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MINISTRY OF HEALTH MALAYSIA

PHARMACY RESEARCH REPORTS

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COMPENDIUM OF ABSTRACTS

12TH NATIONAL PHARMACY R&D CONFERENCE 2024

Unity for Medicine Security: Collaborative Solutions for a Safer Future

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PT1-12	FarmaTag Hologram Insight: Are Consumers and Regulatory Authorities Provided with Complete Pharmaceutical Product Information?	Ahmad Firdaus Bin Shahari	Pharmaceutical Services Division, Sabah State Health Department, Sabah
PT1-13	Violations By Licensed Premises Within The Jurisdiction Of Terengganu Pharmaceutical Services Division : A Five-Year Review	Nurul Fatimah Binti Sulaiman	Pharmaceutical Services Division, Terengganu State Health Department, Terengganu
PT1-14	Assessing Knowledge and Perceptions of Public in Kedah on Implementation of Community Pharmacy Logo	Muhammad Izuddin Bin Suhaimi	Pharmaceutical Services Division, Kedah State Health Department, Kedah
PT1-15	Pharmacist's Perspectives on Access to New Medicines Listed in the Ministry of Health Medicines Formulary (MOHMF): A Qualitative Study	Azlina Binti Ismail	Pharmacy Services & Development Division, Ministry of Health Malaysia
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PT2-01	Prevalence and Characteristics of Medication Errors Among Paediatric Patients in Kedah	Nurul Ain Fatihah Binti Sabri	Hospital Kulim, Kedah
PT2-02	Effect of 'Insulin Self-Dose Adjustment Quick Guide' (InsuRx) on Glycaemic Control among Diabetic Patients in Batu Rakit Health Clinic	Nazifa Husna Binti Ghani	Batu Rakit Health Clinic, Terengganu
PT2-03	Evaluation of Knowledge, Attitude and Practice on Adverse Drug Reaction Reporting among Healthcare Professionals of Government Clinics in Perak Tengah	Siti Noor Azrin Binti Sabri	Seri Iskandar Health Clinic, Perak
PT2-04	Patient's Own Medication (POM) Use In The Wards Using Enhanced-POM (En-POM) Process: A Costing Analysis	Jess Chong Yook Foong	Hospital Rehabilitasi Cheras, , WP Kuala Lumpur & Putrajaya
PT2-05	Knowledge and Disposal Practice towards Unused Medications among Outpatients in Hospital Tuanku Fauziah	Lim Chian Khie	Hospital Tuanku Fauziah, Perlis
PT2-06	Medication Error Reporting Facilitators and Barriers Among Healthcare Professional in a Tertiary Hospital - A Cross Sectional Study	Low Woan Jinn	Pharmaceutical Services Division, Selangor State Health Department, Selangor
PT2-07	Knowledge, motivator, concerns and brand preference regarding COVID-19 vaccination among patients and caregivers in Sibu Hospital	Stephanie Ung Kee Yiin	Hospital Sibu, Sarawak

Code	Title of Presentation	Presenter	Institution
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PT2-11	Medication Reconciliation: A Qualitative Analysis of Healthcare Professionals' Perceptions	Nurul Akmar Binti Anuar	Hospital Tuanku Ampuan Najihah, Negeri Sembilan
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PT2-13	Ensuring Data Quality in Pharmacy Information System: A Cross-Sectional Study on Prescription Data Accuracy and Completeness in a Public Hospital (ATTACH)	Norvena Binti Hisyam	Hospital Melaka, Melaka
PT2-14	Patient Characteristics and Factors Associated with Defaulters Among Drive-Through Patients in Hospital Tuanku Ja'afar Seremban	Nursyafiqah Binti Md Tahir	Hospital Tuanku Ja'afar Seremban, Negeri Sembilan
PT2-15	Prevalence and Associated Factors of Lipohypertrophy among Patients with Diabetes Mellitus Receiving Insulin Injections in the Districts of Sarawak	Loo Shing Chyi	Pharmaceutical Services Division, Sarawak State Health Department, Sarawak
PT2-16	Patient Satisfaction with Pharmacist Managed Medication Therapy Adherence Clinic Service in Malaysian Health Facilities.	Sarina Anim Binti Mohd Hidzir	Hospital Sungai Buloh, Selangor
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Code	Title of Presentation	Presenter	Institution
PT2-19	An Interventional Study on the Effectiveness of EAZiMED to Improve Hematinic Counselling among Pregnant Women in Health Clinics in Kota Tinggi	Lim Chiew Yee	Kota Tinggi District Health Office, Johor
PT2-20	Patients' Satisfaction Towards Face-To-Face and Virtual Counselling by Pharmacist in Kuala Terengganu Health Clinic	Ng Shi Hui	Manir Health Clinic, Terengganu
PT2-21	Dermatology Drug Return at Drive Thru Pharmacy Hospital Melaka by Implementing Patient Desired Medication Supply (PaDMEDs)	Nurul Aina Binti Abd Malik	Hospital Melaka, Melaka
PT2-22	A Narrative Review on The Safety, Efficacy and Cost Effectiveness Of Pharmacists-Led Deprescribing Program For Geriatric Patients	Natasha Nadya Binti Hussin	Health Services Division, Malaysian Armed Forces Headquarters, Ministry of Defence Malaysia
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PT3-03	A Study on Adherence to Phosphate Binder Medication Among Haemodialysis Patients in Hospital Jasin	Fadzilah Binti Shafie	Hospital Jasin, Melaka
PT3-04	An Observable Retrospective Study on Prevalence and the Determinants of Treatment Failure among Human Immunodeficiency Virus (HIV) Patients on First Line Highly Active Antiretroviral Therapy (HAART) in Hospital Melaka	Khairunnisa Binti Zuradi	Hospital Melaka, Melaka
PT3-05	A Proof-of-Concept Study Comparing Palm-seal Method with Conventional Method in Delivery of Metered-dose-inhaler Medication via Facemask Valved Holding Chamber in Children	Balamurugan A/L Supparamaniam	Hospital Seberang Jaya, Pulau Pinang
PT3-06	Impact or Cyclical Parenteral Nutrition (cPN) on Liver Function Among Adult Patients in a Tertiary Hospital	Sin Shu Yin	Hospital Tengku Ampuan Rahimah, Selangor

Code	Title of Presentation	Presenter	Institution
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PT3-09	Comparative Efficacy and Safety of Interventions for Alleviating the Postoperative Inflammatory Complications after Third-Molar Surgery: A Network Meta-Analysis	Ainur Fadlina Binti Mohd Nadzir	Hospital Sultan Idris Shah, Serdang, Selangor
PT3-10	Comparison of effects between oral Deferiprone and combination iron chelation therapy on cardiac function in adult beta-thalassaemia patients: A Southern Malaysia study	See Yan Zhuang	Hospital Pakar Sultanah Fatimah, Johor
PT3-11	Evaluation of Pharmacists' and Nurses' Knowledge on Bowel Preparation using Fortrans® at Hospitals in Kedah State, Malaysia	Tan Guo Hong	Hospital Sultanah Bahiyah, Kedah
PT3-12	Statin Use and Lipid Control in Patients Developing First ST-Segment Elevation Myocardial Infarction: A Retrospective Cohort Study	Abdullah Faiz Bin Zaihan	Hospital Shah Alam, Selangor
PT3-13	Hepatotoxicity and Comorbidities in Abiraterone Treatment for Metastatic Castrate-Resistant Prostate Cancer in Selayang Hospital, Malaysia.A 4-year Retrospective Study	Ng Hui Wen	Hospital Selayang, Selangor
PT3-14	Identification of Prevalence and Factors associated with Potentially Inappropriate Medications (PIMs) among Warded Geriatrics Patient in the Wards of Hospital Tuanku Ja'afar (HTJ) Seremban (PIMHTJ)	Choong Qi Ying	Hospital Tuanku Ja'afar Seremban, Negeri Sembilan
PT3-15	Prevalence and the Associated Factors of Proton-Pump Inhibitor (PPI) Co-Prescribed with Dual Antiplatelet Therapy (DAPT) among Adult Patients Diagnosed with Acute Coronary Syndrome (ACS) upon Hospital Discharge	Nur Amira Binti Jemal@Zainal	Hospital Port Dickson, Negeri Sembilan
PT3-16	Anticholinergic Burden on Health Outcome Among Elderly in Geriatric Ward, Hospital Sungai Buloh - A Retrospective Study	Eddy Lim Yew Joe	Hospital Shah Alam, Selangor

Code	Title of Presentation	Presenter	Institution
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PT3-18	Prothrombin complex concentrate in DOAC reversal: A systematic scoping review	Tang Jiaa Yinn	Hospital Kuala Lumpur
PT3-19	Identifying Factors Impacting Adherence to Haematinics among Pregnant Women with Anaemia in Northeast Penang District Health Clinics, Malaysia	Noor Aliasuzana Binti Sabtu	Bukit Jambul Health Clinic, Pulau Pinang
PT3-20	Retrospective Review on Usage of Surfactants (Beractant and Calfactant) for Preterm Neonates with Respiratory Distress Syndrome: A Single Centre Study	Balamurugan A/L Supparamaniam	Hospital Seberang Jaya, Pulau Pinang
PT3-21	A Retrospective Study on the Use of Continuous Clonidine Infusion for Sedation in Critically Ill Paediatric Patients	Koay Hooi Hoon	Hospital Kajang, Selangor

12TH NATIONAL PHARMACY R&D CONFERENCE 2024

Unity for Medicine Security: Collaborative Solutions for a Safer Future

ABSTRACTS

ORAL PRESENTATION

TRACK 1: DRUG DEVELOPMENT & REGULATIONS

OT1-01

Data-Driven Identification of Factors Influencing the Quality of Malaysian Adverse Event Reports in VigiBase: A 15-Year Study Using Interpretable Machine Learning and Time-Series Analyses

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OT1-02

Pharmacological Enhancement of Iduronate-2-sulphatase by the Chemical Chaperone of Chondroitin Dermatan Trisulphate and Heparin Octadecasaccharide

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Introduction: Mucopolysaccharidoses Type II (MPS II) is a lysosomal storage disease caused by deficiency in the iduronate-2-sulphatase (IDS) enzyme. The current treatment for MPS II has limitations such as high cost and poor bioavailability, hence pharmacological chaperone (PC) has been proposed as a potential alternative therapy.
Objective: We aimed to evaluate the potential of chondroitin dermatan trisulphate (CD3S) and heparin octadecasaccharide (HO18) as PC for IDS.
Methods: Chaperone effects of both CD3S and HO18 were investigated using human recombinant IDS proteins in kinetic, inhibition, thermal stability, dose-dependent and cell viability studies.
Results: Michaelis-Menten constants, K_m and maximum velocity, V_{max} for CD3S and HO18 were 229 µM, 417 µmol/h and 1704 µM, 1667 µmol/h respectively. These results show that CD3S functions as a non-competitive inhibitor, but HO18 is a competitive inhibitor of IDS. Both chaperones at pH 7.0 were shown to be potent inhibitors with maximal inhibitory concentration, IC_{50} of 21 µM and 29.5 µM, for CD3S and HO18 respectively. Additionally, in the thermal stability investigation, CD3S and HO18 significantly enhanced the stability of IDS at 67°C (p<0.05). The activity of IDS increased significantly in a dose-dependent manner for both chaperones (p<0.05). Furthermore, cellular toxicity was evident in CD3S at a concentration of 72 µM (95% CI 68.92-75.15) compared to HO18, 18 µM (95% CI 6.4-293.4).
Conclusion: The findings indicate that both chaperones could serve as PCs for MPS II. Further testing of both PCs in in cellular models of MPS II is needed to further evaluate its effectiveness.
Keywords: Iduronate-2-sulphatase, Pharmacological Chaperone, Mucopolysaccharidoses Type II, Lineweaver-Burk Plot, Enzyme Inhibitor

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OT1-03

Exploring the Issues and Challenges of Prosecution Faced by Pharmacy Enforcement Division in Malaysia

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Introduction: Pharmacy enforcement officers who are appointed as Prosecuting Officers (POs) play a crucial role to secure convictions in prosecutions related to pharmacy legislation. Out of 122 cases brought to trial between 2013 and 2023, 40% have been successfully prosecuted. Though there are many contributing factors to such a result, it is crucial to identify the underlying problems from the immediate stakeholders, who are the prosecuting officers (POs).
Objective: To explore the issues and challenges faced by POs in conducting prosecutions.
Methods: A qualitative study enlisted experienced POs from various states across Malaysia for face-to-face interviews**.** Each session was audio-recorded and transcribed verbatim. Data saturation points were achieved at the tenth interview. Inductive analysis was conducted to identify themes, corroborated by literature review and research supervisor.
Results: Thematic analysis identified two main issues: incomplete investigations leading to insufficient evidence, which affects prosecution success, and POs finding it difficult to provide strong legal arguments due to a lack of legal adversarial skills. The identified challenges include: (i) limitations in existing legislations, (ii) difficulty in proving cases in court due to presiding judges being unfamiliar with pharmacy legislation, and (iii) witnesses being reluctant to cooperate due to fear of testifying in open court.
Conclusion: Pharmacy enforcement POs are facing some legitimate issues and challenges in carrying out prosecution duties. Strengthening and enhancing both investigation procedures and prosecution practices, reviewing pharmacy legislation, and fostering collaboration with related agencies may further improve their confidence and the number of successful prosecutions.
Keywords: Prosecution, Prosecuting Officers, Pharmacy Enforcement Officer, Pharmacy Legislation

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OT1-04

FGS03 – Compound for Treating Neurodegenerative Diseases

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Introduction: Neurodegenerative disorders encompass a spectrum of conditions leading to the gradual deterioration of the nervous system, impacting both central and peripheral components. Examples include Parkinson's, Alzheimer's, and Huntington's diseases. Prolyl Oligopeptidase (POP) is widely expressed in the brain and plays a role in various functions of the central nervous system, including memory, mood regulation, and learning. Studies suggest that POP can also influence the activity of other proteins, including neuronal peptides and hormones containing a proline residue. Hence, there is a possibility of using POP inhibition as a potential treatment for neurodegenerative diseases.
Objective: This study investigated the neuroprotective properties of a novel, fungi-derived compound using POP inhibition assay.
Methods: Methanolic crude extract of *Fusarium* sp. found in the flower of a Yam plant, *Alocasia* sp. Subjected to *Flavobacterium* POP inhibition. Subsequently, bioassay-guided fractionation has yielded a bioactive compound - FGS03.
Results: The methanolic crude extract showed significant *Flavobacterium* POP inhibition value of 87.06% ± 1.64%. FGS03 exhibited comparable inhibitory activity to the positive control - Z-Pro-prolinal at 99.86±0.93%. FGS03 was further tested against human POP enzymes and exhibited 80% inhibition rate at a concentration of 0.04 mg/ml. Spectroscopic analysis from Quadrupole Time-of-Flight Liquid Chromatography Mass Spectrometry (QTOF LCMS) and Nuclear Magnetic Resonance (NMR) instrumentation identified FGS03 as (2R,3S,4S,5R,6R)-6-(2-carboxyl-5hydroxyl-3-undecylphenoxy)-3,4,5-trihydroxytetrahydro-2H-pyran-2-carboxylic acid.
Conclusion: FGS03 holds promise as a potential therapeutic option for treating or managing neurodegenerative diseases in affected individuals by mitigating the symptoms or slow down the progression of neurodegenerative diseases.
Keywords: Prolyl Oligopeptidase Inhibitor, Neurodegenerative Disease, *Fusarium* Sp

Full text link: https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2022146137&_cid=P22-LPGE2H-87423-1

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OT1-06

The Perception and Acceptance of Community Pharmacists Towards the Implementation of Zoning Policy: A Preliminary Study in Sarawak

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Introduction: Community pharmacies play a crucial role in public health by offering essential services and consultations. Optimal pharmacy distribution is vital to promote accessibility and competition while maintaining quality care. The absence of zoning regulations in Malaysia has led to the clustering of pharmacies in urban areas, highlighting the need for insights from community pharmacists.
Objective: This study evaluated the perception and acceptance of community pharmacists regarding the implementation of zoning policies in Sarawak.
Methods: A cross-sectional quantitative survey was conducted from March to April 2024, using a self-created questionnaire that underwent face and content validation, pre-testing, and pilot testing. The questionnaire demonstrated sufficient internal consistency, with Cronbach's Alpha values for perceived benefits (0.95), disadvantages (0.91), challenges (0.70), and acceptance (0.64) towards pharmacy zoning policy. The study included all licensed community pharmacists in Sarawak, with minimum sample size calculated at 177. Descriptive statistics and logistic regression were employed for analysis, with a p-value of <0.05 considered statistically significant.
Results: A total of 81 pharmacists responded, with over 75% agreeing that zoning policies would improve healthcare access, quality, and sustainability. The majority (74%) acknowledged that effective design and enforcement would pose significant barriers and challenges. Nevertheless, 74.1% agreed with the implementation in their practice areas, provided that minimum distance requirements (85.2%) and alignment with local health needs (66.6%) were addressed.
Conclusion: Most community pharmacists perceive zoning policies as beneficial, although they anticipate challenges in implementation. Integration of minimum distance requirements and local health needs are key factors for successful policy implementation.
Keywords: Community Pharmacy, Zoning, Accessibility, Competition, Sustainability

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OT1-07

Investigation of Bioequivalence Between a Malaysian Developed Generic Versus Reference Sitagliptin Phosphate Tablets

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OT1-08

Genetic Association Analysis of Anti-Seizure Medication (ASM) Induced Severe Cutaneous Adverse Reaction (SCAR) And HLA*-B Genotyping: Interim Findings of HLA-AISCAR

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Introduction: The use of ASM including carbamazepine (CBZ), phenytoin (PHT) and lamotrigine (LTG) may cause SCAR. The risk of ASM-induced SCAR is greatly associated with the presence of genetic markers in HLA-B gene, especially the HLA-B*15:02 allele. Recent studies found other potential marker alleles like HLA-B*15:13 and HLA-B*15:21, but with limited data especially in Malaysian population.
Objective: The objective of this study is to determine the risk of ASM-induced SCAR associated with the presence of HLA-B*15:02, HLA-B*15:13 and HLA-B*15:21 alleles.
Methods: This is a case-control genetic association analysis. Cases are patients with history of SCAR within 3 months of ASM of interest exposure, and controls are patients without history of SCAR. Subjects were recruited from 3 northern facilities between August 2020 to August 2023. 5ml of blood were collected from subjects, and DNA extraction and HLA genotyping analysis were performed. Data were entered and analysed using IBM SPSS Statistics, version 22.0.
Results: 88 subjects consented. 23.9% were detected HLA-B*15:02; 10.2% were detected HLA-B*15:13 and 8% were detected HLA-B*15:21. Risk of developing ASM-induced SCAR was significantly higher in subjects carried HLA-B*15:02 (OR 16.8, 95% CI 4.98 – 56.64; p value < 0.001) when compared to patients who were not. Association between risk of developing SCAR and novel allele HLA-B*15:13 (OR 0.67, 95% CI 0.13-3.48; p value 1.0) and HLA-B*15:21 (OR 1.94, 95% CI 0.40-9.39; p value 0.40) still inconclusive.
Conclusion: The HLA-B*15:02 allele greatly increases the risk of developing ASM-induced SCAR in our population. Novel allele was detected in 5 cases of SCAR.
Keywords: Clinical Pharmacogenetic, Genotyping, HLA*B 15:02, HLA-B*15:13, HLA-B*15:21

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OT1-09

An Overview of Medicines Pooled Procurement in The Public Sector: How Much We Save?

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Introduction: Government adopted pooled procurement in managing price variations and improve access to medicines among public facilities. However, research into the implementation and pricing impact of pooled procurement in Malaysia is still scarce.
Objective: The aims are to evaluate the estimated savings in the public sector between inter-ministerial and to compare the price difference before and after implementation of pooled procurement.
Methods: This was a retrospective cross-sectional study. This pooled procurement involved the Ministry of Health (MOH), Ministry of Defence (MOD), and six university hospitals under the Ministry of Higher Education (MOHE). Eighty-eight (88) items were involved in medicines pooled procurement. Estimated saving was calculated by measuring the price difference before and after the implementation of pooled procurement based on the total quantity procured during pooled procurement. The price difference per unit was calculated by comparing the price before and after pooled procurement implementation.
Results: Inter-ministries estimated savings showcased RM179,623,763.15 (17.7% of the total estimated procurement) in public sector. Total estimated savings value was RM186,698,947.96, however, total estimated dissaving value was -RM 7,075,184.82. MOH obtained the highest estimated savings (RM120,418,398.16), followed by MOHE (RM59,470,249.23) and MOD (RM6,810,300.58). Whereby, the highest median price difference was shown by MOD (27.47%; RM2.15; IQR: RM0.34 – RM10.47), followed by MOHE (23.76%; RM1.03; IQR: RM0.15 – RM6.62) and MOH (2.91%; RM0.13; IQR: RM0.01 – RM1.28).
Conclusion: State-of-the-art pooled procurement sheds light on inter-ministerial strategic planning for cost savings and price reduction. This is to support informed decisions when implementing public-private and ASEAN pooled procurement.
Keywords: Cost Saving, Pooled Procurement, Price Difference, Strategic Planning, Interministerial

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OT1-10

Development of a Strategic Plan to Enhance Medicines Risk Communication in Malaysia

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Introduction: Pharmacovigilance is vital to ensure the safety of medicines, and risk communication forms the core of effective pharmacovigilance. While medicines risk communication has been conducted in Malaysia for decades, studies revealed a lack of effectiveness. Individual countries require different strategies to ensure effective risk communication.
Objective: To develop a strategic plan for enhancing medicines risk communication in Malaysia.
Methods: Development of the strategic plan involved two phases. First, strategies for enhancing risk communication were prioritised for implementation in Malaysia through a Delphi study. This study involved clinicians and communication experts from nine countries. In Phase 2, the priority strategies identified through the Delphi study were presented to Malaysian pharmacovigilance experts from the National Pharmaceutical Regulatory Agency (NPRA) to develop the strategic plan for enhancing medicines risk communication.
Results: The Delphi panelists (n = 39) were presented with 37 initial strategies. Consensus was obtained after two rounds of Delphi survey, with 21 strategies identified as priority. Consolidating these priority strategies, six pharmacovigilance experts developed a 5-year strategic plan containing 16 strategies. The plan was divided into four domains, namely format, technology, collaboration and education. The highest priority strategies were to create more concise messages and increase pharmacovigilance training for new healthcare professionals.
Conclusion: Effective risk communication remains a worldwide challenge because of differences in culture, educational level, and attitude. To address this gap, we developed a strategic plan which has been implemented by NPRA in Malaysia. Evaluation must now be conducted at every stage of implementation to monitor the outcomes.
Keywords: Pharmacovigilance, Medication Safety, Effective Communication, Delphi Study, Priority Strategies

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OT1-11

A Cross-Sectional Study on Non-compliance to Pharmacy Legislations among Retail Pharmacies in Malaysia

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Introduction: Even with the yearly inspection that are conducted on all retail pharmacies (RP) prior to license renewal, enforcement officers still encounter instances whereby the same types of non-compliance are still being committed by the RP in the next round of inspection. Hence, there is still a dearth of data and their analysis on the trend of occurrences of non-compliance in RP in Malaysia.
Objective: To determine the prevalence of non-compliance retail pharmacies in Malaysia and its differentiation of demographic characteristics for its non-compliances identified.
Methods: A quantitative cross-sectional retrospective study was conducted on all RPs which were inspected by Pharmacy Enforcement Division (PED) from 1 January 2018 to 31 December 2019. Non-compliances were ascertained from the warning letters issued by PED. Data were reviewed and analyzed using Microsoft Excel and SPSS to determine the demographic characteristics of RP and its differentiation between demographic characteristics of RP and the non-compliances identified.
Results: Out of 3550 RPs were inspected in 2018-2019, 385 premises (10.8%) had been issued warning letter. Four (4) most common non-compliances identified are those related to prescription (23.12%), governance of controlled substances (22.57%), prescription book (19.29%), and storage (15.05%). There was no significant differentiation between the demographic characteristic (type of license and type of business) and the compliance level of RP inspected.
Conclusion: This study managed to explore the prevalence of non-compliances committed by RP in Malaysia. There is a need to formulate a more strategic approach and stricter actions to increase the adherence by RPs.
Keywords: Pharmacy Enforcement, Non-Compliance, Retail Pharmacy, Warning Letter

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OT1-12

Prevalence and Trends of Adulterants Detected in Products Sampled by Pharmacy Enforcement Branch

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Introduction: The prevailing public perception regarding the safety of traditional medicine, health food, supplements, and over-the-counter products contradicts findings from surveillance conducted by the Sarawak Pharmacy Enforcement Branch. This surveillance has revealed frequent instances of adulteration within these products, raising significant concerns about the potential risks they pose to public health upon consumption.
Objective: This study aims to assess the prevalence and trends of adulterants found in products sampled by the Sarawak Pharmacy Enforcement Branch.
Methods: A cross-sectional study in which data on all samples from January 2015 until December 2021 were extracted retrospectively. The samples were obtained from intelligence activities, market surveillance activities and public complaints. The samples were sent to the Department of Chemistry Malaysia to qualitatively analyze for the presence of adulterants.
Results: Out of 633 samples analyzed, the majority were traditional medicine products (54.3%), followed by health food products (31.4%), over the counter products (7.6%), supplements (4.9%), and others (1.7%). Adulterants were detected in approximately one-third of traditional medicine (33.1%), health food (39.2%), over the counter (25.0%), and supplement products (38.7%). The most found adulterant was sex stimulants, accounting for the highest proportion of adulterated samples. Notably, samples obtained through intelligence activities showed a significantly higher prevalence of adulteration ($P<0.001$).
Conclusion: The study revealed that nearly one-third of the samples were adulterated, particularly with sex stimulants being the most frequently detected adulterant. Continuous strict surveillance and public awareness campaigns are essential to address this issue and safeguard public health.
Keywords: Adulterants, Traditional Medicines Products, Health Food Supplements, Over-the-Counter Products

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OT1-13

Subcutaneous Trastuzumab or Intravenous Biosimilar Trastuzumab? Cost Implications for Clinical Practice in Malaysia

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OT1-14

Study on the Relationship Between the Value of Confiscated Unregistered Pharmaceutical Products and Fines Imposed under the Sales of Drugs Act 1952 in Kuala Lumpur from January 2020 to December 2022

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Introduction: The Sale of Drugs Act 1952 (SODA 1952) controls the sale of healthcare and cosmetic products in Malaysia. Any wrongdoing that does not comply with this act poses a huge potential risk to consumers, as they might be exposed to harmful products that could affect their health.
Objective: The focus of this study was to determine the correlation between the number of charges and the fine imposed by the magistrate under SODA 1952.
Methods: This retrospective study analysed the number of charges and fines imposed by magistrates under SODA 1952 in the Kuala Lumpur court from January 2020 until December 2022. The number of charges was grouped into Group 1 for 1 charge (N=107), Group 2 for 2 charges (N=18), and Group 3 for 3 or more charges (N=5). Correlation analysis was conducted using the Spearman's correlation and Kruskal-Wallis test was used to determine the differences between groups using the SPSS Version 22.0.
Results: The correlation between the number of charges and the fine imposed by the magistrate was r=0.247, p=0.005. Further tests showed a significant difference between Group 1 and Group 2 (p=0.004), insignificant difference between Group 1 and Group 3 (p=0.370), between Group 2 and Group 3 (p=3.70).
Conclusion: There is a weak correlation between the number of charges and the fine imposed by the magistrate. The penalty levied by the magistrate is expected to be affected by other factors internally and externally.
Keywords: Sale of Drug Acts 1952 (SODA 1952), Number of Charges, Fine Imposed.

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12TH NATIONAL PHARMACY R&D CONFERENCE 2024

Unity for Medicine Security: Collaborative Solutions for a Safer Future

ABSTRACTS

ORAL PRESENTATION

TRACK 2: CONSUMER – CENTERIC PHARMACY SERVICES

OT2-01

Development And Validation of A New Level Of Satisfaction Scale For Pharmacy Information System Among Pharmacists In Malaysia

Thum Chen Shien[1], Teoh Poh Tian[1], Lau Man Yee[1], Nur Aqilah Zainul Rashid[1], Nurfatihin Izani binti Mohd Hazani[1], Yew Wing Yee[1], Jerry Liew Ee Siung[1]

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Introduction: The assessment of user satisfaction is important for the continuous improvement of any electronic healthcare system. Hence, for the Pharmacy Information System (PhIS), a valid and reliable assessment tool is equally needed.
Objective: To develop and validate a new level of satisfaction scale for PhIS among pharmacists in Malaysia.
Methods: The scale was developed through literature review and expert interview among pharmacy personnels in Queen Elizabeth Hospital. The scale's content and face validity were evaluated before an exploratory factor analysis (EFA) was performed on 110 pharmacy personnels to assess its construct validity. Cronbach's Alpha was used to evaluate internal consistency, and data collection was repeated to assess test-retest reliability.
Results: The development phase provided us a scale consisting of 4 dimensions (19 items): Information Quality, Service Quality, System Quality and Perceived Usefulness. The content validity yielded an average of I-CVI scores of 0.92 across all items. EFA yielded 3 factors constructs with cumulative variance of 72.3%. Items from System Quality and Perceived Usefulness both loaded into Factor 1. Items from Service Quality loaded into Factor 2 while those from Information Quality loaded into Factor 3. Items from Perceived Usefulness cross-loaded into both Factor 1 and Factor 3. Reliability test showed an excellent internal consistency with Cronbach's Alpha score of 0.95. Test-retest reliability showed a correlation of 0.99 between repeated tests.
Conclusion: A preliminary version of PhIS level of satisfaction scale has been developed. However, item cross-loading between factors requires further item revision before the next validation phase.
Keywords: Pharmacy Information System, User Satisfaction

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OT2-02

Development and Validation of STORIMAP - a Pharmaceutical Assessment Screening Tool for Prioritising Patient Care in a Tertiary Care Hospital

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OT2-03

Development and Validation of Patient Diabetes Knowledge Questionnaire (PDKQ)

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OT2-04

Burnout among Public Sector Pharmacy Staff Two Years into the COVID-19 Pandemic

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OT2-05

The Efficacy of Daily Pre-packed Medication with Pictogram Labelling in Improving Medication Adherence of Haemodialysis Patients

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Introduction: Medication non-adherence is common among haemodialysis (HD) patients with multi-pharmacological treatment.
Objective: This study assessed the efficacy of daily pre-packed medication with pictogram labelling (DPM-PL) to improve medication adherence among HD patients.
Methods: A quasi-experimental study was conducted with 33 HD patients in Hospital Sibu for 3 months. HD patients who took ≥6 oral medications with poor medication adherence where pill count (PC) <85% and Medication Adherence Assessment Tool (MyMAAT) score <54 was eligible. Pre-intervention PC, MyMAAT, medications Dose, Frequency, Indication and Time of administration (DFIT) score, pre-HD blood pressure (BP), and serum phosphate levels were compared against post-intervention readings. Data were analysed using paired-t test and repeated-measure of ANOVA test.
Results: Based on PC, medication adherence showed significant improvement at week-4 ($p=0.02$) and week-6 ($p=0.03$). The mean post-intervention MyMAAT score (56.7±3.91) was significantly higher compared to the mean pre-intervention score (41.7±9.49) with a mean score difference of 15 ($p<0.001$). Meanwhile, the post-intervention DFIT median [96.9(IQR=7.3)] was significantly higher compared to the pre-intervention DFIT median [91.7(IQR=8.9)] with the median score difference of 5.2 ($p=0.001$, $p<0.05$). However, the difference in pre-HD BP over time was not statistically significant ($p=0.908$ for systolic BP, $p=0.761$ for diastolic BP, $p>0.05$). The mean serum phosphate level decreased by 0.1mmol/L overall but statistically non-significant ($p=0.273$, $p>0.05$).
Conclusion: The DPM-PL was found to improve patients' medication adherence over time. Future studies with longer duration might be required to examine the long-term impact of medication adherence on clinical outcomes.
Keywords: Medication Adherence, Haemodialysis Patient, Pre-Packed Medication, Pictogram Labelling

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OT2-06

Breast Self-Examination Awareness, Knowledge, Practice and Attitudes: Are Female Healthcare Workers Better than the Public?

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Introduction: The global incidence and mortality rates of breast cancer are rising. Breast self-examination (BSE) may be crucial for early detection.
Objective: The study assessed the BSE awareness, knowledge, practices, and attitudes among female healthcare workers and the public in Miri.
Methods: This cross-sectional study conducted from January 2022 to April 2023 involved female healthcare workers and public members presented at Miri Hospital, aged 18 years and above who could read and understand English or Malay. We adopted a validated questionnaire that gathered demographics, awareness, knowledge, practices, and attitudes towards BSE. A score of ≥9 implied good knowledge. Correct practice refers to practising BSE monthly after menstruation, including in the past month. Pearson's Chi-Square test was used to examine the association between demographic, knowledge, and practices.
Results: This study included 223 female healthcare workers and 179 public members, revealing 96.9% and 69.3% awareness of BSE, respectively. Most healthcare workers demonstrated good knowledge (74.4%), in contrast to public members who largely exhibited poor knowledge (81.6%) ($P<0.001$). Many could not recognise other non-lump signs such as skin dimpling as a sign of breast cancer. About 81.6% of healthcare workers and 38.5% of public members had practised BSE, but only 12.1% and 3.9% practised correctly ($P=0.004$). Most agreed BSE helps detect breast cancer (91.8%), is not difficult to perform (83.3%), and not time-wasting (88.1%), but feared finding signs of breast cancer (68.4%).
Conclusion: This work revealed the gap between healthcare workers and the public, and improvement opportunities in the BSE awareness campaigns.
Keywords: Breast, Examination, Women, Cancer, Education

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OT2-07

Exploring Patients' and Caregivers' Understanding and Expectation on Pharmacy Information System (PhIS) Medication Label in Government Healthcare Facilities in Kedah

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Introduction: Medication label is important written communication delivering drug information to patients and caregivers for safe and effective medicine usage. All government healthcare facilities in Malaysia are using either PhIS or electronic Hospital Information System (e-HIS) based medication label.
Objective: This study aims to provide local data on patient and caregiver's understanding of PhIS medication label and to explore the barriers affecting understanding and their expectations towards the label.
Methods: This study was conducted at two district hospitals and two health clinics in Kedah from June 2023 - February 2024. It was cross sectional with a mixed-method approach, conducted in two stages, combining quantitative assessment of the respondent's understanding using drug name, indication, timing and frequency (DFIT) tool, and qualitative assessment of barriers affecting their understanding and expectations.
Results: 378 respondents participated in this study. 33.1% were caregivers and 66.9% were patients. 13.8% of respondents did not achieve 100% DFIT score and were thus interviewed. 30 interview transcripts provided saturated qualitative insights. The most prominent finding was that drug indication written in medical jargon, its small font size and low position on the label were barriers towards understanding the treatment, in line with the poor score contributed by "indication" in DFIT part. Furthermore, drug indication is more important to them than the drug name.
Conclusion: The findings indicate that there are areas for improvement for PhIS medication label, especially regarding drug indication, as "indication" is the question frequently contributed to poor DFIT score. The qualitative input gathered is worth considering.
Keywords: Drug Labelling, Understanding, Expectations, Communication Barriers, Qualitative Research

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OT2-08

A Qualitative Study of Cancer Patients' Experiences towards Chemotherapy Service in Rural Hospital

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Introduction: Access to chemotherapy services is often limited in rural areas, posing challenges for treatment adherence due to long travel distances to major hospitals. Despite the service being available at Hospital Kuala Lipis for over two years, patient satisfaction has not been assessed, providing an opportunity for improvement.
Objective: To explore patient experience and perceptions of chemotherapy services in rural hospitals.
Methods: Semi-structured, in-depth interviews using interview guides developed based on conceptual framework were conducted with cancer patients who underwent at least three cycles of intravenous chemotherapy. Participants were purposively sampled during chemotherapy sessions and provided consent. Interviews aimed to explore patients' experiences, side effects, and treatment perceptions were audio-recorded and transcribed for thematic analysis.
Results: Eleven patients participated in interviews. Four key themes emerged from the findings: lack of knowledge, patients' fear and beliefs in chemotherapy, quality of life, perceived value towards healthcare service and facility. Knowledge gaps among patients include side effects, symptom management, and treatment expectations. Patients expressed feeling anxious, likely due to inadequate information about chemotherapy and perceived that chemotherapy affected their physical well-being, leading to treatment delays. Most patients found the hospital's chemotherapy service financially beneficial. While patients appreciated care from doctors and nurses, many felt the service was slow, desiring a faster healthcare experience.
Conclusion: Patients were satisfied towards chemotherapy services offered. However, lack of knowledge was the main concern among patients. Prioritising patient education to fill knowledge gaps and correct misconceptions can further improve patients' adherence towards chemotherapy.
Keywords: Chemotherapy, Service, Satisfaction, Qualitative, Experiences

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OT2-09

Virtual Counselling by Pharmacists using Mobile Devices: A Qualitative Exploration

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Introduction: Virtual counselling was introduced during the COVID-19 pandemic as an alternative method for pharmacists to conduct medication and device counselling. Mobile devices were the medium of choice due to resource limitations.
Objective: To explore pharmacists' perceptions of and experiences with virtual counselling using mobile devices.
Methods: A qualitative approach was employed. Semi-structured interviews were conducted with pharmacists purposively sampled from Sarawak General Hospital between February and April 2022, until data saturation was achieved. An interview guide informed by relevant literature was used. The interviews were recorded and transcribed verbatim. The resultant transcripts were then coded and analysed using reflexive thematic analysis.
Results: Fifteen participants were interviewed, revealing five themes addressing anticipated and novel issues associated with virtual counselling. Despite its integral role during the pandemic, virtual counselling was unable to entirely replace in-person counselling, nor suitable for all patients. Demonstrating counselling device usage and assessing patients' understanding over mobile devices proved particularly challenging. The service also posed technical difficulties, requiring additional skills, equipment, facilities, and changes in operating procedures. Virtual counselling shifted patient-provider power dynamics, with patients now able to choose whether and when to be counselled. Participants emphasised the importance of post-counselling follow-ups and the need to provide patients a hotline to obtain further clarifications.
Conclusion: During COVID-19, pharmacists were agile in adapting to the challenges faced in patient counselling. As virtual counselling is now a recognised option for counselling provision, its enablers, complements and limitations should be actively identified and addressed to ensure effective service delivery.
Keywords: Patient Counselling, Virtual Platform, Pharmacist, COVID-19

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OT2-10

Readiness and Willingness of Malaysian Community Pharmacists to Offer Vaccination Services

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OT2-11

Knowledge, Confidence, and Information-Seeking Practices on Medicine Use in Pregnancy among Primary Care Pharmacists in Malaysia

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Introduction: The overall knowledge of medicine use in pregnancy among pharmacists in developed and developing countries is between low to average. Assessing confidence is important, especially for effective risk communication with prescribers and patients. Furthermore, gathering information on information-seeking practices is necessary to understand drug information utilisation and training in this area.
Objective: The general objective was to determine the knowledge, confidence, and information-seeking practices of medicine use in pregnancy among primary care pharmacists in Malaysia. The specific objectives were to determine the association between knowledge and confidence and to identify the predictors of knowledge on medicine use in pregnancy.
Methods: This was a descriptive, cross-sectional survey, carried out using a self-administered validated questionnaire. The questionnaire was disseminated through social media and in-person visits to community pharmacies using the convenience sampling method. The study was conducted between May and June 2023, involving primary care pharmacists from public health clinics and community pharmacies in Malaysia.
Results: 271 primary care pharmacists participated. The mean knowledge score (SD) was 62.95% (17.30%), whereas the mean confidence score (SD) was 70.58% (15.32%) with no association found between them. The FDA category, MIMS and product leaflets were the top three reference sources utilised. Three predictors of knowledge identified were male gender, always checking for updates concerning safety information for medicines when dispensing medication to pregnant women, and utilising >1 source type for instruction/training.
Conclusion: The results suggest that primary care pharmacists' knowledge and information-seeking practices need improvement, possibly through targeted educational interventions and training based on identified predictors.
Keywords: Knowledge, Confidence, Information-Seeking Practices, Primary Care Pharmacists, Medicine Use in Pregnancy

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OT2-12

Knowledge & Perception of Stroke among Healthcare Workers: Development and Validation of Questionnaire

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Introduction: The level of knowledge and perception of stroke among the healthcare workers (HCW) is unknown, hence the quality of information on stroke delivered is questionable.
Objective: To develop and validate a set of questionnaires for the assessment of knowledge and perception of stroke (KPStroQ) among HCW.
Methods: The development of KPStroQ involved content and face validity. Sampling adequacy was measured using Kaiser-Meyer-Olkin (KMO). Exploratory factor analysis (EFA) and discriminant validity was measured to determine construct validity, while internal consistency and test-retest reliability was measured to determine reliability. Internal consistency was measured using Cronbach's alpha while test-retest reliability was measured using intraclass correlation coefficient (ICC).
Results: KPStroQ had an excellent S-CVI/Ave which are 0.82 for knowledge and 0.88 for perception. For face validity, S-FVI/Ave were 0.97 for knowledge and 0.98 for perception. A total of 167 respondents completed the online questionnaire in the validation phase. The KMO value of 0.592 and 0.646 for knowledge and perception domains showed that the sample size used was adequate for factor analysis. Six factors for knowledge and three factors for perceptions were extracted after EFA was performed. Cronbach alpha for knowledge and perception domains are 0.567 and 0.586 respectively which indicate acceptable internal consistency reliability. For test-retest reliability, the intraclass correlation coefficient (ICC) values for knowledge and perception domains are 0.501 and 0.699 which indicate moderate reliability.
Conclusion: The psychometric testing showed that the 39-item of KPStroQ is reliable and can be used as a tool for the assessment of knowledge and perception of stroke among HCW.
Keywords: Stroke, Development, Validation, Knowledge, Perception

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OT2-13

A Comparison of Joint Bleeding Incidence Rate and FVIII Usage between On-Demand versus Prophylaxis Therapy in Severe Haemophilia A Patients: A Retrospective Study

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OT2-14

A Nationwide Study on Antibiotic Use Knowledge and Practice among General Public in Malaysia: Differences between Urban and Rural Areas, and Their Predictors

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Introduction: Residence status may affect knowledge and practices, due to disparities in health information accessibility and demographic characteristics. Therefore, understanding the knowledge gaps and predictors of knowledge and practices related to antibiotic use are imperative.
Objective: This study aimed to assess the differences in antibiotic use knowledge and practices between urban and rural general public, and identify predictors of knowledge and practices among the Malaysian general public.
Methods: A cross-sectional survey was conducted using a validated questionnaire, at public places across all states in Malaysia. Adult Malaysians were recruited through quota sampling followed by convenience sampling.
Results: A total of 1971 respondents were recruited. There was significant difference in antibiotic use knowledge between residence status (urban 8.78±4.28 versus rural 7.92±4.02, p<0.001), but not for antibiotic use practices (p=0.739). Important knowledge gaps identified among rural respondents were identification of antibiotic (p<0.001), adverse effects (p<0.001), administration of antibiotic (p=0.003), and consequences of antibiotic resistance (p<0.001). Antibiotic use knowledge was significantly influenced by ethnicity (Chinese: p<0.001; Indian: p<0.001), educational level (tertiary education: p=0.024), healthcare-related occupation (yes: p<0.001) and monthly income (RM1000-3999: p=0.028); while significant predictors of antibiotic use practice was age group (age 40-59 years old: p=0.045, gender (female: p<0.001), ethnicity (Chinese: p<0.001; Indian: p<0.001), educational level (tertiary education: p=0.040; secondary education: p=0.020), and main occupation (housewife/househusband: p=0.028; retiree: p=0.016).
Conclusion: This study identifies important knowledge gaps and predictors of antibiotic use knowledge and practices that should be considered when designing interventional strategies tailored to targeted Malaysian subpopulations.
Keywords: Antibiotic, Knowledge , Practices, Residence Status, Predictors

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OT2-15

Understanding Halal Pharmaceuticals: Views from Outpatients in a Malaysian State Hospital

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Introduction: The use of Halal pharmaceuticals is vital in the implementation of *Shari'ah*-compliant hospitals. The COVID-19 pandemic and vaccine development had reinitiated discussions on the Halal status of pharmaceutical preparations.
Objective: To explore the understanding and views of hospital outpatients regarding Halal pharmaceuticals.
Methods: A qualitative study by in-depth interviews was conducted among adult Muslim outpatients in Hospital Tuanku Fauziah. A Malay language semi-structured interview guide was prepared and content validated by expert reviews. Consented participants were recruited from the outpatient pharmacy waiting area. All interviews were audio recorded and transcribed verbatim. The transcripts were forward-backward translated into English and subjected to thematic content analysis.
Results: Data saturation was achieved after interviewing ten patients. The findings indicated that patients were vigilant in checking labels to confirm their medications. Yet, the terms 'halal pharmaceuticals' and *'Shari'ah*-compliant hospital' were unfamiliar to all and did not raise any curiosity. The respondents trusted the government's commitment to provide safe and Halal-certified drugs. The majority did not consider Halal status as a primary factor when selecting medications. Nevertheless, given a choice, many voiced out preference for Halal-certified drugs, irrespective of their cost or efficacy. In life-threatening situations, participants were willing to accept non-Halal treatments.
Conclusion: Although respondents were not familiar with halal pharmaceuticals concept, the general opinion towards Halal pharmaceuticals remains positive. This study highlights the need for education and awareness towards the use of Halal pharmaceuticals. This is to uphold cultural and religious values of Muslim patients in line with quality healthcare practices.
Keywords: Islam, Exploratory Behaviour, Trust, Pharmaceutical Preparations

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OT2-16

Acceptance of Electronic Prescription System Among Community Pharmacists in Sarawak: A Preliminary Study

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Introduction: Electronic prescription systems (EPS) have gradually replaced conventional paper-based or handwritten prescriptions. However, the acceptance of EPS among community pharmacists (CPs) in Malaysia has not been extensively explored.
Objective: This study aimed to explore CPs' acceptance and perceptions of EPS, along with its associated factors.
Methods: A cross-sectional study was conducted from January to March 2021. All registered resident CPs were included, except those solely involved in wholesale and locum. A questionnaire based on the Technology Acceptance Model, adapted from the literature, was validated through content validation, pre-testing, and pilot testing. Internal consistency for perceived usefulness and perceived ease of use questions was high (0.97 and 0.89, respectively). A score above 7 indicated high acceptance. Invitations were sent via email, and the questionnaire was self-administered via Google Form.
Results: Among 372 CPs invited, 69 responded (18.5%). Perceived acceptance towards EPS was high (mean score 7.80 ± 2.24), despite the majority being non-EPS users (87%). Factors affecting acceptance included perceived usefulness (b=0.118; 95% CI, 0.075; 0.160; P <0.001), perceived ease of use (b=0.123; 95% CI, 0.030; 0.217; P=0.011), intention of future use or continued use of EPS (b=1.884; 95% CI, 0.985; 2.782; P <0.001), and number of prescriptions (>10) received annually (b=0.760; 95% CI, 0.113; 1.407; P = 0.022).
Conclusion: Acceptance of EPS is high among CPs, although most are non-users. CPs perceive EPS as useful and easy to use, with intentions to use or continue using EPS, particularly among those received low prescription volumes.
Keywords: Acceptance, Perception, Electronic Prescription System, Community Pharmacists

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OT2-17

Assessment of Technetium-99m Tetrofosmin Residual Activity in Routine Nuclear Medicine Practice of Hospital Kuala Lumpur

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Introduction: Myocardial perfusion imaging (MPI) utilising radiopharmaceutical Technetium-99m Tetrofosmin (^{99m}Tc-Tetrofosmin) plays a crucial role in diagnosing cardiac conditions. However, variations in residual activity of ^{99m}Tc-Tetrofosmin in plastic syringes post-administration may impact imaging quality and patient safety.
Objective: This study aimed to evaluate the residual activity of ^{99m}Tc-Tetrofosmin in plastic syringes post-administration during routine nuclear medicine procedures at Hospital Kuala Lumpur, assessing compliance to department protocols and variability among different syringe brands.
Methods: A single-center prospective observational study was conducted using stratified quota sampling, encompassing 396 samples across three syringe brands (SJ, BD, and Ciringe). Residual activity was measured immediately post-administration, and statistical analyses were performed to compare brands and assess compliance with department dosage protocal range of 333-555MBq.
Results: 100% of injected activities aligned with department protocol dose with mean effective activity of 451.23 ± 30.73 MBq and mean residual activity of 12.63 ± 4.73%. However, variability in residual activity was observed among syringe brands. BD exhibited the highest mean residual activity (16.45%), significantly differing from SJ (9.95%) and Ciringe (11.50%) ($p<0.001$).
Conclusion: Rigorous syringe selection is crucial in MPI procedures to minimise residual activity and ensure compliance with dosimetry standards, emphasising the importance of integrating pharmacy practices into nuclear medicine protocols. Standardised protocols and quality assurance measures are essential to optimise imaging outcomes and prioritise patient safety. These findings highlight the importance of ongoing monitoring and interdisciplinary collaboration to navigate residual activity management effectively in routine nuclear medicine practice.
Keywords: Myocardial Perfusion Imaging, Technetium-99m Tetrofosmin, Residual Activity, Syringe Selection, Radiopharmaceutical

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OT2-18

Development and Validation of a Questionnaire Assessing Public Knowledge and Perceptions of Stroke

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Introduction: Stroke contributes to major morbidity and mortality. Therefore, awareness among the public is crucial for earlier presentation to healthcare facilities. However, there was no instrument to assess knowledge and perception regarding stroke among the public.
Objective: This study aimed to develop and validate the Knowledge and Perception of Stroke Questionnaire (KAPS-Q), to evaluate public knowledge and perception regarding stroke.
Methods: A cross-sectional survey was conducted at the ambulatory setting of Hospital Tengku Ampuan Afzan. Content validity was assessed by six expert panels, while face validity was evaluated by 15 lay individuals. The KAPS-Q was administered to 147 participants, and exploratory factor analysis (EFA) was employed to determine construct validity and reliability. Internal consistency was measured using Cronbach's alpha (α), and test-retest reliability was assessed using the intraclass correlation coefficient (ICC).
Results: The KAPS-Q demonstrated good content validity (Content Validity Index = 0.9) and was well understood by the public. The Kaiser-Meyer-Olkin (KMO) was 0.74 for both the knowledge and perception domains, indicating adequate sampling. EFA identified six components in the knowledge domain and five components in the perception domain. The knowledge domain exhibited satisfactory reliability and stability, indicated by a Cronbach's α value of 0.68. Similarly, the perception domain displayed good reliability and stability with a Cronbach's α value of 0.75. The ICC values were 0.81 for the knowledge domain and 0.65 for the perception domain, indicating good reliability.
Conclusion: The KAPS-Q had good psychometric properties to measure stroke knowledge and perceptions among the public.
Keywords: Stroke, Questionnaire, Validity, Knowledge, Perception

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OT2-19

Knowledge, Attitude and Practice of Nurses on Medication Administration Through Enteral Tubes Feeding in Hospital Sultanah Bahiyah Kedah

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OT2-20

"Internet Era": A Qualitative Study of Online Information-Seeking among Breast Cancer Patients on Adjuvant Endocrine Therapy

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OT2-21

Identification of Drug Related Problems Among Community Psychiatric Patients in Kota Kinabalu, Sabah: A Retrospective Medical Review Study

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Introduction: Drug-related problems (DRP) occurring among community psychiatric patients in Kota Kinabalu remain unexplored. Analysing outcomes in this local demographic can improve patient therapeutic efficacy and prevent future drug related issues.
Objective: To determine the type, factors and severity associated with the occurrence of DRP among community psychiatric patients.
Methods: A retrospective study was conducted over 6 months (January-June 2023) among community psychiatric patients under Home Medication Review (HMR) program. The characteristics and severity ratings of DRP were categorised using the Pharmaceutical Care Network Europe classification V9.00 and the National Coordinating Council for Medication Error Reporting and Prevention respectively. Descriptive statistics and Chi-Square tests were performed for data analysis.
Results: 40 patients were reviewed (Median=3 (IQR:2,4) sessions) by HMR pharmacists and 40 DRP were identified. Majority of patients were male (n=29, 72.5%) of Kadazan-Dusun race (n=14, 35%). The main psychiatric diagnosis was schizophrenia (25, 62.5%). The primary type of DRP was treatment effectiveness (n= 29, 72.5%) followed by treatment safety (n=11, 27.5%). Patient-related issues were the main factor affecting treatment effectiveness (n= 18, 62.1%) and treatment safety was affected by drug selection (n=4, 36.4%) and drug use process (n=4, 36.4%). Treatment effectiveness was less likely to cause harm ($\chi 2$ (1) = 18.5, $p<0.001$) compared to treatment safety ($\chi 2$ (1) =25.3, $p<0.001$).
Conclusion: Treatment effectiveness was the major type of DRP and mainly attributed to patient-related issues. However, these issues were less likely to cause significant harm to patients.
Keywords: Drug-Related Problems, Community Psychiatry, Home Medication Review, Pharmacists' Intervention, Medication Errors

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OT2-22

Factors And Costs Related to Medication Duplication in Outpatient Specialist Clinics

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Introduction: Medication duplication is defined as clinically redundant orders from the same therapeutic class within an overlapped period. This practice compromises patient safety and causes unnecessary waste of resources.
Objective: To determine the rate, cost, and associated factors of medication duplication in outpatient specialist clinics.
Methods: A retrospective data analysis was conducted among patients attending Outpatient Specialist Clinics over the year 2021. Patients were selected using a stratified random sampling technique based on the type of clinics. The patient's registry and the Pharmacy Information System (PhIS) were screened for relevant patient demographic data and medication histories. In PhIS, each patient's medication profile was manually checked to identify prescriptions for identical medications, or those that display clinical redundancy within an overlapped period. The costs of duplication were calculated based on the purchasing cost of the medications. Results were analysed using chi-squared tests and multiple logistic regression.
Results: A total of 570 patients were analysed with an identified medication duplication rate of 12.3%. Pantoprazole was the most duplicated medication. From the multiple logistic regression, the factors found to be significantly associated with medication duplication were age (OR=1.02, 95% CI=1.00-1.04), gastrointestinal medications (OR=4.07, 95% CI=1.65-10.07), and the number of prescriptions dispensed over the year (OR=9.35, 95% CI=4.21-20.78) with Nagelkerke R^2 of 0.353. The annual cost incurred for medication duplication was RM970.86.
Conclusion: The rate and the cost associated with medication duplication were relatively low. Increasing age, gastrointestinal medications, and the number of prescriptions dispensed per year were significantly associated with medication duplication.
Keywords: Double Prescriptions, Therapeutic Duplication, Polypharmacy, Duplication Cost, Patient Safety

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OT2-23

Pharmacy Value-Added Services: Implementation in a Malaysian Public Hospital

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OT2-24

Treatment Adherence and Satisfaction of Enhanced Pharmacist-Assisted Service in Antiretroviral Therapy Among Patient Receiving Medication by Post Service

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Introduction: Adherence to antiretroviral therapy (ART) remains a great challenge to the healthcare system. Mobile technology interventions are garnering evidence for their potential in improving ART adherence.
Objective: This study aimed to evaluate treatment adherence and satisfaction of Enhanced Pharmacist-Assisted Service in Antiretroviral Therapy (EPAS-art) in patients receiving ART medications through post service (UMP).
Methods: This prospective, randomised pilot study was conducted in a government-funded hospital in Northern Malaysia. Participants receiving ART medication via UMP were randomly assigned to the intervention group (EPAS-art) or usual care group. The EPAS-art offers close monitoring of patients' adherence, adverse events and education service through phone calls every four weeks. Descriptive statistics were performed for the baseline. The outcome measures for self-reported adherence and satisfaction were compared using student's t-test. Statistical significance is defined as $p \leq 0.05$.
Results: A total of 60 patients on ART with a mean age of 41.28 ± 10.17 SD years were included. There were no significant differences in age (p=0.086), gender (p=0.500), ethnicity (0.809), ART regime (p=0.432), duration on ART (p=0.064), or self-reported adherence to ART between the EPAS-art group and usual care group at baseline. At 6 months, there was a significant difference in self-reported adherence (99.96% versus 99.06%, p=0.008) and satisfaction (4.83 versus 4.50, p=0.006) in the interventional group.
Conclusion: The study results showed a significant difference in self-reported adherence and satisfaction in the EPAS-art group compared to usual care. However, the clinical benefits of the EPAS-art strategy for the viral load and CD4 count have yet to be explored.
Keywords: Adherence, Antiretroviral Therapy, Phone Call

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12TH NATIONAL PHARMACY R&D CONFERENCE 2024

Unity for Medicine Security: Collaborative Solutions for a Safer Future

ABSTRACTS

ORAL PRESENTATION

TRACK 3: PHARMACOTHERAPY

OT3-01

Clinically Significant Renal Function Decline among Non-Valvular Atrial Fibrillation Patients on Direct Oral Anticoagulant: A Retrospective, Multicenter Study in an Asian Population

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Introduction: Renal function decline following direct oral anticoagulant (DOAC) in patients with non-valvular atrial fibrillation (NVAF) has been reported.
Objective: This study aimed to assess the incidence of clinically significant renal function decline among NVAF patients on DOAC and identify its predictors.
Methods: This multicenter retrospective study analysed data on NVAF patients initiated on DOAC from 2013 to 2022 in five tertiary hospitals in Malaysia. Convenience sampling was used in this study. Clinically significant (>30%) estimated glomerular filtration rate (eGFR) decline after DOAC initiation was the primary outcome measure. Logistic regression analyses were used to identify independent predictors of clinically significant eGFR decline.
Results: We analysed 464 patients with a mean age of 72.3±9.5 years and predominantly male (n=282, 60.8%). Most (n=375, 80.8%) patients have underlying chronic kidney disease during DOAC initiation. Clinically significant eGFR decline occurred in 55 (11.9%) patients. Overall, rivaroxaban use (aOR 0.384, 95% CI 0.177 – 0.835, p=0.016), other races (races other than Malay, Chinese and Indian) (aOR 2.764, 95% CI 1.239–6.164, p=0.013), underlying diabetes (aOR 4.066, 95% CI 2.142–7.718, p<0.001), angiotensin-converting enzyme (ACE) inhibitors use (aOR 0.466, 95% CI 0.253–0.858, p=0.014), and DOAC treatment duration (aOR 1.258, 95% CI 1.057 – 1.497, p=0.010) were the predictors of clinically significant eGFR decline in NVAF patients on DOAC treatment.
Conclusion: Clinically significant eGFR decline is common among Malaysian NVAF patients on DOAC treatment. The identified predictors of clinically significant eGFR decline can be used to manage the NVAF patients better.
Keywords: Renal Function, Direct Oral Anticoagulant, DOAC, eGFR, Asian

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OT3-02

Interchangeability of Biosimilars: A Systematic Review of Published Position Statements

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OT3-03

The Association between Cigarette Smoking and Efavirenz Plasma Concentration using the Population Pharmacokinetic Approach

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OT3-04

Impact of COVID-19 on Thrombolysis Outcomes and Emergency Department's Performance in Timely Reperfusion for ST-Elevation Myocardial Infarction

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OT3-05

Effect of Covid-19 Pandemic Lockdown on Metabolic Control among Adult Malaysian Diabetic Patients: A Single Center Study

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OT3-06

The Efficacy and Safety Outcomes of Three-Factor Prothrombin Complex Concentrate (Prothrombinex-VF) in Warfarin Reversal: A Prospective, Single-Arm, Open-Label, Multicentre Study

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OT3-07

Endogenous Glucagon-like Peptide-1 Levels Determines the Efficacy of Dipeptidyl Peptidase-IV Inhibitors in Prediabetes and Type 2 Diabetes Mellitus

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OT3-08

Evaluation of 17-hour vs 24-hour Fondaparinux Dosing Interval in Patients with Acute Coronary Syndrome: A Real-World Evidence Study

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Introduction: Numerous early discharge strategies have been implemented for acute coronary syndrome (ACS) patients. However, shortening the frequency of anticoagulants was not reported before. Evidence regarding the safety and efficacy of this strategy needs to be assessed.
Objective: To compare the 30-day incidence of recurrent ACS and bleeding symptoms after discharge, as well as length of stay (LOS) between 17-hour and 24-hour fondaparinux.
Methods: This is a retrospective study among adult patients who received subcutaneous (SC) fondaparinux in a tertiary hospital. Data collection form was used, which consists of demographic data, details on fondaparinux administration, and the incidence of recurrence and bleeding episodes. Chi Square and Fisher's Exact were used to compare the 30-day recurrent ACS and bleeding symptoms, respectively between 17-hour and 24-hour fondaparinux. Mann-Whitney U test was used to compare the LOS between the groups. To reduce confounding bias, propensity score matching (PSM) was conducted.
Results: A total of 1315 patients were included between 17-hour (n=308) and 24-hour (n=1007) fondaparinux. No significant difference was found between 17-hour and 24-hour fondaparinux in 30-day recurrent ACS (p=0.858). For bleeding symptoms, no significant difference was found between the groups (p=0.597). There was a significant difference in median LOS between 17-hour and 24-hour fondaparinux (45 versus 63 days, p<0.001). Similar results were obtained following PSM analysis for all the endpoints.
Conclusion: Administration of fondaparinux every 17 hours was found to be non-inferior compared to the standard of care in the study population. Further studies need to be done to assess the benefits of this strategy.
Keywords: Anticoagulant, Fondaparinux, Pharmacokinetics, Hematology, Acute Coronary Syndrome

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OT3-09

Correlation between Antibiotic Consumption and the Occurrence of Multidrug-resistant Organisms in a Malaysian Tertiary Hospital

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OT3-10

Evaluation of Hibiscus and Egami Score for Prediction of Immunoglobulin Resistance in Kawasaki Disease among Children in Malaysia

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Introduction: Kawasaki disease (KD) is an acute febrile illness of unknown aetiology and is known to be complicated by coronary artery (CA) aneurysms. Children with intravenous immunoglobulin (IVIG)-resistance KD are at higher risk of developing CA aneurysm than IVIG-responsive KD. Multiple risk scoring was therefore developed to predict IVIG-resistance KD.
Objective: The study was conducted to evaluate Hibiscus and Egami Score in predicting IVIG-resistance KD in Malaysia.
Methods: A cross-sectional study was conducted in 19 hospitals in Malaysia. Children diagnosed with KD according to American Heart Association criteria and were given 2g/kg IVIG within 10 days of onset of illness were included. Demographic data, laboratory data, and clinical outcomes were collected. Risk factors of IVIG-resistant were identified using multivariable logistic regression models constructed using variables selected by univariable analysis. Sensitivity, specificity, and area under the curve (AUC) of receiver operative characteristic were computed.
Results: A total of 324 children were recruited. Prevalence of IVIG-resistant KD was 14% (n=46). Children who had neutrophil percentage ≥ 60% (OR 3.20; 95% CI [1.35, 7.57]) and total bilirubin ≥ 9.4μmol/L (OR 2.10; 95% CI [1.09, 4.07]) had a higher risk to develop IVIG-resistant. In our patient cohort, the Hibiscus Score yielded a sensitivity of 57%, specificity of 75% and AUC of 0.691 whereas the Egami Score showed a sensitivity of 41%, specificity of 69% and AUC of 0.567 in predicting IVIG-resistant KD.
Conclusion: Both Hibiscus and Egami Score had low sensitivity and moderate specificity to predict IVIG-resistant KD among children in Malaysia.
Keywords: Kawasaki Disease, IVIG Resistance, IV Immunoglobulin, Risk Scoring, Egami Score

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OT3-11

Evaluation of Chemotherapy Relative Drug Intensity Impact on Overall Survival of Breast, Colorectal and Lung Cancer Patients

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Introduction: The chemotherapy treatment interval for solid cancer is often disrupted by treatment-related toxicity. Relative drug intensity (RDI; delivered total dose compared to standard protocol) is a method to evaluate the impact of the dosing schedule on treatment outcome.
Objective: This study aims to investigate the effects of RDI >85% on 3-year overall survival in breast, colorectal and lung cancer patients.
Methods: A retrospective cohort study was conducted among patients who received chemotherapy between Jan 2011 and Dec 2020 at Seri Manjung Hospital, Perak. The duration from the date of the first cycle until June 31, 2023, was analysed as the survival function using Kaplan-Meier with a log-rank test, while Cox proportional hazard regression was used to adjust the hazard risk (AHR) among demographics, disease, and treatment variables with stratification for cancer type.
Results: 238 cancer patients (breast: 200, colorectal: 71, Lung: 12) were evaluated. The survival function for patients with RDI > 85% for breast and colorectal cancer was 56.3%, p=.064 and 50.0%, p=.24, respectively, and was not computable for lung cancer. When RDI >85% as compared to RDI <85%, RDI> 85% lowers the risk of death by 0.76 times (AHR 0.76, 95% CI 0.46 -1.25; P=0.27) for breast cancer and by 0.82 times (AHR 0.82, 95% CI 0.31-2.2; P =.69) for colorectal cancer.
Conclusion: While RDI >85% correlated with improved overall survival, the impact of other prognostic factors could impact a more significant risk in survival outcome.
Keywords: Relative Drug Intensity, Breast, Colorectal, Lung, Cancer, Overall Survival

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OT3-12

Predictors of Central Macular Thickness in Diabetic Macular Oedema Patients on Intravitreal Ranibizumab

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OT3-13

Development of the Malaysian Potentially Inappropriate Prescribing Screening Tool (MALPIP)

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OT3-14

Aspirin's Effect on the International Normalised Ratio in Senior Atrial Fibrillation Patients Receiving Concurrent Warfarin Therapy

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OT3-15

Drug-related Problems Encountered during Nirmatrelvir/Ritonavir Counselling by Pharmacists in Selangor: A Multi-center Study

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Introduction: Pharmacists role in counselling expanded during the coronavirus disease 2019 (COVID-19) pandemic. Drug-related problems (DRPs) encountered by pharmacists during Nirmatrelvir/Ritonavir (Paxlovid™) counselling to COVID-19 patients were previously undocumented.
Objective: To characterise the DRPs encountered during Paxlovid™ counselling by pharmacists in Selangor.
Methods: A cross-sectional study was conducted in government hospitals and health clinics in Selangor involving patients who received at least one Paxlovid™ counselling session from July to September 2022. Data was collected from Paxlovid™ counselling documentation forms. The DRPs were classified according to a classification system for intermediate and long-term care settings. Descriptive analysis was conducted using SPSS version 20.
Results: The study included 3626 patients, aged 12 to 99 years (54.56±17.66), from 11 hospitals and health clinics under nine district health offices. Normal Paxlovid™ dose was prescribed to 3175 (87.56%) patients. Overall, 2371 (65.39%) patients were documented with at least one DRP. Among the 3687 DRPs, 61.32% and 38.68% were encountered during first and follow-up counselling sessions, respectively. Twenty-two types of DRPs were identified mainly for drug-drug interaction (n=2154, 58.42%), adverse drug reactions (ADRs) (n=1019, 27.64%) and contraindication (n=207, 5.61%). About 52% (n=1869) patients had at least one pre-existing drug that interacted with Paxlovid™, involving amlodipine (n=887, 31.81%), simvastatin (n=747, 26.79%) and atorvastatin (n=620, 22.24%). About 6% (n=234) patients discontinued Paxlovid™ treatment, with 33.76% due to ADRs.
Conclusion: Prevalence of DRPs was high among Paxlovid™ patients in Selangor. Pharmacists play a critical role in identifying DRPs to ensure effective and safe administration of Paxlovid™ in COVID-19 treatment.
Keywords: Nirmatrelvir/Ritonavir, Counselling, Drug-Related Problems, COVID-19, Drug Interaction

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OT3-16

Utilisation of Antipseudomonal β-Lactam and Predictors of Pseudomonas Infection in Patients Admitted to a Secondary Hospital in Kelantan

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Introduction: Antipseudomonal β-lactam antibiotics (β-APS) were commonly prescribed despite the low prevalence of *Pseudomonas* isolates in the hospital. Most data for *Pseudomonas*-infected patients are mainly derived from other countries; little information is available in Malaysia.
Objective: This study aimed to determine the prescribing trend of first-line β-APS and the predictors for *Pseudomonas* infection.
Methods: Prospective cross-sectional observational study was conducted in a secondary hospital in Kelantan, Malaysia. Adult patients who were prescribed first-line β-APS (piperacillin/tazobactam, ceftazidime, cefepime) from October 2020 to September 2021 were included.
ResultS: Among the 176 patients, 161 (91.5%) were treated empirically with β-APS. Half of the β-APS were prescribed for respiratory tract infection (50.6%), followed by necrotising fasciitis (9.7%) and gastrointestinal tract infections (8.0%). The most commonly prescribed β-APS was Piperacillin/Tazobactam (56.3%). *Pseudomonas* microorganism was isolated in 16 patients (9.1%). The predictors of *Pseudomonas* infection were: slower pulse rate (Adj OR = 0.951; 95% CI = 0.916-0.987; p = 0.008), longer patient-days in ward (Adj OR = 1.102; 95% CI = 1.012-1.200; p = 0.025), presence of urinary tract infection (UTI) (Adj OR = 10.063; 95% CI = 1.106-91.584; p = 0.04), and presence of skin and soft tissue infection (SSTI) (Adj OR = 14.59; 95% CI = 2.394-88.933; p = 0.004).
Conclusion: We found that β-APS were commonly prescribed, despite *Pseudomonas* microorganisms were not commonly isolated. Slower pulse rate, longer patient-days in ward, presence of UTI or SSTI may be used as predictors for *Pseudomonas* infection, and should be further evaluated with larger sample size.
Keywords: *Pseudomonas,* Predictor, Antipseudomonal B-Lactam

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OT3-17

Monitoring of Gentamicin Serum Concentration Among Newborns in The Neonatal Ward at Hospital Sultan Ismail Petra

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Introduction: Gentamicin is the empirical therapy of choice for sepsis in newborns, with dosing of 4mg/kg every 24 – 36 hours, depending on premenstrual age.
Objective: To investigate the therapeutic drug monitoring (TDM) outcomes (within therapeutic ranges or toxic) of the current IV Gentamicin regimen in treating infections among neonates.
Methods: This retrospective cohort study was conducted in HSIP. Patient demographic and clinical data were collected from the TDM request forms for neonates admitted to the neonatal ward from January 2020 – December 2022. Through and peak levels were measured on the third dose of therapy. The therapeutic ranges for trough and peak levels were <1.0 mg/L and >5.0 mg/L, respectively. Elevated serum creatinine was defined as serum creatinine level (SCr) >71 µmol/L. Multivariable logistic regression was performed to identify the risk factors of acquiring toxic trough levels.
Results: A total of 227 patients were included in the final analysis. The total number of patients achieving the targeted peak level was 74.90%. More than half of the patients (52.0%) experienced toxic trough levels. The mean serum trough and peak levels (standard deviation) were 1.23 (1.11) mg/L and 7.31 (3.93) mg/L respectively. The risk factor associated with toxic trough level was elevated SCr with odd ratio 2.55, 95% confidence interval [1.19,5.46], p=0.016).
Conclusion: The current gentamicin regimen resulted in an alarming proportion of patients having toxic trough levels, particularly with elevated SCr. The study findings emphasize the need to refine the dosing regimen to optimise efficacy and minimise toxicity in neonates.
Keywords: Gentamicin, Neonate, Creatinine, Therapeutic Drug Monitoring

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OT3-18

Adherence to Self-Monitoring of Blood Glucose among Insulin-treated Diabetic Patients in Sarawak

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Introduction: Adherence to self-monitoring of blood glucose (SMBG) is crucial for diabetes mellitus (DM) self-management. However, the SMBG status in Sarawak remains inadequately explored, and the factors affecting adherence have yet to be investigated.
Objective: This study aimed to evaluate SMBG adherence among insulin-treated DM patients in Sarawak, determine the associated factors, and explore the barriers to SMBG.
Methods: A cross-sectional study was conducted across 14 hospitals and 11 clinics in Sarawak, from January 2020 to September 2023. All eligible DM patients attending the Diabetes Medication Therapy Adherence Clinic were invited. Data collection involved information extraction from patient medical records and face-to-face interviews using a structured data collection form consisting of 19 questions. SMBG adherence was evaluated by comparing the actual SMBG records against the recommended number of tests, with 80% as the cut-off for adherence. Multiple logistic regression analysis was used to assess the association among variables.
Results: A total of 396 participants were recruited. Only 43.2% demonstrated adherence to SMBG. Factors associated with adherence included patients with age ≥65 years (AOR=1.88; 95%CI 1.12-3.17; P=0.018), Chinese ethnicity (AOR=3.33; 95%CI 1.66-6.67; P=0.001) and receiving follow-up care in facilities in the southern region (AOR=2.56; 95%CI 1.48-4.45; P=0.001). The top three reported barriers were the cost of SMBG supplies, forgetfulness, and time constraints.
Conclusion: Our study revealed suboptimal SMBG adherence. By identifying the associated factors, healthcare professionals could recognise patients at risk of poor adherence and tailor patient-centred interventions. Further efforts are needed to ensure the affordability and accessibility of SMBG supplies.
Keywords: Self-Monitoring of Blood Glucose (SMBG), Adherence; Diabetes Mellitus, Insulin, Compliance

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OT3-19

Stroke and Bleeding Outcomes among Non-Valvular Atrial Fibrillation Patients on Oral Anticoagulant: A Multicentre Study in an Asian Population

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Introduction: Managing non-valvular atrial fibrillation (NVAF) remains challenging to balance between preventing thromboembolism and bleeding. The risk of major bleeding was reported to be higher in Asians, but the data gaps still exist due to the broad multiracial population.
Objective: We aimed to assess the stroke and bleeding outcomes among NVAF patients on oral anticoagulants (OAC) and identify their predictors.
Methods: This retrospective multicenter study analyzed data on NVAF patients initiated on OAC from 2013 to 2023 in eight public tertiary hospitals in Malaysia. The primary endpoints included any stroke and bleeding events. Convenience sampling was used in this study. Logistic regression analyses were used to assess independent predictors of primary endpoints.
Results: We analyzed 967 patients with a mean age of 70.3±10.4 years. Most patients were on warfarin (n=539, 55.7%), followed by apixaban (n=178, 18.4%), dabigatran (n=162, 16.8%), and rivaroxaban (n=88, 9.1%). Stroke occurred in 22 (2.3%) subjects and was not affected by the type of OAC (p=0.451). A history of stroke (aOR 4.406, p=0.009) was the only predictor of stroke after OAC initiation. The incidence of major bleeding was 2.4% (n=23). Non-vitamin K OAC (NOAC) (aOR 0.246, p=0.026) and concurrent antiplatelet(s) use (aOR 2.862, p=0.026) were the predictors for major bleeding.
Conclusion: Identified predictors of stroke and major bleeding allow clinicians to manage NVAF patients better. In NVAF, anticoagulant treatment with NOAC has a similar stroke outcome but a lower major bleeding risk than warfarin in our Asian population.
Keywords: Oral Anticoagulant, Warfarin, Direct Oral Anticoagulant, Stroke, Bleeding

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OT3-20

Impact of Multidisciplinary Carbapenem Stewardship Interventions on Patient Clinical Outcomes: A Retrospective Cohort Study in a Developing Country

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OT3-21

Psychological Health and Behaviour during COVID-19 Period and its Association on Adherence towards Antiretroviral Therapy

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OT3-22

Incidence and Predictors of Early Mortality in the Emergency Department Following ST-Elevation Myocardial Infarction Thrombolysis in a Percutaneous Coronary Intervention Incapable Tertiary Hospital

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Introduction: Data on early mortality in the Emergency Department (ED) following ST-elevation myocardial infarction (STEMI) thrombolysis in non-percutaneous coronary intervention hospitals is unknown.
Objective: We aimed to assess the incidence and identify the predictors of early mortality in the ED following STEMI thrombolysis.
Methods: This single-center retrospective study involved STEMI patients given thrombolytic therapy from 2016 to 2020 in a tertiary hospital. Total population sampling was used in this study. Logistic regression analyses were used to assess independent predictors of early mortality in the ED.
Results: Data from 941 patients was analysed. Their mean age was 53.0±12.2 years and predominantly male (n=846, 89.9%). The in-hospital mortality was 10.3% (n=97), with about half (n=47, 48.5%) occurring in ED. The final multi-model found seven predictors for early mortality in ED: age ≥75 (aOR 4.474, p=0.001), female gender (aOR 3.059, p=0.003), pre-existing hypertension (aOR 2.105, p=0.030), ischemic heart disease (aOR 0.316, p=0.043), Killip class ≥2 (aOR 2.252, p=0.033), systolic blood pressure <100 mmHg at presentation (aOR 3.365, p=0.003), and COVID-19 pandemic (aOR 2.404, p=0.014). Following thrombolytic therapy, two predictors found to affect early mortality were failed fibrinolysis (aOR 3.147, p=0.004) and ventricular fibrillation/tachycardia (aOR 10.312, p<0.001). **Conclusion:** Early mortality in ED following STEMI thrombolysis was high. STEMI patients should be admitted to the cardiac care unit early as the provision of comprehensive cardiac care can be challenging due to ED's busy nature. The above-identified predictors of early STEMI mortality in ED allow clinicians to identify and manage high-risk STEMI patients better.
Keywords: Mortality, Tenecteplase, Streptokinase, Stemi, Thrombolysis

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OT3-23

Incidence of Myocarditis and Pericarditis following SARS-CoV-2 Vaccination and Infection in Malaysia

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Introduction: Post-marketing surveillance data of COVID-19 vaccines have suggested potential risk of myocarditis/pericarditis after vaccine administration.
Objective: To evaluate the risk of myocarditis and pericarditis following SARS-CoV-2 infection and vaccination.
Methods: Observational cohort study was conducted using secondary data in Malaysia. Individuals who were hospitalised following either SARS-CoV-2 infection or vaccination between 1 February 2021 and 28 February 2022 were identified. Data on SARS-CoV-2 diagnoses, vaccinations, and hospital admission were obtained from the Ministry of Health Malaysia. Exposures were (i) SARS-CoV-2 infection or (ii) vaccination with BNT162b2, CoronaVac, or ChAdOx1. Outcome was defined as hospital admission with a diagnosis of myocarditis/pericarditis. Risk of events in the 21-day period following either infection or vaccination were compared to control period.
Results: Among 32,907,354 individuals who received at least one dose of BNT162b2, CoronaVac, or ChAdOx1 vaccines, there were 87 cases of myocarditis/pericarditis that occurred in 1-21 days after vaccination. The crude risk of event per 100,000 persons vaccinated were 0.33 (BNT162b2), 0.15 (CoronaVac), and 0.18 (ChAdOx1). For BNT162b2 vaccine, risk of myocarditis/pericarditis was higher after second dose compared to the first dose (0.23 versus 0.19 per 100,000 vaccinated persons). Conversely, 157 myocarditis/pericarditis cases were identified within the 21-day risk period after SARS-CoV-2 positive test (crude risk 5.62 per 100,000 persons infected, 95% CI 4.78-6.57).
Conclusion: Myocarditis/pericarditis are rare adverse event following COVID-19 vaccination, with absolute event risk of less than five for every 1 million persons vaccinated in Malaysia. The incidence of myocarditis/pericarditis after SARS-CoV-2 infection was higher than events that occurred postvaccination.
Keywords: COVID-19, Vaccine, Myocarditis, Pericarditis

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OT3-24

Trends and Determinants of Inhaled Corticosteroids Prescribing in Patients with Chronic Obstructive Pulmonary Disease

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OT3-25

A comparison of antibiotic utilisation in Public and Private Community Healthcare in Malaysia

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OT3-26

Mortality Outcomes and Predictors of Failed Thrombolysis in ST-Elevation Myocardial Infarction: A 5-Year Analysis

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OT3-27

A Retrospective Analysis of Virological Outcomes and Medication Adherence among Patients on Antiretroviral Therapy: Insights from a Tertiary Hospital

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Introduction: Antiretroviral therapy (ART) is pivotal in suppressing human immunodeficiency virus (HIV) replication among people with HIV (PWH), yet determinants of optimal HIV treatment outcomes among Malaysian PWH remain elusive.
Objective: To assess incidences and predictors of viral load suppression (VLS) and medication adherence among PWH on different ART regimens.
Methods: This is a retrospective cohort study conducted among adult PWH receiving ART at Infectious Disease Clinic Hospital Kuala Lumpur between year 2019 and 2022.
Results: Among 217 patients, 83.9% achieved VLS. Notably, VLS was significantly associated with choice of non-nucleoside reverse-transcriptase inhibitor, which is normal-dose efavirenz versus nevirapine or low-dose efavirenz (p=0.022). Positive predictors of VLS included age (AOR: 1.07, 95% CI: 1.01-1.13, p=0.018), regular clinic attendance (AOR: 4.76, 95% CI: 1.56-14.52, p=0.006) and optimal ART adherence (AOR: 11.90, 95% CI: 3.95-35.86, p<0.001). Unemployment (AOR: 0.28, 95% CI: 0.08-0.94, p=0.039) and hospitalisation more than twice per year (AOR: 0.11, 95% CI: 0.01-0.89, p=0.038) were negatively associated with VLS. Additionally, 75.5% recorded optimal ART adherence (≥90%) determined via proportion of days covered (PDC). Pre-ART counselling by pharmacists significantly influenced PDC (AOR: 3.67, 95% CI: 1.29-10.44, p=0.015), while Chinese ethnicity (AOR: 0.27, 95% CI: 0.11-0.68, p=0.005) and patients with history of defaulting ART (AOR: 0.31, 95% CI: 0.12-0.84, p=0.021) had about 70% lower odds of optimal PDC.
Conclusion: Normal-dose efavirenz is an effective first-line ARV option in combination ART, and PDC can serve as proxy for adherence. Understanding determinants of successful ART programmes enlightens pragmatic strategies to improve HIV treatment outcomes.
Keywords: Antiretroviral Therapy, Human Immunodeficiency Virus, Viral Load Suppression, Medication Adherence

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OT3-28

Predictors of Medication Use and Comorbidities Remission among the Obese Population Following Bariatric Surgery

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Introduction: Bariatric surgery assists obese population in losing weights and improves the obesity-related comorbidities. Understanding predictors of medication use aids to identify patients requiring closer monitoring or treatment modifications. Earlier studies examined on predictors of diabetes remission but hypertension and hyperlipidaemia were not well-studied.
Objective: This study aimed to identify predictors of medication use and comorbidities remission among obese patients after bariatric surgery.
Methods: A retrospective cohort study involving 137 adult obese patients who received bariatric surgery between October 2014 and April 2021 was performed in Hospital Raja Permaisuri Bainun. Data on patient demographics, medication use, and comorbidities were collected retrospectively using case report form and analysed with SPSS Statistics. Multivariate logistic regression analyses were employed.
Results: Among 137 patients, bariatric surgery significantly reduced medication use (p<0.001). Hypertension, diabetes and hyperlipidaemia were significantly decreased post-surgery (p<0.001). Multivariate logistic regression analyses demonstrated that body mass index, ≤2 drugs, baseline calcium-channel blockers and β-blockers use predict antihypertensive use while baseline β-blockers use predict hypertension remission post-surgery. Both females and baseline insulin use significantly predict antidiabetics use and diabetes remission. Baseline insulin users are more likely to take antidiabetics (aOR 9.892, 95%CI 1.636-59.817, p<0.05) and encounter lower diabetes remission (aOR 0.103, 95%CI 0.017-0.623, p<0.05). Number of baseline comorbidities predict lipid-lowering drugs use and hyperlipidaemia remission.
Conclusion: Bariatric surgery significantly reduces medication use and improves hypertension, diabetes mellitus and hyperlipidaemia remission. Baseline β-blockers use, females, baseline insulin use and number of baseline comorbidities significantly predict medication use and remission of hypertension, diabetes and hyperlipidaemia.
Keywords: Bariatric Surgery; Metabolic Surgery; Predictor; Medication Use; Comorbidities Remission

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OT3-29

Multicentre Study on the Use of Innovator and Generif Salmeterol/Fluticasone Combination in Asthma Management

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OT3-30

Formoterol/Budesonide (Symbicort®) Turbuhaler Versus pMDI Salbutamol for Acute Asthma in Outpatient Emergency Setting: A Prospective, Randomised, Open-Label Study

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Introduction: The Global Initiative for Asthma (GINA) has suggested the need for studies on inhaled corticosteroid (ICS)-formoterol in the Emergency Department (ED).
Objective: This study aimed to compare the outcomes of Symbicort® Turbuhaler (160/4.5 mcg/inhalation) versus pressurised metered-dose inhaler (pMDI) salbutamol (100mcg/puff) in acute asthma in the outpatient ED.
Methods: This single-centre, prospective, randomised, and open-label study collected data on adult asthma patients who were presented to the Asthma Bay Hospital Kuala Lumpur for mild-moderate exacerbation. The intervention arm's subjects received Symbicort®, and the control arm's subjects received pMDI salbutamol as per ED protocol. Stratified randomisation with variable baseline ICS use was used in this study. Direct discharge rate from Asthma Bay was the primary outcome. Vital signs pre- and post-treatment between the two arms were also compared.
Results: A total of 74 (n=37 for each arm) asthma patients were recruited. Baseline clinical characteristics were comparable between the two arms. Direct discharge rates from ED were comparable between the two arms (p=1.000). Post-treatment outcomes (respiratory rate, oxygen saturation, peak expiratory flow rate) were similar between the two arms, except for the higher median increment of heart rate (p<0.001) and lesser reduction of blood pressure in the control arm (p=0.013). Intravenous hydrocortisone use was significantly higher in the control arm (n=19, 51.4%) than in the Symbicort® arm (n=6, 16.2%) (p=0.001).
Conclusion: Symbicort® Turbuhaler is as effective as pMDI salbutamol in treating asthma exacerbation in the outpatient ED with less effect on heart rate and lower usage of hydrocortisone.
Keywords: ICS-Formoterol, Formoterol/Budesonide, Symbicort, Acute Asthma, Emergency Department

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OT3-31

Evaluation of Five-Year Overall Survival and Cause of Mortality Among Patients Receiving Methadone Maintenance Therapy for Opioid Dependence

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Introduction: Opioid use disorder is associated with greater mortality, but methadone maintenance therapy (MMT) has been shown to confer survival advantages. However, the causes of mortality have not been thoroughly studied.
Objective: This study aims to investigate 5-year overall survival and cause of mortality among patients receiving MMT.
Methods: A retrospective cohort study was conducted among patients enrolled in the MMT program between January 2008 and December 2017 at Hospital Seri Manjung, Perak. All MMT patients were included, while those with less than six months of therapy were excluded**.** The duration of MMT enrollment until December 2022 was analysed as a survival function, while multivariate Cox proportional hazard regression was used to adjust the death hazard risk (AHR) among the variables.
Results: 282 patients were included in the analysis. By the end of 2022, 72 events were observed, and 210 patients were censored, providing an overall 5-year survival of 74.5%. Patients aged between 41-50 and 51-70 had AHR 3.05 times (p=.008) and AHR 3.65 times (p=.005) higher than patients aged 18-30. Patients who defaulted from the MMT program had AHR 15 times (p=.008) than those on active treatment. Among 72 events observed, Human immunodeficiency virus, Tuberculosis, and Hepatitis (HTH) contributed to 22.2% of the deaths. The HTH-related infection increases the AHR by 2.69 times (p=.023) compared to non-HTH-related infection.
Conclusion: Increasing age and HTH-related infections were associated with a higher hazard risk, indicating the importance of addressing these co-occurring health conditions in individuals undergoing MMT.
Keywords: Opioid Dependence, Methadone Maintenance Therapy, Overall Survival, HTH-Related Infection

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OT3-32

Evaluation of Gentamicin Dosing Regimens in Adult Orthopaedic Patients: A Comparative Retrospective Analysis

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Introduction: Gentamicin is routinely prescribed as a single-daily dosing (SDD) or conventional dosing (CD) in orthopaedic cases. However, in our setting, the target concentrations are sometimes not attained.
Objective: This study aimed to evaluate the adherence to gentamicin dosing recommendation, the serum concentrations achieved in various initial dosing regimens and to assess target attainment in the subsequent samples.
Methods: All adult orthopaedic patients treated with gentamicin and performed therapeutic drug monitoring (TDM) from January 2016 to April 2022 at Miri Hospital were retrieved from the TDM Registry. Demographic data and steady-state gentamicin concentrations were extracted from the TDM request form, electronic laboratory database and Pharmacy Information System. Data analysis encompassed descriptive statistics and Pearson's chi-square.
Results: This study included 293 samples from 218 patients and revealed 95.5% of patients received initial SDD below the recommended creatinine-based dosing. In CD, 55.6% received initial doses lower than 1.5mg/kg/dose. About 45.5% and 57.1% achieved suboptimal gentamicin concentration in the SDD and CD initial samples, respectively. Analysis showed that 80.0% of the subsequent samples achieved targeted concentrations. In patients with normal renal function, 12-hourly dosing provided the best probability of attaining targets, compared to 8-hourly dosing (χ^2= 95.58 (1), P<0.001).
Conclusion: This work revealed improvement opportunities in gentamicin initiation practice to optimise target attainment in adult orthopaedic patients. The study highlighted that 12-hourly dosing is favourable in conventional regimens and the need to initiate doses of at least 1.5mg/kg/dose. TDM recommendations further improved target attainment in the subsequent samples.
Keywords: Gentamicin, Peak, Trough, Aminoglycoside, Monitoring

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OT3-33

Investigation on Target Trough Serum Gentamicin Concentration Achievement among Neonates with Extended Interval Aminoglycosides Dosing Regime in Hospital Teluk Intan

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Introduction: Extended Interval Aminoglycosides Dosing (EIAD) has been the mainstay dosing strategy in Malaysia recently, especially in treating early-onset neonatal infections. EIAD strategy involves administering a higher concentration of gentamicin at prolonged intervals. This dosing approach is favourable compared to the traditional multiple daily-dosing (MDD) because of its advantages in pharmacokinetics profile and prevention of antibiotic resistance.
Objective: This study aimed to determine the prevalence of neonates attaining target trough serum gentamicin concentration of less than 1mg/L during first drug-monitoring assessment with EIAD in hospital.
Methods: A retrospective observational study was conducted from January to March 2023 involving all neonates who received Intravenous Gentamicin 5mg/kg every 36 hours treatment in the Neonatal Intensive Care Unit Ward and Special Care Nursery of Hospital Teluk Intan. Data on gestational age, body weight, renal profile, and trough serum gentamicin concentration was collected using a data collection form.
Results: A total of 155 neonates were included in the study. Majority of the neonates (n=111, 71.6%) achieved desired trough serum gentamicin concentration while 44 neonates (28.4%) was unable to attain therapeutic trough concentration. Of the 44 neonates, 5 neonates had trough gentamicin concentration more than 2mg/L. The mean trough serum gentamicin concentration was 0.82mg/L (0.75–0.88mg/L).
Conclusion: Majority of the patients achieved trough serum gentamicin concentration of less than 1mg/L. EIAD benefits over MDD in terms of reduce blood taking frequency and reduce error prescribing pattern. However, further safety and efficacy study is required to change the practice from MDD to EIAD.
Keywords: Extended-Interval, Gentamicin, Neonates, Trough Level

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OT3-34

Drug Utilisation and Potentially Inappropriate Prescriptions Assessment among Discharged Paediatric Patients in a Tertiary Care Hospital

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Introduction: Safety concerns on drug utilisation and appropriateness among paediatrics relies on relevant evidence generation.
Objective: To analyse the drug utilisation and potentially inappropriate prescriptions among discharged paediatric patients in Hospital Tengku Ampuan Rahimah (HTAR).
Methods: The cross-sectional study included discharged paediatric (aged <18 years) prescriptions received in HTAR between March and May 2023. Drug utilisation was assessed using World Health Organization (WHO) Prescribing Indicators. Appropriateness was evaluated using the Pharmacy Management (PF) Form prescription intervention categories and 67-item Key Potentially Inappropriate Drugs in Pediatrics List (KIDs List). Data was examined using descriptive analysis.
Results: Overall, 1952 prescriptions (mean age 4.61± 4.72 years) containing 3304 drugs and 149 drug types were analysed. Top three drugs were paracetamol (n=912, 27.60%), amoxicillin (n=598, 18.10%), and cefuroxime (n=205, 6.20%). Average number of drugs per prescription was 1.69. Use of generic name and drugs from the Malaysian National Essential Medicines List were 2061 (62.38%) and 2985 (90.35%), respectively. The number of antibiotics and injectables per prescription were 1338 (68.55%) and 1(0.05%), respectively. Overall prevalence of potentially inappropriate prescriptions was 8.15% (n=159). Top three categories were inappropriate dose (n=46, 2.35%), inappropriate frequency (n=15, 0.77%) and incomplete duration (n=7, 0.36%). Twenty drugs from KIDs List were prescribed. Prescriptions with KIDs List drug was 80 (4.09%), primarily involving tramadol (n=40, 2.05%).
Conclusion: The use of essential drugs, antibiotics, and generic names were inconsistent with the WHO recommended values. The prevalence of potentially inappropriate prescriptions was minimal. Continuous monitoring and targeted interventions are cornerstone in optimal paediatric pharmacotherapy.
Keywords: Drug Utilisation, Inappropriate Prescriptions, Paediatrics, World Health Organization, Potentially Inappropriate Medication List

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12TH NATIONAL PHARMACY R&D CONFERENCE 2024

Unity for Medicine Security: Collaborative Solutions for a Safer Future

ABSTRACTS

POSTER PRESENTATION

TRACK 1: DRUG DEVELOPMENT & REGULATIONS

PT1-01

Prevalence and Determinants of Unregistered and Falsified Medicinal Products in Malaysia: A Cross-Sectional Study

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Introduction: The global proliferation of unregistered and falsified medicinal products poses significant public health risks. In Malaysia, previous studies have shown concerning prevalence rates but are often limited to specific populations and targeted product brands, restricting the generalisability of the findings.
Objective: This study aimed to determine the prevalence of unregistered and falsified medicinal products in Malaysian community pharmacies, General Practitioner (GP) clinics, and commercial premises, and to identify associated factors.
Methods: A cross-sectional study was conducted in Malaysia from March to November 2023. Medicinal products were sampled from community pharmacies, GP clinics, and commercial premises. Premises were selected using proportionate stratified random sampling and products within premises using convenience sampling. The MAL registration number and hologram on these products were analysed for registration status and authenticity. Data were analysed using descriptive and non-parametric tests (SPSS v.29), with $p<0.05$ considered statistically significant.
Results: An examination of 30,590 samples from 2,048 premises across Malaysia identified 270 unregistered and 30 falsified products. The prevalence of unregistered products was 0.06% in community pharmacies, 0.18% in GP clinics, and 2.09% in commercial premises. Falsified products were absent in pharmacies and GP clinics but constituted 0.26% in commercial premises. Logistic regression revealed that region, premise category, and premise type were significantly associated with the presence of unregistered and falsified products.
Conclusion: Unregistered and/or falsified medicines were present in all premise types, with higher prevalence in commercial premises. Enhanced efforts by enforcement authorities and stakeholders are necessary to improve the quality of medicine in Malaysia.
Keywords: Prevalence, Unregistered, Falsified, Medicinal Products, Malaysia

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PT1-02

Advancing Prostate Cancer Diagnosis in Malaysia: Towards Accessible Fluorine-18 PSMA-1007 Radioligand

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Introduction: Small molecule prostate-specific membrane antigen (PSMA) inhibitors are widely used in nuclear medicine for targeting prostate cancer cells. PSMA, highly expressed in these cells, is a key target for Positron Emission Tomography-Computed Tomography (PET-CT) imaging. While Gallium-68 labelled PSMA inhibitors like PSMA-11 are commonly used, limitations such as short half-life and low radioactivity yield limits its accessibility to other PET-CT centres. A newer option, Fluorine-18 labelled PSMA-1007, offers potential solutions to these challenges.
Objective: This study aims to locally produce Fluorine-18 PSMA-1007 and assess its technical aspects in comparison with the established gold standard, Gallium-68 PSMA-11.
Methods: Fluorine-18 PSMA-1007 and Gallium-68 PSMA-11 were synthesized using an on-site cyclotron. Parameters including activity at end of bombardment (EOB), end of synthesis (EOS), synthesis time, production cost estimation, and lesional uptake were compared across six consecutive batches. In addition, stability studies for Fluorine-18 PSMA-1007 were conducted to determine its shelf-life.
Results: Technical data indicates the superiority of Fluorine-18 PSMA-1007 over Gallium-68 PSMA-11, with significantly higher EOB and EOS, shorter synthesis time, and lower production cost. Fluorine-18 PSMA-1007 also exhibited stability for up to 6 hours post-synthesis, suitable for prolonged PET-CT studies.
Conclusion: Fluorine-18 PSMA-1007 displayed promising technical characteristics, with comparable lesional uptake demonstrated through PET-CT imaging. Its significantly higher EOS radioactivity, at 43 times that of Gallium-68 PSMA-11, facilitates increased daily scan capacity and the potential for wider distribution to other PET-CT centres, thereby improving patient accessibility to PSMA-based PET imaging.
Keywords: Fluorine-18 PSMA-1007, Radiopharmaceuticals, Prostate Cancer, PET-CT, Accessibility

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PT1-03

Phenotypic Characterisation of CD19 Chimeric Antigen Receptor T (CAR-T) Cells Manufactured using Automated CliniMACS Prodigy® System

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Introduction: Chimeric Antigen Receptor T (CAR-T) cell therapy has shown remarkable global success in treating haematological malignancies, particularly CD19-positive B cell malignancies. Automated CliniMACS Prodigy® system offers a faster and standardised approach to CAR-T cell production.
Objective: This study aimed to characterise the CD19 CAR-T cells manufactured using CliniMACS Prodigy® from three healthy donors, describing cells' phenotype, expansion rate, viability, cytokine production and safety.
Results: The findings of our study indicated that the CD19 CAR-T cells produced had an initial average T cell purity of 83.18%. The purity increased to 90.46% at day 12. The mean CD19 lentiviral transduction rates were 58.1% on day 5 and decreased slightly to 43.5% on day 12. The CAR+ cells consisted of an average of 60% CD4+ cells. The average viabilities of CD3+ cells remained above 93% during cultivation. The CAR+ cells reached an average of $8.84x10^7$ on day 5, and then increased by 10.5 times to an average count of $9.3x10^8$ cells. Functional analysis demonstrated elevated production of TNF-α, IFN-γ, IL-2, and IL-4 cytokines in CD19 CAR-T cells when they were co-cultured with CD19+ Raji cells. Importantly, the CD19 CAR-T cells had less than 5 lentivirus vectors per genome, ensuring the safety for infusion.
Conclusion: The automated CliniMACS Prodigy® system enables efficient cell expansion and reproducible manufacturing of CD19 CAR-T cells with good viability. To the best of our knowledge, this is the first study in Malaysia describing extensive phenotypic characterisation of CD19 CAR-T cells using Automated CliniMACS Prodigy® System.
Keywords: CAR-T Cell Therapy, Clinimacs Prodigy®, CD19, Chimeric Antigen Receptor, Automated Manufacturing

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PT1-04

Evaluation of Illicit Adulterants in Unregistered Health and Food Products Confiscated in Kedah Darul Aman

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Introduction: Unregistered health and food products were confiscated by regulatory bodies due to violation of laws and concerns over its quality and safety. Major concerns include adulteration from active pharmaceutical ingredients (API), prohibited substances or unapproved drugs.
Objective: This study aimed to identify frequency and types of adulterants in confiscated unregistered health and food products. Also, to identify categories of products highly adulterated according to the health claims on the label.
Methods: Samples of unregistered health and food products from January 2019 until June 2021 were analysed by the Chemistry Department. Details of samples were recorded in a pre-designed data collection form. Analytical methods of Gas-Chromatography-Mass Spectrometry (GC-MS) and High Performance Liquid Chromatography (HPLC) were used for detection of adulterants and data was analysed.
Results: Samples of 548 consisting of 455 unregistered health products and 93 food products were analysed in this study. A total of 80 (17.6%) samples of unregistered health products and 1 (1.1%) sample of food products had been detected with adulterants. The highest were antihistamines (n=37, 34.6%), followed by corticosteroids (n=31, 29%), and slimming agents (n=12, 11.21%). Also, 43.2% (n=35) of samples were detected with more than one adulterant with antihistamine and corticosteroids as the highest combination (65.7 %) detected. The highest adulterated products were the ones claiming for ear, nose, and throat (ENT) treatment.
Conclusion: This study managed to identify the adulterants detected in confiscated unregistered health and food products in Kedah. With 14.78% of total samples were adulterated, it raises a safety concern to consumers.
Keywords: Adulterants, Health Product, Food Product, Confiscated Product

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PT1-05

Insights into Diphenhydramine Cough Syrup Supply in Malaysian Private Healthcare: Compliance and Offences 2020-2022

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Introduction: In Malaysia, the possession, sale and use of Diphenhydramine Cough Syrup (DPH) are governed by the Poisons Act 1952. Misuse of DPH can lead to behavioural effects and dependance. Therefore, strict compliance with regulations governing DPH supply is crucial and closely monitored.
Objective: This study aimed to assess the compliance of private healthcare facilities in Malaysia regarding the supply of DPH to the public, determine the prevalence of discrepancies in DPH sales recording, and identify common offenses detected during the Controlled Substance Operation (CSO).
Methods: A retrospective observational analysis was conducted on CSO reports by the Pharmacy Enforcement Branch (PEB) across private healthcare facilities (clinics and pharmacies) nationwide from 2020 to 2022. Data pertaining to compliance status, discrepancies in the recording of DPH sales, and the types of offenses under the provision of Poisons Act 1952 were extracted and analysed.
Results: A total of 202 CSO reports from 2020 to 2022 revealed that only 13.4% of private healthcare facilities were compliant in supplying DPH in Malaysia. The prevalence of discrepancies in recording DPH sales was 86.3% in pharmacies and 90.0% in clinics. In pharmacies, the primary offense identified was 28.6% failing to record DPH sales in the prescription book, while clinics had 35.7% of DPH sales not as a dispensed medicine.
Conclusion: This study unveiled extensive non-compliance in Malaysian private healthcare regarding DPH supply, posing significant risks such as increased potential for substance abuse and undermining public confidence in private healthcare. Immediate intervention and enforcement measures are imperative.
Keywords: Compliance, Diphenhydramine Cough Syrup, Offences, Discrepancy

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PT1-06

Outcomes of Peritoneal Dialysis-Related Peritonitis Treated with Intra-Catheter Taurolidine

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Introduction: Peritoneal dialysis (PD)-associated peritonitis frequently results in relapsing and repeat peritonitis because of biofilm formation. Intra-catheter taurolidine as an adjunct to systemic antibiotics has been proven to be effective in preventing relapsing and repeat peritonitis in previous studies.
Objective: This study aims to investigate the outcome of PD-associated peritonitis treated with intra-catheter taurolidine.
Methods: This is a retrospective study which reviewed all PD-associated peritonitis cases treated with intra-catheter taurolidine between 1st June 2022 and 31st January 2023 in Hospital Selayang. All patients who responded to antibiotic treatment received 6 doses of intra-catheter taurolidine. Relapsing and repeat peritonitis are defined as peritonitis that occurs within 4 weeks and more than 4 weeks, respectively, upon completion of therapy of a prior episode with the same organism.
Results: A total of 48 patients were treated with intra-catheter taurolidine in which 22 (46%), 14 (29%), 6 (13%) and 2 (4%) cases were caused by *Pseudomonas spp*, *Mycobacterium spp*, *Serratia spp*, and fungus, respectively. Other micro-organisms were isolated from another 4 cases. Relapsing and repeat peritonitis occurred in 12 (25%) and 10 (21%) patients, respectively. Fourteen (29%) patients were converted to hemodialysis permanently whereas 6 (13%) patients died. Two patients (4%) developed chemical peritonitis (cloudy peritoneal dialysate with raised eosinophil count). All chemical peritonitis cases responded to a short course of systemic corticosteroid and antihistamines. None of the patients had blood-stained PD effluent.
Conclusion: This study demonstrates that taurolidine does not seem to be effective in preventing relapsing and repeat peritonitis.
Keywords: Taurolidine, Relapsing, Repeat, Peritonitis

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PT1-07

Cross-Border Region Pharmaceutical Crime through Sebatik Island: Analysis and Challenges

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Introduction: The cross-border region of Sebatik Island in Tawau, Sabah, shared between Malaysia and Indonesia, is notorious for the trafficking of controlled goods, drugs, and other commodities. Mainstream media and scientific journals from both countries have reported this phenomenon, yet there is a lack of research regarding the illegal transportation of pharmaceuticals and cosmetics across this unique land and maritime border.
Objective: To determine the crime rate, types, and direction of transportation of illegal pharmaceuticals and cosmetics across the Sebatik border.
Methods: Police seizure data from 2021 to 2023 were analysed to identify trends in the illegal transportation of pharmaceuticals and cosmetics across the Sebatik border. The analysis focused on the frequency, types, and values of seized items, as well as the direction of transportation (importation versus exportation).
Results: The crime rate was determined to be 0.23 per 100,000 people in 2021, 1.83 in 2022, and 2.05 in 2023. Of the total value of seized items, 72.73% comprised unnotified cosmetics, while the remaining 27.27% were from unregistered medicines. 51.82% of total cases were suspected of illegal exportation, while the remaining 48.18% were suspected of illegal importation.
Conclusion: Ineffective border control has led to an increased rate of illegal transportation of pharmaceuticals and cosmetics. The study underscores the necessity to implement a risk-based enforcement approach to better align with regional crime patterns by expanding awareness efforts, collaborating with domestic and international stakeholders, strengthening border controls, and improving regulatory frameworks.
Keywords: Pharmaceutical Crime, Sebatik Island, Risk-Based Enforcement Approach, Border Control, Police Seizure

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PT1-08

Simple, Specific, and Validated Gas Chromatographic Method for Simultaneous Determination of Menthol, Camphor, Thymol, and Methyl Salicylate in Topical Preparation: Application in Traditional Products

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Introduction: The adulteration of synthetic analgesic and anti-inflammatory compounds in traditional products to enhance synergistic effects has been extensive and associated with excessive therapeutic claims. This has led to potential health adverse effects upon chronic use.
Objective: To develop a validated assay method for the simultaneous determination of menthol, camphor, thymol, and methyl salicylate in Malaysian-registered traditional products.
Methods: High purity standards (>98%) and a highly sensitive instrument, gas chromatography-mass spectrometry (GCMS), coupled with a triple quadrupole (TQ) detector were utilised. Separation was achieved using BP-624 (30 m x 0.25 mm x 4.4 µm) with a simple solvent extraction method employing methanol. Eugenol was used as the internal standard. The analytical method was evaluated for accuracy, specificity, limit of detection (LOD), limit of quantification (LOQ), linearity, and precision.
Results: All the compounds were successfully separated within 20 minutes, with no overlapping interference observed at the retention time of compounds of interest. The linearity range was 3–80 µg/mL ($r^2 \geq 0.995$). The average recoveries were 97.39% (menthol), 98.40% (camphor), 98.07% (thymol) and 99.43% (methyl salicylate). Precision and inter-precision were 0.9493%–4.0157% and 1.8805%–3.6075%, respectively. LOD and LOQ were determined at 1 ppm and 3 ppm, respectively.
Conclusion: The validated analytical method demonstrated high specificity, accuracy, sensitivity, and precision. It was successfully applied to commercially acquired products as part of the routine quality control (QC) analysis. Given its capability to determine all compounds, its adoption can be beneficial in both the regulatory and industrial settings.
Keywords: GCMS, Menthol, Camphor, Thymol, Methyl Salicylate

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PT1-09

Changes in Anthropometry and Metabolic Biomarkers in Type 2 Diabetic Patients with Coronary Artery Disease Following Sodium Glucose Co-Transporter 2 Inhibitor (EpiCAD study)

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Introduction: It has been discovered that patients with high comorbidities, typically those with type 2 diabetes mellitus (T2DM) and coronary artery disease (CAD) have a profound risk of developing anthropometric and metabolic abnormalities. Anthropometric and metabolic parameters have been demonstrated to improve with the introduction of sodium glucose co-transporter (SGLT-2) inhibitor, according to some studies. However, the observation of these changes following SGLT-2 inhibitors is still unknown for Malaysian cohorts.
Objective: The current study aims to investigate the changes in anthropometric and metabolic biomarkers in T2DM patients with CAD treated with SGLT-2 inhibitors.
Methods: Using a quasi-experimental cohort approach, 128 T2DM patients with CAD were enrolled over the course of six months in a single centre; 64 of them underwent SGLT-2 inhibitor treatment, while the remaining 64 did not. Several anthropometric measurements (blood pressure, weight, body mass index (BMI) and waist-hip ratio (WHR)) and metabolic biomarkers (fasting blood glucose (FBG), HbA1c, total cholesterol, triglycerides, HDL and LDL) were taken and compared between baseline and 6-month.
Results: Both SGLT-2 inhibitor treatment and non-treatment had shown changes in systolic blood pressure, FBG and HDL in 6 months ($p < 0.05$) while SGLT-2 treatment showed a significant improvement in weight, BMI, WHR, HbA1c, total cholesterol, triglycerides and LDL ($p < 0.05$).
Conclusion: Several anthropometric and metabolic biomarkers have shown a notable improvement with SGLT-2 inhibitors, highlighting the drug's importance as an effective antidiabetic agent that improves both types of biomarkers.
Keywords: SGLT-2 Inhibitor, Metabolic Biomarkers, Anthropometry, Type 2 Diabetes Mellitus, Coronary Artery Disease

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PT1-10

Rituximab in Multiple Sclerosis: A Single Center Experience of Efficacy and Safety

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Introduction: Rituximab is increasingly used as an off-label treatment for multiple sclerosis (MS), but more data is needed to assess its safety and efficacy.
Objective: This study aimed to evaluate the factors in MS patients in Hospital Seberang Jaya.
Methods: The medical records of MS patients on IV Rituximab from April 2018 to April 2023 were retrieved retrospectively. Effectiveness was assessed by monitoring clinical relapses, magnetic resonance imaging (MRI) activity, expanded disability status scale (EDSS) scores. Safety was evaluated through adverse events.
Results: A total of 7 Rituximab treated patients were collected: 2 cases of Secondary Progressive Multiple Sclerosis (SPMS) and 5 cases of Relapsing Remitting Multiple Sclerosis (RRMS). All patients had an active disease despite standard treatment prior to initiation of Rituximab. All the patients received intravenous Rituximab 2000 mg every 6-12 months. Follow-up ranged from 1 year to 5 years, with a median of 3 years. Two relapses occurred during follow-up. EDSS score improved in four patients, two remained static and worsened in one. MRI imaging reported no new changes in all the patients and presence of new lesions in one patient post treatment. All the patients tolerated Rituximab infusion well without nausea, vomiting and infusion-rate related reaction. Three female patients and one male patient presented with urinary tract infections. No serious infection related to Rituximab was reported.
Conclusion: Rituximab was well tolerated among MS patients, though the response towards disabilities progression was mixed. The study suggests that a larger cohort is needed to comprehensively assess Rituximab's efficacy and safety in MS treatment.
Keywords: Safety, Efficacy, Rituximab, Multiple Sclerosis

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PT1-11

Retrospective Study of Illegal Medicines Advertisements in Local E-Marketplace Platforms

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Introduction: Pharmacy Enforcement Division (PED), Malaysia has taken various approaches in combating the illegal advertising of medicines on the local e-marketplace platforms in order to protect the consumers. There is a need to provide some understanding and serve as a basis for the authority to develop new measures.
Objective: This study aims to determine the extent of problems of illegal advertising of medicines on local e-marketplace platforms and to identify types of medicines and local e-marketplace platforms that mostly reported with contravention of the acts enforced by PED.
Methods: This retrospective study analysed secondary data from the local e-marketplace medicine advertisements screening reports from 1st January 2021 to 30th June 2022. Data were analysed with SPSS version 28 and descriptive statistics on the patterns of medicines were presented.
Results: A total of 16,396 illegal medicine advertisements were analysed which 82.9% (n=13,592) medicines were not registered with the Drug Control Authority. Traditional products (41.2%, n=6,755) appeared to be the highest type of medicines be advertised, followed by poisons (38.1%, n=6,249) and health supplements (12.0%, n=1,963). Shopee (48.8%, n=7,999) and Lazada (36.3%, n=5,953) were the local e-marketplace platforms reported with the highest number of illegal medicine advertisements.
Conclusion: The findings in this study have raised concerns about consumers' health and safety while purchasing medicines online due to the risk of being misled by illegal medicine advertisements, particularly unregistered products. Closer collaboration and communication between authority and platform providers are essential for improving the current strategy and to look for other potential interventions.
Keywords: Medicine Advertisements, E-Marketplace

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PT1-12

FarmaTag Hologram Insight: Are Consumers and Regulatory Authorities Provided with Complete Pharmaceutical Product Information?

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Introduction: The FarmaTag Hologram is a regulatory-required label affixed to all registered pharmaceutical products (RPP) in Malaysia, designed to provide immediate access to product information through the FarmaChecker app. While the assignment of detailed product information remains optional, its completion significantly enhances consumer and regulatory oversight, thereby aiding in the prevention of label misuse.
Objective: To determine the authenticity of FarmaTag Holograms and to assess the availability of complete product information in the FarmaChecker application, along with its classification category among mainstream medicines' sellers (MMS) in Sabah.
Methods: A cross-sectional descriptive study was conducted using census sampling to include all 1,262 MMS in Sabah. For each MMS, four RPP were selected through convenience sampling. The authenticity of each RPP's hologram was verified using the FarmaChecker app. The availability of complete product information was assessed based on its presence or the 'not assigned' status. Data were systematically collected using a standardised form and analysed with IBM SPSS version 28.
Results: All 5,048 FarmaTag holograms on RPPs were confirmed authentic (100%). However, 94.7% (n=4,780) of the product information entries were marked as 'not assigned.' Of the 5.3% (n=268) with complete product information, 47.8% (n=128) were classified as 'Over-the-Counter' medications, and 52.2% (n=140) as traditional medicinal products. No products categorised as scheduled poisons or dietary supplements had complete product information assignments.
Conclusion: The availability of product information in the FarmaChecker app is notably low. Mandating product information assignments could significantly improve regulatory oversight and ensure safety standards, benefiting both consumers and regulatory authorities.
Keywords: FarmaTag Hologram, Registered Pharmaceutical Products, Complete Product Information, Product Classification Category

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PT1-13

Violations By Licensed Premises Within The Jurisdiction Of Terengganu Pharmaceutical Services Division : A Five-Year Review

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Introduction: Malaysian Pharmacy Enforcement Services is responsible in ensuring that licensed premises within their purview abide by the laws and regulations. Enforcement actions taken following unsatisfactory inspection findings are needed to avoid diversion and misuse of controlled poisons.
Objective: To describe the trends of contravention and any pattern of recurring breaches committed by Licensed premises under the purview of Terengganu Pharmaceutical Services Division (TPSD).
Methods: Enforcement actions taken towards the licensed premises over a five-year period from 2019 to 2023 was retrieved and reviewed. Information about the premises, types of offences and actions taken were recorded.
Results: Out of 986 inspections carried out, enforcement actions have been initiated against 62 licensed premises with 103 offences recorded. It included 57 pharmacies, 4 Natrium Hydroxide Permit Holders and one private hospital. The most common offences were the violations of Poison Act 1952 (n=75, 72.8%) specifically on Section 24(1) (n=27, 26.2%) and Section 26(4) (n=21, 22.4%) that involved Prescription Book and non-compliance to conditions specified in permits and licences issued by TPSD respectively. About 40 premises (64.5%) committed single offence during inspection. Most common action taken was the issuance of regulatory letters (n=97, 94.2%), followed by the initiation of investigating papers (n=5, 4.9%) and one successful prosecution. Five premises were found to commit repeated offences in the following years despite issued regulatory letters beforehand.
Conclusion: The number of premises that committed multiple offences in the same year is considered low with a small percentage of these premises violating the regulations in the following years.
Keywords : Violation**,** Enforcement, Licensed Premises, Poison Act 1952, Pharmacy Offences

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PT1-14

Assessing Knowledge and Perceptions of Public in Kedah on Implementation of Community Pharmacy Logo

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Introduction: A logo is much more than just an image, it's a recognition for consumers and a foundation for branding of the business or service provided to the public. The logo also can add value to the reputation of an organization. Therefore, on 1st January 2019, the Pharmaceutical Services Division of the Ministry of Health has endorsed all the community pharmacists in Malaysia to present the community pharmacy logo in front of their premises**.**
Objective: To assess public knowledge and perception of implementation of community pharmacy logo in Kedah.
Methods: A cross-sectional study was conducted among the public in Kota Setar from February 2023 until October 2023 (n=371). The association between knowledge and perception were analysed using Pearson's correlation and for demographic factors related to knowledge and perception were analysed using logistic and linear regression.
Results: The findings reveal that 62% (n=231) of the public in Kota Setar possess good knowledge about the implementation of the community pharmacy logo. Factors such as age, gender, occupation, availability of a community pharmacy to one's residence, and frequency of visits to community pharmacies significantly influence the knowledge of the public ($p<0.05$). Although there's a positive correlation between knowledge and perception, it's not statistically significant ($p=0.05$).
Conclusion: There is no association between public knowledge of community pharmacy logos and their perceptions of the Ministry of Health (MOH) move to implement community pharmacy logos at retail pharmacies.
Keywords: Community Pharmacy, Logo, Knowledge, Perception, Public

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PT1-15

Pharmacist's Perspectives on Access to New Medicines Listed in the Ministry of Health Medicines Formulary (MOHMF): A Qualitative Study

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Introduction: Rising costs of new medicines and therapies within healthcare systems is making it difficult to allocate limited resources, potentially restricting access to new medicines, thereby depriving patients of their benefits. Consequently, there is a pressing need to understand and address how pharmacists can enhance access to these new medicines listed in the Ministry of Health Medicines Formulary (MOHMF).
Objective: This study aims to explore pharmacist's perspectives on access to new medicines listed in the MOHMF.
Methods: This study was conducted as face-to-face, semi-structured interview. Respondents from MOH hospitals were recruited using purposive sampling. Using phenomenological study approach, interviews were conducted, and audio recorded with their consent. Data were transcribed verbatim and analysed using thematic analysis.
Results: A total of 10 respondents were interviewed providing insights into challenges encountered and the strategic management approaches employed to ensure access to new medicines. The findings emphasize the importance of patient access to new medicines, highlighting benefits such as better treatment options and enhanced patient outcomes. Additionally, the study identified various challenges in relation to budget allocation, sustained funding, delayed access, prescriber behaviours, patient perceptions, and existing treatment challenges. Consequently, chief pharmacists employ strategic management strategies such as implementing standard procedures, effective communication with department heads, budget allocation reviews, procurement strategies, and delisting procedures.
Conclusion: This study underscores the complexities of managing access to new medicines within budget constraints and highlights the need of pharmacists to employ strategic management strategies in the MOH healthcare facilities.
Keywords: New Medicines, Medicines Access

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12TH NATIONAL PHARMACY R&D CONFERENCE 2024

Unity for Medicine Security: Collaborative Solutions for a Safer Future

ABSTRACTS

POSTER PRESENTATION

TRACK 2: CONSUMER – CENTERIC PHARMACY SERVICES

PT2-01

Prevalence and Characteristics of Medication Errors Among Paediatric Patients in Kedah

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Introduction: Medication error is inevitable in any healthcare setting, which is more critical when it involved paediatric patients. Due to their unique and complex therapeutic regime, this group of patients were considered as vulnerable population.
Objective: This study aimed to determine the prevalence, characteristic and contributing factors of medication errors reported in paediatric patients.
Methods: A retrospective cohort study of medication errors reported in Medication Error Reporting System (MERS) among paediatric patients. The cases included in the study were cases reported between 2020 and 2022 in government healthcare facilities in Kedah. The data were tabulated in percentage and analysed using Microsoft Excel.
Results: Medication error reported involved paediatric patients was 304 (4.34%). The mean age group of the study was 4 ± 3.6 years. Prescribing error accountable for 94.9% (n: 281) of the errors. Common classes of drugs involved were antimicrobials (26.7%) and electrolytes/vitamins/supplements (21.9%). According to the data, 97.3% of the errors did not reach patient followed by 1.4% of error have reached patient but unlikely to cause harm, 1% of error have reached patient and could have necessitated monitoring and/or intervention to preclude harm and 0.3% of the case reported have cause temporary harm to patient. Frequent contributing factors of the errors were work and environment factor (43.8%) followed by staff factor (39.5%).
Conclusion: Most paediatric medication errors were contributed by prescribing errors. This was a potential key area for improvement in designing preventive strategies to improve prescribing competency thus enhancing patient's safety and quality of care.
Keywords: Paediatric, Medication Errors, Medication Error Reporting System, Prevalence, Contributing Factors

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PT2-02

Effect of 'Insulin Self-Dose Adjustment Quick Guide' (InsuRx) on Glycaemic Control among Diabetic Patients in Batu Rakit Health Clinic

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Introduction: Self-monitoring blood glucose (SMBG) is an important component in glycaemic control among diabetic patients with insulin. Thus, local Insulin Self-Dose Adjustment Quick Guide (InsuRx) was developed to ensure all patients had better understanding to do SMBG and adjust their insulin accordingly.
Objective: To compare patients' mean glycated haemoglobin (HbA1c) before and after using InsuRx and to find the association between HbA1c outcomes in different sociodemographic.
Methods: A cross-sectional study was carried out in a pharmacist-led SMBG Clinic located in Batu Rakit Health Clinic from 1st April to 30th October 2022 where patients were trained to use InsuRx. Patient records were traced and selected based on inclusion and exclusion criteria. Details of their demographic data and HbA1c level at 0 and after 6 months enrolled in SMBG Clinic were retrieved and recorded. The data were analysed via paired t-test and t-test.
Results: 52 patients were recruited with mean age 59.10 ±10.09 years old. 67.3% (n=35) of the patients showed reduction in HbA1c after using InsuRx. There was a significant improvement in mean Hba1c after 6 months using insuRx which is 9.9 ± 2.3% compared to before with 11.025 ± 2.25% (p=0.002). Only age was significantly associated with mean hba1c reduction. Older age showed more reduction in mean Hba1c compared to the younger group with p=0.02.
Conclusion: This finding shows significant reduction in HbA1c level after implementation of InsuRx. Thus, this quick guide used in pharmacist-led SMBG clinics should be recommended to be implemented to the other health clinics.
Keywords: Insulin, Self-Monitoring Blood Glucose, Hba1c, Diabetes Mellitus, Quick Guide

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PT2-03

Evaluation of Knowledge, Attitude and Practice on Adverse Drug Reaction Reporting among Healthcare Professionals of Government Clinics in Perak Tengah

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Introduction: Adverse Drug Reaction (ADR) is a harmful or unpleasant effect related to the use of a medicinal product. All types of ADRs are encouraged to be reported by all healthcare professionals. Information pertaining to local and international drug safety issues obtained through ADR reporting can lead to an improved healthcare system.
Objective: This study aims to evaluate the knowledge, attitude, and practice of healthcare professionals towards adverse drug reaction reporting in Perak Tengah.
Methods: A cross-sectional study was conducted in Perak Tengah district, involving eight government clinics. The data was analyzed using SPSS, and the categorical variable results obtained were presented as frequency and percentage. The comparison of knowledge, attitude, and practices between groups was analyzed using the chi-square test. The p value was set at <0.05 with a confidence interval of 95%.
Results: Sample size is 140, and the response rate is 88% (123 respondents). This study showed that healthcare professionals have adequate knowledge (84.5%) and good practice (84.5%) in reporting ADR. However, a negative attitude (95%) towards reporting ADR was reported, particularly among medical officers, assistant medical officers, and staff nurses. However, community nurses showed a significantly positive attitude toward reporting ADR compared to other healthcare professionals.
Conclusion: Healthcare professionals in Perak Tengah District do have adequate knowledge and good practices, but they have shown negative attitudes towards ADR reporting. It is good to further investigate the negative attitudes among healthcare professionals toward reporting ADR while awareness campaigns and regular education are implemented in primary care.
Keywords: Adverse Drug Reactions, Healthcare Professionals, Primary Care

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PT2-04

Patient's Own Medication (POM) Use In The Wards Using Enhanced-POM (En-POM) Process: A Costing Analysis

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Introduction: Using Patient's Own Medicines (POM) in the ward minimizes medication costs and reduces wastages. Nevertheless, it raises concerns as it may introduce medication errors, especially omission errors, wrong doses and wrong timing. Literature had reported 4.2% medication error with POM.
Objective: To evaluate the economic and safety impact of standard POM practice compared to enhanced-POM (En-POM) process for medication use in the ward.
Methods: This was a cross-sectional, observational cost-analysis study where time and cost involved in processing of POM were compared between standard-POM and En-POM. For standard-POM, the medications are stored in the ward and do not involve any pharmacy processes. For En-POM, the medications are sent to in-patient pharmacies where they are verified for quality and expiry, filled according to prescriptions for 7 days' use into the patient's medication trolley and counter-checked by pharmacists before dispensing to ward. The average time spent per prescription for each process per staff and its associated salaries were calculated. The primary outcome was total cost per 100 patients for standard-POM and En-POM. Secondary outcome was percentage of medication errors detected from En-POM.
Results: 365 prescriptions from 100 patients were collected. Average time spent on the medication process was 3.85 hours per 100 patients for standard-POM and 16.87 hours per 100 patients for En-POM, respectively. En-POM incurred RM 548.45 per 100 patients compared to RM106.28 in standard-POM. Besides, 1.7% medication error was detected using En-POM.
Conclusion: Despite an additional cost of RM 442.17 per 100 patients, En-POM managed to reduce medication error compared to standard-POM.
Keywords: In-Patient, Patient's Own Medication, Cost-Analysis Study

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PT2-05

Knowledge and Disposal Practice towards Unused Medications among Outpatients in Hospital Tuanku Fauziah

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Introduction: Unused medications are pharmaceuticals that were no longer utilised by their intended users. Improper medications disposal not only harms the environment, it may also lead to unintentional poisoning and misuse.
Objective: The study aimed to measure the knowledge of unused medication disposal among outpatients in Hospital Tuanku Fauziah (HTF) and its associated factors.
Methods: A cross-sectional study was conducted using a validated questionnaire among patients attending outpatient pharmacy HTF from October 2022 to February 2023. The study included patients aged more than 18 years with chronic medications. A knowledge score of more than 50% was considered good. Parameters associated with knowledge scores were identified using Chi-Square and Fisher's Exact test.
Results: A total of 384 respondents participated in this study. Most of the respondents were female (59.1%), married (77.3%), aged ≥ 50-year-old (46.6%) and Malay (92.2%). Mean knowledge score was 49.5% (standard deviation (SD) =17.43). Less than half of them (40.1%) had good knowledge on medications disposal. Tablet/capsule users had the highest appropriate medication disposal (35.8%) by returning to the pharmacy. Those who were aware of proper disposal method ($p<0.001$) or had been advised by healthcare professional to return unused medications to pharmacy ($p=0.002$) were shown to have significantly higher knowledge score.
Conclusion: The overall correct medication disposal knowledge among outpatients taking chronic medications was still low. Therefore, a well-structured educational programme should be conducted to improve awareness on medication disposal practice.
Keywords: Disposal; Knowledge; Practice; Unused Medicines; Outpatients

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PT2-06

Medication Error Reporting Facilitators and Barriers Among Healthcare Professional in a Tertiary Hospital - A Cross Sectional Study

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Introduction: Medication errors (ME) cause dire clinical and financial consequences. Medication error reporting (MER) is an approach that can be used to identify areas for quality improvement and continuous education. However, there is severe underreporting, with MER rates below 30%. To improve reporting rates among the healthcare professionals (HCPs), it is important to identify the facilitators and barriers (FaB) to MER
Objective: To identify the FaB to MER among HCPs and to identify the differences in FaB between the HCPs.
Methods: A cross-sectional study using a validated questionnaire was conducted among doctors, pharmacists, and nurses in Hospital Tengku Ampuan Rahimah, Klang from February 2022 to March 2022 using convenience sampling. Frequencies and percentages were used for primary objective analysis and chi square test for secondary objective analysis.
Results: 336 HCPs participated in this study. Patient safety is the top incentive for HCPs to report ME (87%) while heavy workload discourages reporting (70%). Doctors and pharmacists both agreed that anonymous reporting will encourage more submission ($p=0.016$) and not knowing that an ME has occurred is a barrier to reporting ($p<0.001$). Doctors believe more enforcement and emphasis on MER will promote reporting ($p=0.012$). Pharmacists will report ME if they are not blamed for reporting it ($p=0.012$). Nurses believed it is unnecessary to report near misses ME ($p<0.001$).
Conclusion: Patient safety is held in highest regard when it comes to MER. Removing barriers, such as blame culture and heavy workload, in addition to frequent education on the importance of MER would encourage more MER.
Keywords: Medication Error Reporting, Healthcare Professionals, Facilitators, Barriers, ME-FaB

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PT2-07

Knowledge, Motivator, Concerns and Brand Preference regarding COVID-19 Vaccination among Patients and Caregivers in Sibu Hospital

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Introduction: Public perceptions regarding COVID-19 vaccination, encompassing knowledge, motivators, concerns, and brand preferences, significantly influence vaccine acceptance and uptake.
Objective: This study assessed knowledge, motivators, concerns and brand preferences regarding COVID-19 vaccination among patients and caregivers at Sibu Hospital.
Methods: A cross-sectional study was conducted from December 2021 to January 2022. A questionnaire was adapted from literature with the reliability coefficient for knowledge, motivator, and concerns ranging from 0.779 to 0.856. The questionnaire was distributed by investigators and self-administered by the patients and caregivers who visited the Sibu Hospital, through convenient sampling. Data was analysed by descriptive analyses.
Results: 409 respondents participated, with a mean age of 34.7 years. Most were Chinese (38.6%), employed (55.7%), and educated at least to the secondary school level (81.9%). A high vaccination rate was observed (98.1% received ≥2 doses). The majority (92.4%) knew the eligibility criteria for vaccination, citing social media as the most influential information source (45.2%). Free availability motivated 88.3% to vaccinate. Concerns about the vaccine's rapid development were noted by 62.1%. Cominarty (53.3%) and CoronaVac (40.1%) were the most preferred brands, with CoronaVac favoured by the Chinese respondents.
Conclusion: Respondents demonstrated fair knowledge of vaccine eligibility but expressed concerns about rapid vaccine development. Free availability served as a key motivator for vaccination. Utilising social media for information dissemination could enhance vaccine literacy. Brand preferences varied, with Cominarty and CoronaVac emerging as popular choices.
Keywords*:* COVID-19, Vaccination, Patients, Caregivers, Pharmacy

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PT2-08

Characterisation of Unintentional Medication Discrepancies through Medication Reconciliation during Discharge: Preliminary Findings from General Medical Wards of a Tertiary Hospital

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Introduction: Medication reconciliation during the transition of care can prevent unintentional medication discrepancies (UMDs).
Objective: This study aimed to determine the prevalence and types of UMDs through medication reconciliation during hospital discharge.
Methods: A prospective observational study was carried out at the general medical wards of Sarawak General Hospital, a tertiary hospital in Sarawak, Malaysia from May 2023 to March 2024. Adult patients aged 18 years and older, presenting with cardiovascular, endocrine, renal, and respiratory comorbidities, were selected using a convenient sampling method. The process of discharge medication reconciliation by clinical pharmacists included comparing the list of medications in the discharge prescription with those documented in the medication history assessment form and inpatient medication charts. Any discrepancies detected were verified with the prescribers to determine the nature of the discrepancies.
Results: Out of 160 discharges, 44 (27.5%) were found to have at least one UMD. A total of 54 UMDs were detected in 44 patients, resulting in an average of 1.2 errors per patient. The most prevalent UMD was omission (55.6%), followed by inappropriate drugs (18.5%), and discrepant dose (16.7%). These discrepancies were predominantly observed in the Cardiovascular System therapeutic class (37.0%), followed by the Alimentary Tract and Metabolism therapeutic class (35.2%).
Conclusion: This study has demonstrated the importance of medication reconciliation in safeguarding medication safety through detecting and rectifying UMDs during the transition of care by clinical pharmacists.
Keywords: Unintentional Medication Discrepancies, Prevalence, Discharge Prescription, Medication Reconciliation

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PT2-09

Public Awareness and Knowledge of Dispensed Medicine Labelling Under the Poisons Regulations 1952 in Federal Territory of Labuan

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Introduction: Proper medicine labelling is essential for safe and effective medication usage. In Malaysia, specific labelling requirements for dispensed medicines are mandated under Regulation 12 of the Poisons Regulations 1952. Public understanding and awareness of these regulations are crucial to prevent medication misuse and associated health risks.
Objective: This study aimed to assess the public awareness and knowledge of the Poisons Act 1952 and the Poisons Regulations 1952 concerning dispensed medicine labelling requirements in Federal Territory (F.T.) of Labuan.
Methods: A cross-sectional study was conducted using a convenience sample of 405 Malaysian adults in F.T. Labuan. Online and hard copy questionnaires were administered to collect demographic data and participants' awareness and knowledge of dispensed medicine labelling requirements. Data were analysed using descriptive statistics and chi-square tests. The questionnaire was previously validated and achieved a reliability score of 0.88.
Results: 41.0% of the participants displayed good awareness of the Act and Regulations. 56.8% demonstrated good knowledge of the information required on medicine labels. Significant associations were found between knowledge scores and both age groups ($\chi^2 = 35.8$, $p = 0.003$) and education levels ($\chi^2 = 22.92$, $p = 0.028$), suggesting these demographics influence knowledge levels. Other variables, such as gender, race, and occupation, showed no significant associations.
Conclusion: The high level of awareness and self-reported understanding of labelling requirements among the public in F.T. Labuan highlights the need for targeted educational programmes. These should aim to improve the practical application of this knowledge to ensure safe medication practices.
Keywords: Medicine Labelling, Poisons Regulations, Public Awareness, Labuan, Knowledge Assessment

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PT2-10

Knowledge, Attitude and Perception among Muslim Patients' Regarding Halal Pharmaceuticals in Hospital Besut

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Introduction: Muslims are required to be aware of the halal status of any pharmaceutical products, as this is part of Islamic practices and faith. The Muslim population around the world is becoming more conscious of their options to choose between halal and non-halal pharmaceutical products.
Objective: This study aimed to assess the level of knowledge, attitude, and perception (KAP) among Muslim patients in Hospital Besut.
Methods: A cross-sectional study using a validated, Malay version, self-administered questionnaire was conducted among patients visiting an outpatient pharmacy. It contains questions on KAP, with a higher score denoting better KAP. The data were analysed using descriptive statistics and an independent t-test, with $p<0.05$ considered statistically significant.
Results: Of 376 patients (response rate 94.7%), 58.2% of them were females, with a mean age (SD) of 35.2 (11.8) years old. The mean± SD KAP were 6.46 ± 2.13, 26.93 ± 6.09, and 30.89 ± 4.78, out of a maximum score of 9, 35, and 35 respectively. Knowledge scores were significantly associated with age groups ($p<0.001$), gender ($p=0.003$), education levels ($p<0.001$), occupations ($p=0.027$), and health status ($p=0.005$). Patients with higher knowledge would likely purchase products from outside ($p=0.006$). Attitude scores were significantly different across education levels ($p<0.001$), whereas perception scores varied significantly across education levels ($p<0.001$) and occupations ($p=0.014$). There was a significant ($p<0.001$), positive good correlation ($r=0.734$) between attitude and perception.
Conclusion: The results revealed that Muslim patients in Hospital Besut had high knowledge, attitude, and perception regarding halal pharmaceutical products available in Malaysia.
Keywords: Knowledge, Attitude, Perception, Halal Pharmaceutical Products

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PT2-11

Medication Reconciliation: A Qualitative Analysis of Healthcare Professionals' Perceptions

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Introduction: Medication discrepancies occur intentionally or unintentionally between a patient's medication list and medication administration. Medication reconciliation (MedRec) is a solution to attain a complete patient's medication list, reducing the occurrence of drug discrepancies.
Objective: This study aims to explore healthcare professionals' (HP) perceptions of MedRec in Hospital Tuanku Ampuan Najihah Kuala Pilah (HTAN), specifically focusing on their perceptions, barriers and facilitators of MedRec and insight on the MedRec form.
Methods: This qualitative study used a purposive sampling method. It consisted of semistructured interviews to explore 5 doctors and 5 pharmacists' perceptions on MedRec. This study included 3 main questions consisting of perception, barriers and facilitators to implement MedRec, lastly the use of MedRec form, including improvement to the form. Interviews were recorded and transcribed verbatim. All data were analysed using thematic analysis approach.
Results: The interview data yielded 62 codes, 5 categories, and 3 themes. The themes were (1) All participants agreed that MedRec is for patient's benefits; by reducing medication error, increasing medication safety and optimising treatment regimen. (2) They also agreed time, poor history and workload were the barriers in conducting MedRec. (3) However they also had differing perspectives about the implementation of MedRec using the new form.
Conclusion: The implementation of MedRec remains challenging. Both professions had mutual understanding on the benefits & barriers of MedRec but they had separate views on the implementation of the new form. Hence, addressing these barriers while increasing providers' self-efficacy might improve MedRec and outcomes.
Keywords: Medication Reconciliation, Perceptions, Facilitators, Barriers

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PT2-12

Factors Affecting the Practice of Sharps Disposal among Type 2 Diabetes Mellitus Patients: An Experience in A District Specialist Hospital

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Introduction: Type 2 diabetes mellitus (T2DM) patients are susceptible to sharp injuries due to their insulin needles and lancets utilisation. Nevertheless, there is a lack of information regarding proper sharps disposal methods among Malaysians.
Objective: This study aimed to determine the prevalence of T2DM patients practising correct sharps disposal, identify barriers to the correct practice, and evaluate the factors affecting correct disposal.
Methods: A cross-sectional study was conducted among T2DM patients seeking treatment in the medical outpatient department of Port Dickson Hospital, using a researcher-assisted questionnaire to collect data from December 2023 to April 2024. A convenience sampling method was used to recruit the potential study participants. Descriptive data were presented as numbers (percentages), while the chi-square and Fisher's exact tests were used for inferential analysis.
Results: Among 57 respondents, 66.7% were below 60, 54.4% were female, and 52.6% were of Malay ethnicity. Only 29.8% of respondents practised correct sharps disposal methods. 43.9% had good knowledge, and 42.1% had a strong positive attitude towards sharps disposal. The main barriers to sharps disposal were not knowing the proper disposal methods (87.7%), the location for sharps disposal (68.4%) and the risk of blood-borne disease (66.7%). Unemployment (p=0.044), the experience of receiving information on sharps disposal from healthcare workers (p=0.025), self-inexperience of sharps injury (p=0.022), and good knowledge of sharps disposal (p=0.001) were factors significantly associated with correct sharps disposal.
Conclusion: Healthcare professionals must regularly evaluate the diabetic patient's sharps disposal practices to reduce the prevalence and consequences of sharps injuries.
Keywords: Sharps Disposal, Sharps Injury, Type 2 Diabetes Mellitus

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PT2-13

Ensuring Data Quality in Pharmacy Information System: A Cross-Sectional Study on Prescription Data Accuracy and Completeness in a Public Hospital (ATTACH)

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Introduction: Electronic prescription data holds vital information for healthcare organizations, aiding in patient clinical management, drug procurement monitoring, and research. However, discrepancies between paper prescriptions and electronic prescriptions are described as frequent and often resulting in adverse medication events.
Objective: We aimed to identify the type and percentage of discrepancies between paper prescriptions and electronic prescriptions in the Pharmacy Information System (PhIS).
Methods: A cross-sectional record review was conducted at an outpatient pharmacy of a public hospital. A total of 310 paper prescriptions from January to October in 2023 were randomly selected using a simple sampling method and compared with PhIS prescription data using validated checklist for discrepancies in medication information (addition, omission or duplication of medications, and/or a change in dosage, frequency or formulation of medication) and prescription information (prescriber's name, diagnosis or patient's name).
Results: 310 patients (56% male; median age 48 years) were included in this study. The patients had a median of 4 [IQR 1–12] medications listed in PhIS. 32.3% of PhIS prescriptions contain at least one discrepancy. The most common type identified was discrepancies in duration of drug supply (9.8%, n=1141) with 23.4% were drugs from the Analgesic group. Discrepancies correlated significantly with the number of items in the prescription ($p<0.005$) and the prescriber's location ($p<0.005$).
Conclusion: Discrepancy between paper prescription and PhIS prescription data are frequent. Mitigation measures such as intensive user training and periodic audits are recommended to improve procedure compliance and data quality. Prospective studies involving larger populations are suggested for further investigation.
Keywords: Pharmacy Information System, Prescription Accuracy, Medication Discrepancies, Data Quality, Data Completeness

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PT2-14

Patient Characteristics and Factors Associated with Defaulters Among Drive-Through Patients in Hospital Tuanku Ja'afar Seremban

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Introduction: Drive-through service was introduced to resolve the problems during medicine collection visits such as inadequate parking space and long waiting time. However, defaulters among drive-through patients contribute to insufficient storage space for packaged defaulter medication, waste of manpower and finances.
Objective: This study aimed to identify the characteristics and associated factors of defaulters among drive-through patients.
Methods: A retrospective cohort study and simple random sampling was performed across newly registered and existing drive-through patients in Hospital Tuanku Ja'afar from May 2021 to June 2021. Collected data consisted of the patient's demographic, patient characteristics, prescription characteristics, knowledge of characteristic and logistic issues. Data were analyzed descriptively and logistic regression was used in analysing the association of factors with defaulters.
Results: A total of 335 drive-through patients were included with prominent characteristics of defaulter were 66.7% female with a mean (SD) age of 57.3 (17.67) years, 48.5% Malay, 57.6% new registered and 72.7% dependent patient. The proportion of defaulters were 10.7% (95% CI: 6.2, 15.8) and 8.9 % (95% CI: 4.4, 13.3) in new registered and existing drive-through patients respectively. Factors significantly associated with defaulter were female (OR= 2.58; 95% CI: 1.18 - 5.62; P=0.017), semi or fully dependent (OR= 2.66; 95% CI: 1.17- 6.05; P=0.020) and those not received notification (OR= 3.35; 95% CI: 1.43 - 7.84; P=0.005).
Conclusion: There was a higher proportion of defaulters among new patients compared to existing patients. Female patients, semi or fully dependent patients and those not received notification had greater risk to become a defaulter.
Keywords: Drive-Through Pharmacy, Defaulter

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PT2-15

Prevalence and Associated Factors of Lipohypertrophy among Patients with Diabetes Mellitus Receiving Insulin Injections in the Districts of Sarawak

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Introduction: Insulin absorption would be affected by the development of Lipohypertrophy (LH). Inconsistency in diabetes control increases the risk of chronic complications in patients.
Objective: Determine the prevalence of LH among insulin injection users and its associated factors. Additionally, to evaluate patients' knowledge, perception, and practice of insulin injection rotation techniques.
Methods: A cross-sectional study was conducted, recruiting patients with diabetes mellitus receiving insulin injections more than 6 months from June 2022 to October 2022 across 8 hospitals and 7 health clinics in Sarawak. The presence of LH was assessed through inspection and palpation of insulin injection sites by medical officers at respective facilities. Self-developed questionnaires, validated for face and content, along with a pilot study showing Cronbach's alpha of 0.732 and 0.795 respectively, were employed to evaluate patient perception and practice towards insulin injection rotation.
Results: A total of 355 participants participated in the study. The prevalence of LH was 5.97%. Patients exhibited good mean knowledge scores (5.09±1.00), perception scores (17.38±3.29), and practice scores (20.17±3.86), yet the majority (86.8%) had poorly controlled HbA1c (>7%). Lower practice scores (10 points) were associated with a 7.3-fold increase in the likelihood of developing LH [OR=0.730; 95% CI (0.643; 0.829); P<0.001]. This suggests that patients may perceive compliance by rotating injection sites randomly.
Conclusion: The prevalence of LH was low, with only practice scores found to be associated with LH development. Patients displayed good knowledge, perception, and practice towards insulin injection rotation techniques, but poorly controlled HbA1c levels.
Keywords: Prevalence, Associating Factors, Lipohypertrophy, Insulin Injection Rotation Technique, Diabetes Mellitus

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PT2-16

Patient Satisfaction with Pharmacist Managed Medication Therapy Adherence Clinic Service in Malaysian Health Facilities

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Introduction: Patient satisfaction is crucial for assessing the quality of care and sustainability of healthcare services. While Pharmacist-managed Medication Therapy Adherence Clinics (MTACs) have demonstrated improvements in health outcomes, their impact on patient satisfaction remains understudied.
Objective: This study aims to address this gap by evaluating patient satisfaction with MTAC services, focusing on care quality, patient-pharmacist relationships, and overall satisfaction, while also exploring associated factors.
Methods: Conducted from August to October 2022, this cross-sectional multicentre study surveyed patients enrolled in MTAC services across 5 government hospitals and 5 health clinics in Selangor, using convenience sampling. A questionnaire was offered to consenting patients or caregivers with active follow-ups of a minimum of 2 visits. Patient satisfaction data were collected using the Patient Satisfaction with Pharmacist Clinical Services Questionnaire (PSPSQ 2.0), comprising questions about the quality of care and the interpersonal relationship between the pharmacist and the patient.
Results: The patient cohort comprised 319 (60%) patients from Anticoagulant MTAC, 131(24.6%) from Diabetes MTAC, 47 (8.8%) from Retroviral disease MTAC, 20 (3.8%) from Cardiac Care Bundle (CCB) MTAC, and 15 (2.8%) from Geriatric MTAC. The mean overall satisfaction score was 3.58 (SD=0.45), with the interpersonal relationship domain scoring higher [3.59(SD=0.47)] than the quality-of-care domain [3.57(SD=0.47)]. Significant associations were found between satisfaction and age, education, occupation, income, and facility (hospital vs. health clinic) (p<0.05),
Conclusion: This study revealed high overall patient satisfaction with MTAC services. Age, education, occupation, income, MTAC type and facility emerged as key predictors of patient satisfaction.
Keywords: Patient Satisfaction, Pharmacists, PSPSQ 2.0, Quality of Care, Interpersonal Relationship

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PT2-17

Adverse Drug Reaction Reporting in a Tertiary Hospital: Patterns, Completeness and Avoidability

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Introduction: Adverse drug reaction (ADR) is one of the major threats in healthcare systems, contributing to both patient morbidity and mortality. Completeness of information on ADR reports is essential to enable causality assessment, whereas pattern and avoidability analyses may allow proactive steps to be taken to prevent future events.
Objective: To determine patterns and completeness of information on ADR reports, as well as the avoidability of serious ADRs.
Methods: A retrospective cross-sectional design was employed. All spontaneous ADRs reported in the hospital in 2021 were included, with those categorised as serious further assessed for avoidability. All required data were entered into Google Forms®. Information completeness was analysed based on item count and modified vigiGrade score. Avoidability was assessed using Liverpool ADR Avoidability Assessment Tool (LAAT).
Results: A total of 277 ADRs were analysed. The majority (91.0%) were electronically submitted and related to inpatients (60.3%). Pattern analysis discovered that most reports were for allergy (82.3%), with skin involvement (71.8%), and occurred within hours of administration (53.8%). Most of the reports received (88.1%) were considered well-documented (modified VigiGrade score of 0.9 – 1.0). Items commonly not filled on ADR forms include the MAL number, batch number and patient's weight. Seven serious ADR cases were deemed avoidable.
Conclusion: ADR reports were mostly complete, contributed by essential information being compulsory fields in the electronic form. Compared to allergies, intolerance related ADRs are likely to be under-reported. Healthcare professionals should be encouraged to report these events, as subsequent avoidability analysis can yield valuable learning opportunities.
Keywords: Adverse Drug Reaction, Avoidability Analysis, Completeness of Information

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PT2-18

An Evaluation of Knowledge, Attitude and Practice towards Adverse Drug Reaction Reporting among Prescribers in Hospital Tuanku Fauziah, Perlis

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Introduction: Adverse drug reaction (ADR) reporting is a method of monitoring the safety of drugs.
Objective: This study aimed to assess the level of knowledge, attitude, and practice of ADR reporting among prescribers at Hospital Tuanku Fauziah (HTF).
Methods: A cross-sectional study was conducted in HTF from February to October 2022. A validated questionnaire was distributed among prescribers using convenient sampling method. Factors associated with knowledge, attitude and practice of ADR reporting among prescribers were analysed statistically. Correlation between knowledge, attitude and practice score were examined using Pearson's Correlation Coefficient.
Results: The overall response rate was 47.9% (n=81). Most of the respondents were medical officers (63%) and 74.1% of them had working experience of less than five years. Fifty-five (67.6%) respondents had previously reported an ADR. However, 95.1% of the respondents did not receive training on ADR reporting. More than half (53.1%) of the respondents obtained a poor knowledge score, 72.8% had a negative attitude and 48.1% had inappropriate practice towards ADR reporting. Working experience was significantly associated with knowledge and attitude. There was a positive correlation between knowledge with attitude ($r=0.300$, $p=0.007$) and practice scores ($r=0.534$, $p<0.001$). Houseman officers had a significantly lower knowledge ($p=0.013$), attitude ($p=0.004$) and practice ($p<0.001$) scores compared to fully registered practitioners towards ADR.

Conclusion: This study has reflected that the majority of respondents had inadequate knowledge, negative attitude and moderate practice on ADR reporting. Improvement on ADR reporting training should be done to strengthen ADR reporting among healthcare professionals.
Keywords: Knowledge, Attitude, Practice, Adverse Drug Reaction Reporting, Prescribers

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PT2-19

An Interventional Study on the Effectiveness of EAZiMED to Improve Hematinic Counselling among Pregnant Women in Health Clinics in Kota Tinggi

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Introduction: Despite hematinics are available free of charge in all health clinics, iron deficiency anaemia in pregnancy remains high with prevalence of 29.3% in Malaysia. Studies found inadequate knowledge and incorrect way of taking iron supplements contributed to poor compliance hence the lack of therapeutic efficacy. To address knowledge inadequacy with enhanced client experience, EAZiMED was employed as an alternative to conventional over-the-counter pharmacist-led counselling. EAZiMED adopted a QR code sticker that enables clients to access online infographic about oral hematinics.
Objective: To assess the effectiveness of EAZiMED in improving counselling about oral hematinic among pregnant women in health clinics.
Methods: A cross-sectional study involving 100 antenatal patients who were on oral hematinic in five health clinics in Kota Tinggi. In pre-study, participants were given over-the-counter counselling about hematinic followed by a set of self-administered validated questionnaires to measure their knowledge and compliance score. Participants were then dispensed with hematinic with EAZiMED. 30 days later, post- knowledge and compliance score were measured.
Results: EAZiMED improved participants' knowledge score about hematinic by 33%, from pre-score of 11 to post-score of 17. Participants who were compliant to hematinic (MyMAAT score ≥54) increased from 62% in pre-study to 76% in post-study. Participants' self-awareness of haemoglobin level improved from 76% in pre-study to 87% in post-study.
Conclusion: EAZiMED was effective in improving counselling about oral hematinic among pregnant women in our settings. With low operation cost and ease of use, it could potentially be used in other health facilities.
Keywords: Hematinic, Counselling

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PT2-20

Patients' Satisfaction Towards Face-To-Face and Virtual Counselling by Pharmacist in Kuala Terengganu Health Clinic

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Introduction: COVID-19 pandemic has necessitated significant changes in pharmaceutical care. Hence virtual care has become widely accepted.
Objective: This study aimed to (1) evaluate patients' satisfaction level in quality of care (QOC) and interpersonal relationship (IPR) with face-to-face and virtual counselling by pharmacists and (2) to find association between patient satisfaction and socio-demographic characteristics.
Methods: A cross-sectional study was conducted among outpatients from August until December 2023. Patients were randomised into two groups: face-to-face and virtual counselling groups. A validated self-administered questionnaire (PSPSQ) with 4 Likert scales was used, consisting of 10 items on QOC and 6 items on IPR satisfaction. Higher mark was denoted as high satisfaction. T-test and Anova were used in the analysis.
Results: Of 561 patients, 281 were enrolled face-to-face and 280 in virtual counselling groups (female =70.6%; mean age = 52.83±13.54 years old). There was no significant difference in mean satisfaction on QOC and IPR between both groups. QOC mean satisfaction scores for face-to-face and virtual groups were 35.63±4.14 and 35.40±4.51, respectively, while IPR mean scores for face-to-face and virtual groups were 21.51±2.56 and 21.28±2.72. For virtual counselling, age group was statistically associated with mean satisfaction on QOC and IPR ($p < 0.001$). Only gender was associated with mean satisfaction on IPR ($p = 0.036$) in face-to-face counselling. In both groups, age was associated with overall satisfaction ($p<0.001$). Post hoc analysis suggested mean satisfaction was significantly different in patients aged <40 and >60 years old.
Conclusion: The counselling delivery method did not affect overall patients' satisfaction.
Keywords: Patient Satisfaction; Pharmacists; Counselling; Service

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PT2-21

Dermatology Drug Return at Drive Thru Pharmacy Hospital Melaka by Implementing Patient Desired Medication Supply (PaDMEDs)

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Introduction: Pharmacy Value Added Services (PVAS) is an innovation of the pharmacy department to facilitate the collection of follow-up medications. Pharmacy department Hospital Melaka do provide Drive-Thru (DT) pharmacy service. Nonetheless, problems arise when patients return huge amounts of dermatology drugs at the DT counter. This could lead to wastage of resources which includes the cost of drugs and manpower.
Objective: To identify the effect of Implementation of patient desired medication supply (PaDMEDs) in reducing quantity, preparation time and cost of dermatology drug at DT Pharmacy.
Methods: Total of 332 patients with dermatology prescriptions have been interviewed by pharmacists regarding the quantity of each topical medication required for their subsequent appointment from 1st October 2023 to 31st January 2024. Any alterations in the required quantity of topical medications were meticulously documented and appended to the patient's profile. Subsequently, medications were dispensed in accordance with the updated patient profile for the forthcoming collection date.
Results: Implementation of PaDMEDs at DT Pharmacy significantly reduces quantity, preparation time and cost of dermatology drugs at DT Pharmacy. Statistically significant differences ($p<0.05$) between pre- and post-intervention were observed in median total return items, medication cost, and preparation time. Median return items decreased from 3.50 to 2.00 ($p=0.013$), while preparation time decreased from 4.50 to 2.80 minutes. Additionally, median medication cost decreased from RM13.05 to RM9.28 ($p=0.015$).
Conclusion: PaDMEDs significantly reduces quantity, cost and preparation time of dermatology drug at Drive Thru Pharmacy.
Keywords: Dermatology, Pharmacy Values Added Services, Drive Thru-Pharmacy, Patients Desired Medication Supply

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PT2-22

A Narrative Review on The Safety, Efficacy and Cost Effectiveness of Pharmacists-Led Deprescribing Program for Geriatric Patients

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Introduction: This narrative review focuses on deprescribing initiatives led by pharmacists aimed at improving geriatric medication management. It identifies studies addressing deprescribing in geriatric populations, with emphasis on pharmacist-led interventions.
Objective: The study aims to investigate impact of pharmacist-led deprescribing on safety, efficacy and cost-effectiveness outcomes in geriatric patients.
Methods: To identify studies on pharmacist-led deprescribing, comprehensive search was conducted using Scopus, ScienceDirect, and PubMed. The initial search utilized key terms “pharmacist” AND “deprescribing program,” which yielded many articles. Subsequently, refined search to focus on specific factors such as efficacy, safety, and cost-effectiveness of deprescribing programs. Additional key terms included “deprescribing program” AND “geriatric,” “deprescribing program” AND “safety,” “deprescribing program” AND “efficacy,” and “deprescribing program” AND “cost-effectiveness.”
Results: A systematic study evaluated pharmacy-led deprescribing treatments for individuals aged 65 and finding that 74% of community-dwelling participants successfully stopped unnecessary medications over 12-month follow-up. A retrospective cohort study on geriatric stroke patients with sarcopenia showed that fewer prescriptions during hospitalization improved functional recovery and increased home discharge rates. Additionally, an economic evaluation of sedative deprescribing in geriatric patients revealed the intervention led to a higher mean QALY of 0.7232 compared to 0.6463 for usual care, indicating improved QALYs and cost-effectiveness.
Conclusion: This review suggests that pharmacist-led deprescribing programs have the potential to strengthen geriatric medication management by improving medication adherence and health outcomes but also result in cost savings for healthcare systems. The study underscores the importance of pharmacist involvement in deprescribing efforts aimed at optimizing medication use in the geriatric population.
Keywords: Pharmacy-Led Deprescribing, Cost Effectiveness, Geriatric Management

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ABSTRACTS

POSTER PRESENTATION

TRACK 3: PHARMACOTHERAPY

PT3-01

Factors Associated with Thrombolysis Failure in ST-Elevation Myocardial Infarction (STEMI). A Cross-sectional Study

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Introduction: Thrombolytic therapy plays a key role in treating patients with ST-elevation myocardial infarction (STEMI) when percutaneous coronary intervention is not available. Given that failed reperfusion is common, it is pragmatic to carefully scrutinize the factors associated with thrombolysis failure.
Objective: The objectives of this study are to identify the proportion of successful thrombolysis and the factors associated with thrombolysis failure among patients presenting with STEMI.
Methods: A retrospective cross-sectional data collection was conducted on records of patients diagnosed with STEMI who received thrombolytic agents in Hospital Selayang between January 2019 and December 2020. Logistic regression analysis was used to identify factors associated with thrombolysis failure.
Results: Out of 307 patients, 28% exhibited thrombolysis failure. Male gender and being below 60 years old showed a higher tendency for thrombolysis failure. The majority of the patients who experienced thrombolysis failure were Malays (n=53, 62%), however this difference was not statistically significant compared to other races. The Chinese race had a lower risk of thrombolysis failure (OR 0.33 95% CI 0.146, 0.780; p= 0.011). Multivariable analysis revealed that factors such as current smoker (OR 2.38, CI: 1.184, 4.802; p <0.015), Killip II-IV (OR 5.50, CI: 2.566, 11.807; p <0.001), and late presentation ≥ 3 hours (OR; 7.83 CI; 4.004, 15.289; p <0.001) were significantly associated with an increased risk of thrombolysis failure.
Conclusion: Thrombolysis failure is associated with several risk factors and poor prognosis. Early identification of these patients may be beneficial for better monitoring and enhanced treatment outcomes.
Keywords: Myocardial Infarction, Thrombolytic Agent, Thrombolysis Failure

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PT3-02

Pharmacovigilance of Nirmatrelvir/Ritonavir: Real Experience in Southern Malaysian Primary Health Care Setting

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Introduction: Nirmatrelvir/Ritonavir is the only oral antiviral available at primary health clinics (PHC) in Malaysia used for people diagnosed with mild-to-moderate coronavirus disease (COVID-19). Questions have been raised about its safety, especially the side effects (SE) associated with its use.
Objective: To determine the demographic and clinical characteristics of the study population, identify real-world reporting of Nirmatrelvir/Ritonavir-associated SEs, and estimate the cost of wastage due to incomplete Nirmatrelvir/Ritonavir course.
Methods: This is a multicenter, retrospective study involving all COVID-19 patients treated with Nirmatrelvir/Ritonavir in all 14 PHCs under Johor Bahru district, from May 2022 to December 2023. A standardized online record, the *Pharmacy Monitoring Sheet* was developed to collect demographic and clinical characteristics of the studied patients, as well as their SEs experienced.
Results: During the study period, 12,381 patients were diagnosed with COVID-19. Among them, 2,272 (18.4%) patients were prescribed Nirmatrelvir/Ritonavir, with 689 (30.3%) of them aged 60 or older. A total of 1800 (79.2%) patients completed their COVID-19 vaccine booster dose. Additionally, 1472 (64.8%) patients had at least one comorbidity, with the highest prevalence observed in hypertension (32.4%), dyslipidemia (19.4%) and diabetes (17.7%). The main reported SEs are dysgeusia (44.3%, n=786), followed by diarrhea (3.7%, n=65), vomiting (1.6%, n=28), muscle pain (1.9%, n=34) and elevated blood pressure (0.5%, n=9). Notably, 252 (11.1%) patients failed to complete the 5-days course, resulting in an estimated wastage cost of RM265, 671.00.
Conclusion: The safety profile analysis conforms to the current summary of product characteristics (SmPC) of Nirmatrelvir/Ritonavir.
Keywords: Nirmatrelvir/Ritonavir, COVID-19, Pharmacovigilance

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PT3-03

A Study on Adherence to Phosphate Binder Medication Among Haemodialysis Patients in Hospital Jasin

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Introduction: Phosphate binder (PB) medication is required to maintain optimal phosphate level and minimize mineral bone disease (MBD) in end stage renal disease (ESRD) patients. Numerous studies have investigated adherence to PB medication and results showed great variation from 22% to 74%.
Objective: This study aimed to assess the prevalence of adherence to PB medication and identify factors contributing to adherence, and also to examine the correlation between adherences of PB medication with MBD markers. Variables of MBD markers were serum phosphate, serum calcium and serum parathyroid hormone (PTH).
Methods: This was a cross-sectional study involving face-to-face interview of all haemodialysis (HD) patients in Hospital Jasin. A specific questionnaire was developed to obtain patients' demographic and abstracting records for medication and laboratory tests. Adherence was assessed using Adherence to Refills and Medication Scale (ARMS). ARMS with score less than 16 was categorized as non-adherence. Correlation between adherence and studied variables measured using Pearson correlation.
Results: Total patients recruited was 44. Prevalence of adherence was 50%. Age is the only factor contributing to adherence (*r=-0.193, p<0.05*). There was no significant correlation between adherence of PB medication with serum phosphate *(r=-0.184, p>0.05*), serum calcium *(r=-0.132, p>0.05*) and serum PTH *(r=0.125, p>0.05*).
Conclusion: Adherence to PB medication among HD patients in Hospital Jasin is low. Older age showed more adherence to medication compared to young age. A comprehensive intervention should be planned to tackle the non-adherence of younger patients in this study population.
Keyword: Phosphate Binder Medication, Haemodialysis, Adherence, Mineral Bone Disease Marker

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PT3-04

An Observable Retrospective Study on Prevalence and the Determinants of Treatment Failure among Human Immunodeficiency Virus (HIV) Patients on First Line Highly Active Antiretroviral Therapy (HAART) in Hospital Melaka

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Introduction: Despite progress in managing HIV, Malaysia continues to face challenges, as seen in its failure to meet global HIV targets in 2021.Treatment failure necessitates transitioning to costlier second-line regimens with potential increased side effects
Objective: To assess the prevalence of HIV first-line treatment failure and determine factors contributing to the failure.
Methods: A retrospective record review study was conducted from 1st January 2022 to 31st December 2022, involving adult HIV patients receiving first-line Highly Active Antiretroviral Therapy (HAART) at the outpatient Infectious Disease (ID) clinic of Hospital Melaka. Using SPSS version 23.0 software, descriptive statistics were used to summarise the characteristics of the study population, and factors contributing to treatment failure were determined using multiple logistic regression.
Results: A total of 119 individuals were enrolled, with an average age of 38.76. The majority were male patients (85.7%), Malay (76.5%), and single (80.7%). About 26.9% had failed first-line HAART treatment. Seeking alternative medicine (AOR: 5.71; 95% CI: 1.41-23.12; p=0.015) , non-compliance with treatment (AOR: 9.82; 95% CI: 2.81-34.30; p=<0.001), patients with pill burden concern (AOR: 9.83; 95% CI: 1.85-52.20; p=0.007) and baseline treatment regimen other than Tenofovir + Emtricitabine (TenvirEm) + Efavirenz (AOR: 9.33; 95% CI: 2.53-34.48; p<0.001) were the factors associated with the first line HAART treatment failure.
Conclusion: Hospital Melaka exhibited higher first-line treatment failure rates compared to global studies. This study recommends prioritising TenvirEM + Efavirenz for initial HAART, alongside simplified treatment plans and enhanced patient adherence through improved education, counselling, and monitoring practices.
Keywords: HIV, Highly Active Antiretroviral Therapy, HAART, Tenofovir, Efavirenz

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PT3-05

A Proof-of-Concept Study Comparing Palm-seal Method with Conventional Method in Delivery of Metered-dose-inhaler Medication via Facemask Valved Holding Chamber in Children

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Introduction: Lack of cooperation in young children posed a great challenge for delivery of inhaled medication using a valved holding chamber (VHC) with a facemask. Leakage between face and facemask reduced the delivered dose to the respiratory tract and negatively impacted treatment effectiveness.
Objective: To prove that palm-seal method (PSM) is the preferred method to deliver inhaled medication using metered-dose-inhaler (MDI) and facemask VHC for parents with children aged between 6- to 36-month-old and that it is associated with higher successful seal between facemask and the face.
Methods: In a randomised crossover study with 30 patients newly started on MDI with VHC, the parents were counselled on two different methods to administer inhaled medication, i.e. PSM and CVM, spaced 1 day apart. Parents' preferences for both method and ability to ensure good seal were observed and validated by the clinician.
Results: A total of 30 patients with mean age of 15.2±6.7 months-old were recruited, with boys predominated (70%). Most common working diagnoses were viral-induced wheeze (60%) and bronchiolitis (23%). More than half (57%) of the patients' father were smokers. PSM method was preferred over CVM (73% vs 27%) regardless of whether it was introduced first or later (*p=0.682*). Reason given was they found it easier to restrict the child's head movement while ensuring good seal during drug delivery using PSM. PSM was not associated with a higher successful seal when compared to CVM method.
Conclusion: PSM is the preferred method to deliver inhaled medication using MDI with VHC when the child is not cooperative.
Keywords: Paediatric, Valved Holding Chamber (VHC), Metered-Dose-Inhaler (MDI), Inhaled Medication, Good Seal

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PT3-06

Impact or Cyclical Parenteral Nutrition (cPN) on Liver Function Among Adult Patients in a Tertiary Hospital

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Introduction: Common metabolic complication of parenteral nutrition support is parenteral nutrition-associated liver disease (PNALD). Approaches by administering cyclical parenteral nutrition (cPN), allowing some hours for metabolic rest.
Objective: This study aimed to determine incidence, predictive factors, time to onset of PNALD and effectiveness of cPN in prevention and improvement of PNALD.
Methods: A retrospective study was conducted among adult inpatients prescribed with PN in Selayang Hospital between 2020 to 2022 with normal liver function parameters (LFP) at baseline. The primary outcome was PNALD incidence. Changes in LFP included aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP) and total bilirubin (TB) at baseline, onset of PNALD and completion of PN were investigated.
Results: From 159 patients, 102 patients received continuous PN, whereas 57 patients received continuous to cPN, of which 37 received prophylactic cPN; 20 received therapeutic cPN. 22.6% of study population developed PNALD. PN duration (OR: 18.9; 95% CI 5.80-61.38, p<0.001) and bloodstream infection (OR: 3.15; 95% CI: 1.16-8.59, p=0.025) significantly increased the odds for PNALD incidence; whereas cPN (OR: 0.06; 95% CI 0.01-0.29, p<0.001) showed protective effects. Prophylactic cPN significantly delayed onset of PNALD to 16 days (IQR 14-17) versus 8 days (IQR 6-13) in continuous and therapeutic cPN. All LFP remained similar with baseline in prophylactic cPN. After PNALD onset, switching therapeutic cPN significantly reduced TB (p=0.005), ALT (p=0.013) and AST (p=0.002) levels, except ALP; but remained elevated with continuous PN at completion of PN.
Conclusion: cPN is effective in preventing PNALD incidence and improving all LFP, except ALP after PNALD onset.
Keywords: Cyclical, Parenteral, Nutrition, Parenteral Nutrition-Associated Liver Disease, Liver Function Parameter

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PT3-07

Outcomes of Antiretroviral Therapy and Predicting Factors Among Children and Adolescents in a Paediatric Retroviral Disease Clinic

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Introduction: Monitoring and evaluating paediatric Human Immunodeficiency Virus (HIV) treatment outcomes can provide important guidance in antiretroviral treatment programs.
Objective: To investigate the treatment outcomes of antiretroviral therapy and its predicting factors in HIV infected children and adolescents in Hospital Tunku Azizah.
Methods: Medical records of HIV-infected children initiated antiretroviral therapy (ART) from 2002 to 2022 that fulfilled recruitment criteria were retrieved using a data collection form.
Results: A total of 86 subjects with a median (IQR) age of 3.8 (1.2 – 8.0) years during ART initiation were included in this study. Around 81.4% of patients achieved virological suppression at 12 months and 80.2% of subjects achieved CD4% ≥ 25% at 24 months. The nevirapine-based regime had the highest percentage of subjects without a suppressed viral load. Both optimal adherence (aOR: 49.12; 95% CI: 3.4- 706.6; p= 0.004) and increasing age (aOR: 1.02; 95% CI: 1.00 – 1.05; p= 0.03) were found to significantly increase the odds for viral load suppression. Younger age at ART initiation (aOR: 0.97; 95% CI: 0.95 – 0.99; p= 0.003), being virologically suppressed (aOR: 46.6; 95% CI: 5.2 to 419.6; p=0.001), and lesser concomitant medications (aOR: 0.43; 95% CI: 0.22 to 0.84; p=0.014), were significant factors associated with CD4 achieving 25%. Adverse events from ART occurred in 32.6% of subjects, only five required a regimen change.
Conclusion: Findings from this study provided insight on the outcomes of antiretrovirals used, as well as a few important predicting factors in this population.
Keywords: Pediatrics, Antiretrovirals, Viral Load Suppression, CD4, Adverse Event

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PT3-08

Pharmacokinetic Profiles of Valproic Acid among Patients with Bipolar Mood Disorder in Hospital Tengku Ampuan Rahimah Klang: A Retrospective Cross-Sectional Study

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Introduction: Valproic acid (VPA) is used for the treatment of bipolar mood disorder (BMD). Many studies have analysed the population pharmacokinetic of VPA in epileptic patients. However, few were reported in adult patients with BMD.
Objective: The study aimed to estimate VPA clearance of BMD patients. In addition, we compared and evaluated the effects of sex, age, body weight and dose on VPA clearance as predictors.
Methods: The data was collected retrospectively from therapeutic drug monitoring (TDM) forms involving two psychiatric wards of a tertiary hospital from January 2020 to March 2023. The adult patients were on monotherapy VPA for BMD. The VPA clearance was estimated based on the standard steady-state clearance equation. VPA clearance between samples and reference value was evaluated using *one-sample Wilcoxon signed rank test*. *Mann-Whitney U-test* was used to analyse sex, age, body weight and dose group differences. *Spearman's Rank* test was used to determine the correlation of age, body weight and dose with VPA clearance.
Results: The median VPA clearance (n=106) was 6.84 ml/kg/hr, significantly different from the reference value of 8 ml/kg/hr (p<0.001). The results showed significant differences in VPA clearance between sex (p=0.006), dose (p<0.001) and age groups (p<0.001). VPA clearance appeared to correlate positively with age (r=0.277) and dose (r=0.477) but poorly with body weight (r=-0.030).
Conclusion: These findings could provide a guide to optimise VPA therapy in adult patients with BMD. Furthermore, VPA clearance could be predicted from dose, age and sex to personalize VPA maintenance dosing for BMD patients.
Keywords: Valproic Acid, Bipolar Mood Disorder, Pharmacokinetic Profile, Clearance

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PT3-09

Comparative Efficacy and Safety of Interventions for Alleviating the Postoperative Inflammatory Complications after Third-Molar Surgery: A Network Meta-Analysis

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Introduction: Third molar surgery leads to inflammatory complication, yet direct comparisons are lacking in the existing literature.
Objective: This study evaluates interventions' effectiveness and safety in managing postoperative inflammatory complications after third molar surgery
Methods: A systematic review of PubMed, Ovid, and Scopus databases from January 2000, to November 2022 identified randomised controlled trials (RCTs). Pain, measured by visual analogue scale (VAS), was the primary outcome. Standardised mean difference (SMD) was used to assess efficacy. Interventions were ranked using Surface Under Cumulative Ranking (SUCRA).
Results: 37 interventions from 77 RCTs were evaluated. Antimicrobial photodynamic therapy (aPDT) with photobiomodulation (PBMT) ranked highest in reducing pain at day three post-surgery (SMD -4.8, SUCRA 95.9%). Betamethasone (BET), ibuprofen (IBU), and paracetamol (PCM) showed similar efficacy by day seven (SMD: -5.66, SUCRA 92.4%, 89.6%, and 88.1% respectively). PBMT and ozone therapy (OT) significantly reduced trismus on day three (PBMT: SMD -5.02, OT: SMD -3.26, both $p < 0.05$). Oxaprozin (OXA), OT, dexamethasone (DEX), and PBMT were significantly effective by day seven (OXA: SMD -4.4, OT: SMD -2.42, DEX: SMD -1.53, PBMT: SMD 0.008). Diclofenac (DIC) was effective for swelling on day two (SMD -3.22), while OXA was effective on day seven (SMD -4.53). From 77 RCTs, only 14 reported side effects. Piroxicam and ketorolac had the most documented adverse events.
Conclusion: The most effective intervention for pain is aPDT with PBMT. PBMT consistently demonstrated statistical significance in its efficacy for all complications across all evaluation days, with varying ranks. Safety data were limited, highlighting the need for further research.

Keywords: third-molar surgery, postoperative inflammatory complications, pain, trismus, swelling

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PT3-10

Comparison of effects between oral Deferiprone and combination iron chelation therapy on cardiac function in adult beta-thalassaemia patients: A Southern Malaysia study

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Introduction: Transfusion dependent Thalassaemia (TDT) is a severe form of β-Thalassaemia requiring lifelong regular blood transfusions that can lead to cardiac iron overload.
Objective: This study aims to compare cardiac outcomes between different iron chelation therapies (ICT).
Methods: This multicentre, retrospective observational study uses total population sampling of all adult TDT patients from two tertiary hospitals prescribed with subcutaneous Desferrioxamine (DFO) monotherapy, oral Deferiprone (DFP) monotherapy, or combined DFP plus DFO therapy for at least 3 years before data collection. Data on patient demographics, ICT, adherence score, serum ferritin levels, cardiac magnetic resonance imaging (MRI) T2* values, and left ventricular ejection fraction (LVEF) were collected.
Results: In this study, 51 subjects were included. Subjects on combination of DFP + DFO have lower Cardiac T2* values (ms) compared to those in the DFP only group ($p = 0.002$). Additionally, serum ferritin levels (µg/L) in subjects on DFP alone were significantly lower than in those on DFP + DFO combination ($p<0.001$). Linear regression prediction shows that a unit reduction in serum ferritin (µg/L) increases Cardiac T2* by 0.002 ms ($p<0.001$, $r^2 = 0.342$).
Conclusion: Study findings suggest that DFP is more effective in reducing cardiac iron overload than DFP + DFO and serum ferritin levels could become an indicator of cardiac iron overload in TDT patients, particularly in settings where access to Cardiac MRI T2* is limited.
Keywords: Thalassaemia, Deferiprone, Desferrioxamine, Serum Ferritin

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PT3-11

Evaluation of Pharmacists' and Nurses' Knowledge on Bowel Preparation using Fortrans® at Hospitals in Kedah State, Malaysia

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Introduction: In Kedah, the failure rate of bowel preparation in public hospitals is 65% compared to 25% reported in other countries. The bowel preparation counselling was done by pharmacists and inpatient nurses. However, to date, there was no study to assess the bowel preparation knowledge of pharmacists or nurses in Malaysia.
Objective: This study is aimed to assess the pharmacists' and nurses' knowledge on bowel preparation using Fortrans®.
Methods: A validated questionnaire was developed and the test-retest reliability test was conducted. A total of 10 questions with the highest k-values from Cohen's Kappa test (0.614 to 1.00) were included. The multicentre survey was then conducted in all nine public hospitals in Kedah between April and August 2021 involving all pharmacists and nurses in surgical / multidisciplinary wards.
Results: A total of 556 participants (93.1%) have answered the self-administered questionnaire. The mean knowledge score was 7.17 (± 1.63). Alarmingly, only 24.6% of the respondents were able to correctly identify permissible types of clear fluids for bowel preparation. A higher proportion of pharmacists were aware that patients should stop taking iron-containing products one week before the scheduled colonoscopy (70.4% vs 32.6%, $p<0.001$). Multiple linear regression showed that females ($p=0.006$), pharmacists ($p<0.001$), those who graduated abroad ($p<0.001$), and those with higher presumed bowel preparation success rate ($p=0.019$) scored better.
Conclusion: Majority of the respondents failed to answer all the questions correctly. Future educational materials can emphasise on the permissible clear fluids list and time to stop iron consumption.
Keywords: Bowel Preparation Solution, Pharmacists, Nurses, Polyethylene Glycols, Colonoscopy

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PT3-12

Statin Use and Lipid Control in Patients Developing First ST-Segment Elevation Myocardial Infarction: A Retrospective Cohort Study

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Introduction: Cardiovascular disease (CVD) is the leading cause of mortality and morbidity worldwide, including in Malaysia. However, statin therapy for primary prevention of CVD remains low.
Objective: This study aimed to investigate the association between CV risk categories and statin therapy for primary prevention of CVD prior to first episode of ST-segment elevation myocardial infarction (STEMI) in addition to describing lipid control post first STEMI.
Methods: A single-center retrospective cohort study was conducted at a Malaysian secondary hospital. All adult patients admitted for first episode of STEMI in the year 2020 were included. Information data of patients meeting the inclusion and exclusion criteria were extracted from an electronic health information system.
Results: A total of 177 study subjects were enrolled. Despite the study subjects presenting a high CV risk (mean 10-year CVD risk: 27.5% with a standard deviation of 18.6) based on the Framingham general CVD risk assessment tool, only 15.8% of the patients received statin therapy for primary prevention of CVD. There was no significant association between statin therapy for primary prevention of CVD and CV risk categories before their first STEMI. Furthermore, three months after the STEMI event, the mean low-density lipoprotein-cholesterol level remained above the recommended target, measuring 2.11 (0.89) mmol/L.
Conclusion: The utilization of statin therapy for primary prevention of CVD prior to their first STEMI remains surprisingly low, despite well-established guidelines and strong evidence supporting its efficacy. This study signifies the importance of awareness and adherence to published guidelines to improve patient outcomes.
Keywords: Cardiovascular disease, Myocardial infarction, Prevention, Statin

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PT3-13

Hepatotoxicity and Comorbidities in Abiraterone Treatment for Metastatic Castrate-Resistant Prostate Cancer in Selayang Hospital, Malaysia.A 4-year Retrospective Study

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Introduction: Abiraterone with prednisolone is approved for metastatic castrate-resistant prostate cancer (mCRPC) treatment in Malaysia. Hepatotoxicity, and treatment non-response, often leads to Abiraterone discontinuation.
Objective: This study aimed to explore the association between hepatotoxicity, patient comorbidities, and its management.
Methods: We retrospectively analyzed data from mCRPC patients starting Abiraterone between January 2020 and August 2023 at Selayang Hospital. We recorded patient characteristics (age, Gleason score, PSA baseline), comorbidities, hepatotoxicity-related adverse drug reactions (ADRs), and Abiraterone dosage. Hepatotoxicity was defined as ALT and/or AST levels exceeding 5 times the Upper Limit of Normal (ULN) or total bilirubin levels exceeding 3 times ULN. A Chi-square test assessed comorbidity-hepatotoxicity correlations.
Results: Among 57 subjects (mean age: 75 ± 6.43, no preexisting liver disease), Abiraterone dosages ranged from 500mg to 1000mg/day, with mean PSA baseline of 409 ± 704. Of these, 38 (68%) had comorbidities, including hypertension (54%), diabetes mellitus (28%), dyslipidemia (28%), ischemic heart disease (18%), and chronic kidney disease (11%). Hepatotoxicity-related ADRs prompted Abiraterone discontinuation in 4 patients, of which 2 had comorbidities. The Chi-square test yielded a non-significant comorbidity-hepatotoxicity association with p-value of 0.411. Management included discontinuation in 1 out of 57 cases (1.75%), dose reduction (500mg/day) in 1 (1.75%), and no change in 2 (3.5%).
Conclusion: Abiraterone appeared relatively safe concerning liver dysfunction among mCRPCpatients, even in the presence of comorbidities and older age. Nevertheless, larger-scale assessments are essential to better comprehend hepatotoxicity risk and management in this patient group.
Keywords: Abiraterone, Hepatotoxicity, Prostate Cancer, Comorbidities

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PT3-14

Identification of Prevalence and Factors associated with Potentially Inappropriate Medications (PIMs) among Warded Geriatrics Patient in the Wards of Hospital Tuanku Ja'afar (HTJ) Seremban (PIMHTJ)

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Introduction: Geriatric are more susceptible to adverse drug reactions (ADRs), due to alteration of pharmacokinetics and pharmacodynamics, as a result of aging. Potentially inappropriate medications (PIMs) are the use of medications whose risks outweigh the benefits, which will potentially increase morbidity and mortality.
Objective: To measure the prevalence of Potentially Inappropriate Medication (PIMs) during medication history among warded geriatric and identify the medications which contributed to PIMs and factors associated with PIMs
Methods: A cross-sectional study was conducted from November 2021 to January 2022, involving 124 geriatric patients who were admitted in the wards of HTJS. The medication histories of the included patients were recorded and analysed using AGS Beers Criteria 2019 for detection of PIMs. Data were further analysed using SPSS and multiple logistic regression analysis for the identification of factors associated with PIMs.
Results: 124 patients were included in the study. A total of 61 (49.2%) patients were found to receive at least one PIMs. The most prescribed PIMs among the geriatrics were found to be furosemide (24.73%), pantoprazole (18.28%), and spironolactone (8.60%). The factors that significantly associated with PIMs were the number of medications (adjusted odd ratio 1.306; 90% confidence interval (CI) 1.224 to 1.388, p=0.001) and the number of comorbidities (1.53; 1.361 to 1.703, p=0.013).
Conclusion: This study gave an insight into the current status of drug prescribing for the geriatric patient in HTJS. However, this study is a single-centered study where the result cannot estimate the prevalence overall.
Keywords: potentially inappropriate medications, AGS beers criteria 2019, geriatric

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PT3-15

Prevalence and the Associated Factors of Proton-Pump Inhibitor (PPI) Co-Prescribed with Dual Antiplatelet Therapy (DAPT) among Adult Patients Diagnosed with Acute Coronary Syndrome (ACS) upon Hospital Discharge

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Introduction: There is limited published evidence on the prevalence and factors associated with the co-prescription of PPI and DAPT among patients diagnosed with ACS although there is local guideline available.
Objective: This study aimed to determine the prevalence of PPI co-prescribed with DAPT among patients diagnosed with ACS and the associated factors upon hospital discharge.
Methods: A single-centre, cross-sectional study was conducted among adult patients admitted for ACS who received DAPT with/without PPI upon discharge from the general wards of Port Dickson Hospital. Computer-generated random numbers were used to enrol subjects hospitalised between January and December 2021. Data were collected in a standardised form. Independent t-test, Pearson chi-squared test and multiple logistic regression were used for inferential analysis.
Results: Out of 322 subjects, the majority were male (68.3%), Malay (58.7%), and diagnosed with Non-ST Elevation Myocardial Infarction (70.5%). A total of 234 (72.7%) subjects were discharged with co-prescription of PPI and DAPT. Subjects who received PPI at admission were twenty-eight times more likely to be co-prescribed with DAPT upon discharge than their counterparts (adj OR 28.003, 95% CI 12.076–64.936, p<0.001). Older subjects and those with lower haemoglobin levels were more likely to get a PPI co-prescribed with DAPT (adj OR 1.044, 95% CI 1.015–1.073, p=0.003; adj OR 1.262, 95% CI 1.068-1.490, p=0.006, respectively).
Conclusion: The percentage of ACS patients discharged with PPI and DAPT in this study was relatively high. Further studies are warranted to study the appropriateness of the prescribing pattern.
Keywords: Proton-Pump Inhibitor, Dual Antiplatelet Therapy, Acute Coronary Syndrome

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PT3-16

Anticholinergic Burden on Health Outcome Among Elderly in Geriatric Ward, Hospital Sungai Buloh - A Retrospective Study

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Introduction: Common usage of medications with anticholinergic properties among the elderly predisposes them to anticholinergic burden. Elderly are more susceptible to anticholinergic adverse effects such as cognitive and functional impairment, due to their older age and frequent polypharmacy.
Objective: To determine the prevalence of anticholinergic burden among elderly patients in geriatric ward, Hospital Sungai Buloh and its association with adverse health outcomes.
Methods: Patients aged 60 years and above, admitted to the geriatric ward, Hospital Sungai Buloh, from 1st January 2019 till 31st December 2019 were included. Patient's medical and medication history records were reviewed retrospectively. The Anticholinergic Cognitive Burden scale was used to estimate anticholinergic burden. Cognitive performance and functional status were assessed at admission using Mini-mental State Examination and Modified Barthel Index, respectively.
Results: Among the study population (n = 179), 39.7% were burdened with at least one medication with anticholinergic properties. Cardiovascular drugs were the most commonly prescribed (30.2%). Patients with anticholinergic burden had higher incidence of dementia (p = 0.005), stroke (p = 0.002) and fall (p = 0.01) over non-user. Only patients exposed to drugs with definite anticholinergics were associated with dementia (p = 0.031) and cognitive decline (p = 0.016).
Conclusion: There is a high prevalence of elderly patients admitted in geriatric wards with anticholinergic burden. The use of medications with anticholinergic burden was associated with increased incidence of dementia, stroke, fall and decline in cognitive performance. Particular attention should be paid when prescribing medications to minimize anticholinergic burden, especially older adults.
Keywords: Anticholinergic Burden, Dementia, Stroke, Fall, Cognitive Performance

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PT3-17

Evaluation of trough serum vancomycin concentration and area under the curve/ minimum inhibitory concentration among adults in a tertiary hospital

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Introduction: Studies showed that the targeted range of vancomycin area under the curve/ minimum inhibitory concentration (AUC/MIC) was 400-600 mg.h/L; above which, there was a risk of nephrotoxicity, whereas, below which, there was a risk of treatment failure. Studies reported that the AUC/MIC target could be achieved with a trough concentration of < 15 mcg/ml which contradicts previously recommended target range of 15.0-20.0 mcg/ml.
Objective: This study aimed to evaluate the relationship between trough concentration and the AUC/MIC.
Methods: A cross-sectional study involving adults in a tertiary hospital receiving regular doses of vancomycin with two serum vancomycin measurements was carried out. The AUC/MIC of vancomycin was calculated by using the *Sawchuk–Zaske* method.
Results: A total of 96 patients with 102 sets of serum concentrations were analysed. The average elimination rate constant was 0.0990 (±0.0429) hr-1 with a mean half-life ($t_{1/2}$) of 8.2 (±4.1) hours. The median vancomycin volume of distribution was 0.5450 (IQR: 0.4000, 0.6800) L/kg while the mean vancomycin clearance was 3.46 (±1.20) L/hr. Approximately 89.3% of patients with a trough concentration of 10.0-14.9 mcg/ml had an AUC/MIC > 400 mg.h/L. Most patients (63%) with a trough concentration of 15.0-20.0 mcg/ml had an AUC/MIC > 600 mg.h/L. All patients who developed nephrotoxicity had an AUC/MIC > 600 mg.h/L and a dosing interval: half-life > 1.
Conclusion: The AUC/MIC > 400 mg.h/L can be achieved with a trough concentration of 10.0-14.9 mcg/ml. Most patients were at risk of nephrotoxicity when targeting a trough concentration of 15.0-20.0 mcg/ml.
Keywords: Vancomycin, Drug Monitoring, Area Under Curve, Minimum Inhibitory Concentration, Pharmacokinetics

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PT3-18

Prothrombin Complex Concentrate in DOAC Reversal: A Systematic Scoping Review

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Introduction: Direct oral anticoagulants (DOAC) has emerged as an alternative to warfarin for treating venous thromboembolism and stroke prevention in atrial fibrillation. Specific reversal agents such as idarucizumab and andexanet alfa are not widely and readily available in Malaysia. In their absence, international guidelines recommend the administration of PCC in life-threatening bleeding caused by DOAC.
Objective: To describe the efficacy and safety of PCC in reversing the anticoagulant effects of DOAC.
Methods: This scoping review was conducted using the following databases: PubMed, Wiley Online Library, Sage Journals, and Google Scholar. The inclusion criteria were full-text English publications that were published from the year 2016 to 2021, focusing on the utilisation of PCC in the reversal of DOAC (namely apixaban, dabigatran, edoxaban or rivaroxaban). Clinical studies focusing on the utilisation of PCC in the reversal of DOAC and fulfilling the PRISMA extension for Scoping Reviews with completed Critical Appraisal Skills Programme checklist assessment were included.
Results: Twenty studies were included in this review. In DOAC reversal, PCC dosed at 25 - 50 units/kg can achieve adequate haemostasis and did not contribute to increased thromboembolic events and mortality. The need for repeated dosing of PCC is low when patients are administered with an initial dose of 25-49 units/kg. Prothrombin Time and International Normalised Ratio remain the primary parameters to assess bleeding.
Conclusion: PCC is effective and safe in achieving clinical haemostasis among DOAC-associated bleeding patients. PCC can be an option when DOAC-specific reversal agents are unavailable, or the type of DOAC is unknown.
Keywords: Prothrombin Complex Concentrate, Direct Oral Anticoagulant Reversal, Reversal, Haemostasis, Thrombotic Events

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PT3-19

Identifying Factors Impacting Adherence to Haematinics among Pregnant Women with Anaemia in Northeast Penang District Health Clinics, Malaysia

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Introduction: Anaemia is a common nutritional deficiency and remains a significant public health threat to pregnant women.
Objective: This study was designed to assess haematinics adherence and its associated determinants among pregnant women with anaemia.
Methods: This cross-sectional, observational study was conducted using questionnaires based on health psychology theories (MyMAAT-12) for adherence evaluation and medical records from 1st December 2022 till 31st May 2023. Systematic random sampling was applied to enroll participants aged above 18.
Results: Study revealed only 28.6% of 210 pregnant women assessed adhered to haematinics. Ferrous Fumarate had the lowest adherence, at 22.4%, while Iberet Folic® had the highest, at 48%. Pregnant women with history of anaemia (AOR = 0.139, 95% CI [0.037, 0.526], p = 0.004) and those prescribed with Iberet Folic® (AOR = 0.279, 95% CI [0.106, 0.732], p = 0.009) were found to decrease the odds of non-adherence. Meanwhile, pregnant women experiencing haematinic related side effects are four times more likely to exhibit poor adherence (AOR = 4.849, 95% CI [1.462,16.084], p = 0.010). Haemoglobin increment showed statistical significance from baseline at week 12 for both Iberet Folic® (Z = -2.773, p = 0.006) and Zincofer® (Z = -2.783, p = 0.005).
Conclusion: Haematinic adherence prevalence among pregnant women with anaemia in Northeast Penang District Health Clinics is suboptimal. Thus, choice of haematinics deliberation in addition to side effects monitoring and minimization are recommended to escalate the level of adherence.
Keywords: Haematinic, Anaemia, Adherence, Pregnant Women

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PT3-20

Retrospective Review on Usage of Surfactants (Beractant and Calfactant) for Preterm Neonates with Respiratory Distress Syndrome: A Single Centre Study

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Introduction: Early administration of surfactant reduces pulmonary complications and mortality in ventilated preterm neonates with respiratory distress syndrome. Beractant and calfactant are types of surfactants available in practice, but use of beractant is preferred over calfactant as clinicians have more experience in using it.
Objective: To estimate the proportion of cases requiring repeated surfactant doses in preterm neonates' ≤34 weeks of gestational age (GA) and the incidence of clinical outcome between beractant and calfactant.
Methods: Relevant clinical data within March to June 2020 were extracted retrospectively from patient's case notes and were validated by a neonatologist. Clinical outcomes included were bronchopulmonary dysplasia (BPD), air leak syndromes and proportion of neonates discharged alive.
Results: A total of 37 preterm neonates with mean GA of 30.8±2.53 weeks and mean birth weight of 1.5±0.46kg were included. Nineteen (51%) of them were given beractant. Surfactant use was indicated in 92% of the cases and were able to be weaned from high oxygen support within 24 hours. The proportion of cases requiring a second dose of beractant and calfactant was 5.3% and 5.6% respectively. Median duration of hospitalisation was 48(24, 80) days. Four preterm neonates eventually developed BPD, with three (75%) being born small-for-gestational-age and at GA ≤28 weeks. A total of 36 (97%) preterm neonates were discharged alive. No significant difference between patients on beractant and calfactant in terms of clinical outcomes.
Conclusion: Majority of the preterm neonates responded to a single dose of either surfactant and were discharged alive with both surfactants showed equivalent clinical outcome.
Keywords: Surfactant, Preterm Neonates, Respiratory Distress Syndrome, Beractant, Calfactant

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PT3-21

A Retrospective Study on the Use of Continuous Clonidine Infusion for Sedation in Critically Ill Paediatric Patients

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Introduction: The off-label use of clonidine as a sedative agent is gaining recognition as it has shown favorable sedative effect with lower risk of tolerance and dependence as compared to benzodiazepine.
Objective: To evaluate the effectiveness and safety of clonidine as an alternative sedative agent in critically ill children and to identify factors for clonidine dose requirements.
Methods: A retrospective cohort study was conducted on record between June 2020 and April 2023 from paediatric intensive care unit (PICU) of Hospital Tunku Azizah.
Results: A total of 38 mechanically ventilated patients receiving clonidine for sedation were included. The median age of patients was 2.1 years (IQR 1.1-6.1). Median dose of clonidine used was 0.58mcg/kg/hr (IQR 0.39-0.79) at the first 24 hours of infusion. There were significant reductions in the dose of midazolam ($p=0.040$) and dexmedetomidine ($p<0.001$) with clonidine use. There was no correlation between clonidine dose and hemodynamic changes or vasoactive inotropic score. Patients who weigh <12kg were 9 times more likely to get a clonidine dose of ≥0.6 mcg/kg/hr at first 24 hours of infusion (OR: 9.086; 95% CI: 1.574–52.463; $p=0.014$). Whereas, patients with longer PICU stay before the start of clonidine were 13% less likely to receive higher clonidine dose (≥0.6mcg/kg/hr) at the first 24 hours of infusion (OR: 0.874; 95% CI: 0.767–0.996; $p=0.044$).
Conclusion: Clonidine is an effective and safe sedative agent in critically ill children. Patients' weight and length of PICU stay before the of start clonidine were significant factors that affect clonidine dose for the first 24 hours of infusion.
Keywords: Clonidine, Sedation, Paediatric Patients, Effectiveness, Safety

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Thank you for being part of this event. We hope it has been a rewarding experience for you, and we look forward to welcoming you again at our next conference!