kept away from the intervention room. Therefore parents had an explicit lack of knowledge on ASD. Coaching parents effectively reduced the intervals between paediatric outpatient occupational therapy follow-ups while maintaining the intensity of early intervention programs. This study aimed to improve parents' competency in handling their ASD children in Hospital Putrajaya. This quasi-experimental study employed a pre-post design with purposive sampling, enrolling 30 children aged 2.5 to 7 years with ASD diagnoses from Hospital Putrajaya. IPC was administered twice-monthly for the initial three months, then monthly for the following three, alongside a Parents Training based on the DIR framework. The Parent Sense of Competency (PSOC) served as the outcome measure. Results showed a statistically significant mean difference with a large effect size in parents competency –  $F(1.219, 35.342) = 23.434, p < .001$  indicating that explicit IPC improved parents competency skills in children with ASD. Furthermore, the mean score for PSOC increased steadily from pre-intervention to mid-intervention to post-intervention, further supporting the efficacy of IPC. The findings underscore the potential of parent partnerships within occupational therapy, highlighting its significance in the therapeutic landscape for positive ASD outcomes in Malaysia. This pilot study lays the groundwork for a more extensive, controlled trial. Implementing evidence-based interventions such as IPC is critical for improving the parent's competency in handling children with ASD.

**Keywords:** Autism Spectrum Disorder (ASD); Individual Parents Coaching (IPC); Parent Sense of Competency (PSOC)

AO 014

## Personalised Visual Support System for Students with Low Vision: Integrating Clinical Data with Classroom Demands

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### ABSTRACT

Data digitisation in healthcare has become increasingly important in managing patient information and providing healthcare professionals with comprehensive digital clinical details. This advancement supports data-driven decision-making and personalised patient care while facilitating interdisciplinary data sharing. This study aimed to develop a system that generates personalised visual profiles for students with visual impairments, integrating their specific classroom needs and enabling data sharing between healthcare providers and educators. Demographic and visual attributes data were collected from 50 visually impaired students from Sekolah Menengah Pendidikan Khas Setapak, Kuala Lumpur, between November 2022 to June 2023. Visual demands were calculated based on the physical characteristics of the classroom and learning materials. A web-based system was developed to generate individualised visual profiles and provide personalised recommendations by integrating each student's visual abilities with the classroom environment. A web-based system, VISPROFILE, was successfully developed to generate personalised classroom adaptation recommendations by integrating individual visual profiles with specific visual demands. Key visual attributes, which were visual acuity, contrast sensitivity, and vergence, were analysed in relation to classroom environment and learning materials characteristics, enabling tailored recommendations for each student. These recommendations are made based on three levels of visual impairment severity (mild, moderate, and severe), facilitating scalable customisation and practical implementation. VISPROFILE demonstrates the potential to personalise the management of students with visual impairments by integrating clinical visual data with classroom environment and learning demands. This approach supports inclusive educational practices for students with visual impairment by aligning individual visual capabilities with tailored classroom adaptations.

**Keywords:** Digital format; low vision; schoolchildren; technology; vision



AO 015

## Need-Based Projection Model for Audiologist-to-Population Ratio: A 10-Year Forecast for Malaysia

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### ABSTRACT

This study presents a need-based projection model to estimate the optimal audiologist-to-population ratio in Malaysia over the next decade (2025–2035), aligning service provision with population hearing needs and workforce trends. The model incorporates workforce supply data from the Malaysia Audiology Workforce Survey, including the proportion of audiologists in clinical roles, role distribution, attrition, and projected retirements. Graduate output and employability data from three local universities were also included to estimate workforce inflow. Service need was projected using demographic data, incorporating population growth (sourced from the Department of Statistics Malaysia), age-adjusted hearing loss prevalence, stratified by severity to reflect varying levels of service intensity. A cost estimation was conducted, encompassing comprehensive service delivery costs-including workforce, infrastructure, operations, patient-incurred expenses, hearing technologies and treatment-related costs. These estimates offer an evidence-based assessment of the resources required for equitable and sustainable audiology services. Findings highlight significant gaps in clinical capacity, geographic distribution, and cost-efficiency within the current system. The model serves as a foundation for national workforce planning and resource allocation, while pointing to the need for alternative service delivery models. Future directions include exploring strategies to optimise service delivery, reduce reliance on workforce expansion, and improve access-particularly in underserved areas-within existing budget constraints.

AO 016

## Myopia Prevalence and Risk Factors in Urban Malay Primary School Children: An Updated Study

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### ABSTRACT

Myopia is a growing public health concern, particularly among children living in urban areas. The prevalence of myopia in Malay school children aged 7-8 years in Kuala Lumpur was 4.7% in 1986 and increased to 7.7% in 2005. This is an updated study investigating myopia prevalence and its risk factors among school children living in Kuala Lumpur. A total of 758 children from 5 different schools around the Kuala Lumpur area were examined. Distance visual acuity (VA) was determined using Snellen chart and refractive error was measured using retinoscope and subjective refraction. Questionnaires were used to determine the risk factors for myopia. Descriptive statistics and Chi-square tests were used to analyse the data. A total of 667 children completed the investigation. Overall prevalence of myopia was 36.4%, with no significant difference between gender ( $p>0.05$ ). Around 27.6% of the myopic children were uncorrected prior to this screening. The prevalence of myopia in children aged 7-8 years increased to 30.7% compared to 2005. Several risk factors for myopia were identified including prolonged near-work ( $p<0.001$ ), high parental education ( $p<0.001$ ), family history of myopia ( $p<0.01$ ), high socioeconomic status ( $p=0.013$ ) and limited outdoor activities ( $p=0.012$ ). The prevalence of myopia increased drastically in urban Malay school children in 2024, specifically in children aged 7-8 years. A comprehensive public health strategy is needed, advocating outdoor activities and maintaining physical health to counteract the lifestyle factors associated with myopia development.

**Keywords:** Children; Malay; myopia; prevalence; refractive error

AO 017

## Enhancing Food Safety: Control of High-Heat Processed Foods by SMEs and Home-Based Producers

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### ABSTRACT

The growing demand for ready-to-eat, preservative-free foods has led to increased adoption of retort technology among small and home-based food producers. Retort processing utilises high temperature and pressure to sterilise food, extending shelf life while minimising the need for chemical preservatives. However, the improper application of this technology poses significant food safety risks, particularly concerning microbiological contamination, including *Bacillus cereus*. This study, a collaboration between the Ministry of Health Malaysia and Universiti Malaysia Terengganu, involved the evaluation of 40 food samples from small enterprises and home-based producers, on *sambal belacan* and *sambal bilis* in both retort pouches and glass containers. Accelerated Shelf-Life Testing (ASLT) was conducted at three storage temperatures (26°C, 40°C, and 50°C) over a 90-day period. Microbiological analysis was carried out using the Total Plate Count (TPC) method to determine the colony-forming units (CFU) per gram of sample. The acceptable microbiological limit for TPC was set at  $1.0 \times 10^4$  CFU/g. The results revealed that approximately 20% of the samples exceeded the microbial safety limits set under the Food Regulations 1985, with *sambal bilis* exhibiting higher risk levels. Contamination risks identified in these widely consumed *sambal* products highlight a real and immediate threat to consumer health, primarily when thermal processing is inadequately controlled. This underscores the need for clear regulations and oversight of informal and home-based producers. Key recommendations include legal reforms to mandate certified training for retort operators, development of national guidelines, technical collaboration with research institutions, and targeted awareness programs. This paper advocates for a coordinated, science-based approach to enhance food safety compliance and protect public health, particularly within Malaysia's growing informal food sector.

**Keywords:** Accelerated Shelf-Life Testing (ASLT); *Bacillus cereus*; food safety; home-based food production; Malaysia; retort processing; Small and Medium Enterprises (SMEs); thermal processing

A018

## Monitoring the Level of Contamination of *Escherichia Coli* and *Salmonella* Spp. Bacteria and Antimicrobial Resistance in Selected Food in the Local Markets

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### ABSTRACT

The WHO recognises antimicrobial resistance (AMR) as a major global health threat that undermines the treatment of infectious diseases and impacts food safety. Resistant bacteria in food can lead to infections that are harder to treat, increasing morbidity and mortality. The Malaysian Action Plan on Antimicrobial Resistance (MyAP-AMR) outlines a strategic framework to address AMR in human, animal, environmental health, and food sectors. This study evaluates contamination by *Escherichia coli* and *Salmonella* spp. in commonly consumed foods and examines their antibiotic resistance profiles to guide effective food safety interventions. This study assessed the contamination and antibiotic resistance of *Escherichia coli* and *Salmonella* spp. in poultry, pork, beef, lamb, and fish from retail markets. Detection of *E. coli* was conducted using the AOAC Official Method 991.14, while *Salmonella* spp. identification followed the ISO Method 6579:2017 (E). Antibiotic resistance was tested against 10 antibiotics (including colistin, ampicillin, tetracycline, and ciprofloxacin) using Antimicrobial Susceptibility Tests. A total of 4,168 food samples collected from 2018 to 2024 were analysed for bacterial contamination and antimicrobial resistance. *Escherichia coli* and *Salmonella* spp. were detected in 61.7% and 41.4% of samples, respectively. High resistance to ampicillin (>60%), tetracycline (>80%), and streptomycin (>65%) was found in pork and chicken. Moderate resistance was noted for cefotaxime and ciprofloxacin, while colistin resistance remained below 13%. Contamination likely resulted from poor hygiene during food handling, while resistance patterns suggest misuse of antibiotics in livestock. The findings highlight the significant contamination of meat and fish with resistant bacteria, underscoring the need for enhanced surveillance, prudent antibiotic use, and strict hygiene enforcement in food production. A One Health approach integrating human, animal, and environmental health is vital to combat AMR and protect public health.

**Keywords:** Antimicrobial resistance (AMR); antibiotic resistance; *E. coli*; food safety; food supply chain; Malaysian Action Plan on Antimicrobial Resistance (MyAP-AMR); one health; *Salmonella* spp.

AO 019

## Vocal Health among Teaching Faculty Members at Palestinian Universities

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### ABSTRACT

Voice disorders represent a significant occupational hazard for individuals in vocally demanding professions, particularly educators, adversely affecting their quality of life (QoL) and job performance. Although extensive research has focused on voice disorders among school teachers, university teaching faculty represent a distinct group warranting dedicated study, particularly in Palestine, given its unique context. This study aims to measure the prevalence of perceived voice disorders (PVDs), identify potential risk factors, examine vocal tract discomfort (VTD) symptoms, and investigate their impact on QoL among Palestinian university teaching faculty. A cross-sectional survey was conducted using an online questionnaire completed by 502 faculty members from 14 West Bank universities. The questionnaire collected data on participants' demographics and background information related to potential vocal risk factors, incorporating standardised instruments such as the *Voice Handicap Index-10 (VHI-10)*, *Vocal Tract Discomfort (VTD)*, and *Voice-Related Quality of Life (V-RQOL)*. Participants were categorised into two groups based on their VHI-10 scores: those with perceived voice disorders (PVDs, VHI-10 > 11) and those with non-perceived voice disorders (NPVDs, VHI-10 ≤ 11). Findings revealed that nearly one-third of Palestinian faculty had PVDs, experiencing significantly higher numbers, frequency, and severity of VTD symptoms and markedly poorer QoL, especially in the functional domain, compared to those with NPVDs. Key occupational risk factors identified include high background noise, large class sizes, limited breaks, high weekly teaching hours, increased vocal loudness, exposure to air pollutants, and engagement in additional careers. Behavioral and lifestyle factors such as stress and anxiety, alongside health conditions like nasal allergies, were also significant contributors. This study offers valuable insights into the occupational health challenges faced by Palestinian teaching faculty, emphasising the urgent need for targeted voice care interventions and policy measures to mitigate voice disorder risks, ultimately promoting their vocal health and enhancing their QoL.

**Keywords:** Palestinian university teaching faculty; quality of life (QoL); risk factors; voice disorders; vocal tract discomfort (VTD) symptoms

AP 002

## Aluminium Analysis in Treated Water: Method Comparison and Preservation Effects

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### ABSTRACT

This study examines aluminium levels in treated water at the Sungai Ketil Water Treatment Plant, Gua Musang. Aluminium, a naturally occurring element, poses health risks in excessive concentrations, necessitating careful monitoring in drinking water. The study's objective is to compare different methods used on aluminium measurements in water samples as well as impact on use of preservatives. Sampling involved four locations within the water treatment plant distribution system. For each sampling location, two water samples were taken; one sample without any added preservative nitric acid and another sample was added with concentrated nitric acid until the pH was below 2. Two analytical methods, the Eriochrome Cyanine R (ECR) method and the Aluminon method, were utilised alongside Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES) for comparative analysis. The results showed significant differences ( $p < 0.05$ ) between samples with and without acid preservatives, with averages of 0.295 mg/l and 0.07 mg/l respectively for aluminium concentrations. A comparison of the Aluminon, ECR, and ICP-OES methods revealed no significant differences in readings ( $p > 0.05$ ) among them. The ICP-OES method yielded an average reading of 0.30 mg/l, while the Aluminon method recorded an average of 0.20 mg/l, and ECR recorded 0.22 mg/l. Aluminon and ECR methods only applicable to identify aluminium in dissolved form, thus using acid preservation to prevent aluminium from converting to undissolved forms was crucial to maintain measurement reliability. In conclusion, this research confirms that all methods- Aluminon, ECR, and ICP-OES-were able to measure aluminium in water samples, provided the samples were preserved with nitric acid prior to analysis. Acid preservation not only maintains the aluminium constituents but also keeps aluminium in its dissolved form, which is crucial for detection by the Aluminon and ECR methods that specifically measure dissolved aluminium.

**Keywords:** Acid preservation; aluminium; aluminon; Eriochrome cyanine R

AP 003

## Detection of Pathogenic *Leptospira* Species from Urine of Wild Rodents by Real Time PCR

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### ABSTRACT

Leptospirosis is a globally distributed zoonotic disease that remains under reported and misdiagnosed, particularly in tropical regions such as Malaysia. Leptospirosis is a disease that affects humans and animals, with rats and mice as its major reservoir for transmission. In this study, Real Time PCR method based on LipL32 gene was used to detect pathogenic *Leptospira* spp in selected locations in Selangor. A total of one hundred fifty-eight (158) rats were captured from a selected location surrounding Pasar Branang wet market in Selangor. A total of 140 urine samples were collected from trapped rats. Samples were taken from urine of each rat and cultured individually in EMJH media, then incubated in the dark condition for 2 months at 28°C, and observed under x40 dark-field microscope to detect the presence of *Leptospira* spp. Primers LipL32-286R and LipL32-45F were used to amplify the targeted region of LipL32 gene, while probe Lip32-189P to detect the pathogenicity. Three pathogenic species were used as positive controls and 2 negative control samples were used as references for this study. Twenty nine (29) isolates from the urine of the rats produced Ct values ranging from 14.96 to 35.28, therefore indicating they were positive and pathogenic for *Leptospira* spp., whereas 6 isolates produced undetermined Ct values, indicating that they were free from pathogenic *Leptospira* spp. The study shows that the rats have the potential to be the mechanical carrier of the pathogenic *Leptospira* in the study area, and therefore are of public health concern.

**Keywords:** *Leptospira*; pathogenic; real time PCR; wild rodents



AP 004

## Unlocking the Information Puzzle: What Information Matters Most to Type 2 Diabetes Patients and Where They Find It

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### ABSTRACT

Understanding Health Information Seeking Behaviour (HISB) among diabetic patients is essential, as patient knowledge plays a vital role in enhancing their ability to manage diabetes and adopt better self-care practices. HISB is a dynamic process that involves understanding how and why individuals seek health information, identifying their sources, determining the specific information they seek, and examining how they utilise the information obtained. This cross-sectional study with multi-stage random sampling involved 999 patients with type 2 diabetes who were recruited by nurses at outpatient primary health care clinics in Selangor and Negeri Sembilan. They are required to answer a validated Self-administered Questionnaire (SAQ). The research instrument was developed in both Malay and English languages. The questionnaire encompassed important aspects of HISB such as frequency in seeking health information, important types of health information searched, preferred sources of information, barriers while seeking information, and the reasons for seeking diabetes information. All participants were required to provide written consent and the data analysis was performed with SPSS version 26. The result showed that the most preferred sources of diabetes information among the respondents were doctors (99.2%), followed by family members (78%) and friends (63.3%). They were also referring to other diabetes patients (61.8%), pharmacists (51.8%) and the Internet (Google) (48.4%) as their sources of information. Besides, most respondents pinpointed knowledge about diabetes complications (92.1%) as the most crucial information for them, followed by insights into maintaining a balanced diet (91.9%), prevention of diabetes complications (91.8%), causes of diabetes (87%) and identifying the best exercise for diabetes patients (86.9%). Effective doctor-patient communication is crucial for collaborative decision-making as it can impact patients' self-management and health-related behaviours. The strong interest in diabetes complications and dietary nutrition reflects the patients' acknowledgement of its vital role in managing diabetes self-care management.

**Keywords:** Diabetes complications; doctors; health information seeking behavior; quantitative study; type 2 diabetes

AP 005

## Analysis of the Fluoride Concentration and Labelling of Various Toothpaste Available in the Local Market

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### ABSTRACT

This study was undertaken to determine the fluoride (F) content in fluoridated toothpaste that are sold in the Malaysian market by using a fluoride ion-selective electrode (ISE). Twelve different toothpaste brands were identified and purchased via local markets and online shopping platforms. Those toothpastes samples comprised of six toothpastes suggested for children and six toothpastes recommended for adults. The fluoride concentration of toothpastes was analysed by using fluoride ion-selective electrode (ISE) method and analysed statically using non-parametric analysis (Kruskal-Wallis test). The fluoride concentrations in children's toothpastes analysed ranged from (average mean  $\pm$  standard deviation) 488.00 ppm  $\pm$  7.55 ppm to 1212.67 ppm  $\pm$  15.53 ppm, whereas adult toothpaste samples had fluoride concentrations between 901.67 ppm  $\pm$  3.51 ppm to 2906.00 ppm  $\pm$  5.29 ppm. One toothpaste sample (TP 9) was found having F concentration more than the suggested level by Malaysian Dental Council. Besides, among all the toothpaste analysed, there were differences in the measured F concentration to the declared F concentration on the respective packages. Measured F was almost consistent with F declared by the manufacturer in five products. Three of the toothpastes analysed showed lower F and four of them had higher F than declared. However, no toothpaste sample was found having the exact amount of measured F as declared by manufacturers. It is found via analysis that the majority of the toothpaste manufacturers adhere to appropriate labelling ethics, with the exception of a few that omitted some key information on toothpaste packaging such as storage guidelines, toothpaste dispensing instructions as well as fluorosis precautions advice. Thus, the importance of strict regulatory control mechanisms for monitoring toothpaste labelling practices by manufacturer and detecting fluoride levels in toothpastes imported into developing nations like Malaysia must be emphasised.

**Keywords:** Concentration; fluoride; labelling; local market; toothpaste

AP 006

## Management of Malnutrition in a Patient undergoing Multiple Intestinal Surgeries and Stoma Creation

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### ABSTRACT

Intestinal failure (IF) occurs when the bowel cannot maintain sufficient nutrition and fluid balance, typically following extensive bowel resection. Causes include surgical complications, trauma, or disease. Patients with IF are at high risk of malnutrition, which can lead to delayed wound healing, increased infections, and higher postoperative morbidity. Early nutritional intervention is essential for recovery and surgical success. A 55-year-old Chinese male, a smoker and painter, presented with abdominal pain and vomiting. He was diagnosed with intestinal obstruction due to adhesions, necessitating emergency exploratory laparotomy. During surgery, a small bowel resection and anastomosis were performed. However, the patient developed a bowel perforation on day 3 post-operation, requiring a second surgery. During this procedure, a double-barrel stoma was created, only leaving 60 cm of small bowel from duodenal junction as proximal stoma. Postoperatively, the patient was kept nil by mouth and started on total parenteral nutrition on day 3. Enteral feeding commenced on day 7. Over a month, the patient's weight dropped from 55 kg to 41.5 kg. The patient's severe malnutrition posed a significant barrier to his upcoming stoma reversal surgery. To address this, his nutritional management was optimised with a combination of semi-elemental and modular enteral formulas to enhance fat and protein intake. The patient was prescribed a high-calorie, high-protein diet, with a daily intake of 2,800 kcal (50 kcal/kg) and 140 g of protein (2.5 g/kg). This regimen improved his nutritional status, enabling partial weight recovery. Upon discharge on 31<sup>st</sup> July 2024, the patient's weight improved to 47.3 kg. Stoma reversal was postponed until the patient achieved further weight gain and nutritional optimisation. This case highlights the importance of early nutritional management in intestinal failure patients. Tailored nutritional support can reduce complications and improve surgical outcomes. A multidisciplinary approach, combining surgical and dietary expertise, is critical for successful recovery.

**Keywords:** Bowel resection; intestinal failure; nutritional intervention

AP 007

## Gestational Diabetes among Women with Advanced Maternal Age in Malaysia

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### ABSTRACT

Gestational diabetes mellitus (GDM) can affect both the mother and baby by increasing the risk of complications during pregnancy and delivery. Given the increased risk of GDM in pregnancies involving advanced maternal age ( $\geq 35$  years), this study explored the prevalence of GDM and its association with social-demographic factors among women with advanced maternal age in Malaysia. This understanding is vital for developing effective public health strategies. Data from the 2022 National Health and Morbidity Survey Maternal and Child Health was used in this analysis. This national survey employed a two-stage stratified random sampling method. Gestational diabetes mellitus (GDM) was identified based on the result of a modified oral glucose tolerance test recorded in the mother's antenatal book. The study examined sociodemographic factors such as ethnicity, location of residence, educational attainment, employment status, and household income. Multiple logistic regression was used to determine the factors associated with GDM. This study included 1,754 individuals and the prevalence of GDM among women with advanced maternal age in Malaysia was 33.7%. There was a strong association between ethnicity and GDM, with Indian women presenting a 48.8% prevalence and a significantly increased adjusted odds ratio (AOR) of 7.31 (95% CI: 2.58-20.72;  $p < 0.001$ ). Furthermore, non-working women had an AOR of 1.34 (95% CI: 1.01-1.77;  $p = 0.003$ ) for GDM compared to working women. No significant association was identified between GDM and location, educational attainment, or household income. These findings highlight the urgent need for tailored interventions addressing ethnic disparities and employment status to reduce GDM-related complications. The high prevalence of GDM in advanced maternal age pregnancies in Malaysia demands urgent, targeted interventions, especially among high-risk ethnic populations. Public health strategies should focus on early detection, culturally sensitive programs, and community-based initiatives to combat this growing burden.

**Keywords:** Associated factors; gestational diabetes mellitus; Malaysia; maternal age; prevalence

AP 008

## Unveiling the Impact of Community Knowledge in Malaria Programmes: A Scoping Review Protocol

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### ABSTRACT

Despite notable global reductions in malaria cases and deaths, the continued burden of the disease highlights the need to shift from traditional top-down approaches to more inclusive, community-driven strategies. Community-centred malaria interventions have gained attention for their potential to enhance programme effectiveness. This scoping review protocol aims to systematically explore how community knowledge has been integrated into malaria programmes worldwide and to identify associated outcomes and knowledge gaps. This protocol adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines. A systematic search, developed with a research librarian, will be conducted across PubMed, Scopus, and Web of Science to identify English-language studies published between 2000 and 2024. Grey literature will also be included. Eligible studies will focus on community knowledge related to malaria prevention, control, and elimination. Titles and abstracts will be screened, and eligible studies will undergo full-text review. Data will be extracted using a standardised framework and analysed systematically in Microsoft Excel. The scoping review will provide an in-depth understanding of current research regarding the role of community knowledge in malaria prevention, control, and elimination efforts. It will explore critical knowledge gaps, inform the design of specific interventions, and support the integration of local insights into malaria strategies. Findings from this review will support the development of targeted, community-informed strategies to improve malaria prevention and control. By integrating local knowledge into programme planning, the review aims to inform policy, enhance community engagement, and contribute to sustainable malaria elimination efforts.

**Keywords:** Community knowledge; malaria control; malaria elimination; malaria prevention; scoping review

AP 009

## From Regulation to Detection: Enhancing Ethylene Glycol & Diethylene Glycol Surveillance in Pharmaceutical Syrups using Gas Chromatography-Mass Spectrometry

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### ABSTRACT

The contamination of pharmaceutical syrups with ethylene glycol (EG) and diethylene glycol (DEG) has been responsible for numerous poisoning incidents worldwide. These toxic industrial chemicals, primarily used in chemical manufacturing, have been implicated in fatal cases due to their presence in pharmaceutical syrup formulations. While Malaysia has not reported major EG or DEG-related poisoning events, the National Pharmaceutical Regulatory Agency (NPR) has implemented regulatory measures to mitigate risks. This study reviewed global regulatory frameworks addressing EG and DEG contamination in pharmaceutical syrups, supported by the development and validation of a gas chromatography–mass spectrometry (GC-MS) method. Regulatory insights from the Global Harmonised System, ISO standards, USFDA, and WHO highlighted the classification of EG and DEG as harmful, with strict limits or prohibitions in pharmaceuticals. Based on this context, a GC-MS method was developed to detect and quantify EG and DEG in pharmaceutical syrups. High purity of EG and DEG standards (>99%) were used, with separation through a BP20 (WAX) column and a simple methanol extraction. Helium served as the carrier gas. Method validation included specificity, LOD, LOQ, linearity, accuracy, and precision. The review of global regulatory frameworks highlighted international standards for EG and DEG control, which served as a benchmark for NPR's regulatory alignment. The validated GC-MS method demonstrated high specificity, with Limit of Detection (LOD) and Limit of Quantification (LOQ) at 2 µg/mL and 6 µg/mL, respectively. Acceptable linearity was observed, with  $r > 0.999$  for EG and  $r > 0.996$  for DEG. Average recoveries were 101.2% for EG and 105.8% for DEG, while precision ranged from 100% to 109%. The method was successfully applied to surveillance samples, confirming its suitability for regulatory use. Malaysia's regulations and surveillance testing help detect and prevent EG and DEG contamination. Enhancing surveillance efforts will improve safety, protect health, and keep the pharmaceutical supply safe.

**Keywords:** Diethylene glycol; ethylene glycol; GC-MS; pharmaceutical syrup; regulatory surveillance

AP 010

## An Optimised Staining Protocol to Enhance Visualisation of Erythrophagocytosis in *Entamoeba histolytica*

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### ABSTRACT

Erythrophagocytosis is an active ingestion of red blood cells (RBCs) by *Entamoeba histolytica* trophozoites. The ingested RBC is a hallmark of invasive amebiasis and serves as an important diagnostic criterion, typically observed via light microscopy. The Centers for Disease Control and Prevention (CDC) recommends trichrome staining for stool specimens to visualise both parasitic structures and internalised RBCs. However, consistent, and clear identification of erythrophagocytosis in clinical samples remains uncommon, largely due to variability in staining quality, interference from faecal debris, and suboptimal visualisation protocols. This study aimed to optimise trichrome staining parameters to enhance the detection of erythrophagocytosis in *E. histolytica* trophozoites, thereby improving diagnostic accuracy. Trophozoites of *Entamoeba histolytica* HM-1:IMSS strain were cultured in vitro in 9 mL of YI-S-33 medium. Parasite counts were performed daily by light microscopy for up to 72 hours, and trophozoite motility was evaluated throughout the incubation period. A total of  $2 \times 10^4$  trophozoites were incubated with human red blood cells (RBCs) to induce erythrophagocytosis. Following fixation in polyvinyl alcohol (PVA) for 21 days, trichrome staining conditions were systematically optimised. The most effective results were achieved by reducing stain incubation time to 4 minutes and extending decolorisation to 20 seconds. These adjustments yielded improved contrast and clarity of erythrophagocytosis while minimising background interference. The optimised protocol demonstrated enhanced reproducibility and diagnostic utility for both clinical and research applications. By providing a standardised and reliable approach for visualising this pathogenic feature, the findings contribute to more accurate differentiation of *E. histolytica* from non-pathogenic amoebae and artefacts, supporting improved case identification and epidemiological surveillance of amebiasis.

**Keywords:** *Entamoeba histolytica*; erythrophagocytosis; polyvinyl alcohol (PVA); trichrome stain



AP 011

## Bridging the Diagnostic Gap: Microscopy and PCR as Complementary Techniques for *Microsporidia* Detection

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### ABSTRACT

*Microsporidia* are intracellular parasites that commonly cause gastrointestinal infections in both immunocompromised and immunocompetent individuals. The Parasitology Laboratory at the Institute for Medical Research currently uses light microscopy to detect microsporidian spores in stool samples. However, it is acknowledged that this method cannot accurately confirm species identity. Thus, this study is aimed to identify *Microsporidia* species in human stool samples from Malaysia using molecular techniques. A total of 121 archived samples (109 microscopically-positive and 12 microscopically-negative) were analysed through polymerase chain reaction (PCR) targeting the small subunit ribosomal RNA (SSU rRNA) gene, followed by sequencing. Species identification was confirmed via sequence analysis using the NCBI database. *Enterocytozoon bienersi* was identified in 8 out of 121 samples (6.6%). No *Encephalitozoon* species (*E. intestinalis*, *E. cuniculi*, *E. hellem*) or *Vittaforma corneae* were detected. Among the positive cases, 5/109 (4.6%) were from microscopically positive samples, mainly involving HIV patients and individuals with diarrhoea, while 3/12 (25%) were from microscopy-negative samples, all with diarrhoea. These results highlight limitations in both microscopy and PCR for *Microsporidia* detection. Phylogenetic analysis showed that the *E. bienersi* sequences from this study clustered closely with strains reported in human and animal hosts worldwide. An accurate species identification is essential for appropriate patient management and treatment. Microscopy and PCR-based detection techniques are effective for diagnosis and identification of species and genotypes. This study to some extent warrants applicability of PCR to our local context.

**Keywords:** *E. bienersi*; *Enterocytozoon*; *Microsporidia*; PCR- SSUrRNA

AP 012

## **Mental Health Literacy and Capacity Survey for Educators: Assessing Teachers' Readiness to Support Adolescents' Mental Wellbeing**

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### **ABSTRACT**

School counsellors and psychologists are traditionally responsible for student mental health support, but an insufficient number of trained professionals leave many adolescents remain undiagnosed. Given their frequent interactions with students, teachers are strategically positioned to assist in the early identification of mental health concerns, thereby helping to address this gap. Therefore, this study investigates teachers' mental health literacy covering their level of awareness, knowledge, perception of importance and comfort in supporting adolescents' mental health. A cross-sectional nationwide online survey was conducted among 6,567 Malaysian teachers using the *Mental Health Literacy and Capacity Survey for Educators (MHLCE)*. Simple random sampling was used. Sample size was calculated based on zone, school location and school category. Study respondents were predominantly females (71.6%), Malays (77.9%), urban school teachers (57%), more than 20 years' experience (29.2%) and from Day schools (83%). Findings revealed that awareness was significantly higher among teachers in *Sekolah Berasrama Penuh* (SBP) and Day schools, with SBP teachers demonstrating the highest knowledge levels. Day school teachers reported greater comfort discussing mental health with students and parents. Regionally, schools in the Southern zone outperformed other zones across all four measured domains. Experienced teachers showed lower knowledge and perceived importance on mental health but scored higher in comfort level when communicating with students and parents compared to their younger counterparts. The findings highlight disparities in mental health literacy based on school type and teaching experience. Targeted training should address knowledge gaps among long-serving teachers while leveraging Day school teachers' comfort in communications. Regional successes in the Southern zone may offer a model for possible interventions in other regions.

**Keywords:** Adolescents; mental health literacy; teachers

AP 013

## Molecular and Microscopic Challenges in Detecting *P. cynomolgi* coinfections with *P. vivax*: A case report

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### ABSTRACT

The risk of non-human primate (NHP) malaria transmission to humans is increasing, with *P. knowlesi* and *P. cynomolgi* emerging as significant zoonotic threats, particularly in Malaysia. While *P. knowlesi* is well-documented, *P. cynomolgi* infections in humans remain underreported, largely due to diagnostic challenges. Routine microscopy and standard molecular diagnostic tools often misdiagnose *P. cynomolgi* infections as *P. vivax* due to morphological similarities and genetic homology. We report a new case of human *P. cynomolgi* infection misdiagnosed as *P. vivax* in a 32-year-old male with no prior malaria history or travel to endemic countries. Initial diagnoses by microscopy and qPCR conducted by the National Public Health Laboratory in Kelantan identified the infection as *P. vivax*. However, cross-examination by the Institute for Medical Research (IMR) revealed the presence of mixed-species infection, prompting further analysis. Real-time PCR and sequencing performed at MAPELAB Spain confirmed the co-infection of *P. vivax* and *P. cynomolgi*. This case highlights the diagnostic limitations in detecting *P. cynomolgi*, which shares high genetic similarity with *P. vivax*, leading to potential cross-reactivity and diagnostic inaccuracies. As *P. cynomolgi* emerges as the second zoonotic malaria species after *P. knowlesi* capable of infecting humans in Southeast Asia, improved diagnostic methods are urgently needed. Enhanced molecular diagnostics and comprehensive epidemiological studies are essential to elucidate transmission dynamics, assess public health implications, and inform effective malaria control strategies.

**Keywords:** Microscopy; *P.cynomolgi*; qPCR; sequencing; zoonotic malaria

AP 014

## One-Step Sample Preparation and High-Throughput LC-MS/MS for Multi-Class Adulterant Screening in Traditional Herbal Medicines

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### ABSTRACT

Adulteration of traditional herbal medicines (THMs) poses a public health risk in Malaysia, as these products are subject to less rigorous regulatory oversight compared to pharmaceutical drugs, owing to their classification as traditional products. Their easy access, especially over-the-counter and online, increases the chance of exposure to pharmaceutical adulterants. Existing analytical methods predominantly target a single class of compounds, necessitating multiple extraction and detection protocols for comprehensive screening. In contrast, this study introduces a streamlined, unified sample preparation method that enhances efficiency by eliminating the need for multiple extraction steps. A simultaneous detection LC-MS/MS method was developed by utilising reversed-phase liquid chromatography coupled with triple quadrupole mass spectrometry in multiple reaction monitoring (MRM) mode under mixed ionisation (positive and negative). This method demonstrates satisfactory sensitivity, specificity, and run-time efficiency compared to existing LC-MS/MS and HPLC-UV methodologies. The chromatographic performance was optimised via gradient elution, and the sample preparation was simplified to a single methanol-based extraction, eliminating the need for derivatisation or extensive sample pre-treatment. The method achieved excellent chromatographic resolution for 25 target analytes-comprising 9 NSAIDs, 10 antihistamines, and 6 glucocorticoid steroids. All compounds were chromatographically resolved with well-defined peaks. Although the MRM approach allows for exceptionally low detection limits, a practical limit of detection (LOD) was set at 1 ppm, as any positive detection renders the sample non-compliant. The method exhibited signal-to-noise ratios ranging from 41.94 to 951.95:1 and completed the full MRM acquisition cycle within 12 minutes, demonstrating its suitability for high-throughput screening applications. This study presents a highly efficient and validated LC-MS/MS method capable of simultaneously screening multiple classes of pharmaceutical adulterants in THMs. The simplified sample preparation, combined with high analytical sensitivity and reduced runtime, positions this method as a powerful tool for routine surveillance and regulatory enforcement.

**Keywords:** Adulteration; antihistamines; glucocorticoids; LC-MS/MS; NSAIDs; traditional herbal medicines (THMs)

AP 015

## Prevalence of Cardiovascular Risk Factors among Healthcare Workers in a Private Hospital

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### ABSTRACT

Healthcare workers (HCWs) are essential in delivering care and promoting healthy lifestyles among patients. However, their own health awareness and risk factors are often under-assessed. This study aims to evaluate the level of health awareness and identify the prevalence of cardiovascular (CV) risk factors among HCWs, to support early prevention and health promotion strategies at KPJ Selangor Specialist Hospital. A cross-sectional study was conducted in conjunction with a hospital-wide health screening program. A total of 731 staff were invited to participate and complete a questionnaire identifying barriers to participation. Only 353 (48%) responded, and just 156 (21%) attended the screening. More than half (52%) neither responded nor took part, indicating limited engagement. Of those, 86 HCWs who voluntarily attended and met inclusion criteria (excluding known cases of diabetes, hypertension, or hypercholesterolemia) were included in this analysis. Anthropometric measurements and fasting blood samples were collected to assess glucose levels, lipid profile, and renal function. Descriptive statistics were used to evaluate CV risk prevalence. The study population was divided into 4 age groups: 20-29, 30-39, 40-49 and 50-59 years old. The population consisted of 15% male and 85% female. Prediabetes was found in 10% of the population studied. None have diabetes mellitus, hypertension was detected in 3% of the population. Half (51.1%) of the population studied have hypercholesterolemia, while obesity and overweight were noted in 38% and 20% respectively. Chronic Kidney Disease (CKD) was identified in 34% of the population, with 33% classified as Stage 2 CKD (eGFR 60-89 mL/min/1.73 m<sup>2</sup>) and 1% as Stage 3 CKD (eGFR 30-59 mL/min/1.73 m<sup>2</sup>). Although Stage 2 indicates mild kidney function decline, it is often reversible and may not show symptoms yet still warrants attention for early intervention. This study highlights low health awareness among healthcare workers, evidenced by poor participation in the staff screening program, only 21% underwent screening. Among participants, 3% had hypertension, 10% prediabetes, 51% hypercholesterolemia, and 58% were overweight or obese. Notably, 5% had three or more cardiovascular risk factors. The prevalence of hypercholesterolemia and obesity exceeded national averages, with 80% having elevated LDL-C levels, twice the national rate. These findings underscore the need for improved communication, regular health screenings, and targeted wellness initiatives. Enhancing health awareness and promoting preventive care among HCWs is vital to safeguard staff well-being and strengthen the healthcare system.

**Keywords:** Cardiovascular risk factors; cross-sectional study; healthcare workers (HCW); health awareness; hypercholesterolemia; hypertension; obesity; prediabetes

AP 016

## Monitoring Online Survey Data Collection with an Interactive Dashboard: Insights from the 2024 HSKM Media Campaign Evaluation

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### ABSTRACT

The Media Campaign Evaluation on ‘*Hentikan Stigma Kesihatan Mental*’ (HSKM) 2024 survey was conducted to evaluate the level of exposure, understanding, and public responsiveness to key messages promoting mental health awareness among Malaysians aged 18 and above. Effective monitoring of data collection activities is essential to ensure data quality, which underpins accurate analysis, informed decision-making, and the overall credibility and success of the campaign. This abstract outlines the development of a real-time digital dashboard designed to monitor the implementation of the HSKM 2024 data collection. Google Looker Studio was chosen as the dashboard platform due to its accessibility, zero cost, and intuitive interface, enabling non-technical staff to independently manage and update visualisations. The dashboard was developed iteratively, with input from both the HSKM research team and the data collection team, ensuring that it remained relevant, simple, and focused on key indicators. Data integration was achieved through automatic syncing with Google Sheets, allowing for near real-time updates and seamless data flow. The final dashboard included dynamic visualisations such as daily and cumulative survey submission charts, daily output tracking, and a bullet chart to display progress against expected cumulative milestones. This approach improved monitoring efficiency by streamlining reporting during team meetings and reducing the need for manual tracking. The clear and intuitive visualisations provided an accessible and user-friendly alternative to traditional static graphs and complex data tables. The development of the interactive dashboard provided a practical and efficient solution for monitoring the HSKM 2024 survey data collection. By offering real-time tracking of key indicators such as response rates and survey progress, the dashboard enhanced the team’s ability to manage data collection effectively and make informed decisions quickly. This approach not only streamlined reporting but also reduced reliance on manual tracking, making the entire process more efficient. Ultimately, the dashboard proved to be a valuable tool for improving operational oversight, ensuring data accuracy, and supporting the successful execution of the media campaign evaluation.

**Keywords:** Data visualisation; digital tools; monitoring; real-time dashboard; survey data management

AP 017

## Assessing Knowledge on Undetectable=Untransmittable (U=U) among Key Populations in Malaysia

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### ABSTRACT

Undetectable=Untransmittable (U=U) relates to the fact that people living with HIV who are on treatment and have a fully suppressed viral load have a zero risk of transmitting the virus to their sexual partners. The objective of this study was to assess knowledge on U=U among key population groups in Malaysia. Respondent-driven sampling (RDS) method was used to conduct the Integrated Biological and Behavioural Surveillance (IBBS) survey between July and December 2022 among four main key population groups including men who have sex with men (MSM), transgender women (TGW), female sex workers (FSW), and people who inject drugs (PWID). Respondents' knowledge on U=U was measured using five-items in a validated self-administered questionnaire. A total of 2877 respondents participated in this study, including MSM (36.4%), TGW (18.2%), FSW (16.8%), and PWID (28.6%). In this study, only 39.8% of respondents were aware of the concept of U=U, including MSM (25.4%), TGW (6.8%), PWID (4.7%), and FSW (2.9%). Among respondents, knowledge on U=U was significantly associated with HIV status. HIV positive respondents are more knowledgeable about U=U. The study found that among Malaysia's key population groups, knowledge on U=U was inadequate. Therefore, there is a pressing need for ongoing and intensified initiatives aimed at elevating awareness and comprehension of the U=U concept.

**Keywords:** Female sex workers (FSW); men who have sex with men (MSM); people who inject drugs (PWID); Undetectable=Untransmittable (U=U); transgender women (TGW)



AP 019

## Knowledge, Attitude and Practice of Tuberculosis Disease among Healthcare Workers in Hospital Sultanah Bahiyah

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### ABSTRACT

Tuberculosis (TB) continues to pose a significant occupational risk for healthcare workers (HCWs), particularly in Malaysia, where TB remains endemic. This study aims to assess the knowledge, attitude, and practice (KAP) of HCWs regarding TB at Hospital Sultanah Bahiyah and explore the associations between their education level, work experience, and TB-related KAP. A cross-sectional study was conducted among 346 HCWs using a self-administered questionnaire. Data were analysed using descriptive statistics and chi-square tests to identify any significant associations. The findings revealed that 53.5% of HCWs had good knowledge of TB, while 46.5% demonstrated poor knowledge. Despite this, a significant proportion (76.0%) exhibited a negative attitude toward TB, with only 24.0% showing a positive attitude. Additionally, 60.4% of participants reported poor practices regarding TB prevention and control, while 39.6% displayed good practices. Chi-square analysis indicated a significant association between education level and knowledge of TB ( $p < 0.004$ ), suggesting that higher education was linked to better knowledge. However, no significant associations were found between education level and attitude ( $p = 0.120$ ) or practice ( $p = 0.056$ ). Moreover, a significant relationship was found between work experience and both knowledge ( $p < 0.001$ ) and practice ( $p < 0.001$ ) regarding TB. However, no significant association was found between work experience and attitude toward TB ( $p = 0.114$ ). Although higher education and work experience are associated with better knowledge and practices, neither factor significantly influenced attitudes toward TB. These findings highlight the need for targeted interventions, such as continuous education programs, practical training, and institutional support, to improve HCWs' attitudes and practices, ultimately enhancing TB prevention and control in healthcare settings.

**Keywords:** Healthcare worker; KAP; TB

AP 020

## Effects of 6 MV Photon Beam Radiotherapy on Survival of HepG2 Hepatocellular Carcinoma Cell Line

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### ABSTRACT

Hepatocellular carcinoma (HCC) is an aggressive and radioresistant cancer with high recurrence rates despite radiation therapy. External beam radiation therapy (EBRT) delivers high-energy X-rays precisely to tumors, minimising damage to surrounding tissues. This project investigates the impact of different radiation doses on the viability of HepG2 cell lines, using a LINAC machine to assess its efficacy in reducing HCC recurrence and improving treatment outcomes. This project evaluates the effectiveness of external beam radiation therapy (EBRT) in treating hepatocellular carcinoma (HCC) using a LINAC machine. HepG2 cell lines were irradiated with varying doses (100-2000 cGy) to assess cell viability through trypan blue exclusion and CellTiter-Glo® luminescent assays. Cells were cultured in 6- and 96-well plates and irradiated using a 6MV SRS beam from a Novalis TX LINAC. CT simulation determined the cells' exact location in the plates. A treatment plan was developed to optimise beam arrangement and dose delivery, which was verified through film calibration. The goal is to evaluate radiation dose effectiveness in reducing HCC cell viability and proliferation. The trypan blue exclusion assay showed the highest HepG2 cell viability at 93.95% for 100 cGy and the lowest at 34.65% for 2000 cGy. Unirradiated cells (0 cGy) served as a reference. In 96-well plates, luminescence correlated with cell count and viability. Viability decreased with increasing dose: 93.95%, 74.47%, 59.56%, 45.09%, and 34.65% for 100 to 2000 cGy, respectively, indicating that 2000 cGy was most effective in killing HepG2 cells. The results have verified HepG2 cell survival and the dose distribution that influences the radio resistance and proliferation of HepG2 cells. Thus, the high energy X-ray beam plays an important role in irradiating HCC cell lines which can be related with real patient radiotherapy by counteracting towards the radio resistance.

**Keywords:** Cell viability; hepatocellular carcinoma; HepG2; photon beam; radio resistance

AP 021

## Physical Activity during the COVID-19 Pandemic: Are You Still Active at Home?

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### ABSTRACT

During the COVID-19 pandemic, widespread public health measures such as lockdowns and restricted access to public spaces significantly affected daily routines, including physical activity (PA). However, maintaining regular PA is known to support immune function and reduce the risk of cardiovascular conditions. Thus, this study aimed to identify factors associated with PA among adults during the COVID-19 pandemic. This retrospective study utilised secondary data from the Post-vaccination COVID-19 Immunity and Disease Surveillance in Malaysia (IMSURE) study. Adults aged 18 years and above were included. PA levels were self-reported using the short form of the International Physical Activity Questionnaire (IPAQ) through face-to-face interviews. Participants were classified as physically active if they achieved at least 600 MET-minutes per week from walking, moderate, or vigorous-intensity activities. Logistic regression was used to identify associated factors, with significance set at  $p < 0.05$ . A total of 2,513 participants were included in this study, and 70.2% were physically active during the pandemic. Most participants were aged 18-39 years (61.0%), Malaysian (85.5%), of Malay ethnicity (63.7%), and had a normal body mass index (BMI) (38.3%). Males were 1.45 times (95% CI: 1.217, 1.729) more likely to be physically active compared to females ( $p < 0.001$ ). Participants aged 18-39 years were 1.46 times (95% CI: 1.089, 1.958) more likely to be physically active compared to those aged 60 years and above ( $p = 0.011$ ). However, no significant associations were found between PA and nationality, ethnicity, or BMI. ( $p > 0.05$ ). In conclusion, males and younger adults were more likely to maintain PA during the pandemic. Since access to public spaces was limited during the pandemic, promoting the use of virtual fitness classes and apps could help individuals maintain an active lifestyle and meet recommended PA levels while staying at home.

**Keywords:** COVID-19; International Physical Activity Questionnaire (IPAQ); physical activity

AP 022

## Submicroscopic but Significant: Prevalence and Demographic Insights from High-Risk Localities in Malaysia

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### ABSTRACT

Submicroscopic malaria refers to *Plasmodium* infections with parasite densities too low to be detected by conventional microscopy, but identifiable through sensitive molecular techniques such as polymerase chain reaction (PCR). These hidden infections, often asymptomatic, are capable of sustaining transmission and may contribute to malaria resurgence, particularly in areas previously declared malaria-free. Individuals carrying these infections unknowingly serve as silent reservoirs, posing a significant threat to public health-especially in remote, forest-fringe, and socioeconomically vulnerable regions, including indigenous communities. This study aimed to determine the prevalence and demographic distribution of submicroscopic malaria in selected high-risk localities across Malaysia. A cross-sectional survey was conducted in 23 receptive and vulnerable localities in Malaysia. A total of 3,322 asymptomatic individuals were examined using microscopy and PCR. No infection was detected by microscopy; however, nested PCR revealed a submicroscopic malaria (SMM) prevalence of 1.86% (62/3,322). The detected species included *P. malariae* (40.3%), *P. vivax* (29.0%), *P. knowlesi* (24.2%), *P. falciparum* (1.6%), *P. cynomolgi* (1.6%), and mixed *P. vivax/P. knowlesi* (3.2%). All PCR-positive cases were from Sabah and an Orang Asli settlement in Perak. Submicroscopic infections were distributed across age groups and both genders. Adults aged  $\geq 17$  years constituted approximately 68% of the positive cases. No statistically significant association was observed between infection status and gender or prior malaria history ( $p > 0.05$ ). These findings reinforce the critical role of molecular diagnostics in malaria surveillance and support the need for targeted interventions in vulnerable communities to prevent resurgence and support elimination goals.

**Keywords:** Asymptomatic infections; Malaria surveillance; molecular diagnostics; *Plasmodium* species; submicroscopic malaria

AP 023

## Identification of Arsenic Contamination in River Basin of Sungai Perak

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### ABSTRACT

The research aimed to investigate water quality and pollution levels focusing on Arsenic (As) and Ammoniacal Nitrogen (AN) pollution in one of the tributaries of Sungai Perak, Sungai Rui. The study was conducted in response to the closure of the Ganda Water Treatment Plant in 2017 due to As concentrations repeatedly exceeding the recommended limit (0.01 mg/L) by the Ministry of Health from year 2013-2016. The main objectives included assessing pollutant sources, developing loading capacity for As, and recommending mitigation strategies to reduce pollution risks. The research was conducted in collaboration with various government agencies, using the State Environment & Health Action Plan (SEHAP) as a strategic platform. The methodology involved systematic water sampling at 21 locations, covering upstream and downstream locations of mining operations, particularly tin and Non-Radioactive Rare Earth Elements (NR-REE) mining activities. The analytical procedures followed national environmental standards, measuring in situ parameters such as pH, turbidity, conductivity and heavy metal concentrations. Hydrological assessments were also conducted to determine flow rates, velocities, and pollutant load calculations. The study revealed that 61.9% of the sample locations exhibited As levels exceeding the National Drinking Water Quality Standard (NDWQS), with the highest concentration recorded at 3.5 mg/L. The Health Risk Assessment (HRA) showed high Hazard Quotient (HQ) and Lifetime Cancer Risk (LCR) values at various sampling locations around the mining area requiring immediate mitigation efforts. On the other hand, AN pollution from NR-REE mining did not exceed the standard, although the potential for groundwater contamination remains a concern. The study found significant arsenic contamination in the Sungai Rui river basin. Health risks were high due to tin mining and natural sources. Immediate mitigation is needed to address this pollution and protect public health.

**Keywords:** Ammoniacal nitrogen; arsenic; health risk assessment; loading capacity; water quality monitoring

AP 025

## Exploring Caregivers' Practices and Challenges in Medication Administration through Enteral Feeding Tubes

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### ABSTRACT

Patients with medical conditions such as stroke may require enteral tube feeding to receive nutrition and medications. However, complications associated with enteral feeding, such as mechanical issues, gastrointestinal disturbances, and metabolic imbalances, pose significant risks. At home, caregivers often manage medications administration. This process can be challenging and is not well understood outside of clinical settings. This study aimed to explore how caregivers administer medications through enteral feeding tubes and to identify the challenges they experience. A qualitative study was conducted with caregivers of patients who had been using enteral tubes for at least one month. Participants were recruited from Hospital Rehabilitasi Cheras between January 2023 and March 2024. Semi-structured face-to-face interviews were conducted in English or Malay. Interviews were recorded, transcribed, and analysed using thematic analysis. Five caregivers were interviewed during patient stay in the ward. Two major themes emerged for caregiver practices and challenges in medication administration. In terms of practice, caregivers commonly crushed tablets or opened capsules, mixed them with water, and delivered through syringes. Flushing the tube before and after administration was standard to prevent blockages. Most caregivers preferred liquid medications when available. Tube maintenance was routine, with replacement every 2–3 months depending on the type. Challenges included frequent medication blockages, lack of proper training, and difficulty handling solid medications. Many caregivers expressed uncertainty during their early experiences and found time management difficult, especially when juggling multiple medications. Caregivers need better training, more liquid medication options, and easier-to-use equipment to improve safety and reduce stress during home-based enteral medication administration.

**Keywords:** Enteral tube; medication; training

AP 026

## **Towards a Stigma-Free Society: A Cross-Sectional Study of Mental Health Perception in Malaysia**

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### **ABSTRACT**

Mental health stigma is a complex issue that requires members of the community to be aware and understanding to break the misconception revolving around mental health illness to create a safe space for those in need ensuring proper care and support. This study aims to explore the association between diverse demographic backgrounds, varying levels of awareness, and understanding of mental health stigma with the perceived mental health stigma in the community. A cross-sectional survey was conducted where 2165 Malaysians aged 18 years and above participated. All participants were required to answer all questions completely which includes both of the socio-demographical background (consists of questions related to gender, locality, household income, marital status, and occupational status) and the STIG-9 that has been validated to identify the perceived stigma in the community. The point-biserial correlation was applied to achieve these objectives where results obtained show that there is a significant association between some sociodemographic variables with the perceived mental health stigma in the community. The variable being the gender, locality, and the awareness of mental health stigma where significance value of  $p < 0.05$  were achieved. Meanwhile, other variables such as income, marital status, occupational status, experience with mental health illness, and understanding of mental health stigma did not show any significant association with perceived mental health stigma in the community. Transforming the perceived mental health stigma in a community could pave the way for a future where a community thrives and uplift one another as mental well-being is prioritised without fear or prejudice.

**Keywords:** Community; cross-sectional study; mental health stigma; perceived stigma

AP 027

## Pathways to Behavioural Change: A Study of the IFitEr Program Implementation in Wellness Hubs

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### ABSTRACT

This study aimed to identify key determinants influencing behavioural change within the IFitEr program, implemented at Wellness Hubs across Malaysia. It examined how contextual factors (organisational support, external influences, facility suitability), individual factors (coaches' competencies, participants' motivation), and program-specific factors (module clarity, accessibility) shaped program effectiveness. The study also explored coaches' and coordinators' perspectives on training quality. A high proportion of participants were overweight or obese (76.5%), consistent with national trends. A mixed-methods study was conducted over five months, combining structured questionnaires from 1,026 participants with qualitative interviews among coaches and implementers. The study assessed behavioural change determinants across intrapersonal, interpersonal, and community levels, participant experiences post-program, coaches' training adequacy, and Wellness Hub facility suitability. Quantitative findings demonstrated the IFitEr program's effectiveness in improving participants' knowledge (M=4.45), motivation (M=4.40), activity levels (M=4.29), and healthier eating behaviours (M=4.22). Social support from family (M=4.25) and peers (M=4.40) significantly contributed to behaviour change maintenance. Most participants were female (68.7%) and Malay (79.4%), predominantly aged 38-42 years. Qualitative findings revealed challenges in training delivery, communication gaps, insufficient skills development in areas such as weight and circuit training, and confidence issues among less experienced coaches. Facility limitations, including internet instability, space constraints, and uneven resource availability, further impacted program execution. Cultural preferences, such as gender considerations for coaches, also emerged as influential. The IFitEr program successfully enhanced participants' behavioural competencies for weight management. However, improvements are needed in coach training support, facility access, flexible delivery models, online components, and culturally sensitive approaches. Addressing these gaps will strengthen program sustainability and public health impact.

**Keywords:** Behavioural change; health promotion; IFitEr; program sustainability; training effectiveness



AP 028

## Preliminary Study on the Malay Translation and Adaptation of the IDA Institute's Motivation Tools

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### ABSTRACT

Motivational engagement is a critical component of successful aural rehabilitation for adult patients. The IDA Institute's Motivation Tools are widely used to support patient-centered counseling in audiology but are currently unavailable in Malay, limiting their accessibility for local populations. This preliminary study aimed to translate and culturally adapt the Motivation Tools into Malay to enhance their usability in Malaysian clinical settings. A cross-sectional study was conducted in two phases. Phase one involved the translation and cultural adaptation of the Motivation Tools, with the original content broken into 178 smaller statements to facilitate harmonisation. Prior to pilot testing, related statements were combined and repeated items were removed, resulting in 147 final items for improved clarity. Three audiology-trained translators participated in the translation process. In phase two, the harmonised Malay version was piloted among 12 participants via a self-administered Google Form. Descriptive analysis was used to assess item understandability. In phase one, the Line section required the most amendments (13.89%), while the Circle section required the least (5.26%). In phase two, 82.99% of statements were fully understood by all participants. The Circle section achieved the highest rate of complete understanding (94.94%), while the Line section had the lowest (48.15%). Mean understandability scores were highest for the Circle ( $99.37\% \pm 3.21$ ), followed by the Box ( $98.58\% \pm 3.18$ ), and the Line ( $92.59\% \pm 8.75$ ), suggesting the need for further refinement of the Line section. The Malay adaptation of the Motivation Tools was successfully completed. Further validation is warranted before clinical implementation. The translated tool is anticipated to enhance audiologists' ability to assess patient motivation and encourage greater patient engagement in the hearing care of adults with hearing impairment.

**Keywords:** Malay language; motivation tools by IDA Institute; translation and adaptation

AP 029

## Detection of MPXV DNA and Assessment of the Viability of the Virus on Environmental Surfaces during Illness: A Snapshot Study

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### ABSTRACT

Monkeypox virus (Mpox) is primarily transmitted through direct contact with lesions or bodily fluids; however, indirect transmission via contaminated surfaces (fomites) and respiratory droplets has also been reported. Environmental contamination with MPXV DNA has been documented during outbreaks, but the extent of viable virus present on these surfaces remains unclear. This study aimed to investigate the presence of MPXV DNA on environmental surfaces in both household and healthcare settings during the course of illness, and to assess the viability of the virus from PCR-positive environmental samples. A confirmed MPXV case was clinically diagnosed with fever on 25 February 2025, followed by rash onset on 27 February and hospital admission on 6 March 2025. Environmental surface sampling was conducted on day 16 of illness and day 14 since rash onset at both the patient's home and hospital isolation ward. High-touch surfaces were swabbed and tested for MPXV DNA by real-time PCR. All PCR-positive samples were inoculated onto Vero and Vero E6 cell monolayers and monitored for cytopathic effect (CPE) over 14 days. Cultures showing CPE were passaged and re-tested by PCR. All procedures were conducted under biosafety level 3 (BSL-3) conditions. Of the 15 surfaces sampled at the patient's home, 5 (33%) were PCR-positive, including a small fan, sofa upholstery, mattress, dining table, and extension switch. In the hospital isolation ward, 6 out of 17 surfaces (35%) were PCR-positive. Initial CPE was observed in cultures inoculated with sofa and bed linen samples, but this effect disappeared upon passage and MPXV PCR was negative, indicating no viable virus was recovered. The detection of MPXV DNA on day 16 of illness does not confirm infectivity and may reflect the presence of residual or non-infectious viral particles. Sampling at a single time point limits the ability to draw conclusions about viral persistence over time. Our findings demonstrate the presence of MPXV DNA contamination on high-touch surfaces in both household and healthcare environments even into the second week of illness. However, viability of the virus could not be confirmed in this study. Further research involving multiple sampling time points and a broader range of locations is needed to better understand the environmental stability of MPXV and the potential transmission risk in the Malaysian context.

AP 030

## Prevalence of Musculoskeletal Disorders among Healthcare Workers at KPJ Selangor Specialist Hospital

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### ABSTRACT

Musculoskeletal disorders (MSDs) are a common health issue among workers in many fields, especially healthcare. They cause pain and discomfort, affecting not only the individual but also reducing work productivity. Healthcare workers including doctors, nurses, allied health professionals, pharmacists, and non-clinical staff are at higher risk due to tasks like patient handling and transport. This study aims to determine the prevalence and distribution of MSDs among healthcare workers at KPJ Selangor Specialist Hospital. A cross-sectional study was done among staff at KPJ Selangor Specialist Hospital. A modified Nordic Musculoskeletal Questionnaire (NMQ) was used to collect data on musculoskeletal symptoms over the past 12 months. The questionnaire was given to staff from various departments. Descriptive statistics were used to analyse the data. Ethical approval was obtained, and participation was voluntary and anonymous. The study found that MSDs are a common issue among KPJ Selangor staff. Slip disc injuries made up 27.8% of the cases. The lower back was the most affected area, likely due to tasks like standing for long hours, lifting, and handling patients. These results are similar to global patterns in healthcare. The findings show a need for better ergonomics, staff training, and prevention programs to reduce MSD cases. This study highlights a notable prevalence of musculoskeletal disorders among KPJ Selangor staff, particularly affecting the lower back. The findings underscore the urgent need for preventive measures such as ergonomic improvements, staff education, and early intervention programs to reduce the risk of MSDs and enhance workplace health and safety.

**Keywords:** Ergonomics; healthcare workers (HCWs); lower back pain; musculoskeletal disorders (MSDs); occupational health; prevalence; preventive measures; slip disc injuries

AP 031

## Voice in the Dark: Medication Management Challenges & Strategies among Malaysia's Visually Impaired

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### ABSTRACT

The global visually impaired population is projected to rise from 43.3 million in 2020 to 61 million by 2050. Visually impaired individuals often face marginalisation in accessing healthcare information and are at higher risk of medication errors, which can lead to hospitalisation or death. In Malaysia, initiatives like the “Visually Impaired-Friendly Medicine Labels” have been introduced, but tailored, comprehensive strategies are still lacking. This study aims to explore the issues and challenges faced in medication management and to strategise effective solutions to support rational and safe medication use among the visually impaired population. A qualitative exploratory study was conducted through five focus group discussions (FGDs) involving 26 visually impaired informants aged 18 and above across Malaysia. FGDs were facilitated using a semi-structured interview guide, audio-recorded and transcribed verbatim. Thematic analysis was applied to identify key themes and subthemes. The study population consisted of 14 males (53.8%) and 12 females (46.2%), predominantly Malay (65.4%), with ages ranging from 26 to above 60 years. Most informants (76.9%) lived with family and 69.2% were Braille literate. Major challenges identified included limited knowledge on registered medicines, difficulty identifying and administering medications, dependency on others, difficulty measuring dosages, adverse effects, poor access to Braille-labelled medicines, and inadequate healthcare infrastructure. Strategies proposed by informants to address these barriers included improving health education via media and NGOs, enhancing Braille initiatives, introducing assistive technologies (e.g., talking labels, RFID stickers), strengthening services such as medication delivery and dedicated pharmacy counters, and promoting the use of mobile applications for medication management. Visually impaired individuals face multifaceted challenges in medication management, necessitating a holistic, patient-centered approach. Addressing educational gaps, leveraging technology, and enhancing service accessibility are vital steps to empower this population towards safer and more independent medication use.

**Keywords:** Focus groups discussion; health literacy; medication management; qualitative research; visually impaired

AP 032

## Clustering Autoantibody Profiles in Immune Mediated Diabetes: Identifying Natural Subgroups among Individuals with Multiple Antibody Positivity in Malaysia

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### ABSTRACT

Immune-mediated diabetes (IDM) includes both classic Type 1 Diabetes and latent autoimmune diabetes (LADA), as both involve autoimmune destruction of pancreatic beta cells. Autoantibody testing plays a critical role in diagnosing IDM. However, the diversity of autoantibody patterns and their association with clinical features is underexplored in Malaysia. We performed unsupervised clustering of individuals with 2 positive antibodies (GAD, IA2, ICA) to identify natural groupings that may reflect different autoimmune endotypes. Retrospective 2023 lab data from the Endocrine Unit included age and autoantibody levels for 506 individuals across Malaysia screened for IDM. Positivity was defined as GAD  $\geq 17$  IU/ml, IA2  $\geq 28$  IU/ml, ICA  $\geq 28$  IU/ml. Individuals with  $\geq 2$  positive antibodies were selected,  $n=181$ . Antibody levels were standardised and KMeans clustering ( $k=3$ ) was applied. Clusters were visualised using Principal Component Analysis (PCA) to visualise cluster separation. Modeling Cluster Membership: A Random Forest classifier was applied to predict cluster membership. The dataset was split into training and testing subsets (80/20 split), and the performance was evaluated via classification metrics including accuracy, precision and F1-score. The analysis identified three distinct clusters based on age and autoantibody profiles among individuals screened for IDM; (i) Cluster 0 ( $n=15$ ): Youngest (mean age 13.3), uniformly high positivity across all antibodies (GAD 229, IA2 263, ICA 165). All had 3 positive antibodies; (ii) Cluster 1 ( $n=112$ ): Oldest (mean age 25.2), high GAD (275) with minimal IA2 (12). Dominated by 2-antibody profiles; and (iii) Cluster 2 ( $n=54$ ): Intermediate age (19.6), mixed GAD (68), IA2 (70), low ICA (39). Combination of 2 and 3 antibody positive. The Random Forest model achieved perfect accuracy on the test set (100%), with precision, recall, and F1-score of 1.0 for all classes. These results suggest that antibody levels alone can effectively predict cluster membership. Clustering individuals with multiple antibody positivity expression reveals distinct autoimmune profiles either early-onset, aggressive autoimmunity or slowly progressive or latent autoimmune diabetes (LADA). These findings support the use of autoantibody-based clustering in refining diabetes classification and guiding tailored management strategies and support the integration of machine learning into diagnostic and subclassification algorithms for autoimmune diabetes.

**Keywords:** Autoantibodies; clustering; immune mediated diabetes; LADA; machine learning

AP 033

## Do Malaysian Adults Understand Healthcare and Disease Prevention: Insight from the Malaysia Health Literacy Survey 2023

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### ABSTRACT

Health literacy has become an important skill to fuel the spread of preventable diseases by empowering individuals in society to take control of their health and making informed decisions ensuring better overall well-being. Though low health literacy is a silent global crisis, the urgency of it is observable as it will continuously fuel the spreading of preventable diseases and misinformation. This study aims to explore health literacy in the context of healthcare and disease prevention among adults aged 18 years and above in Malaysia by using the HLS-M-Q18 instrument. A nationwide cross-sectional survey was conducted as part of the National Health and Morbidity Survey (NHMS) 2023 in Malaysia where respondents were required to complete a self-administered questionnaire on health literacy (HLS-M-Q18) as one of the modules. Findings based on the healthcare domain highlighted that most Malaysians (62.4%) claimed that it is fairly easy to judge how information from a doctor applies to them which makes it easier for them to make informed decisions related to their own health and well-being. Meanwhile, based on the disease prevention domain, most Malaysians claimed (61.1%) that it was fairly easy for them to judge on which health screening that they should have which displays their confidence in identifying the appropriate health screenings needed. In conclusion, empowering individuals with health literacy in healthcare and disease prevention helps them in making informed decisions that could bridge the gap between healthcare providers and patients and at the same time helps in making proactive decisions that could potentially reduce the burden of preventable diseases by using the concept of “prevention rather than treatment”.

**Keywords:** Adults; disease prevention; health literacy; healthcare; Malaysian

AP 034

## Physiotherapists' Knowledge and Attitudes toward Hemophilia Management in a Multidisciplinary Team

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### ABSTRACT

Hemophilia is a rare genetic bleeding disorder that requires comprehensive and multidisciplinary management. In this team-based approach, physiotherapists play a crucial role in maintaining joint health, managing pain, and improving functional mobility. However, limited research exists regarding the knowledge and attitudes of physiotherapists toward hemophilia management, particularly in the context of *Jabatan Kesihatan Negeri Kedah* (JKNK). This study aimed to assess the knowledge and attitudes of physiotherapists toward hemophilia management within a multidisciplinary team (MDT) setting in JKNK. The goal was to identify potential areas for improvement in their knowledge and practices, with the aim of enhancing the quality of care for individuals with hemophilia (PWH). A cross-sectional survey was conducted using a structured questionnaire. Physiotherapists from various hospitals and *Klinik Kesihatan* were invited to participate. The questionnaire assessed their knowledge of hemophilia management, teamwork collaboration, assessment methods, treatment modalities, and adherence to evidence-based practices. Data analysis was performed using SPSS version 29.0, with correlation analyses to evaluate the relationships between variables. The findings revealed that 50.6% of respondents demonstrated a good level of knowledge about hemophilia, while 84.4% had a positive attitude toward its management. However, no statistically significant differences were found in knowledge ( $p = 0.260$ ) or attitude ( $p = 0.382$ ) between physiotherapists working in the Hospital and *Klinik Kesihatan*. Chi-square analysis indicated a significant association between gender and knowledge level ( $p = 0.008$ ), with female physiotherapists more likely to exhibit better knowledge. No significant associations were found between knowledge or attitude and other variables such as age, education, or workplace. While most physiotherapists exhibited a positive attitude toward hemophilia management, there remain notable knowledge gaps, particularly among male physiotherapists. This study underscores the importance of enhancing physiotherapists' knowledge and fostering greater collaboration within the MDT to optimise care and outcomes for individuals with hemophilia.

**Keywords:** Attitude; evidence-based practice; healthcare collaboration; hemophilia; *Jabatan Kesihatan Negeri Kedah* (JKNK); joint health; knowledge; multidisciplinary team; physiotherapy

AP 035

## Validation of Radiochemical Purity in High-Activity Tc-99m Tetrofosmin Preparations for Myocardial Perfusion Imaging

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### ABSTRACT

Technetium-99m (Tc-99m) is a widely used radionuclide in nuclear medicine, particularly for myocardial perfusion imaging (MPI). The effectiveness of Tc-99m-labeled radiopharmaceuticals depends on achieving radiochemical purity (RCP) above 90% to ensure diagnostic accuracy and patient safety. With rising clinical demand, there is growing interest in preparing Tc-99m Tetrofosmin at higher radioactivity concentrations to improve efficiency. However, such changes may affect the stability of the product over time. This study aims to determine whether high-activity Tc-99m Tetrofosmin can maintain acceptable RCP levels for up to 8 hours after preparation. This experimental study evaluated the RCP of Tc-99m Tetrofosmin prepared at five different activity concentrations: 2.7, 2.2, 1.6, 1.1, and 0.7 MBq/mL. RCP was measured using instant thin-layer chromatography (ITLC) at three time points: immediately after radiolabeling (Hour 0), 4 hours, and 8 hours post-radiolabeling. Each concentration was tested in triplicate across three independent experimental rounds using 3 different 25 GBq Mo-99/Tc-99m generators to ensure reproducibility and reliability. RCP values remained above 90% for all concentrations at Hour 0 and Hour 4, with minimal degradation observed. At Hour 8, a consistent drop below the 90% threshold was observed across all concentrations, with RCP values ranging from 89.2% to 87.8%. The findings demonstrate that high-activity Tc-99m Tetrofosmin preparations maintain radiochemical stability within the 0 to 8-hour timeframe, which corresponds to the standard operational hours in our clinical setting. High-activity Tc-99m Tetrofosmin preparations maintain acceptable radiochemical purity within 8 hours post-labeling, making them clinically safe within this time frame. By allowing a single vial to be utilised to its maximum capacity beyond the standard dose preparation, this approach significantly reduces radiopharmaceutical waste, limits the number of cold kits required, and enhances sustainability in nuclear medicine. It supports a more cost-effective practice by maximising resource utilisation without compromising product quality.

**Keywords:** High-activity preparation; myocardial perfusion imaging; radiochemical purity; radiopharmaceutical stability; Tc-99m tetrofosmin



AP 036

## Revolutionising Blood Safety: A Systematic Review of Reverse Algorithm Automation for Syphilis Screening in Blood Donors

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### ABSTRACT

Syphilis remains a concern in blood transfusion, with a 0.39% prevalence among Malaysian blood donors. Traditional screening has limitations, while the reverse algorithm with automated assays offers greater sensitivity, efficiency, and safety for improved donor screening. A systematic review was conducted in accordance with PRISMA guidelines, with comprehensive searches performed in databases such as Medline and PubMed up to the most current available literature. Following stringent inclusion and exclusion criteria, studies which focused on blood donors undergoing syphilis screening and automated syphilis screening using the reverse algorithm (treponemal test first) were included for this review. Primary outcomes including sensitivity, specificity, and overall diagnostic accuracy were extracted, analysed and synthesised narratively. The included studies were critically evaluated using relevant checklists for quality assessment. The reverse algorithm using automated treponemal assays showed high sensitivity and specificity, improving detection of latent and early syphilis, especially in asymptomatic donors. As treponemal tests remain reactive for life, a follow-up nontreponemal test is needed, with high index values often indicating true positives and reducing the need for further confirmation. FDA-approved assays for syphilis diagnosis aid in detection, but follow-up testing remains essential for accurate early diagnosis and treatment. The reverse algorithm was found to be cost-effective even in low-prevalence settings (0.1%-1.9%), detecting 9.7% more cases than the traditional method at a modest incremental cost (ICER RM172.44 per additional case). While traditional screening remains more cost-efficient in very low-prevalence populations, the reverse algorithm showed greater long-term value and was preferred from a laboratory perspective. Cost savings are achievable if test positivity increases or assay costs decrease. The reverse algorithm using automated treponemal assays provides a more sensitive and efficient approach to syphilis screening in blood donors. Its implementation may enhance transfusion safety and improve public health outcomes.

**Keywords:** Automation; blood donor screening; reverse algorithm; syphilis; treponemal test

AP 039

## Malaysian Speech-Language Therapists' Perspectives on Parent-Implemented Interventions: A Survey of Challenges and Needs

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### ABSTRACT

Parent-implemented interventions (PIIs) are an increasingly popular approach for supporting children with speech and language difficulties. These interventions leverage parents as active agents in delivering therapeutic strategies at home, promoting greater consistency and generalisation of skills. However, despite the growing adoption of PIIs, the role of Speech-Language Therapists (SLTs) in facilitating these interventions remains underexplored, particularly regarding their challenges and professional needs. This study aimed to investigate Malaysian SLTs' perspectives on PIIs through a survey, examining the barriers they encounter, their views on current practices, and the support they require to enhance the effectiveness of PIIs. This study employed an online survey methodology to collect data from Malaysian SLTs regarding their perspectives on PIIs. A validated, structured questionnaire was distributed to a purposive sample of Malaysian SLTs, providing quantitative and qualitative insights into their experiences and perspectives towards PIIs in their clinical practice. The findings revealed that Malaysian SLTs face several challenges, including time constraints, inadequate training resources, and difficulties in consistently engaging parents. Additionally, Malaysian SLTs reported a strong need for more structured support frameworks, professional development opportunities, and standardised materials to guide their work with parents. The results suggest that improving SLTs' access to resources and training and developing more precise guidelines for parent-implemented interventions could significantly enhance the quality and outcomes of these programs. This study provides valuable insights into the role of SLTs in PIIs and highlights the importance of addressing the challenges they face in supporting parents. The findings offer practical recommendations for improving the implementation of PIIs and fostering more effective collaboration between SLTs and parents.

**Keywords:** Challenges; parent-implemented interventions; professional development; speech-language therapists; survey

AP 041

## **“Healthy Smile, Happy Child”- Provision of Bedside Paediatric Dental Services for Hospitalised Children in the Women and Children’s Centre, Tengku Permaisuri Norashikin Hospital, Kajang**

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### **ABSTRACT**

Hospitalised children, especially those with chronic conditions, are at higher risk of oral health issues due to factors like reduced immunity, poor oral hygiene, and medication side effects. To address this, a bedside paediatric dental service was introduced at the Women and Children’s Centre, Tengku Permaisuri Norashikin Hospital, Kajang. The initiative aimed to provide accessible dental care during hospitalisation through routine oral evaluations, hygiene care, and fluoride application. Children requiring further intervention were referred to the paediatric dental specialist clinic. This service promotes early detection, prevention of dental caries, and reinforces the importance of oral hygiene in inpatient care. A prospective observational study was conducted from 1<sup>st</sup> June 2024 to 1<sup>st</sup> June 2025 involving a multidisciplinary team comprising a dentist, two post-basic paediatric dental therapists, and a dental surgery assistant. During each session, patients underwent oral assessments, received fluoride varnish applications where indicated, and were given age-appropriate oral hygiene instructions. Referrals were made for further care. Data collected included patient demographics, medical history, oral health status, type of care provided, and referral outcomes, as documented in departmental records and clinical logs. A total of 169 children received bedside dental care during the study period from January to December 2024. A majority of the patients were admitted for upper respiratory tract infections (79.5%). All patients received tooth brushing instructions and dental examinations and when permissible, topical fluoride was applied. A number of patients were diagnosed with having dental caries (26.6%) and all patients diagnosed with having caries were referred to the department for further management. The implementation of bedside paediatric dental services demonstrates the feasibility of delivering dental care in a hospital setting, addressing unmet oral health needs and supporting holistic paediatric care. Findings from the “Healthy Smile, Happy Child” programme highlight its impact and offer a replicable model for other hospitals with paediatric dental services across the state.

AP 042

## A Longitudinal Case Study Documenting a Client with Severe Fragile X Syndrome: Transition from Nonverbal to Verbal using Low Tech to High-Tech AAC Methods

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### ABSTRACT

Individuals with Fragile X syndrome often demonstrate limited progress in speech production, communication skills and language comprehension. However, with the advancement of Augmentative and Alternative Communication (AAC) methods, ranging from low tech means such as Picture Exchange Communication System (PECS) to high tech applications such as Proloquo2go, a significant improvement has been observed. This longitudinal study was conducted for a duration of 10 years. Speech and language therapy sessions were gradually increased, starting with weekly one-hour individual sessions and progressing to three longer sessions per week. The initial focus was on language perception and behaviour towards therapy sessions followed by speech production and communication skills in both one-on-one and group settings with the therapist and in a group setting across various settings by using a multimodal AAC approach. Findings showed a marked improvement from nonverbal to verbal communication, both with and without the support of high-tech AAC devices. Standardised speech and language assessments were used to quantify progress. However, other standardised tests could have been incorporated with an increased sample size to generalise the study. This study would serve as a beginning for health care practitioners, employers and the public to have a clear two-way communication and interaction with those with Fragile X syndrome despite their level of severity.

**Keywords:** Augmentative and alternative communication; communication skills; Fragile X syndrome; language perception; speech production

AP 043

## The Knowledge, Confidence, and Attitudes of Nurses toward Acquired Communication Disorders Questionnaire (KenCANA-Q)

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### ABSTRACT

Effective communication between nurses and people with acquired communication disorders (PACD) is crucial for improving patient care and outcomes. However, there is limited research on nurses' knowledge, confidence, and attitudes when interacting with PACD, especially in Asian countries. Existing tools developed in Western contexts may not address cultural and contextual differences in Malaysia. This study aimed to develop and validate the Knowledge, Confidence, and Attitudes of Nurses About Acquired Communication Disorder Questionnaire (KenCANA-Q) for assessing Malaysian nurses. The study involved four phases: (i) Development of questionnaire items informed by literature review; (ii) Content validation by 18 speech-language therapists; (iii) Language compatibility testing of English and Malay versions with 30 bilingual participants; and (iv) A pilot study with 10 nurses to assess reliability and internal consistency. Statistical analyses included Content Validity Index (CVI), Kappa scores, Cronbach's alpha, and test-retest reliability. The finalised KenCANA-Q comprised 38 items covering knowledge, confidence, and attitude domains. Content validity scores ranged from 0.80 to 1.00, Kappa values ranged from 0.70 to 0.90 and Cronbach's alpha values for internal consistency were excellent across domains (knowledge: 0.88, confidence: 0.93, attitude: 0.79). The test-retest reliability was high, with a Pearson correlation coefficient of 0.98 ( $p < 0.01$ ). The KenCANA-Q demonstrated strong reliability and validity in assessing nurses' knowledge, confidence, and attitudes when communicating with PACD. It provides a foundation for identifying gaps in communication strategies and tailoring training programs to enhance the quality of care for PACD in Malaysia.

**Keywords:** Acquired communication disorder; attitude; communication; confidence; healthcare practitioners; knowledge; nurses

AP 044

## Leveraging Big Data Analytics in Maternal Anaemic Reporting System for Improved Antenatal Care in Sabah, Malaysia

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### ABSTRACT

Big Data analytics offers immense potential in healthcare, enabling insights from vast, complex datasets to improve care and reduce costs. However, conventional methods often fail with fragmented, unstructured information. Antenatal anaemia is a significant concern in Sabah, yet data collection is limited, relying on hardcopy records and single metrics like Hb levels at 36 weeks. Lack of comprehensive, structured data severely hampers the ability to identify root causes, understand prevalence throughout pregnancy, evaluate clinical management, and develop effective, evidence-based prevention strategies. Maternal Anaemic Reporting System (MARS), a case study applying Big Data principles to address prevalence and determinants antenatal anaemia in Sabah. This study employed a retrospective analysis of 3,388 antenatal records from all Kota Kinabalu government clinics in 2023. Unstructured data from sources like antenatal books, lab results, case notes were traced and entered the structured (MARS). Universal sampling included all eligible pregnant women. Data analysis utilised SPSS v25.0. The result revealed a high prevalence of anaemia during pregnancy at 56.2%, which classifies as a severe public health issue. Most cases were detected in the second trimester (64.7%). Only 44.2% were Iron Deficiency Anaemia (IDA). Hb levels at POG 36 correlated positively with earlier Hb levels, POG at detection, and serum ferritin, but negatively with POG at booking. Lower Hb at POG 36 was significantly associated ( $p<0.001$ ) with first-trimester detection, higher risk profiles, late booking, and non-citizenship. Importantly, timely clinical management actions like nutritionist/medical officer appointments within specified weeks, home visits, and Imferon treatment were significantly associated with higher anaemia recovery rates ( $p<0.001$ ). The MARS system successfully applied Big Data principles, revealing high antenatal anaemia prevalence (56.2%) in Kota Kinabalu and differentiating IDA from other causes. Analysis identified key determinants and validated effective clinical interventions. This demonstrates BDA's value for targeted allied health strategies, despite needing broader scope and system enhancements.

**Keywords:** Anemia; prevalence; reporting system; Sabah

AP 045

## Effectiveness of 1 Page Quick Reference Guide in Enhancing Nurse Knowledge on Failure to Thrive (FTT) Case Management in Kota Kinabalu Sabah

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### ABSTRACT

Clinical practice guidelines (CPGs) face implementation barriers for nurses, including complexity and access to research. This study evaluates a 1-page Quick Reference Guide's effectiveness in enhancing Malaysian nurses' knowledge of Failure to Thrive (FTT) management. A purposive sampling was used in this study. A pre and post-test design with 20 technical questions assessed knowledge levels and explored the influence of years of service, clinical rank, and location on knowledge acquisition. The inclusion criteria were nurses who work in mother and childcare departments. Nurses who were on long term sick leave, unpaid leave or pursuing further studies were excluded from the study. The study population comprised 150 nurses from various health clinics in Kota Kinabalu. Regarding their years of service, 60% of nurses worked more than 10 years. In terms of their grade, 52% were classified as U1-3, and 48% were U5-7. A Wilcoxon signed-rank test was conducted to compare scores prior to and following the test. The results indicated a statistically significant improvement,  $Z = 10.636$ ,  $p < 0.001$ , showing that the nurses achieved higher test scores following the training with the 1-page Quick Reference Guide. The number of years of service and grade were not associated with a significant correlation with relative improvement. The clinic was markedly correlated with relative improvement ( $p < 0.001$ ). Nurses from KKIA Pekan and KK Luyang had the greatest enhancement (100.0%), whilst nurses from KK Inanam showed the least improvement (72.7%). Binary logistic regression indicated that nurses from KK Menggatal (aOR=0.158; 95% CI: 0.044-0.571;  $p = 0.005$ ), KK Inanam (aOR=0.030; 95% CI: 0.005-0.176;  $p < 0.001$ ), KK Telipok (aOR=0.103; 95% CI: 0.023-0.462;  $p = 0.003$ ), and other clinics (aOR=0.170; 95% CI: 0.049-0.591;  $p = 0.005$ ) were significantly less likely to show high relative improvement compared to nurses from KKIA Pekan. The study determined that the execution of 1-page Quick Reference Guide effectively enhanced nurses' knowledge in Kota Kinabalu concerning the management of malnourished infants, as demonstrated by the notable increase in post-test scores relative to pre-test scores. Although years of service and grade did not markedly affect the relative enhancement in test scores, a substantial correlation existed between the nurses' clinic and their improvement.

**Keywords:** Guideline; knowledge; nurses

AP 046

## Effectiveness of Music and Non-Music Usage in Circuit Training among Male Students of Upper Secondary Education

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### ABSTRACT

Music has recently been explored as an aid to enhance physical and psychological performance in exercise. It may positively influence stress, mood, cardiovascular health, and overall quality of life, especially among youth. This study aimed to examine the effectiveness of music versus non-music circuit training on psychophysiological, psychophysical, and psychological outcomes among upper secondary male students. A total of 24 male students were randomly divided into two groups: music group (MG) and non-music group (NMG). Both groups completed a 30-minute, 6-station circuit training for three consecutive days. Measurements included blood pressure (BP), resting heart rate (RHR), repetitions (REPs), rate of perceived exertion (RPE), short-term memory (STM), and mood (M). Data were analysed using SPSS version 20. Both groups showed improvements across all parameters after the intervention. However, the MG demonstrated significantly greater improvements in psychophysiological, psychophysical, and psychological domains compared to NMG ( $p < 0.05$ ). High-intensity circuit training accompanied by music resulted in enhanced cardiovascular responses, better physical performance, and improved psychological wellbeing. Music appears to function as an effective ergogenic aid, increasing motivation, enjoyment, and cognitive performance, while reducing fatigue and enhancing overall exercise experience.

**Keywords:** Circuit training; music; psychophysiological; psychophysical; psychological



AP 047

## Routine, Results, Repeat: The Effectiveness of Occupation-Based Goal Setting for Weight Loss among Putrajaya Adults with Obesity

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### ABSTRACT

Achieving consistent adherence to weight loss plans remains a major barrier in obesity management. Conventional goal-setting strategies often fail to incorporate individuals' meaningful daily routines. Occupational therapy introduces a client-centred approach by embedding personal daily activity goals into treatment planning, potentially improving motivation and long-term commitment. This study aimed to determine the effectiveness of occupation-centred goal setting in enhancing adherence to weight loss plans among adults with obesity in Putrajaya. A quasi-experimental design was applied involving 30 obese adults (BMI  $\geq 30$ ), who were randomly allocated into intervention (n=15) and control (n=15) groups. The intervention group engaged in weekly occupation-based goal setting using the Canadian Occupational Performance Measure (COPM), while the control group used conventional SMART goals. Outcome measures included the Weight Loss Behaviour Adherence Scale (WLBAS), COPM performance and satisfaction scores, and BMI, evaluated pre- and post-intervention. Paired and independent t-tests were used for analysis. The intervention group showed significantly higher improvements in adherence (WLBAS mean increase: +20.3,  $p=0.001$ ), occupational performance (+3.4,  $p=0.001$ ), and satisfaction (+3.3,  $p=0.001$ ), compared to the control group. A modest but significant BMI reduction was observed in the intervention group ( $p=0.04$ ), while changes in the control group were not significant. Occupation-centred goal setting proved more effective than traditional goal-setting methods in improving adherence and meaningful engagement in weight loss efforts. These findings support the integration of occupation-based approaches in obesity intervention strategies. Further studies with larger cohorts are recommended to validate and expand these findings. When goals reflect real life, weight loss becomes more than a plan - it becomes a sustainable lifestyle.

**Keywords:** Canadian Occupational Performance Measure (COPM); obesity management; occupation-based goal setting; quasi-experimental study; weight loss adherence

AP 048

## Multidisciplinary Dysphagia Clinics in Malaysia: A Systematic Review of Global Models and Local Implementation Strategies

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### ABSTRACT

Effective dysphagia management demands interdisciplinary collaboration. In high-income countries, Multidisciplinary Dysphagia Clinics (MDCs) have demonstrated significant clinical benefits, including a 30-50% improvement in patient outcomes and a 40% reduction in aspiration pneumonia. Despite this, MDCs remain limited in Malaysia due to high setup costs (USD 50,000-100,000 per unit), workforce shortages (<40% of hospitals equipped), and low speech-language therapist (SLT) role recognition (15-20%). This review aimed to evaluate global MDC models and identify implementation strategies that could inform the development and scaling of MDCs within the Malaysian healthcare context. A systematic review was conducted in accordance with PRISMA guidelines, utilising PubMed, Scopus, and Google Scholar to identify relevant studies published between 2015 and 2024. Articles were analysed across four domains: MDC structures, patient outcomes, implementation barriers, and Malaysian applicability. Only English-language publications that focused on team-based dysphagia management and reported health service outcomes were included. Of the 135 records screened, 26 studies met the inclusion criteria. Ninety percent of reviewed studies supported MDCs as effective models of care, reporting reduced hospital stays by 2-5 days, improved swallowing outcomes in 75% of cases, and a 25-40% increase in quality of life. Barriers to local implementation include limited trained dysphagia teams, financial constraints, and fragmented policies. Currently, fewer than 10 hospitals in Malaysia operate MDCs. However, telehealth has improved service access by 40% and shows potential to mitigate workforce gaps. Strategic recommendations include piloting MDCs in five major hospitals, scaling clinician training, and integrating telehealth into dysphagia pathways. These findings confirm that the review objective was met, highlighting MDC's global effectiveness and local gaps, including telehealth potential, SLT upskilling needs, and pilot program priorities. MDCs are essential for advancing dysphagia rehabilitation in Malaysia. Addressing structural barriers through public-private partnerships, policy reform, and technological innovation is critical. Pilot studies are warranted to assess feasibility and inform sustainable national implementation.

**Keywords:** Dysphagia rehabilitation; Malaysia; multidisciplinary dysphagia clinic; speech-language pathology; telehealth

AP 049

## Parental Acceptance and Readiness for Teleaudiology-Based Aural Rehabilitation in Children with Hearing Impairment

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### ABSTRACT

Teleaudiology is an emerging tool for improving access to aural rehabilitation among children with hearing impairment, particularly in settings where distance or limited resources challenge in-person care. Parental acceptance and readiness are essential for its successful implementation, especially in pediatric populations where caregiver involvement is central. This study aimed to assess parental perceptions, acceptance, and readiness toward teleaudiology-based aural rehabilitation in children with hearing impairment. This pilot study employed a cross-sectional design involving 100 parents of children with bilateral sensorineural hearing loss who have been fitted with hearing aids for at least six months. An online structured questionnaire was used, which included a dedicated section on teleaudiology experience, exploring four domains: perception, readiness, comfort, and acceptance. Descriptive analysis was used to summarise the findings. Most respondents were mothers (83.3%) aged between 25-44 years, with a majority from low- to middle-income households. A strong willingness to use teleaudiology was reported by 86.7% of parents, and 80% expressed confidence in managing the required technology. However, only 50% reported having reliable access to teleaudiology services, suggesting infrastructural limitations. Teleaudiology was viewed as convenient (73.3%) and effective (73.3%), with 76.6% appreciating its time- and cost-saving advantages. Nevertheless, 20-26.7% of parents responded neutrally, indicating hesitation or limited exposure to such services. Confidence in data privacy was notably high (83.3%), and 66.6% believed their child would be comfortable with teleaudiology. These findings reflect generally positive parental attitudes and readiness, yet highlight gaps in accessibility and varying degrees of familiarity and confidence with technology. Parents show high acceptance and readiness for teleaudiology-based rehabilitation. However, addressing barriers related to internet access and technological confidence is critical to ensuring equitable, consistent use in pediatric care.

AP 050

## Observation of Beetle Larvae on a Human Corpse found in an Indoor Setting in Sarawak, Malaysia

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### ABSTRACT

Estimating the postmortem interval (PMI) is crucial in forensic investigations. While blowflies are early colonisers of decomposing remains, beetles arrive later and persist longer, especially when soft tissue is limited. PMI estimation using beetles depends on species identification, development stages, and succession patterns. This report presents a case from Sarawak, Malaysia, where beetle larvae found indoors were used to estimate the minimum PMI (mPMI). The first case involved a 52-year-old Chinese male found in an advanced decomposed state in a burned room. Identity was confirmed through DNA profiling and forensic odontology. The body showed widespread soot, leathery skin, and dark discoloration. The second case involved a 58-year-old Chinese male in a similar decomposition state, with partial skeletonisation of the head, jaw, rib cage, spine, and limbs. Insects were collected from both scenes for forensic entomological analysis. Entomological analysis identified the presence of Black Carpet Beetle (*Attagenus* spp.) larvae in both cases. The estimated mPMI was at least three weeks, based on insect development, decomposition stage, police reports, and local weather data. Ambient temperatures averaged  $26.8 \pm 1.00^{\circ}\text{C}$  and  $27.6 \pm 1.51^{\circ}\text{C}$ , with relative humidity at  $87.85 \pm 2.39\%$  and  $84.31 \pm 5.49\%$  for each case respectively. The detection of *Attagenus* spp. larvae, combined with decomposition and partial skeletonisation, supported a minimum PMI of three weeks. These findings emphasise the importance of beetle evidence in forensic cases, particularly in indoor environments where late-stage colonisers offer key PMI insights.

AP 054

## Prevalence of Health Screening Uptake among Healthy Adults in Malaysia: Findings from the National Health and Morbidity Survey 2023

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### ABSTRACT

The burden of noncommunicable diseases (NCDs) continues to rise, making regular health screenings increasingly important. Health screening uptake among the healthy population enables early detection or intervention for chronic diseases, ultimately improving health outcomes and reducing healthcare costs. This study aimed to investigate the prevalence of health screening uptake among healthy adults in Malaysia in 2023. This study utilised secondary data from the National Health and Morbidity Survey 2023, a cross-sectional nationwide study employing a two-stage stratified random sampling design. Self-reported data were collected through face-to-face interviews among adults aged 18 years and above using a pre-tested structured questionnaire. Health screening was defined as a medical check-up for diabetes, hypertension, or hypercholesterolaemia within the past 12 months. Data were analysed using complex sample analysis and the Rao-Scott chi-square test, with p-value <0.05 considered statistically significant. Out of 10,858 eligible adults, 7,317 healthy individuals without known diabetes, hypertension, or hypercholesterolaemia were included. The overall prevalence of screening uptake among healthy adults was 46.7% (95% CI: 44.4, 49.0). Health screening uptake was significantly higher among urban dwellers, females, adults aged 60 years and above, Indian ethnicity, those who were married or living with a partner, had tertiary education, were employed, and among the T20 household income group. The prevalence of health screening uptake was also significantly higher among non-smokers, overweight and obese adults, and those with abdominal obesity. These findings suggest that adults with better socioeconomic status and perceived health risks are more likely to undergo health screening. Sociodemographic differences may influence decisions to engage in preventive health screening. The study highlights the need for targeted strategies to improve health screening uptake among under-screened populations. Tailored public health interventions should focus on vulnerable groups to ensure early detection and timely treatment, ultimately improving population health outcomes.

**Keywords:** Health screening; medical check-up; noncommunicable diseases; NCD screening

AP 055

## Knowledge in Integrating Spiritual Aspects in Dietetics Practice among Dietitians in Malaysia

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### ABSTRACT

In Malaysia's multicultural healthcare setting, integrating clients' spiritual beliefs into dietetic consultations is crucial for holistic care, yet the extent and approaches of such practices remain understudied. This study evaluated Malaysian dietitians' knowledge of spiritual dietary practices and identified strengths and gaps in the application of this approach in current dietetic practices. A cross-sectional, online survey was conducted among 165 practising Malaysian dietitians. Ten multiple-choice items assessed knowledge of religion-related food practices with scores categorised at a median cut-off of six. Median and interquartile ranges described domain specific knowledge, while response percentages detailed item-level performance. Overall, 69.7% of dietitians scored below the knowledge threshold, indicating limited knowledge on spiritual dietary practices. The study showed highest proficiency in Islam-related practices (Median = 3, IQR = 2–4), followed by Buddhist, Christian, and other traditions (Median = 2, IQR = 2–3), and minimal grasp of Hindu customs (Median = 1, IQR = 1–1). No significant associations were found between knowledge and socio-demographic factors like age, gender, or work setting, suggesting widespread gaps. Strengths included recognition of general religious food restrictions (85.5%), Ramadan post-Tarawih meals (75.2%), and prophetic foods (77.6%). Moderate understanding was seen in identifying non-halal items (59.4%) and Ahimsa in Buddhism (67.3%). Major knowledge gaps were seen in areas like Bahá'í fasting practices (19.4%), vegetarian-linked religions (2.4%), Holy Communion (46.7%), and Sikh avoidance rules (48.5%). While dietitians showed strong understanding of Islamic dietary practices, their cross-faith spiritual knowledge, especially of minority traditions, remained limited. Targeted, faith specific educational interventions are needed to enhance spiritual competence and support more culturally sensitive dietetic care.

**Keywords:** Dietetics; holistic care; Malaysia; multicultural consultations; spirituality

AP 057

## A Stratified Cluster Sampling Framework to Assess Health Status and Lifestyle Behaviours among Civil Servants in Putrajaya

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### ABSTRACT

Health surveillance among civil servants is vital for shaping effective workplace wellness policies. However, comprehensive national data is limited. This study presents a large-scale assessment of health status and lifestyle behaviours among federal civil servants in Putrajaya. A cross-sectional survey was conducted using stratified cluster random sampling across 25 ministries and the Prime Minister's Department. From a population of 51,348, a sample of 3,222 civil servants was proportionally selected. Sampling units (branches and sections) were randomly identified using SPSS. Data collection used structured self-administered questionnaires adapted from NHMS 2019/2023 and MHLI, covering health literacy, physical activity, sedentary behaviour, diet, mental health (PHQ-9), smoking, and oral health. Compared to recent global studies among civil servants in countries like Ethiopia, Ghana, and Nepal, this research is notable for its nationally representative design and larger sample. While other studies often focused on limited regions or single health domains, our study integrates diverse indicators that allow holistic insight into civil servants' well-being. The design enables cross-ministry comparisons and supports targeted policy making. Though cross-sectional in nature, its comprehensive sampling and breadth strengthen generalisability and data utility. This study demonstrates the value of stratified cluster sampling for institutional health monitoring. Findings will inform interventions under Malaysia's Agenda Nasional Malaysia Sihat (ANMS) and support evidence-based workplace health strategies for the public sector.

**Keywords:** Behavioural risk factors; civil servants; stratified sampling; workplace health

AP 058

## Assessing the Landscape of Respiratory Pathogen Prevalence and Emerging Co-infections in Johor, Malaysia, (2022-2023) using QIAstat-Dx Respiratory Panel

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### ABSTRACT

Acute respiratory infections (ARI) significantly contribute to global morbidity and mortality rates, especially in children. A substantial portion of ARIs is attributed to viruses, with Influenza, Parainfluenza (PIV), Rhinovirus/Enterovirus (RV/EV), and Respiratory Syncytial Virus (RSV) being the predominant causes. During the COVID-19 pandemic, co-infections have been observed to potentially exacerbate the severity of viral illnesses. In this period, Human Metapneumovirus, Adenovirus, and Bocavirus have been identified both as individual pathogens and in co-infections. Nonetheless, there is a scarcity of local data regarding the etiological diagnosis of ARIs. The QIAstat Dx Multiplex Respiratory panel, a recent addition to diagnostic approaches, offers the capability to detect various respiratory infection pathogens simultaneously in a single analysis. This retrospective study was conducted at the molecular laboratory of Hospital Sultanah Aminah, Johor, Malaysia from January 2022 to October 2023. A total of 504 respiratory samples were tested by QIAstat Dx Respiratory panel and results were analysed by SPSS. Out of a total of 504 tested samples, 297 (58.9%) tested positive, consisting of 367 respiratory viruses and 16 bacteria. Among the positive cases, 67.1% were identified in children and 32.9% in adults, with the highest numbers observed in individuals under 18 years of age. The most commonly detected pathogen was RV/EV (38.4%), followed by Influenza virus (15.9%), RSV (13.3%), and Adenovirus (8.9%). Parainfluenza, Bocavirus, other Coronaviruses, and Human Metapneumovirus were also identified, ranging from 2.9% to 6.8%. RV/EV, RSV and Adenovirus were prevalent among those under 18 years old. A total of 71 (19%) patients were found to have co-infections, with 13 (21.7%) involving RV/EV and RSV, and 58 (78.3%) involving other respiratory viruses and bacteria. The utilisation of a respiratory panel markedly enhances the diagnostic accuracy of multiple respiratory infections, as it detects viruses and atypical bacteria. This advancement in diagnostics not only facilitates more effective patient care through judicious antimicrobial treatment but also enhances infection control measures, especially crucial during pandemics.

**Keywords:** Acute respiratory infection; molecular testing; respiratory panel



AP 059

## The Communication-Justice Link: A Quantitative Study on Nurse Experiences in a Klang Valley Public Hospital

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### ABSTRACT

Malaysia faces a persistent nursing shortage that significantly challenges nationwide healthcare accessibility and quality. This deficit strains infrastructure and threatens patient safety and well-being due to increased workloads and potential burnout. Addressing this requires fostering organisational justice, critical for reducing staff turnover and ensuring effective internal communication. This study aims to investigate how communication satisfaction impacts nurses' perceptions of organisational justice in a Klang Valley public hospital. This quantitative study employed a cross-sectional design, systematically collecting data from a sample of 230 trained nurses affiliated with a public hospital in Klang Valley, Malaysia. Nurses' experiences were measured using adapted versions of the Communication Satisfaction Questionnaire (CSQ) and the Organisational Justice Scale (OJS). A descriptive analysis, Pearson correlation, and regression analysis were performed using SPSS version 26.0. The findings indicate that communication satisfaction and organisational justice were both perceived at moderate to moderately high levels. A strong positive correlation ( $r=0.71$ ,  $p<.001$ ) was found between the two, with communication satisfaction accounting for 49.8% of the variability in perceived organisational justice and serving as a significant predictor of procedural justice. This study underscores the vital role of effective communication in enhancing strong organisational justice among nurses, directly contributing to workforce stability-a cornerstone of sustainable healthcare. Study results highlight the critical importance of organisations integrating effective communication strategies and affirming the foundational role of organisational justice across their operations and professional development programs. Ultimately, by strengthening the communication-justice link, we can inspire improved nurse retention and strategically address the nursing shortage in Malaysia, paving the way for a more resilient and sustainable healthcare workforce.

**Keywords:** Communication satisfaction; nurses; organisational justice; public hospital

AP 060

## Empowering Communities for Safer Medicine Use: Insights from Malaysia's Know Your Medicine Programme

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### ABSTRACT

The Know Your Medicine (KYM) Programme is a national initiative aimed at increasing public awareness and responsible use of medicines. This study evaluated the level of knowledge on rational medicine use among KYM community members across Malaysia. A national cross-sectional study was conducted from February to June 2024 using a complex multistage cluster sampling method. A final weighted sample of 12,649 KYM community members was drawn from six states (Selangor, Melaka, Pulau Pinang, Kelantan, Sabah, and Sarawak), with two to six districts selected per state based on population size. Data were collected using self-administered questionnaires at respondents' residential areas for its efficiency in reaching a large sample size. Data were collected using self-administered questionnaires at participants' homes. Lists aided recruitment, supplemented by snowball sampling where necessary. Participants were contacted, informed of the study, gave virtual consent, and were scheduled for data collection visits. Descriptive analysis was performed using IBM SPSS Statistics 26. The majority of participants (86.2%) showed high knowledge of rational medicine use. Most respondents knew that medicines must be registered with the Ministry of Health (99.8%), purchased from authorised premises (97.7%), and properly labelled (99.3%). A majority also understood that not all medicines can be obtained without a prescription (86.2%), and that medications must be taken as prescribed (98.4%). Furthermore, 95.0% were aware that medicines should not be stored in hot places. Most respondents (93.6%) knew not to double the next dose if one is missed, and 84.1% understood that not all medicines require refrigeration to extend shelf life. These results highlight the effectiveness of the KYM programme, while also identifying areas where continued education is needed. KYM community members demonstrated strong knowledge on rational medicine use. Ongoing education and targeted communication are essential to address remaining misconceptions and support safe medication practices.

**Keywords:** Community empowerment; health education; Know Your Medicine (KYM); Malaysia; rational use of medicines

AP 061

## Profiling Soft Contact Lens Wearers: A Comparative Study between UKM Optometry Clinic and Private Practices

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### ABSTRACT

A well-conducted contact lens fitting significantly contributes to higher levels of success and satisfaction among wearers. This study aims to compare subjective comfort, visual status, corneal staining, blinking patterns, and fitting assessments among soft contact lens wearers fitted at the UKM Optometry Clinic and private practices. Subjective comfort levels were assessed using a standardised questionnaire, and overall scores were recorded. Visual acuity was measured using a Snellen chart before and after over-refraction. Corneal staining, blinking patterns and contact lens fitting assessments were evaluated using slit lamp biomicroscopy. A total of sixty soft contact lens wearers (n=30 in each group) participated in this study. Analysis revealed no statistically significant difference in subjective comfort scores between wearers fitted at the UKM Optometry Clinic (mean  $\pm$  SD: 12.80  $\pm$  5.32) and those fitted at private practices (12.60  $\pm$  6.41) ( $p = 0.896$ ). The results also indicated no significant difference in visual acuity between the two groups, both before over-refraction ( $U = 381.5$ ,  $z = -1.054$ ,  $p = 0.908$ ) and after over-refraction ( $U = 361$ ,  $z = -1.400$ ,  $p = 0.161$ ). Corneal staining grades for the central, temporal, superior, and inferior zones did not differ significantly between the two groups ( $p = 0.500$ ,  $p = 0.246$ ,  $p = 0.500$ , and  $p = 0.204$ , respectively). Blinking patterns also showed no significant difference between the two groups ( $p = 0.782$ ). The fitting assessment revealed no statistically significant difference in contact lens tightness percentages between the two groups ( $U = 387$ ,  $z = -0.96$ ,  $p = 0.337$ ). The study found no significant variation in either clinical outcomes or subjective experiences between contact lens wearers fitted in a university optometry clinic and those fitted in private practices, suggesting comparable standards of care across both settings.

**Keywords:** Private practices; soft contact lens wearers; UKM optometry clinic

AP 062

## Effectiveness of Discharge Medication Dispensed by Pharmacists in Improving Patient Safety: A Retrospective Study

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### ABSTRACT

In modern healthcare, transition from hospital to home is a crucial phase where effective medication management is vital. Errors and adverse drug reactions (ADR) during this period are common, which lead to poor outcomes. This study explores how pharmacist-led discharge processes can enhance medication safety and improve patient outcomes. Retrospective observational study conducted using data collected from January to March of 2023 and 2024. The study included patients discharged with at least five long-term medications and had at least one medication started, stopped, or changed upon discharge. Patients without prior medication history at IJN were excluded. Data on pharmacist-led interventions were obtained from electronic health records, pharmacy records, discharge prescriptions and analysed descriptively. 2224 patients were dispensed by pharmacists in 2024, increasing from 2088 patients in 2023. The number of patients with interventions increased significantly from 12 in 2023 to 64 in 2024. In 2024, most interventions occurred in patients aged 51 to 70 (68%), followed by those aged over 70 (20%). Interventions increased with the number of medications prescribed, where 53% of patients with interventions received more than 10 medications. Intervention types in 2024 were predominantly due to medication omission (45%), unintended medication (22%), and incorrect dosage (15%). While for ADR, there was a steep increase in the number of patients with reported ADR from 2023 compared to 2024, from 3 to 24. In 2024 patients aged 51 to 70 (54%) and those above 70 (20%) accounted for most ADRs detected. 50% of these patients were prescribed with 5 to 7 medications. Pharmacists are essential in identifying and preventing medication errors and ADR. As healthcare systems evolve, integrating them into care teams and leveraging their medication management expertise is key in optimising therapy and reducing medication-related risks. Future research should emphasise multi-center validation and long-term clinical outcomes.

**Keywords:** Adverse drug reaction (ADR); discharge medication; medication safety; pharmacist-led discharge

AP 063

## A Scalable, Multidisciplinary Model for Psychosocial First Aid: Lessons from the MHPSS Bintulu Flood Response 2025

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### ABSTRACT

This report documents the application of Malaysia's National Guideline and Standard Operating Procedure (2024) for Mental Health and Psychosocial Support Services (MHPSS) in a high-need disaster setting. In February 2025, the Bintulu MHPSS team operationalised the SOP during a major flood, providing Psychological First Aid (PFA) at nine evacuation centers across Bintulu, Sebauh, and Tatau. A multidisciplinary team comprising psychiatrist, family physicians, medical officers, counsellors, and occupational therapists conducted a five-day deployment. Interventions adhered to national MHPSS protocols and included individual and group PFA, psychoeducation, relaxation techniques, and art-based activities. Data collection involved session logs, intervention counts, and field reflections. A total of 1,122 PFA sessions were provided to flood-affected individuals, and 65 sessions to frontliners. Psychoeducation was the most frequently applied method (843 sessions), followed by relaxation (316) and art therapy (227). While the SOP provided a structured framework, on-ground challenges such as manpower shortages and logistical barriers required adaptive execution. The deployment highlights the effectiveness of structured yet flexible psychosocial interventions in emergency settings. This experience provides a practical and scalable model for delivering mental health support through multidisciplinary allied health teams. Recommendations include expanding non-clinical trained personnel, annual PFA training, mobile PFA kits, and stronger inter-agency collaboration. The lessons from Bintulu offer an implementation reference for scaling MHPSS services within Malaysia's disaster response system.

**Keywords:** Disaster; flood response; MHPSS; multidisciplinary care; psychological first aid

AP 064

## Health Disparities by Age Group among *Orang Asli* Women: A Comparative Analysis of Reproductive and Non-communicable Outcomes by Age Group

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### ABSTRACT

*Orang Asli* women in Malaysia experience a dual burden of poor reproductive outcomes and rising non-communicable diseases (NCDs). However, age-specific data are limited. This study compares sociodemographic characteristics, reproductive health, and non-communicable disease (NCD) indicators among married *Orang Asli* women aged 34 and 35 years, to inform targeted interventions. This cross-sectional study analysed data from the National *Orang Asli* Health Survey conducted in Peninsular Malaysia between July and September 2022. A stratified multistage sampling method was employed to recruit married Indigenous women aged 15-49 years from 68 randomly selected villages. Data were collected through structured questionnaires and clinical assessments. Variables included sociodemographic factors, anemia, diabetes, hypertension, hypercholesterolemia, body mass index (BMI), parity, and contraceptive use. Multivariable logistic regression was used to assess associations between age group and health indicators. Of 3,268 women, those aged 35 years had significantly higher prevalence of hypertension (35.8% vs. 12.6%), diabetes (18.3% vs. 12.7%), obesity (36.9% vs. 26.0%), and hypercholesterolemia (42.0% vs. 36.4%) (all  $p < 0.001$ ). Grand multiparity was more common in the older group and reported lower contraceptive use. Adjusted odds for age 35 was higher for hypertension (aOR = 3.4, 95%CI: 2.6, 4.4), hypercholesterolemia (aOR = 1.4, 95%CI: 1.1, 1.8), teenage pregnancy history (aOR = 2.2, 95%CI: 1.8, 2.8), multipara (aOR = 12.6, 95%CI: 8.6, 18.2), and current contraceptive use (aOR = 3.1, 95%CI: 2.3, 4.0). Significant age-related health disparities exist among *Orang Asli* women, particularly in NCD burden and reproductive health patterns. Culturally tailored, age-specific interventions are strongly warranted to address these health inequities in Indigenous communities.

**Keywords:** Age disparities; indigenous women; Malaysia; non-communicable diseases; *Orang Asli*; reproductive health

AP 065

## Prevalence of Illegal Polydrug Use among Detained Drug Addicts in Selected Malaysian States, 2024: A Repeated Cross-Sectional Study

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### ABSTRACT

Polydrug use among drug addicts in Malaysia is increasingly common and associated with adverse outcomes such as overdose and death. Understanding regional outbreaks influenced by historical and local factors can assist law enforcement and healthcare providers in focusing interventions. This report highlights polydrug trends across selected areas (Kuala Lumpur, Penang, Johor, & Perak) between two sampling periods in June & December of 2024. In this repeated cross-sectional study, 118 urine samples obtained from PDRM and processed using liquid-liquid extraction and protein precipitation, then analysed using LC-MS/MS TIMS TOF PRO2 and TASQ software with modified database constructed from common illegal drugs (Bruker, Germany) UNODC 2023 list and *Akta Dadah Berbahaya 1952 (Akta 234)* were used. Polydrug use was defined as detection of two or more illegal drugs in a urine sample. Prevalence estimates were compared by region and period using chi-square tests ( $\alpha=0.05$ ). Analysis of 118 urine samples reveals the polydrug use prevalence differs significantly in June and December 2024 across Kuala Lumpur, Johor, Penang, and Perak. In December, prevalence rates were highest in Penang and Perak with (35.7 and 24.0%, respectively). While in June, Kuala Lumpur shows the highest polydrug prevalence (19.4%) and Perak has the lowest prevalence (12.6%). A chi-square test showed that polydrug use prevalence differed significantly by area and sampling period ( $\chi^2(7, N = 118) = 52.95, p < 0.05$ ). The patterns of polydrug use among drug addicts vary notably by region and period, highlighting the need for continuous monitoring of the dynamic drug landscape to provide actionable insights for law enforcement in Malaysia.

**Keywords:** Chi square test; drug addicts; LC MS/MS TIMS TOF PRO2; Malaysia; polydrug use; repeated cross-sectional study; TASQ software; urine analysis

AP 067

## Empowering the Fit to Inspire: Peer Facilitation in Jom Fit 2.0, a 12-Week Body Transformation Challenge at Hospital Pendang

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### ABSTRACT

Jom Fit 2.0 is a 12-week voluntary workplace weight management program conducted at Hospital Pendang, tailored exclusively for hospital staff. The initiative combined a multidisciplinary strategy with engaging components such as a one-day physical seminar, weekly body composition assessments (with a RM1 penalty for every 100g weight gain), virtual dietary education, themed nutrition challenges, step-count competitions, and hiking sessions. Cash prizes were awarded to the top three participants with the highest percentage weight loss. A key innovation was the inclusion of peer facilitators—three high-performing alumni from Jom Fit 1.0 (2024)—to support and motivate current participants. This descriptive comparative study evaluated pre- and post-program changes in body composition among Jom Fit 1.0 and Jom Fit 2.0 participants. Measurements included body weight, BMI, fat mass, skeletal muscle mass, visceral adipose tissue, and waist circumference. For Jom Fit 2.0, additional factors—frequency of peer contact, program engagement, physical activity, and lifestyle changes—were assessed via structured questionnaires. Descriptive statistics and Spearman correlation were used to summarise and explore associations between facilitator support and outcomes. Both cohorts showed reductions in weight, BMI, fat mass, visceral fat, and waist circumference. Improvements were greater in Jom Fit 2.0. Completion rate increased from 59% to 93%. Wilcoxon signed-rank test indicated significant improvements ( $p < .001$ ) in body composition with higher peer contact frequency. More frequent peer contact correlated with greater weight loss, physical activity, and engagement ( $p < .05$ ). Peer facilitation contributed meaningfully to improved adherence and behavioral outcomes. Incorporating peer-led elements may strengthen workplace wellness programs.

**Keywords:** Body composition; body transformation; peer facilitation; health promotion; weight management; workplace wellness



AP 069

## Development of a Bioinformatics Pipeline for Dengue Virus Quasispecies Analysis

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### ABSTRACT

RNA viruses, such as dengue virus (DENV), exhibit high mutation rates, resulting in a population of closely related but genetically distinct variants within a single host, known as quasispecies. With the growing application of next-generation sequencing technologies, there is increasing potential to capture and analyse these complex viral populations at high resolution. However, effective analysis requires specialised computational workflows capable of detecting low-frequency variants and reconstructing haplotypes from large sequencing datasets. This study presents the development of a bioinformatics pipeline tailored for viral quasispecies analysis using short-read whole genome sequencing (WGS) data. The pipeline is optimised for clinical DENV-positive samples and supports reproducible research through the integration of open-source tools and standardised steps. Raw reads were pre-processed using Cutadapt and Trimmomatic, followed by host read removal with Bowtie2. Filtered reads were then aligned to the DENV reference genome. Variant calling was performed using LoFreq to detect low-frequency variants. Reference-guided assembly was performed using BCFtools, and viral haplotypes were reconstructed using QuasiRecomb. The pipeline generated coverage statistics, variant tables, haplotype FASTA files, and graphical outputs for downstream applications. The pipeline successfully processed DENV WGS data and provided consistent outputs across all modules. Low-frequency variants were detected in regions with adequate coverage. The design of the pipeline allowed customisation of filtering thresholds and reference inputs. Haplotype reconstruction captured intra-host diversity across multiple genome regions, particularly with high viral genome coverage. Reference-guided assembly improved genome completeness and alignment quality, addressing common limitations associated with *de novo* approaches. The pipeline demonstrates utility for studying DENV quasispecies and is adaptable to other RNA viruses with minimal modification and parameter configurations. This reproducible and scalable pipeline enables sensitive detection of low-frequency variants and haplotype reconstruction from short-read WGS data, supporting future research in viral evolution and intra-host viral dynamics.

**Keywords:** Bioinformatics pipeline; dengue virus (DENV); quasispecies; whole genome sequencing (WGS)

AP 070

## Assessment of Effective Dose from Ga-68 FAPI PET/CT: Findings from a Single-Center Study

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### ABSTRACT

Gallium-68 labeled FAPI has recently been proposed as a novel positron emission tomography imaging tracer. Promising results from several ongoing clinical trials have led to a soaring demand for this radiotracer. Positron Emission Tomography (PET) combined with Computed Tomography (CT) is a vital technique in oncologic diagnostics, providing both physiological and anatomical insights. Despite its diagnostic utility, the radiation dose from PET/CT procedures raises significant concerns. This study aims to estimate the effective radiation dose from Ga-68 FAPI PET/CT examinations. A retrospective analysis was conducted on 45 adult patients who underwent Ga-68 FAPI PET/CT scans at Beacon Hospital between August 2024 and May 2025. Approximately 50 minutes after injection to the patient, PET coupled with a correlative, non-contrasted CT scan was performed for all the selected patients. An acquisition of 1 min 45 seconds per bed for 5 beds was carried out for all patients. For CT parameters, 140 keV and 39 mAs were used for all examinations. Both CT and PET images were reconstructed using the Q.clear algorithm. Data on the volume computed tomography dose index (CTDIvol) and injected doses were collected. Effective dose (ED) calculations were based on International Commission on Radiological Protection (ICRP) guidelines, using specific dose coefficients for internal and external exposures. The average injected activity was 5.36 mCi with a mean BMI of 22.26 and CTDIvol of 6.43. The average ED of PET/CT was 14.55 mSv. Statistical analysis revealed a significant correlation between BMI and effective dose, indicating that patients with higher BMI tend to receive higher doses. No substantial differences in effective doses were observed between male and female patients. This study highlights the importance of optimising PET/CT protocols to minimise radiation risks while maintaining diagnostic efficacy. Further research is recommended to explore dose reduction strategies across different institutions ensuring more effective oncologic imaging.

**Keywords:** Effective dose; molecular imaging; nuclear medicine

AP 071

## Advancing SDG-Driven Healthcare: Enhancing Clinical Supervision Reporting through Digital Transformation (e-Pemantauan Klinikal) at ILKKM Kota Kinabalu

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### ABSTRACT

e-Pemantauan Klinikal project is a web-based application developed to replace traditional, paper-based clinical supervision reporting at ILKKM Kota Kinabalu. It addresses critical inefficiencies and high operational costs associated with manual documentation. This study aimed to evaluate e-Pemantauan Klinikal's impact on clinical supervision efficiency, cost savings, and user satisfaction at ILKKM Kota Kinabalu. Developed by the Digital Dream team using PHP and XAMPP. The system provides secure, real-time data entry accessible via computer or mobile devices. Echo-training was conducted to ensure seamless adoption among all ILKKM educators and clinical instructors. A quasi-experimental pre-post evaluation was conducted over a 21-month period (May 2023 – February 2025) with 90 clinical educators and instructors participating, selected through convenient sampling. User satisfaction scores, measured by a self-administered questionnaire adapted from the Technology Acceptance Model (TAM), were analysed using SPSS Version 27 through univariate, descriptive, and paired sample t- tests. The application achieved substantial annual cost savings totalling RM 86,184 (USD 18,960), with RM 5,616 (USD 1,235) saved on paper, RM 37,260 (USD 8,197) on toner, and RM 4,330.80 (USD 921) on photocopying. Report processing times decreased by 50-80%, reducing average completion time from 30-80 minutes to 10-20 minutes. Environmental impact was reduced with an estimated saving of 468 reams (234,000 sheets) of paper annually. Post-implementation surveys showed a statistically significant increase in user satisfaction, with scores rising from  $M = 3.2$  ( $SD = 0.7$ ) to  $M = 4.8$  ( $SD = 0.3$ ),  $t(89) = 10.45$ ,  $p < 0.001$ , and a large effect size (Cohen's  $d = 1.10$ ). Through this web- based application, users reported significant improvements in usability, accessibility, and readability. Additionally, e-Pemantauan Klinikal offers a scalable and sustainable digital solution for clinical supervision documentation. It enhances operational efficiency, supports Malaysia's Sustainable Development Goals (SDGs), and is poised for nationwide adoption across all 19 ILKKM institutions.

**Keywords:** Clinical supervision; cost efficiency; digital transformation; sustainable healthcare; user satisfaction

AP 072

## Operation Commitment: A Drive to Sustain Appointment Availability for Orthopaedic Services

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### ABSTRACT

The 2023 Annual Review of PIR GHJ highlighted that only 50% of the Orthopaedic OPD appointment slots were utilised. This underutilisation negatively impacts clinical service delivery, patient recovery, and resource efficiency. This concern was also highlighted further supported by feedback from GHJ's Orthopaedic Consultant via received through the IHH MY Consultant Survey which reflected patient dissatisfaction with limited OPD appointment availability. The aim of this study was to improve OPD appointment slot utilisation at PIR Gleneagles Hospital Johor by streamlining workflow and enhancing service efficiency. The Lean Six Sigma methodology was adopted to analyse the process and identify the root causes using Ishikawa diagram. Process mapping and an affinity diagram were used to review workflow, supported by system data and manual validation from front desk staff. Voice of Customer (VOC) feedback and stakeholder input were incorporated. A data collection plan was developed to target high-impact issues, and root causes were validated using Failure Modes and Effects Analysis (FMEA). Solutions were piloted using the Plan-Do Study-Act (PDSA) cycle. Pilot testing and validation occurred before full implementation at PIR GHJ. A pilot study was initiated in October 2023 to streamline the workflow for OPD Orthopaedic Physiotherapy, with partial implementation between January and February 2024 through the formalisation of task quadrants for consistent front desk reference. Full implementation took place from March to May 2024, involving KPI standardisation for both the clinical team and front desk, policy revisions to optimise appointment booking flows across all PIR centres, and followed by the introduction of quarterly peer reviews to drive continuous improvement. The key strategies to enhance efficiency and encourage patient follow-up were included prioritising acute pain cases and recently discharged patients to ensure timely recovery and continuity of care; promoting follow-up visits two to three times weekly for close monitoring and optimal pain management; enhancing patient engagement by sending WhatsApp reminders a day before appointments to reduce no-shows; offering flexible scheduling via WhatsApp or phone to accommodate rescheduling or cancellations; and managing walk-ins by accepting new patients immediately after orthopaedic consultations to enable early intervention and improve treatment outcomes. A steady increase in appointment utilisation was observed, with rates exceeding 90% in March, April, and May 2024. This study highlights the importance of workflow

standardisation and proactive communication in optimising OPD appointment utilisation. Key lessons will support ongoing monitoring of OPD Orthopaedic Physiotherapy volume, aiming to enhance patient continuity of care and improve staff productivity across PIR centres.

AP 073

## Unravelling Acrylamide Formation Patterns in Malaysian Fast-Food French Fries

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### ABSTRACT

Acrylamide is a probable human carcinogen formed during high-temperature cooking of carbohydrate-rich foods, posing a notable risk in items such as French fries. This study aimed to investigate acrylamide formation in French fries from major fast-food chains in Malaysia and identify processing-related factors contributing to its variability under real-world conditions. A total of 48 samples, including frozen par-fried and freshly fried fries, were collected from four major chains. Frying parameters (temperature, time, oil practices) were documented, alongside laboratory analyses of acrylamide (via LC-MS/MS), sugar composition (via HPLC), and moisture content. Multivariate statistical techniques, specifically Principal Component Analysis (PCA) and Agglomerative Hierarchical Clustering (AHC), were employed using XLSTAT to uncover patterns across measured variables. The PCA results indicated that moisture and sugar content, as well as frying parameters, were major contributors to acrylamide variability, collectively explaining 70% of the total variance. AHC further revealed three distinct outlet clusters based on frying behaviour and acrylamide profiles. One cluster displayed low acrylamide variability, reflecting consistent Standard Operating Procedures (SOPs) adherence. Another showed moderate variation linked to differing sugar content, while the third exhibited the highest variability due to inconsistent frying practices, highlighting food safety concerns. This study underscores the necessity for targeted acrylamide mitigation in the food service sector, particularly through enhanced SOPs and control of sugar-related precursors. The use of multivariate techniques offers a robust framework for monitoring processing risk factors. Findings can inform risk communication, food safety training, and voluntary control efforts, supporting public health protection in Malaysia's fast-food industry.

**Keywords:** Acrylamide; AHC; chemical hazards; fast food; food safety; multivariate assessment; PCA; public health

AP 074

## Study of Ocular Dimension using Magnetic Resonance Imaging and the Correlation between Peripheral Eye Length and Peripheral Refraction in Myopic Malay Schoolchildren

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### ABSTRACT

To study ocular dimension via magnetic resonance imaging and the relationship between peripheral eye length (PEL) and peripheral refraction (PR) in myopic Malay schoolchildren. This was a cross-sectional observational study. Thirty-two healthy myopic Malay schoolchildren (mean age of  $9.38 \pm 1.52$  years old) participated in this study. All subjects had best corrected visual acuity of 0.00 logMAR or better with the mean of spherical equivalent refraction of  $-2.84 \pm 1.19$ D. PR across the horizontal meridian was measured using an open-field autorefractor at  $10^\circ$  intervals, extending out to  $30^\circ$  in both the nasal (N) and temporal (T) retinal regions. The 3-Tesla MAGNETOM Skyra were used for the eyeball imaging and MATLAB algorithm, applying the segmentation technique based on the Chan-Vese model image were applied for the image analysis. All eyeball dimensions increased with increasing myopia. The length of the eyeball demonstrated significant increment at  $0.32 \text{ mm/D}$  ( $y=23.26-0.31x$ ,  $p<0.05$ ) compared to the width ( $y=23.18-0.24x$ ) and the height ( $y=23.75-0.020x$ ) suggesting a changes towards prolate shape of the eyeball as myopia increases. There was also a decreasing pattern of PEL measured via MRI imaging as the eccentricity increased, from  $22.69 \pm 1.32 \text{ mm}$  at the centre to  $20.39 \pm 1.08 \text{ mm}$  at 30T and  $20.38 \pm 1.37 \text{ mm}$  at the 30N of the eccentricity suggesting prolate retinal curve of the myopic eye. Significant negative correlations ( $p<0.05$ ) were found between PR and PEL at 10T, 20T, and 30T of the temporal retina, with correlation coefficients,  $r$  of  $-0.36$ ,  $-0.34$ , and  $-0.41$ , respectively. However, no significant correlations were observed at the nasal retina. This study showed that all eyeball dimensions increased with the degree of myopia,

with the length of the eyeball increasing rapidly than both the width and height of the eyeball. Significant correlation at the temporal side suggesting asymmetrical elongation of the eyeball during myopia development. These findings provide evidence on eyeball dimensions and the relationship between PEL and PR in myopic Malay school children.

**Keywords:** Malay schoolchildren; MRI; peripheral eye length; peripheral refraction