

# Malaysian Family Physician

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Official Journal of the Academy of Family Physicians of Malaysia  
and Family Medicine Specialist Association of Malaysia



**REDEFINING FAMILY MEDICINE  
WITH DIGITAL HEALTH TECHNOLOGY**



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# About MFP

The *Malaysian Family Physician* (MFP) is the official journal of the Academy of Family Physicians of Malaysia (AFPM). It is jointly published by the Family Medicine Specialist Association (FMSA) of Malaysia. Up to December 2022, the MFP published three issues per year. It also started an Online First section in January 2021, where accepted articles are published online ahead of the issue. Starting from January 2023, the MFP is adopting continuous publication as soon as each article is ready for publication. This is to ensure knowledge is disseminated in a timely manner.

**Goal:** The MFP is an international journal that disseminates quality knowledge and clinical evidence relevant to primary care. The journal acts as the voice of family physicians, researchers and other members of the primary care team on clinical practice issues.

**Scope:** The MFP publishes:

- i. Research – Original Articles and Reviews
- ii. Education – Case Reports/Clinical Practice Guidelines/Test Your Knowledge. We only encourage case reports that have the following features:
  1. Novel aspects
  2. Important learning points
  3. Relevant to family practice
- iii. Invited debate, commentary, discussion, letters, online, comment, and editorial on topics relevant to primary care.
- iv. A Moment in the Life of a Family Physician – We encourage submission of a short narrative to share perspectives, voice, views and opinions about a family physician's experience that has affected their practice or life.  
*Read our Information for Authors section to learn more about these article types.*

**Strength:** MFP is the only primary care research journal in Malaysia and one of very few in the region. It is open access and fully online. The journal is indexed in Scopus and has a strong editorial team and an established pool of readers with increasing recognition both locally and internationally.

**Circulation:** The journal is freely available online.

**Indexing:** All articles published in MFP are included in:

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2. Drafting the article or revising it critically for important intellectual content; and
3. Final approval of the version to be published.
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*The Malaysian Family Physician* welcomes articles on all aspects of family medicine in the form of original research papers, review articles, CPG review, case reports, test your knowledge and letters to the editor. The journal also publishes invited debate, commentary, discussion, letters, comment, A Moment in the Life of a Family Physician and editorials on topics relevant to primary care.

Articles are accepted for publication on condition that they are contributed solely to the Malaysian Family Physician. Neither the Editorial Board nor the Publisher accepts responsibility for the views and statements of authors expressed in their contributions. All papers will be subjected to peer review. The Editorial Board further reserves the right to edit and reject papers. Authors are advised to adhere closely to the instructions given below to avoid delays in publication.

All manuscripts must be submitted through the Online Submission Portal.

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  - The manuscript uses a **single-spaced, 12-point font and uses italics rather than underlining** (except URL addresses).
  - **All figures, tables and illustrations are placed at the appropriate sections in the manuscript file** rather than at the end of the manuscript or submitted separately.
  - Use left-aligned paragraph formatting rather than full justification.
  - Follow the instructions in Ensuring a Blind Review (refer below).
  - Follow the referencing style provided in the References section below.
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4. A **Cover Letter** must be signed by the corresponding author on behalf of all authors. This letter must include this statement “this manuscript is my (our) own work, it is not under consideration by another journal, and this material has not been previously published.”
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- **Title:** Please state the title in detail to include the study design, particularly for original research.
- **Author(s):** The full names, highest academic qualification, ORCID (compulsory for corresponding author) and institutions of all authors.
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### ORIGINAL RESEARCH (INCLUDING CLINICAL AUDIT ARTICLE)

The original research (including clinical audit) should be conducted in the primary care setting on a topic of relevance to family practice. Both qualitative and quantitative studies are welcome. The length **should not exceed 4500 words (Introduction, Methods, Results and Discussion) with a maximum of 5 tables or figures and 40 references**. Please include the following sub-headings in the manuscript:

1. **Title:** State the title based on PICO, including study design.
2. **Abstract:** Structured abstract (Introduction, Methods, Results and Conclusion) of no more than 250 words.
3. **Keywords:** 3-5 keywords, preferably MeSH terms.

4. **Introduction:** Clearly state the purpose of the article with strictly pertinent references. Do not review the subject extensively.
5. **Methods:** Describe the study in sufficient detail to allow others to replicate the results. Provide references to established methods, including statistical methods; provide references and brief descriptions of methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate their limitations. If validated or copyrighted questionnaires are used, describe if permissions were obtained from the authors/owners to use the questionnaires. When mentioning drugs, generic names are preferred (proprietary names can be provided in brackets). Do not use patients' names or hospital numbers. Include numbers of observation and the statistical significance of the findings. When appropriate, state clearly that the research project has received the approval of the relevant ethical committee. For an RCT article, please include the trial registration number) and follow the CONSORT checklist. Other study designs must also follow a reporting checklist, which can be found at <https://www.equator-network.org/>.
6. **Results:** Present your results in logical sequence in the text, tables and figures. Tables and figures may be left at the respective location within the text. These should be numbered using Arabic numerals only. Table style should be "Simple" (as in Microsoft Word). Do not repeat table or figure data in the text.
7. **Discussion:** Emphasise the new and important aspects of the study and conclusions that follow from them. Do not repeat data given in the Results section. The discussion should state the implications of the findings and their limitations and relate the observations to the other relevant studies. Link the conclusions with the aims of the study but avoid unqualified statements and conclusions not completely supported by your data. Recommendations, when appropriate, may be included.
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13. **Data sharing statement:** Please describe your data sharing plan. State if your raw data is uploaded in publicly available databases, shared via controlled access repositories or only available upon request.
14. **How does this paper make a difference in general practice?:** This section should be written in bullet points (up to five points) and must not exceed 100 words.
15. **References:** Refer to the References section below for more details.

## REVIEW

All types of review articles, including narrative review, scoping reviews and systematic reviews are accepted for publication in MFP. A comprehensive review of the literature with a synthesis of practical information for practising doctors is expected. For a systematic review, the PRISMA checklist must be followed. For a scoping review, the PRISMA-ScR checklist

1. **Title:** Include the topic and type of review in the title.
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3. **Keywords:** 3-5 keywords, preferably MeSH terms.
4. **Introduction:** Describe the topic and objective of the review.
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6. **Results (\*for systematic and scoping reviews):** This section is required for systematic and scoping reviews. Please follow the guideline in the PRISMA and PRISMA-ScR checklists.
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9. **Conclusion:** Provide a conclusion by linking to the objective of the review.
10. **Acknowledgements:** Acknowledge the people who have contributed significantly to the study (but do not qualify for authorship). If an artificial intelligence (AI) tool was used in any way during the preparation of the manuscript, it must be disclosed in the Acknowledgments section of the manuscript. Authors should describe the use as detailed as possible for transparency purposes. Read [HERE](#) about our AI use policy.
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## CASE REPORT

Case reports should preferably be less-commonly seen cases that have an educational value for practising doctors. Only case reports that are **novel, have important learning points and relevant to family practice** will be accepted for publication in this journal. The acceptance rate of submitted case report is about 30%. The case report must be written in a **patient-centred manner instead of a disease-centred focus**. The length should **not exceed 1500 words (Introduction, Case Presentation, Discussion and Conclusion) and cite no more than 20 references**. Before submitting the case report, the authors must ensure that the patient's identity is protected both in the text and pictures. This patient consent form must be signed and uploaded during submission. Please include the following sub-headings in the manuscript:

1. **Title:** Use an interesting title to show the new learning points and include the term "case report" in the title.
2. **Abstract:** Unstructured abstract between 100-250 words.
3. **Keywords:** 3-5 keywords, preferably MeSH terms.
4. **Introduction:** Describe the condition and aim of the case report.
5. **Case Presentation:** Describe the case in detail.
6. **Discussion:** Discuss the case with existing literature.
7. **Conclusion:** Provide the key learning point from the case report.
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11. **Patients' consent for the use of images and content for publication:** Was consent obtained from the patient(s)? Was the consent written or verbal? Has the patient consent form been signed?
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13. **What is the implication to patients?:** Describe any potential implication to patients based on the learning points from this case report.
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## CPG REVIEW

The CPG should be relevant to primary care. Its length **should not exceed 4000 words (Introduction to Conclusion) and 40 references**. An abstract is required (no more than 300 words) together with the keywords. The CPG review should be written with case vignettes to illustrate its application in primary care practice.

1. **Title:** State the scope of the CPG, include the latest version or year for revised CPGs.
2. **Abstract:** Unstructured abstract between 100-250 words.
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4. **Introduction:** Describe the condition and aim of the CPG review.
5. **Development process of the CPG:** Describe the development process of the CPG, e.g.: who are the team members involved, what methodology was used, how was the evidence gathered, how was the decision made on the recommendations, was the outcomes validated, how was the CPG disseminate and implementation, etc. Follow the AGREE Reporting Checklist (<https://www.equator-network.org/wp-content/uploads/2016/03/AGREE-Reporting-Checklist.pdf>) wherever possible.
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9. **Case vignettes as examples of application:** Use case vignettes to illustrate the application of the CPG.
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3. **Keywords:** 3-5 keywords, preferably MeSH terms.
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5. **Questions:** State the questions.
6. **Answers with discussion:** Provide the answers and discuss them with support from the literature.
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6. **Conflicts of interest:** All authors must declare any conflicts of interest.
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8. **References:** Refer to the References section below for more details.

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We encourage submission of a short narrative to share perspectives, voice, views and opinions about a family physician's experience that has affected their practice or life. It could be about being a doctor, educator, administrator/management, researcher, student or even patient. This type of article should be a **reflective piece of about 500 words in length (Main text)**, and can be accompanied with photo(s). The journal also accepts articles which anchor on the photo(s) as the main content, this can be accompanied with captions (not more than 100 words) that describe the photo(s) with author's reflection on it.

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- **Books and other monographs-Corporate Author:** Wonca International Classification Committee. International Classification of Primary Care, ICPC-2. 2nd ed. Oxford: Oxford University Press; 1998.
- **Website:** Rainie L. The rise of the e-patient. Pew Research Center Internet and the American Life Project. October 7, 2009. Accessed January 11, 2012. <https://www.pewresearch.org/internet/2009/10/07/the-rise-of-the-e-patient-2/>
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## ORIGINAL ARTICLES

### ABSTRACT NUMBER: OA\_001

#### Telemedicine as a tool to aid glycaemic management in gestational diabetes mellitus: A narrative review

Samyuktha Sathian<sup>1,2</sup>, Arshmeir Roshan<sup>1,2</sup>, Leeynesh Sooriyapiragasam<sup>1,2,3</sup>  
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**Introduction:** Uncontrolled Gestational Diabetes Mellitus (GDM) is associated with significant maternal and neonatal complications. Conventional management relies on regular in-person reviews and glucose monitoring, which can be demanding for patients and healthcare professionals. Telemedicine and remote blood glucose monitoring are flexible and accessible alternatives to conventional care. This narrative review aims to assess the use of telemedicine as a tool to improve glycaemic control in GDM.

**Methods:** A narrative literature search was conducted using PubMed, which includes MEDLINE-indexed journals that meet strict selection criteria in terms of quality, editorial standards, and ethical publishing. The search strategy employed the following nine keywords: “telemedicine”, “telehealth”, “remote monitoring”, “remote consultation”, “diabetes”, “gestational diabetes mellitus”, “glycaemic control”, “pregnancy”, and “antenatal care”. Seven related English language articles published between 2021 and 2026 were reviewed and selected based on relevance, study design and overall methodology quality.

**Results:** Telemedicine interventions, particularly remote glucose monitoring and virtual consultations, made managing GDM easier for patients and clinicians. Women using telemedicine checked their blood sugars more consistently and achieved their glycaemic targets faster than those receiving standard care. Improved glycaemic control also linked to healthier neonatal outcomes and fewer pregnancy-related complications. Patients also reported greater satisfaction due to convenience, flexibility, and reduced need for hospital visits. However, implementation challenges were identified. Effective use depends on reliable digital infrastructure. Devices and software from third-party companies require regular maintenance, and technical failures can occasionally disrupt care. Additionally, confidential patient data stored on these platforms introduces potential privacy and security risks.

**Conclusion:** Telemedicine is a valuable adjunct to conventional care in the management of GDM, with benefits in glycaemic management, patient engagement, and better healthcare accessibility. Further research and quality improvement programs are encouraged to evaluate cost-effectiveness, long-term maternal and neonatal outcomes, and to identify which telemedicine components provide the greatest clinical benefit.

### ABSTRACT NUMBER: OA\_002

#### Prevalence, predictors, barriers and facilitators of performing self-monitoring blood glucose (SMBG) in patients with type 2 diabetes: A multicentre cross-sectional study

Mervyn Ong Eng Han<sup>1</sup>, Yong Xian Goo<sup>2</sup>, Kasturi Mahalinggam<sup>1</sup>, Tan Yee Ling<sup>3</sup>, Noor Asyila Binti Ismail<sup>4</sup>, Marni Raihana binti Yusof<sup>5</sup>, Priyadarshini Ramachandran<sup>6</sup>, Hooi Min Lim<sup>2</sup>

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**Introduction:** Self-monitoring of blood glucose (SMBG) is vital for diabetes self-care but its uptake in Malaysia remains low. This study determined the prevalence, predictors, barriers, and facilitators of SMBG among patients with type 2 diabetes (T2D) in Malaysian primary care settings.

**Methods:** A cross-sectional study was conducted from May to September 2024 across five primary care clinics. Participants completed a validated questionnaire adapted from established tools from Mastura et. al covering sociodemographic, clinical characteristics, and SMBG practices. Questionnaire underwent face validation through a pilot study with 30 participants. Multivariable logistic regression identified predictors of SMBG performance.

**Results:** Among 396 participants (mean age: 53.6 ± 10.9 years) the prevalence of SMBG performance was 59.3%. Participants aged 50–59 years (AOR 2.80, 95% CI 1.03-7.62, p = 0.045) and 60–69 years (AOR 3.43, 95% CI 1.25-9.38, p = 0.017) were more likely to perform SMBG compared with those aged ≥70 years. Insulin use was strongly associated with SMBG (AOR 7.02, 95% CI 2.44-20.19, p<0.001), whereas the presence of diabetic complications was negatively associated with SMBG performance (AOR 0.57, 95% CI 0.33-0.98, p=0.043). Major barriers were cost of test strips and lancets (59.6%) and frustration with high glucose readings (82.8%); facilitators included personal motivation (68.9%), family support (79.1%), and belief in the importance of SMBG (86.9%).

**Conclusion:** SMBG prevalence was moderate but suboptimal. Enhancing structured diabetes education and addressing financial barriers are essential to improve SMBG practice and glycaemic control.

### ABSTRACT NUMBER: OA\_003

#### The mental health impact of social media addiction: A study of depression, anxiety, and stress levels among adolescent students in northern Malaysia

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**Introduction:** Mental health issues among adolescents are rising globally, with 1 in 7 affected. Common problems include self-

harm, anxiety, and depression. In Malaysia, depression affects 26.9% of adolescents, followed by loneliness and suicidal thoughts at 16.2% and 13.1%. Social media addiction is linked to depression, but research on its relation to depression, stress, and anxiety in Malaysian teens is limited. This study aims to explore this association.

**Methods:** A cross-sectional study was conducted among secondary school students in Kedah from December 2025 until February 2026. This study adopted multistage random sampling across 11 schools in the Kota Setar district. Participants who met the selection criteria completed a validated, self-administered questionnaire covering sociodemographic information, the Bergen Social Media Addiction Scale (BSMAS), and the Depression, Anxiety and Stress Scale 21 (DASS-21). Data were analysed using SPSS 29. Multiple logistic regression was used to examine the association of social media addiction with depression, anxiety and stress. The level of significance was set at  $p < 0.05$ .

**Results:** Among the 462 participants, 39.4% were 16 years old, and 60.6% were 13 or 14 years old. The prevalence of social media addiction was 36.6%, while depression, anxiety and stress were 22.3%, 36.4% and 20.1%, respectively. After adjustment for other confounding factors (age, long-distance parents, number and time spent on social media), social media addiction was found to increase the risk of depression (aOR = 2.56, 95% CI 1.5,4.2), anxiety (aOR 1.82 95% CI 1.18,2.81) and stress (aOR 2.68 95% CI 1.61,4.48).

**Conclusion:** It was found that more than one-third of the participants had social media addiction, which could be associated with depression, anxiety and stress. Further action is needed to regulate and monitor adolescents' social media use. Frequent mental health screening should also be implemented among adolescents for early detection and intervention.

#### **ABSTRACT NUMBER: OA\_004**

##### **A scoping review of instruments assessing parental knowledge, attitudes, and practices on children's screen habits**

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**Introduction:** Excessive screen use among children is associated with adverse health and developmental outcomes. In primary care, parents play a central role in prevention through anticipatory guidance and behaviour counselling. However, the absence of standardised instruments to assess parental knowledge, attitudes, and practices (KAP) limits consistent screening and evaluation of interventions.

**Methods:** A scoping review was conducted using the Arksey and O'Malley framework and reported in accordance with PRISMA-ScR. Three databases (Web of Science, Scopus, and PubMed) were searched for studies published between 2019 and 2025. Eligible studies described, validated, or applied questionnaires assessing parental KAP on children's screen use. Data were charted to summarise instrument domains, response formats, psychometric properties, and study characteristics.

**Results:** Of 752 records identified, four studies met the inclusion criteria, conducted in Moldova, Brunei Darussalam, Saudi Arabia, and Egypt. The instruments primarily targeted parents of preschool and early school-aged children ( $\leq 6$  years). Across studies, substantial heterogeneity was observed. Knowledge domains consistently addressed health effects and guideline awareness but showed limited inclusion of digital safety. Attitude constructs were inconsistently defined, with only two instruments applying theory-informed domains, while key constructs such as perceived severity were largely absent. Practice domains were comparatively underrepresented and variably operationalised, ranging from a small number of behavioural items to extensive questionnaires exceeding 50 items. Only two instruments reported psychometric validation, demonstrating good internal consistency (Cronbach's  $\alpha \approx 0.89$ ; subscales  $\alpha = 0.884-0.894$ ).

**Conclusion:** Current instruments provide incomplete and inconsistent assessment of parental KAP, particularly in capturing real-world parenting practices. The development of a standardised, theory-informed, and culturally adaptable instrument is needed to support primary care-based screening, counselling, and evaluation of interventions targeting children's screen use.

#### **ABSTRACT NUMBER: OA\_005**

##### **Are we on the right track? A clinical audit on the management of gout in a university primary care clinic in Selangor**

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**Introduction:** Gout is an inflammatory condition affecting joints which may lead to episodes of severe pain and swelling. Effective management in primary care is a critical aspect in improving patient outcomes. This audit was performed in a university primary care clinic in Selangor, Malaysia to monitor the management of gout according to the Malaysian Clinical Practice Guidelines (CPGs) Management of Gout 2021.

**Methods:** This retrospective audit included all patients diagnosed with gout who attended a university primary care clinic follow up from 1st January 2024 until 31st December 2024, for at least 2 clinic visits. Exclusion criteria for this audit are patients less than 18 years old, patients with hyperuricemia but no clinical symptoms of gout, those on urate lowering therapy (ULT) but for other indications apart from gout and pregnant women. The criteria for the audit were set according to Malaysian CPG Management of Gout 2021 and previous published audit on gout management.

**Results:** A total of 283 records was included in this audit. The patients were mostly male (82.9%) with the median age of 63 years old. 9 out of 17 criteria for process in management of gout did not meet the set standard. These include the usage of prophylactic anti-inflammatory medications during initiation of ULT (53.5%), and checking SUA after 4 weeks of ULT initiation until target SUA is achieved (12.4%). For the clinical outcome of the management of

gout, only 38.4% of the patients with gout achieved target serum uric acid level  $<360 \mu\text{mol/L}$ .

**Conclusion:** A greater emphasis should be placed on implementing treat-to-target recommendations in the management of gout in primary care based on the latest guidelines. Strategies were implemented to improve management of gout in the clinic and a repeat audit will be performed to assess for quality improvement.

#### ABSTRACT NUMBER: OA\_006

### Contraceptive counselling practices among nurses: A cross-sectional study in maternal and child health clinic in Seberang Perai, Pulau Pinang

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**Introduction:** Unmet need for family planning remains a public health concern in Malaysia, where contraceptive uptake is lower than neighbouring countries. Nurses play a key role in contraceptive counselling, yet evidence on their counselling practices is limited. This study aimed to determine the factors associated with contraceptive counselling practices among nurses.

**Method:** A cross-sectional study was conducted among 397 nurses in Pulau Pinang between June and August 2025 using a validated self-administered questionnaire. The questionnaire comprised sections on sociodemographic characteristics, personal contraceptive experience, knowledge of contraception, and contraceptive counselling practices. Data were analysed using SPSS. Descriptive statistics and bivariate analyses were performed, followed by multiple logistic regression to identify predictors of adequate contraceptive counselling practice.

**Results:** The mean age of respondents was 42.7 years, and most had more than 10 years of service. Combined oral contraceptives (87.9%) and condoms (87.7%) were the most recognised methods, while weight gain (92.9%) and irregular bleeding (78.1%) were the most commonly identified side effects. Although 81.9% of nurses had attended some form of training, only 9.1% had received a diverse range of training. Most updated their knowledge through continuing education courses (70.3%) and online sources (48.9%). Additionally, only 57.2% demonstrated adequate counselling practices, defined as a score of 4 or higher out of 6. In bivariate analysis, ethnicity ( $p=0.048$ ) and overall knowledge score ( $p<0.001$ ) were associated with contraceptive counselling practices. However, in multiple logistic regression, knowledge score was the only significant predictor (AOR=1.093, 95% CI: 1.045–1.142,  $p<0.001$ ), with each unit increase in knowledge associated with 9.3% higher odds of adequate practice. Age, educational level, job position, duration of service, marital status, and personal contraceptive experience were not significant predictors in the final model.

**Conclusion:** Strengthening and providing continuous professional training related to contraception is crucial to enhance counselling practices and support improved family planning services in primary care.

#### ABSTRACT NUMBER: OA\_008

### Ethnic disparities in depressive symptoms among Malaysian adolescents: An analysis of familial and social factors

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**Introduction:** Ethnic disparities in adolescent depressive symptoms may reflect differences in culturally influenced parenting practices and social environments. This study examined ethnic disparities in depression prevalence and related familial and social factors to inform targeted prevention.

**Methods:** We analysed nationally representative data from 33,523 adolescents aged 13 to 17 years participating in the National Health and Morbidity Survey 2022. Depressive symptoms were assessed using the Patient Health Questionnaire 9, with a cut-off score of 10 or higher, indicating probable depression. Analyses were stratified by major ethnic groups: Malay ( $n = 23,125$ ), Chinese ( $n = 5,085$ ), Indian ( $n = 1,556$ ), and Bumiputera Sabah and Sarawak ( $n = 2,963$ ). Multivariable logistic regression examined associations between depressive symptoms and modifiable psychosocial factors, including verbal abuse, lack of close friends, bullying, weak parental bonding, and truancy.

**Results:** Depression prevalence differed significantly across ethnic groups. Higher rates were observed among Bumiputera Sabah and Sarawak (30.5%, 95% CI: 27.1, 34.1) and Malay (28.7%, 95% CI: 27.5, 29.9) adolescents compared with Chinese (20.6%, 95% CI: 18.3, 23.1) and Indian (20.2%, 95% CI: 17.6, 23.0) adolescents. Verbal abuse was independently associated with depressive symptoms across all ethnicities, with adjusted odds ratios ranging from 2.7 to 5.2. The largest effect estimates were observed among Indian (aOR 5.2, 95% CI: 3.1, 8.8) and Chinese adolescents (aOR 3.7, 95% CI: 3.1, 4.4). Bullying was significantly associated with depressive symptoms among Chinese, Malay, and Bumiputera Sabah and Sarawak adolescents. Female sex, absence of close friends, weak parental bonding, and truancy were consistently associated with depressive symptoms.

**Conclusion:** Ethnic disparities in adolescent depression reflect differences in both prevalence and susceptibility to familial and peer stressors. Culturally responsive family and peer-focused interventions are needed to reduce mental health inequities.

#### ABSTRACT NUMBER: OA\_009

### Health seeking behaviour of school-going adolescents with acne: A qualitative study

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**Introduction:** Acne vulgaris is common among adolescents and can negatively affect self-esteem and quality of life. Despite effective treatments, many delay seeking care due to misconceptions and barriers. The study aims to explore adolescents'

experiences, perceived barriers and facilitators in seeking doctor's consultation for acne treatment.

**Methods:** A qualitative study using in-depth interviews was conducted at Klinik Kesihatan Kuala Lumpur. Purposive sampling was used to recruit adolescents aged 13–18 years with varying severity of acne who attended the clinic and were identified at the triage counter. A diverse group of participants was included, and consent was obtained from both adolescents and their parents prior to the interviews. A topic guide based on the Health Belief Model was developed to support the interviews, covering perceived susceptibility, severity, benefits, barriers, and motivators for acne treatment. Audio recordings were transcribed verbatim and analysed using thematic analysis.

**Results:** Four main themes emerged. (1) Acne is not a serious disease: Participants commonly viewed acne as a normal consequence of puberty and attributed it to hormonal changes, poor hygiene, and unhealthy diet. This perception reduced urgency to seek care. (2) Poor knowledge about acne treatment: Adolescents relied heavily on over-the-counter products and expressed concerns about side effects of medical treatments. (3) Perceived external barriers: Treatment cost, lack of time, and limited parental support hindered access to professional care. (4) Potential motivators: Preferences for same-gender healthcare providers, availability of topical treatments, and the desire to improve self-confidence encouraged treatment-seeking.

**Conclusion:** Overall, behaviour was driven more by beliefs and barriers than disease severity. Primary care plays a key role in addressing misconceptions, promoting early consultation and care to improve outcomes.

#### **ABSTRACT NUMBER: OA\_010**

#### **Knowledge, attitude, and practice (KAP) of anaemia management among pregnant women in Seremban district and its associated factors**

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**Introduction:** Anaemia during pregnancy remains one of the challenges faced in primary care. This study aims to describe the socio-demographic and antenatal characteristics and to determine the KAP of anaemia management among pregnant women in Seremban District and its associated factors.

**Methods:** A cross-sectional study was conducted among 405 pregnant women between 1st April till 31st July 2024 at Seremban 2 Health Clinic, Sikamat Health Clinic, Ampangan Health Clinic, and Lenggeng Health Clinic. We included pregnant women aged 18 years and above, from 27 weeks of gestation till the expected delivery date, and excluded those who were illiterate or had language barriers. A 49-item validated questionnaire by Hidayah et al. was used to assess the KAP: 19 questions (knowledge), 17

questions (attitude), and 13 questions (practice) related to anaemia during pregnancy.

**Results:** The mean age of participants in this study was 30.72±4.86 years old. Among the 405 participants involved in this study, 66.9% held a tertiary education, and 65.7% were employed. Most respondents belong to the B40 group (83.7%). Most of the participants were Malay (82.5%), with other races making up the smallest group (2.2%). Haematinics use was reported by 61.5%, while 62.5% were anaemic. The majority (56.3%) attained poor knowledge scores. 58.3% had poor attitude scores, and 71.4% had good practice scores. Multivariate logistic regression analysis revealed no statistically significant associations.

**Conclusion:** Despite the majority of respondents demonstrating poor knowledge and attitude towards anaemia, their overall practice in managing the condition was notably positive. This discrepancy suggests that healthcare providers and antenatal care guidelines strongly influence pregnant women's behaviour.

#### **ABSTRACT NUMBER: OA\_011**

#### **Psychological distress and its association with quality of life, academic performance, and sociodemographic factors among medical students in a public university in Malaysia**

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**Introduction:** Medicine is widely known undergraduates study that is demanding despite being the most challenging program. Due to academic pressure, medical students are recognised as having higher risk of psychological distress. Evidence suggests a substantial burden of depression, anxiety, and stress among university students, yet data examining the interplay between mental health and quality of life (QoL) among medical students remain limited. This programme aimed to determine the psychological status and its association with QoL, academic performance, and sociodemographic factors among medical students.

**Methods:** A cross-sectional study was conducted among pre-clinical medical students at a Malaysian public university in August 2024. Universal sampling was adopted. A self-administered questionnaire comprising sociodemographic characteristics, academic background, psychological distress (Depression, Anxiety and Stress Scale-21), and quality of life (WHOQOL-BREF) was used. Academic performance data were obtained from the academic office. Descriptive statistics were used to determine prevalence of psychological distress and Spearman's correlation test were performed to identify factors associated with the distress. The level of significance was set at  $p < 0.05$ .

**Results:** A total of 84 respondents were recruited. The prevalence of depression, anxiety and stress among the medical students were 11.9%, 26.2% and 2.4% with mean score of 4.42±4.12,

5.24±4.50 and 6.07±4.75, respectively. Spearman's correlation analysis revealed significant negative correlation between all domains of QoL (physical, psychological, social relationship and environment) and psychological distress (depression, anxiety and stress) ( $p < 0.05$ ). The physical health domain exhibited the highest correlation for all three distress suggesting it is a critical factor in the mental well-being among the students. Sociodemographic, academic background and performance were independently associated with psychological distress.

**Conclusion:** Psychological distress among medical students is closely associated with QoL. This highlights the importance of mental health screening within medical education systems. Integrating wellbeing-focused support and curriculum-level interventions may contribute to improved educational experiences and student outcomes in medical schools.

#### ABSTRACT NUMBER: OA\_012

##### Association of depressive symptoms and glycaemic control in type 2 diabetes mellitus patients attending primary health care clinics in Kinta district

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**Introduction:** Diabetes and depression are major global public health problems with around 220 million people affected by diabetes alone. The association between type 2 diabetes mellitus (T2DM) and depression is well-established, with each condition exacerbating the other and leading to poorer clinical outcomes. In Malaysia, research examining the effect of depressive symptoms on glycaemic control among patients with T2DM remains limited. This study aimed to explore the association between depressive symptoms and glycaemic control among T2DM patients attending primary healthcare clinics in the Kinta district, as well as to identify the factors associated with depressive symptoms in this population.

**Methods:** A cross-sectional study was conducted among 404 adult patients with T2DM at three government health clinics in Kinta District from May to August 2023. Participants were selected through systematic random sampling and were assessed for depressive symptoms using the Patient Health Questionnaire-9 (PHQ-9). Patients with pre-existing psychiatric illness, those who were pregnant, those who had defaulted follow-up for one year, or those unable to complete the PHQ-9 were excluded. Data were analysed using SPSS version 27.0, with appropriate statistical tests applied.

**Results:** The prevalence of depressive symptoms among T2DM patients was 27.2%. No significant association was found between depressive symptoms and glycaemic control. Age category was

the only factor significantly associated with depressive symptoms. Multivariate logistic regression analysis showed that patients aged 59 years and below had 1.78 times higher odds (95% CI: 1.13-2.80;  $p = 0.01$ ) of having depressive symptoms compared to those aged 60 years and above.

**Conclusion:** Depressive symptoms were present in approximately one in four T2DM patients but were not associated with glycaemic control. Younger patients were at higher risk. Addressing this issue is important to reduce the burden on healthcare systems.

#### ABSTRACT NUMBER: OA\_013

##### Disordered eating behaviours and associated factors in adults with type 2 diabetes: A multicentre cross-sectional study

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**Introduction:** Type 2 diabetes (T2D) requires necessary adherence to dietary and weight control. This may place psychological strain on people and increase the risk of disordered eating behaviours (DEB). DEB refers to maladaptive eating patterns that impair health but may not meet full clinical diagnostic thresholds for eating disorder. This study aimed to determine DEB levels using the validated Eating Disorder Examination Questionnaire (EDE-Q), and its associated sociodemographic, clinical, and mental health factors in adults with T2D in Malaysia.

**Methods:** We conducted a multicentre cross-sectional study in four primary care clinics among 412 participants with T2D. DEB was assessed using EDE-Q 6.0, where higher scores reflect greater severity. Depression and anxiety were assessed using the Patient Health Questionnaire-9 (PHQ-9) and the Generalised Anxiety Disorder scale (GAD-7) respectively. Multivariable linear regression was performed on the square-root transformed EDE-Q Global Score to identify independent associated factors.

**Results:** The mean EDE-Q Global Score was 1.01±1.09, with Shape Concern being the highest scoring subscale. Independent factors significantly associated with higher levels of DEB include: age ( $B = -0.010$ , 95% CI -0.015 to -0.005), Body Mass Index (BMI) ( $B = 0.024$ , 95% CI 0.015 to 0.032), GAD-7 anxiety scores ( $B = 0.054$ , 95% CI 0.031 to 0.078), and education levels [secondary ( $B = 0.210$ , 95% CI 0.074 to 0.347) and tertiary education ( $B = 0.307$ , 95% CI 0.131 to 0.483)]. Chinese participants had lower EDE-Q scores compared to Malay participants ( $B = -0.175$ , 95% CI -0.311 to -0.039).

**Conclusion:** Despite the low overall level of DEB in adults with T2D, DEB remains clinically relevant in high-risk subgroups, highlighting the need for targeted screening and clinical awareness.

#### ABSTRACT NUMBER: OA\_014

### Knowledge towards postpartum depression among married men attending health clinics in Klang

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**Introduction:** Postpartum depression (PPD) is a common mental health disorder affecting women after childbirth, with significant impacts on both mothers and their newborns. Spousal support plays a crucial role in the early recognition and management of PPD. However, there is lack of local research examining knowledge and attitudes toward PPD among married men. Thus, this study aims to assess the level of knowledge and attitudes regarding PPD and their association with sociodemographic characteristics among married men attending public health clinics in Klang.

**Methods:** A cross-sectional study was conducted among married men attending public health clinics in Klang between September and October 2023. Data were collected using a validated self-administered questionnaire. Logistic regression analysis was performed to identify sociodemographic factors associated with knowledge and attitude towards postpartum depression, with significance set at  $p < 0.05$ .

**Results:** A total of 393 respondents participated in this study, yielding a response rate of 99.2%. The majority of respondents were young adults aged 18–40 years (91.6%,  $n = 360$ ). Most respondents had higher education (64.2%,  $n = 252$ ), were employed in the private sector (59.5%,  $n = 234$ ), and belonged to the B40 monthly household income group (63.6%,  $n = 250$ ). Overall, 57.3% ( $n = 225$ ) of respondents demonstrated good knowledge of postpartum depression, while 53.9% ( $n = 212$ ) had a positive attitude toward postpartum depression. Logistic regression analysis showed that higher education was significantly associated with good knowledge (OR: 1.912; 95% CI: 1.245–2.938;  $p < 0.05$ ). Regarding attitudes, employment status was the only factor significantly associated with a positive attitude toward postpartum depression (OR: 1.915; 95% CI: 1.163–3.152,  $p < 0.05$ ).

**Conclusion:** Married men attending public health clinics in Klang generally demonstrated adequate knowledge and a positive attitude towards PPD. Nonetheless, sustained educational and awareness initiatives are warranted to enhance understanding and address persisting misconceptions. In addition, future studies should consider incorporating qualitative approaches to gain deeper insight into individuals' understanding, perceptions, and experiences related to PPD.

#### ABSTRACT NUMBER: OA\_015

### Prevalence of hypertension among young adults and its associated factors in selected primary care clinics in Klang

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**Introduction:** Young-onset hypertension (YOH) in adults (typically aged 18–39 years old) is a growing public health concern with increasing prevalence in urban Malaysia. Despite its long-term cardiovascular implications, published data on prevalence and risk factors among young adults in Malaysia remain limited. Given the rising burden of YOH and its implications, this study aims to determine the prevalence of young hypertension and its associated factors in selected primary care clinics in Klang. By addressing the gap in local data, the findings could inform targeted health promotion strategies for early intervention.

**Methods:** A cross-sectional study was conducted among 346 Malaysian adults aged 18–39 years attending selected primary care clinics in Klang. Participants were recruited via simple random sampling. Data collection included validated questionnaires on sociodemographic profile, substance use, physical activity, and stress (IPAQ-SF, AUDIT-10, PSS-10), as well as anthropometric and blood pressure measurements. Data were analysed using univariate and multivariate logistic regression, with  $p \leq 0.05$  considered significant.

**Results:** The prevalence of YOH was 14.2% ( $n = 49$ ). Independent predictors of hypertension included increasing age (aOR 1.07; 95% CI: 1.01–1.14), male sex (aOR 4.66; 95% CI: 2.25–9.65), and central obesity (aOR 5.74; 95% CI: 2.35–14.05). Factors such as BMI, smoking status, alcohol consumption, physical activity, stress level, socioeconomic status, and comorbidities were not significantly associated after adjustment.

**Conclusion:** YOH affects one in seven young adults in Klang, with a higher risk among men and those with central obesity. Targeted early prevention strategies focusing on abdominal obesity and high-risk male populations are essential to reduce the future cardiovascular burden in Malaysian primary care.

#### ABSTRACT NUMBER: OA\_016

### Sleep quality and its associated factors among adults attending urban health clinics in Kuala Lumpur: A cross-sectional study

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**Introduction:** Poor sleep quality is increasingly recognised as a major public health concern due to its association with adverse physical, mental, and psychosocial outcomes. Urban living may further exacerbate sleep problems, yet local primary care data in Malaysia remain limited. This study aimed to determine the prevalence of poor sleep quality and its associated factors among adults attending urban primary care clinics in Kuala Lumpur.

**Methods:** A cross-sectional study was conducted from September to November 2024 at four urban government health clinics in Kuala Lumpur. Adults aged 18–59 years were recruited using systematic random sampling. Data were collected using a validated bilingual self-administered questionnaire, including the Pittsburgh Sleep Quality Index (PSQI), Patient Health Questionnaire-2 (PHQ-2), Generalised Anxiety Disorder-2 (GAD-2), and International Physical Activity Questionnaire (IPAQ). Poor sleep quality was defined as PSQI>5. Univariate and multivariate binary logistic regression analyses were performed to identify factors associated with poor sleep quality.

**Results:** A total of 400 participants (response rate 100%) were included, with a prevalence of poor sleep quality of 59%. Multivariate analysis identified four significant factors independently associated with poor sleep quality: being non-married (AOR = 1.91; 95% CI: 1.19–3.05; p=0.007), positive depression screening (AOR = 2.73; 95% CI: 1.23–6.02; p=0.013), smoking (AOR = 2.05; 95% CI: 1.13–3.73; p=0.019), and smartphone use before bedtime (AOR = 1.88; 95% CI: 1.02–3.46; p=0.044).

**Conclusion:** Poor sleep quality is highly prevalent among adults attending urban primary care clinics in Kuala Lumpur. Psychosocial and modifiable lifestyle factors play a significant role. Integrating routine sleep and mental health screening, smoking cessation support, and digital hygiene counselling into primary care practice may improve sleep outcomes in urban populations.

#### ABSTRACT NUMBER: OA\_017

##### Factors associated with oral healthcare utilisation among young children: Insights from national health and morbidity survey 2022

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**Introduction:** Oral healthcare in early childhood lays the foundation for lifelong health and well-being. However, utilisation of dental services among children below five years in Malaysia remains limited, despite Ministry of Health (MOH) efforts to promote early preventive care and parental awareness through antenatal programme. This study aims to identify factors associated with oral healthcare utilisation among young children, focusing on service use, and home oral hygiene practices.

**Methods:** Data were obtained from the National Health and Morbidity Survey 2022: Maternal and Child Health (NHMS 2022: MCH), a nationwide household survey involving children under five years. Face-to-face interviews were conducted with mothers or caregivers by trained enumerators. Data were analysed using complex sampling procedures to generate weighted national estimates and to identify factors associated with oral healthcare utilisation.

**Results:** Among 14,028 respondents, only 39.0% reported that their child had ever visited a dental clinic. Of these, most attended government facilities (84.4%), and 62.4% had their last visit within the past year. In terms of home care, 76.0% of caregivers

reported brushing or supervising their child's toothbrushing twice daily. Multivariable analysis showed that dental visits were less likely among urban children (AOR = 0.60, 95% CI: 0.54–0.67), while odds increased with age. Children whose caregivers reported brushing/supervising toothbrushing  $\geq 2$  times/day (AOR 1.95; 95% CI 1.70–2.23) and those with their own toothbrush (AOR 1.91; 95% CI 1.10–3.30) had higher odds of utilisation.

**Conclusion:** Oral healthcare utilisation among young children remains low. Findings highlight sociodemographic and behavioural disparities, emphasising the need to strengthen early oral health promotion and parental engagement to improve preventive dental attendance from an early age.

#### ABSTRACT NUMBER: OA\_018

##### “Caught between two fears, I'm afraid of both the Covid-19 virus and vaccine”: A hermeneutic phenomenological study on perception of Covid-19 vaccination during pregnancy among pregnant women in Kelantan, Malaysia

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**Introduction:** Vaccine hesitancy is a complex, heterogeneous phenomenon and is defined as a psychological state of indecisiveness regarding vaccine-related decision-making. Pregnant women may have concerns about COVID-19 vaccination decisions for many reasons. This study explores the perceptions influencing COVID-19 vaccination hesitancy among pregnant women in Kelantan. Understanding this issue is pivotal in providing the best practical maternal and foetal health care.

**Methods:** This study used a hermeneutic-phenomenological design. In-depth interviews using semi-structured questionnaires and purposive sampling using informants (clinic nurses) were employed to recruit pregnant women attending Universiti Sains Malaysia Specialist Hospital, Bachok, and Rantau Panjang health clinics in Kelantan. Interviews were audiotaped, transcribed verbatim, and stored in NVIVO software, then manually converted into a Microsoft Word table for data management. Thematic analysis with inductive and deductive approaches was used.

**Results:** A total of 19 pregnant women were involved in this study. The majority of pregnant women in Kelantan were hesitant to receive the COVID-19 vaccination during pregnancy despite the availability of vaccination services. Four themes emerged for COVID-19 vaccination during pregnancy: (i) Ambivalence and emotional uncertainty (ii) Concerns on halal status (iii) Autonomy and personal decision-making, and (iv) Information gaps and need for trusted guidance.

**Conclusion:** This study highlights the need for targeted intervention in addressing vaccine hesitancy among pregnant women, focusing on information delivery, safety issues, and effective communication.

**ABSTRACT NUMBER: OA\_019****Knowledge, attitudes and practices of primary care doctors in Kuala Lumpur towards e-cigarettes**Nurul Aifaa Rahman<sup>1</sup>, Nurdiana Abdullah<sup>1</sup>, Rizawati Ramli<sup>1</sup><sup>1</sup>Department of Primary Care Medicine, Faculty of Medicine, University of Malaya

**Background:** E-cigarettes are increasingly used as alternatives to conventional cigarettes, although their safety and effectiveness remain debated. Primary care doctors (PCD) play an important role in providing smoking cessation counselling, including e-cigarette use. However, evidence on PCD knowledge, attitudes and practices (KAP) towards e-cigarettes in Malaysia is limited. Understanding their preparedness is important to support evidence-based (EBM) counselling and optimize patient care. The study aims to determine the level of knowledge regarding e-cigarettes and its associated factors among PCD.

**Methods:** A cross-sectional study was conducted in September 2024 among PCD from 13 public clinics in Kuala Lumpur. Data were collected using a self-administered questionnaire adapted from a validated Polish study. The questionnaire included four sections: demographics characteristics (10 items), knowledge (19 items), attitudes (9 Likert-scale items) and clinical practices (8 items). Questionnaire development involved expert validation by one respiratory physician and three family medicine specialists, with Scale Content Validity Index (S-CVI/UA) of 0.83. A pilot study among 30 postgraduate trainees demonstrated Cronbach's alpha = 0.722. Data were analysed using SPSS version 26. Associations were tested using Mann-Whitney U, Kruskal-Wallis and Spearman correlation tests, with significance level set at  $p < 0.05$ .

**Results:** 148 PCD participated (response rate 50.2%). Mean age was  $35.7 \pm 6.1$  years. 35.1% had 6–10 years of working experience. Most PCD demonstrated moderate knowledge (62.2%), negative attitudes (53.4%) and positive clinical practices (84.5%) regarding e-cigarettes. Years of working experience and provision of smoking cessation advice were significantly associated with knowledge level. No significant association was found between knowledge with attitudes or clinical practices.

**Conclusion:** PCD demonstrated moderate knowledge, cautious attitudes and positive clinical practices regarding e-cigarettes. Working experience and smoking cessation counselling were significantly associated with knowledge level. Continuous medical education may improve EBM counselling regarding e-cigarettes.

**ABSTRACT NUMBER: OA\_021****eHealth literacy among adults with type 2 diabetes in urban primary care in Malaysia: Prevalence and associated factors**Muhammad Hilmi Asmungi<sup>1,2</sup>, Fadzilah Mohamad<sup>1</sup>, Hani Salim<sup>1</sup><sup>1</sup>Department of Family Medicine, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Malaysia; <sup>2</sup>Klinik Kesihatan Kuala Lumpur, Kuala Lumpur, Malaysia

**Background:** As patients rely on digital platforms to access health information and support self-care, eHealth literacy has become

increasingly important in diabetes management. To date, there is limited evidence on level of eHealth literacy among diabetes patients in primary care. Thus, this study aimed to determine the level of eHealth literacy and its associated factors among patients with type 2 diabetes in Malaysia.

**Methods:** A cross-sectional study was conducted at an urban primary care clinic among adults with type 2 diabetes mellitus using systematic random sampling. Participants completed a self-administered, validated questionnaire comprising sociodemographic details, clinical characteristics, internet usage patterns, perceived social support (Multidimensional Scale of Perceived Social Support (MSPSS)), and eHealth literacy (eHEALS; score range 8-40). Descriptive analyses were performed, followed by multiple logistic regression to determine factors associated with high eHealth literacy (defined as eHEALS score > sample median) using SPSS version 30.

**Results:** A total of 338 participants were included. The median age was 57 years (IQR 20), 53.6% were male, and 71.3% were Malay. The median eHEALS score was 31 (IQR 5), with 40% having high eHealth literacy (eHEALS score >31). Factors associated with higher eHealth literacy included younger age (aOR 0.943, 95% CI 0.936-0.977,  $p < 0.001$ ), sharing online health information with healthcare providers (aOR 2.284, 95% CI 1.243-4.196,  $p = 0.008$ ), greater digital device proficiency (aOR 3.444, 95% CI 1.562-7.595,  $p = 0.002$ ), and higher perceived social support (aOR 1.461, 95% CI 1.139-1.874,  $p = 0.003$ ).

**Conclusion:** Only 40% of patients demonstrated high eHealth literacy, indicating a substantial gap in effective use of digital health resources. Younger age, stronger digital skills, communication with healthcare providers about online information, and greater perceived social support were associated with higher eHealth literacy. These findings highlight the need for targeted digital literacy support and patient-provider engagement strategies to strengthen digital health use in diabetes care.

**ABSTRACT NUMBER: OA\_022****Pre-test probability, ECG changes, and cardiovascular risk factors as independent predictors of coronary artery disease in patients with chest pain at a Malaysian university medical centre**Noorhida Baharudin<sup>1,4</sup>, Mohd Ashraf Mohammad Rafee<sup>1</sup>, Khairul Shafiq Ibrahim<sup>2</sup>, Roqiah Fatmawati Abdul Kadir<sup>3</sup>, Mohamed-Syarif Mohamed-Yassin<sup>1</sup><sup>1</sup>Department of Primary Care Medicine, Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia;<sup>2</sup>Department of Cardiology, Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia;<sup>3</sup>Department of Radiology, Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia;<sup>4</sup>Cardiovascular Advancement and Research Excellence (CARE) Institute, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia

**Introduction:** Coronary artery disease (CAD) remains the leading cause of death in Malaysia. The 2019 European Society of Cardiology (ESC) pre-test probability (PTP) model uses age, sex, and chest pain characteristics to estimate CAD likelihood and was chosen for its superior accuracy over other models, including the

2013 ESC PTP and CAD Consortium Score internationally, with validated sensitivity and discriminative performance in a Malaysian cohort. This study aimed to describe patient distribution across 2019 ESC PTP categories and identify independent predictors of CAD.

**Methods:** A cross-sectional study was conducted at a university medical centre from June 2023 to May 2024. PTP scores using the 2019 ESC model were categorized as low ( $\leq 5\%$ ), moderate ( $>5-15\%$ ), or high ( $>15\%$ ). CAD was defined as  $\geq 50\%$  luminal stenosis on invasive coronary angiography or coronary computed tomography angiography. Clinical variables (electrocardiographic changes and comorbidities) were extracted from electronic medical records. Multivariable logistic regression identified factors associated with CAD.

**Results:** Among 194 participants, 54.1% had high PTP. This group was older (median [IQR] 64 [13] years), predominantly male (78.1%), without tertiary education (71.4%) and current smokers (25.7%). They had higher prevalence of CAD (76.2%), hypertension (71.4%) and electrocardiographic abnormalities (ST-segment 17.1%, T-wave 31.4%). High PTP was a strong independent predictor (aOR 9.33, 95% CI: 2.59–33.66;  $p < 0.001$ ). Other independent predictors included current smoking (aOR 3.19, 95% CI: 1.09–9.37;  $p = 0.035$ ), former smoking (aOR 3.13, 95% CI: 1.08–9.06;  $p = 0.035$ ), diabetes mellitus (aOR 3.06, 95% CI: 1.38–6.80;  $p = 0.006$ ), and ST-segment changes (aOR 18.03, 95% CI: 2.15–151.47;  $p = 0.008$ ).

**Conclusion:** High PTP, smoking, diabetes mellitus, and ST-segment changes independently predict CAD in this cohort. These findings support the clinical utility of the 2019 ESC PTP in Malaysian patients and suggest that incorporating additional clinical and electrocardiographic factors may further refine obstructive CAD risk stratification.

#### ABSTRACT NUMBER: OA\_023

##### Development and validation of the knowledge on wound infection questionnaire (KWIQ) among public primary healthcare professionals in Sabah

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**Introduction:** Primary healthcare professionals should possess sufficient knowledge to recognise and appropriately manage infected wounds. However, there is a lack of validated instruments to assess wound infection knowledge among primary care healthcare professionals. This study aimed to develop and validate a new questionnaire to assess wound infection knowledge among public primary healthcare professionals in Sabah.

**Methods:** This study was conducted in two phases: questionnaire development with content validation, followed by construct validation. The initial items for the Knowledge on Wound Infection Questionnaire (KWIQ) were developed across seven key domains, informed by a comprehensive literature review.

Content validity was evaluated using item-level and scale-level content validity indices (I-CVI and S-CVI) based on assessments of relevance and accuracy by a multidisciplinary expert panel. Items with I-CVI of less than 0.83 were revised or removed. For construct validation, the 30-item KWIQ was distributed via an online self-administered survey to 214 healthcare professionals from seven public primary care clinics in Kota Kinabalu, Sabah. Exploratory factor analysis (EFA) using principal axis factoring was performed to determine the underlying factor structure, and internal consistency was assessed using Cronbach's alpha.

**Results:** The preliminary 30-item KWIQ demonstrated strong content validity, with S-CVI of 0.936. EFA revealed a three-factor solution, explaining 44.4% of the total variance, and 15 items were retained. The three factors were Colonisation versus Infection (5 items,  $\alpha = 0.725$ ), Dressing and Biofilm (5 items,  $\alpha = 0.724$ ), and Antibiotic Use (5 items,  $\alpha = 0.712$ ). The final 15 items demonstrated good overall internal consistency (Cronbach's  $\alpha = 0.72$ ).

**Conclusion:** The KWIQ demonstrated good content validity, acceptable preliminary construct validity, and satisfactory internal consistency among a sample of primary healthcare professionals, supporting its use as a practical tool for assessing wound infection knowledge for educational purposes and future research.

#### ABSTRACT NUMBER: OA\_024

##### Multilevel facilitators of digital appointment use in the ageing population: A TAM-guided scoping review

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**Introduction:** The digital appointment system is a standalone web or mobile application or an integrated patient portal that enables patients to streamline their appointments. As healthcare shifts toward a “digital-first” approach, this may widen the digital divide among older adults. Guided by the Technology Acceptance Model (TAM), which posits that perceived usefulness and perceived ease of use influence users' attitudes and behavioural intentions towards using digital technology, this scoping review maps the facilitators that influence older adults' use of the digital appointment system.

**Methods:** The review was conducted according to Arksey and O'Malley's methodological framework and reported in accordance with the PRISMA-ScR. PubMed, Scopus, and Web of Science were searched for empirical studies published between 2020 and 2025 involving adults aged  $\geq 60$  years who used digital tools to manage healthcare appointments. The final search was conducted in May 2025. Twelve studies of quantitative, qualitative and mixed method designs met the inclusion criteria.

**Results:** Most studies originated from high-income countries, mainly from the United States, followed by the United Kingdom, Hungary, the Netherlands, Taiwan and China. Facilitators operated across multiple levels. At the individual level, higher digital health literacy, patient activation, prior usage of digital

tools, and confidence enhanced adoption. Social support from family members and proxy access were important determinants for individuals with complex health needs. At the organisational level, provider encouragement and guided registration improve perceived usefulness and ease of use. System-level features, such as a simple interface, secure registration, and age-friendly design, directly enhance perceived ease of use.

**Conclusion:** Digital health strategies should go beyond technological availability to address multilevel determinants. However, the evidence is limited by the predominance of high-income settings, a small number of studies and heterogeneous designs, which may affect generalisability. Future research should include local sociocultural context and healthcare system factors to support equitable adoption.

#### ABSTRACT NUMBER: OA\_025

### Development and preliminary feasibility of a multilingual QR-based audiovisual social story to support childhood vaccination in Malaysian primary care

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**Introduction:** Vaccination-related distress is common in young children and may contribute to anticipatory anxiety, needle fear, and healthcare avoidance. While Social Stories™ are used to improve predictability and reduce anxiety in autistic children, their use for routine childhood vaccination in Malaysian public primary care has not been explored. This study aimed to develop a culturally adapted multilingual audiovisual Social Story for childhood vaccination and to assess preliminary feasibility in Malaysian primary care.

**Methods:** A multilingual audiovisual Social Story (“I’m Getting a Vaccine”) was developed to reflect the workflow of a Malaysian primary care vaccination visit. The QR code-accessible, parent-led resource was available in Malay, English, Mandarin, and Tamil. Content included child-facing narration, caregiver guidance, and visual sequencing of clinic procedures. The material was developed using Social Story principles, emphasising structured sequencing, positive framing, and parent-led mediation. Preliminary feasibility was explored in one public primary care clinic using an anonymous feedback form with Likert-scale and open-text responses from stakeholders within the primary care team.

**Results:** All six feedback forms were completed, comprising responses from three GPs and three nurses. Likert-scale responses indicated positive perceptions of feasibility, usefulness, and compatibility with clinic workflow, with minimal anticipated disruption to routine practice. Respondents considered parental engagement with the QR-based resource likely, including in rural settings, given widespread smartphone use. Open-text feedback highlighted variation in views on relevance and scope, and the need to strengthen audiovisual elements while maintaining structured, parent-led interaction. Suggestions included broader parental education on vaccination benefits and Ministry-level endorsement for wider implementation.

**Conclusion:** A culturally adapted, multilingual audiovisual Social

Story for vaccination was developed and showed preliminary feasibility in Malaysian primary care. This low-cost, QR-based intervention may be a scalable strategy to support vaccination encounters and warrants further evaluation of its impact on child distress, parental experience, and routine delivery.

#### ABSTRACT NUMBER: OA\_026

### Therapeutic potential of zinc in Covid-19: A scoping review of controlled trials and pilot studies

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**Background:** Zinc and related immune-modulating supplements have been widely proposed as adjunctive therapies for COVID-19 and for augmenting vaccine responses. Although numerous mechanistic hypotheses exist, clinical evidence remains heterogeneous.

The objective of the review is to summarise the evidence from randomized controlled trials (RCTs) and pilot studies evaluating zinc, zinc-containing formulations, and herbal or nutraceutical immunomodulators in SARS-CoV-2 infection or following vaccination.

**Methods:** Following PRISMA-ScR guidelines, we searched PubMed, Scopus, Web of Science, and the Cochrane Central Register of Controlled Trials from inception to December 2024. Eligible designs included RCTs or pilot interventional studies assessing zinc-based or nutraceutical immunomodulators in SARS-CoV-2 infection or vaccination. Screening involved titles/abstracts and full texts. Risk of bias was evaluated using the Cochrane RoB 2.0 tool. The protocol was registered in PROSPERO (CRD42025104028).

**Results:** Of 312 records identified, 280 unique titles/abstracts were screened, 10 full texts assessed, and 5 RCTs/pilot trials included. Interventions ranged from oral zinc gluconate and high-dose intravenous zinc to selenium- or zinc-containing nutraceuticals, β-glucan, and zinc combined with hydroxychloroquine. Participants included asymptomatic or mildly symptomatic infected adults, hospitalized patients, and healthy vaccine recipients. Clinical and virologic benefits were inconsistent. The largest high-dose oral zinc RCT reported no improvement in symptom duration among ambulatory patients with COVID-19. Pilot studies demonstrated biological effects, including correction of zinc deficiency and enhanced immune markers, but clinical endpoints were underpowered.

**Conclusions:** Current evidence does not support consistent clinical benefit of zinc or related nutraceutical immunomodulators in preventing COVID-19 progression or improving clinical outcomes. Immunologic enhancements were more evident in vaccine-related studies. Limitations include small sample sizes, heterogeneity of interventions, and variable methodological quality. Larger, well-designed RCTs stratified by baseline micronutrient status are needed.

#### ABSTRACT NUMBER: OA\_027

### Caregiver-reported falls among older adults attending a primary care clinic in Melaka: Prevalence and associated clinical characteristics

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**Background:** Population ageing in Malaysia is increasing the burden of falls, which affect about one in four older adults globally and are associated with morbidity, functional decline, and healthcare use. However, Malaysian primary care data on fall prevalence and its associated clinical characteristics remain limited. This analysis is part of a larger study on caregivers' fall-prevention practices in Melaka.

**Methods:** A cross-sectional study was conducted in a primary care clinic in Melaka (Sept–Nov 2024). Caregivers caring for older adults aged  $\geq 60$  years were recruited using systematic random sampling. They completed a validated questionnaire on older adults' clinical characteristics, cognitive impairment, comorbidities, functional dependence (Barthel Index), fall risk (Downton Fall Risk Index) and history of falls in the past 12 months. Data were analysed with IBM SPSS version 29 using descriptive statistics, bivariate analysis, and multiple logistic regression to determine fall prevalence and associated clinical characteristics.

**Results:** A total of 390 caregivers participated (response rate 84.6%). Among the older adults, 34.4% had experienced a fall in the past 12 months. Their median age (IQR) was 78 (13) years, 24.9% had cognitive impairment, and had chronic conditions included hypertension (81%), diabetes (59%), and sensory problems (44.9%). About one-third of older adults were independent, while the remainder had mild to severe dependence, and 49% were classified as high fall risk. Multiple logistic regression analysis identified that sensory problems (OR = 5.56, 95% CI: 3.06–10.11) and high fall risk (OR = 7.69, 95% CI: 3.70–14.29) were strongly associated with increased odds of falls (both  $p < 0.001$ ).

**Conclusions:** As reported by caregivers, about one-third of older adults in this study experienced falls. Sensory problems and high fall risk were strongly associated with falls. This highlights the importance of routine fall-risk assessment and targeted preventive interventions in primary care.

#### ABSTRACT NUMBER: OA\_028

### Geospatial distribution of family medicine specialists and digital readiness: Case study of Peninsular Malaysia's east coast region

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**Background:** Digital health advancements offer opportunities to

improve efficiency and equitable access towards Universal Health Coverage. However, limited evidence exists on whether the distribution of Family Medicine Specialists aligns with population needs and digital readiness, constraining the effective use of digitalisation to optimise access and service delivery. The study aims to analyse the distribution of FMS services across East Coast region in relation to population density and 4G/5G coverage, characterised by large geographic areas and dispersed populations that often experience travel impediments in accessing healthcare.

**Methods:** A geospatial analysis was conducted using administrative and secondary datasets. Population distribution for 2024 was derived from official national statistics. Data on public primary care facilities and internet coverage (4G/5G) were obtained from relevant government agencies. FMS availability was estimated based on clinic tier classification. Spatial overlay analysis was performed to assess the alignment between FMS service locations, population density, and digital connectivity, visualised through thematic mapping.

**Results:** Approximately 60% (152/252) of Health Clinics (Tier I–V) provided FMS services, with an estimated average of 3 FMS per 100,000 population. Densely populated areas generally had access to at least Tier V clinics for FMS services. However, several pockets of areas exhibited limited on-site FMS presence despite adequate internet coverage, indicating potential suitability for digitally enabled service delivery. Conversely, areas with high population density with poor internet connectivity, coupled with low FMS indicates critical service gaps requiring physical expansion.

#### Conclusions:

This study demonstrates how integrating geospatial and administrative data can inform the equitable deployment of FMS services and support digital health strategies in primary care. As limitation, FMS availability was estimated based on clinic tier thus may not reflect actual staffing distribution. Identifying underserved yet digitally connected areas present opportunities for teleconsultation and hybrid care models to strengthen access and efficiency in the digital health era.

#### ABSTRACT NUMBER: OA\_029

### Navigating the option between dialysis and conservative care in older patients with end-stage renal disease: A narrative review for primary care

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**Background:** The primary care physicians (PCPs) face a high burden in managing older adults with end-stage renal disease (ESRD) due to the increased older adult population. Dialysis is the standard care for ESRD. However, it does not improve the survival and quality of life in frail older patients with comorbidities. This narrative review aims to explore the challenges for implementing shared decision-making regarding conservative care versus dialysis among older patients with ESRD at the primary care setting.

**Methods:** The literature search was conducted in PubMed. Articles from the year 2010 to 2026 were included. Search terms used include 'older adults', 'end-stage renal disease', 'dialysis', 'conservative care', 'shared-decision making' and 'primary care'. 298 articles were retrieved from the database search. Finally, 25 articles were synthesized for this review.

**Results:** The review found three themes, including barriers in decision-making, patients' perceptions towards ESRD treatment, and the PCP as care coordinator. PCPs faced difficulty deciding on conservative management for frail older patients with ESRD plus other comorbidities, as they feel that the decision should be made by the nephrologists. Patients with low health literacy might have difficulty in decision-making. Many older patients did not discuss their hopes, goals and fears with their PCPs. They perceived that conservative management would maintain their current quality of life, but the decision between the two treatment choices would need weighing the benefits and risks. PCPs coordinate care and provide all aspects of ESRD management, including treatment options and impact on patients' lives, continuity of care, and lead the advanced care planning.

**Conclusions:** The decision of ESRD treatment at the primary care level should involve shared decision between patients, their caregivers and PCPs, with discussion involving nephrologists. Further research is needed to look at practical decision aids suited to the time-constrained primary care setting.

#### **ABSTRACT NUMBER: OA\_031**

##### **Non-genetic risk factors for allopurinol-induced severe cutaneous adverse reaction (SCAR): A systematic review**

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**Background:** Allopurinol-induced severe cutaneous adverse reactions (SCAR) are rare but potentially life-threatening, particularly in Asian populations. While the genetic marker HLA-B\*58:01 is a well-established risk factor, non-genetic factors may also contribute. This systematic review synthesizes evidence on associations between non-genetic risk factors and allopurinol-induced SCAR.

**Methods:** We searched MEDLINE, Scopus, Cochrane Library and Web of Science from inception to 1 January 2025 for observational studies examining non-genetic risk factors for SCAR, defined as Stevens-Johnson Syndrome, Toxic Epidermal Necrolysis, Acute Generalised Exanthematous Pustulosis, or Hypersensitivity Syndrome/Drug Reaction with Eosinophilia and Systemic Symptoms. Adults aged  $\geq 18$  years were included. Pooled odds ratios (ORs) with 95% confidence intervals (CIs) were calculated using a random-effects model; heterogeneity was assessed with  $I^2$ . Mean differences were calculated for continuous variables.

**Results:** Twenty studies were included. Female sex (19 studies; 3,181 SCAR cases, 629,745 controls) was associated with increased risk (OR = 2.57; 95% CI: 1.45 to 4.54). Chronic kidney disease (CKD) (15 studies; 1,443 SCAR cases, 537,805 controls) showed significant association (OR = 3.82; 95% CI: 1.91 to 7.64). Five studies (177 SCAR cases, 1,368 controls) reported higher allopurinol doses in SCAR cases (mean difference = 19.61 mg; 95% CI: 2.97 to 36.24). Age and diuretic use were not significantly associated with SCAR. Substantial heterogeneity was observed across studies. Sensitivity analyses excluding non-Asian studies and zero-event studies did not alter findings.

**Conclusions:** CKD, female sex, and higher allopurinol dosage emerged as significant non-genetic risk factors for allopurinol-induced SCAR, while age and diuretic use were not. This review highlights the importance of considering non-genetic risk factors in allopurinol-induced SCAR in research and clinical practice. Future research should focus on well-designed studies that evaluate non-genetic predictors as primary outcomes to reduce variability and enable robust risk models for clinical decision-making.

#### **ABSTRACT NUMBER: OA\_032**

##### **Views and experiences of patients, caregivers and bereaved caregivers in receiving domiciliary palliative care service at a government health clinic in Perak, Malaysia: A qualitative study**

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**Background:** The 67th World Health Assembly (2014) declared palliative care as an ethical responsibility of health systems and advocated its integration into primary care. In Malaysia, the growing demand for palliative care highlights the need to strengthen service provision, yet studies on domiciliary palliative care at the primary care level remains limited. This study explored the views and experiences of patients, caregivers and bereaved caregivers receiving government-led domiciliary palliative care services (PCS) at a health clinic in Perak.

**Methods:** A qualitative study using semi-structured in-depth interviews was conducted among patients, caregivers, and bereaved caregivers who received domiciliary PCS at a government health clinic in Perak (August-September 2024). Participants were purposively sampled and were  $\geq 18$  years, aware of the diagnosis and prognosis, and fluent in English or Malay. Bereaved caregivers were  $\geq 6$  weeks post-death. Those with cognitive impairment, dementia or delirium were excluded. Data were analysed using thematic analysis.

**Results:** Seventeen participants (11 caregivers, 4 bereaved caregivers, 2 patients) were included. Three themes with six subthemes emerged. Awareness and perceptions were shaped by limited knowledge and misconceptions about domiciliary PCS, causing delayed access. Experiences of service delivery were predominantly positive, highlighting accessibility, reliable support and patient-centred care, although gaps in coordination between

domiciliary and hospital teams were noted. The domiciliary PCS roles extended beyond patient care by empowering caregivers through practical guidance, emotional support and attention to well-being, while facilitating end-of-life process by navigating the end-of-life discussions and ensuring comfort and dignity during the end-of-life care.

**Conclusions:** Domiciliary PCS enhances patient and caregiver experiences through accessible, personalised home-based support. Despite gaps in awareness and coordination, it empowers caregivers, reduced caregiver burden, supports decision-making, and promotes comfort and dignity at end of life. Strengthening public awareness, improving cross-setting coordination and enhancing caregiver support are essential to optimise timely access and improve outcomes.

### ABSTRACT NUMBER: OA\_033

#### Evaluating large language models for vaccine communication in Malaysia: A convergent mixed methods assessment of accuracy, readability and contextual adequacy

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**Introduction:** Large language models (LLMs) are increasingly used as public-facing health information tools. Their effectiveness in multilingual and culturally diverse settings requires evaluation beyond technical accuracy alone. This study aims to assess the informational quality and contextual adequacy of LLM-generated responses to common vaccine-related queries in English and Malay within the Malaysian context using a convergent mixed methods design.

**Methods:** A cross-sectional convergent mixed-methods study was conducted on 18 April 2025. Three publicly accessible LLMs (ChatGPT-4.1, DeepSeek-V3, and Gemini 2.0) generated responses to ten vaccine-related questions in English and Malay. Outputs were compared with guideline-derived reference materials. Thirteen medically trained bilingual experts (including physicians, pharmacists, and public health specialists) independently evaluated de-identified responses for accuracy, completeness, and misinformation using validated Likert-scale instruments and selected preferred responses. Readability was assessed using the Flesch Reading Ease score for English and the Khadijah Rohani formula for Malay. Narrative comments were analysed using reflexive thematic analysis, and findings were integrated at interpretation.

**Results:** LLM-generated responses demonstrated higher accuracy (English mean: 5.10–5.36 vs 4.20; Malay: 5.13–5.22 vs 4.44) and completeness (2.42–2.63 vs 1.39–1.43) than reference materials, with lower misinformation scores (1.43–1.58 vs 1.85–2.00). English readability was moderate (Flesch 27.73–35.38). Malay responses from LLMs were substantially more readable than

official sources (difficulty scores 4.63–6.68 vs 19.20). No official reference response was ranked as preferred. Thematic analysis identified five factors influencing expert evaluation: need for local contextualization and regulatory anchoring, structured formatting and readability, balance between completeness and accessibility, source credibility and referencing, and culturally sensitive and empathetic communication tone.

**Conclusion:** Publicly accessible LLMs provided accurate and comprehensive vaccine information and were consistently preferred over static guideline-based materials. However, expert evaluation highlights that contextual legitimacy, structured communication, credible sourcing, and cultural sensitivity are essential for responsible integration into public health communication systems.

### ABSTRACT NUMBER: OA\_034

#### Development and validation of an instrument for assessing obstetric nurses' knowledge, attitude and practice (KAP) on prevention of maternal-to-child transmission of Hepatitis B

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**Introduction:** Prevention of mother-to-child transmission (PMTCT) of hepatitis B remains a critical public health priority and a key pillar of Malaysia's Triple Elimination Initiative. Obstetric nurses play a central role in implementing PMTCT strategies across antenatal and perinatal care. However, the absence of a psychometrically validated instrument limits systematic evaluation of their knowledge, attitudes, and practices (KAP). This study aimed to develop and validate the SureHepB instrument to assess obstetric nurses' KAP regarding PMTCT of hepatitis B.

**Methods:** A cross-sectional validation study was conducted using a two-phase approach in a tertiary hospital. Participants were recruited using simple random sampling from a predefined list of eligible obstetric nurses. Phase 1 involved item development, expert content validation, and face validation. Phase 2 included psychometric evaluation using exploratory factor analysis (EFA; n=207) and confirmatory factor analysis (CFA; n=203). Reliability was assessed using Cronbach's alpha.

**Results:** The instrument demonstrated excellent content validity (S-CVI/Ave=1.0) and strong inter-rater agreement (Gwet's AC2=0.82, indicating strong agreement beyond chance). EFA identified a three-factor structure—Clinical Practice, Professional Responsibilities, and Preventive Awareness—explaining 75.53% of total variance. CFA confirmed good model fit (CFI=0.951, TLI=0.940, RMSEA=0.077). Internal consistency ranged from acceptable to excellent ( $\alpha=0.646-0.920$ ).

**Conclusion:** SureHepB is a valid and reliable instrument for assessing PMTCT-related competencies among obstetric nurses. Although conducted in a single tertiary centre, the instrument has potential applicability in primary care and family medicine settings involved in antenatal care. The tool offers potential integration into digital training evaluation systems and quality monitoring frameworks in maternal health services.

**ABSTRACT NUMBER: OA\_035****Asymptomatic bacteriuria among pregnant women attending government health clinics in Kerian district**

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**Introduction:** Asymptomatic bacteriuria (ASB) in pregnancy is associated with significant maternal and foetal complications. Local epidemiological data on its prevalence and determinants are crucial for effective screening and management strategies. This study aimed to determine the incidence of ASB, identify associated sociodemographic and clinical factors, and characterize the causative uropathogens and their antimicrobial sensitivity profiles among pregnant women in the Kerian District.

**Methods:** A cross-sectional study was conducted among 322 pregnant women attending government health clinics. Sociodemographic and clinical data were collected, and midstream urine samples were obtained for culture and sensitivity testing. Bivariate and binary logistic regression analyses were performed to identify factors associated with ASB.

**Results:** The overall incidence of ASB was 4.3% (n=14). Bivariate analysis revealed a significant association between age group and ASB (p=0.021), with a higher proportion of cases among women aged ≥31 years. This association remained significant in multivariate analysis, where age ≥31 years was an independent predictor of ASB (Adjusted Odds Ratio = 3.85; 95% CI: 1.15–12.97; p=0.029). No other sociodemographic or clinical factors showed significant associations. The most prevalent uropathogen was *Streptococcus agalactiae* (35.7%), followed by *Escherichia coli* (28.6%). Antimicrobial susceptibility testing revealed varied resistance patterns, with *Escherichia coli* showing good susceptibility to nitrofurantoin, cephalosporin and aminoglycosides but reduced susceptibility to ampicillin.

**Conclusion:** The incidence of ASB in this population was 4.3%, with advanced maternal age (≥31 years) identified as a significant independent risk factor. The microbiological profile underscores the importance of local sensitivity data to guide appropriate empiric therapy.

**ABSTRACT NUMBER: OA\_036****A qualitative study on the challenges of caregiving, coping strategies and social support needs of family caregivers of dependent persons in Kinta district, Perak, Malaysia**

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**Introduction:** Caregiving comes with significant emotional, physical and financial challenges. This qualitative study aims to

identify key challenges faced by family caregivers of dependent persons in Kinta District, Perak, Malaysia.

**Methods:** Semi-structured, face-to-face interviews of family caregivers of dependent people in Kinta District, were conducted till saturation of themes. Participants were selected using a purposive sampling method. Each interview was audiotaped. Thematic analysis was done.

**Results:** Twelve family caregivers participated. They included university students and working adults. The dependent persons were their own family members (parents, grandparents, uncle), who had stroke (4), Alzheimer's disease / dementia (3), aging (2), dementia with residual stroke (1), Parkinson's disease (1) and Down syndrome (1). Challenges faced by caregivers included physical (exhaustion, severe back pain), emotional (stress, frustration with less time for themselves / lack of family support) and financial burden supporting family plus dependent relative. Challenges were greater in caring for relatives with dementia as they "become aggressive, confused or wander off, if just physical more predictable" and in communicating with relative with stroke. Coping strategies included praying, getting others to temporary take over caregiving for them to rest, and having a positive attitude reminding themselves that they were caring for their loved ones who had cared for them previously. For social support, some received financial aid from religious and welfare departments and government physiotherapy services. Lacking was nursing / home help to give care givers time off to go to work /attend classes and affordable day care centres for dementia patients.

**Conclusion:** Caregiving is demanding and requires multifaceted support including respite care, financial assistance, accessible daycare services, affordable home care and mental health services.

**ABSTRACT NUMBER: OA\_037****Perceived diabetes care, autonomy support, and patient activation among patients with type 2 diabetes mellitus in a primary healthcare, Penang, Malaysia**

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**Introduction:** Patient self-management is crucial in diabetes care, and patients can only engage in it if they have sufficient knowledge, self-management skills, and confidence, collectively referred to as 'patient activation'. Other important aspects include patients' perceptions of diabetes care and healthcare providers' autonomy-supportiveness. There is limited research examining these and their association with patient activation. This study aimed to assess perceived diabetes care, perceived autonomy support, and patient activation among patients with type 2 diabetes mellitus (T2DM).

**Method:** A cross-sectional survey was conducted at the Kepala Batas Health Clinic from December 2024 to May 2025. A self-administered questionnaire in both English and Malay was distributed, comprising Patient Assessment of Chronic Illness Care, Health Care Climate Questionnaire, and Patient Activation Measure scale to measure perceived diabetes care, perceived autonomy support, and patient activation, respectively.

**Results:** The study involved 450 T2DM patients. The mean scores for patient activation, perceived diabetes care, and perceived autonomy support were 59.54 (SD 14.58), 65.23 (SD 14.89) and 5.54 (SD 0.98), respectively. Most patients agreed or strongly agreed that “they understand diabetes, feel they need to take charge, and can manage the disease”. Regarding perception of diabetes care, two items, “satisfied that my care was well organised” and “doctors helped to set specific goals to improve my eating and exercise” had the highest score. For perceived autonomy support, the highest score was statements suggesting that “doctors do understand, discuss and encourage patients to ask questions”. There was a significant positive correlation between perceived diabetes care and patient activation ( $r=0.241$ ,  $p<0.001$ ). Likewise, perceived autonomy support was significantly correlated with patient activation ( $r=0.16$ ,  $p<0.001$ ).

**Conclusion:** Our findings showed that higher-quality diabetes care and healthcare providers' positive attitudes are associated with patient activation. Future research is recommended to explore how these two aspects could influence patient activation in diabetes self-management.

#### ABSTRACT NUMBER: OA\_039

#### Knowledge, attitude, and its associated factors toward sexually transmitted infections among late adolescents in Kota Bharu, Kelantan

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**Introduction:** Sexually Transmitted Infections (STIs) represent a major global disease burden, affecting approximately one million individuals worldwide. Late adolescents are vulnerable as they transition out of structured health systems and face increased autonomy. In Kelantan, conservative values limit open discussions on sexual health, making localised data essential for effective primary care intervention.

**Method:** Cross-sectional study among 228 late adolescents aged between 18 and 21 years old, attending higher education institutions in Kota Bharu. Data collected through online questionnaires consisting of sociodemographic profiles, the Malay Version of the Duke University Religion Index (DUREL-M), and adapted STI knowledge and attitude scales. Descriptive statistics, simple linear regression, and stepwise multiple linear regression (MLR) were utilised for data analysis.

**Results:** The study achieved a 100% response rate ( $n = 228$ ). Respondents were predominantly female (68.9%), Malay (80.7%), and Muslim (84.2%). Mean knowledge score was moderate at 15.15/26 (SD = 5.17), with a high awareness of HIV (94.7%) but significant gaps regarding chlamydia (32.9%). The mean attitude

score was 57.10/65 (SD = 6.51), indicating a generally positive mindset. Multiple linear regression identified four significant predictors of attitude. Knowledge level (Adj.  $b = 0.616$ ,  $p < 0.001$ ) and non-organizational religious activity (NORA) (Adj.  $b = 0.679$ ,  $p = 0.010$ ) are associated with better attitude, whereas non-Malay ethnicity (Adj.  $b = -3.205$ ,  $p = 0.002$ ), and maternal primary education level (Adj.  $b = -4.085$ ,  $p = 0.021$ ) being associated with less protective attitudes.

**Conclusion:** Late adolescents in Kota Bharu possess a generally protective attitude, yet functional knowledge of specific infections and their complications remains superficial. Higher knowledge and internalised religious practice (NORA) are significant protective factors for positive attitudes. These findings emphasise the need for culturally sensitive, comprehensive sexual health education and the establishment of adolescent-friendly primary care services in the region.

#### ABSTRACT NUMBER: OA\_040

#### Assessment of understandability and actionability of a video-based patient education material (PEM) on self-care practices among hypertensive patients and the associated factors with actionability in primary care

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**Introduction:** Hypertension remains a major public health struggle and a leading risk factor for cardiovascular disease. Although self-care practices are known to improve blood pressure control, patient engagement remains suboptimal. Patient education materials (PEMs), particularly video-based PEMs, can be utilized to enhance patients' self-care practices. This study aimed to assess the understandability and actionability of a video-based patient education material (PEM) on “Self-care Practices for Hypertensive Patients”, on self-care practices among hypertensive patients in primary care, and to identify the associated factors with actionability.

**Method:** A cross-sectional study was conducted between June 2024 and April 2025 in five primary care clinics in Selangor, Malaysia. Adults aged 18 years and above who were diagnosed with essential hypertension were recruited through convenience sampling. Participants viewed a series of five educational videos and evaluated each video using the validated Malay version of the Patient Education Materials Assessment Tool for Audiovisual materials (PEMAT-A/V). Sociodemographic data, clinical characteristics, understandability, and actionability scores were analysed. Simple and multiple linear regression were performed to identify the factors associated with actionability.

**Results:** A total of 223 patients met the eligibility criteria and consented to participate. All five videos achieved high understandability and actionability scores, with the overall series scores of 99.34% and 99.89%, respectively. Multiple linear regression revealed that understandability ( $\beta = 0.416$ , 95%

CI: 0.334 to 0.497,  $p < 0.001$ ) and having a tertiary academic qualification ( $\beta = -1.216$ , 95% CI:  $-1.913$  to  $-0.519$ ,  $p < 0.001$ ) were independently associated with actionability.

**Conclusion:** The validated video series on “Self-care Practices for Hypertensive Patients” demonstrated excellent understandability and actionability among hypertensive patients in primary care. The findings emphasized the value of integrating culturally appropriate, theory-based audiovisual tools in health education to increase understandability. Tailoring materials to suit patients’ educational backgrounds may further enhance their effectiveness.

#### ABSTRACT NUMBER: OA\_042

### Implementing Fibrosis-4 index in type 2 diabetes care: Referral patterns and gaps in liver fibrosis risk stratification

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**Introduction:** Metabolic dysfunction-associated steatotic liver disease (MASLD) is common among patients with type 2 diabetes (T2D), who are at increased risk of progressing to cirrhosis, yet fibrosis often remains clinically silent until decompensation occurs. Screening patients with T2D using non-invasive fibrosis score, namely Fibrosis-4 index (FIB-4) has been introduced in the national clinical practice guidelines on T2D management since 2020. This study evaluated the implementation of FIB-4 as a risk stratification tool in patients with T2D.

**Methods:** This was a retrospective study of consecutive patients with T2D attending the Diabetes Clinic of University of Malaya Medical Centre in 2023. Patients were identified as having higher risk of future cirrhosis based on elevated FIB-4  $\geq 1.3$ .

**Results:** A total of 1009 patients were analysed, median age 62 (52 – 71) years, 40.7% male. Elevated FIB-4 was seen in 28.8% (291/1009), of whom only 12.0% (35/291) were referred for further hepatology evaluation. Among those with elevated FIB-4, referred patients were more likely to have known hepatic steatosis and elevated liver enzymes. Among patients with low FIB-4, 3.3% (24/718) were referred. All referred patients underwent FibroScan, with liver stiffness  $\geq 10$  kPa detected in 31.4% (11/35) of patients with elevated FIB-4, and 20.8% (5/24) of those with low FIB-4. Over a median follow-up of 1.71(0.95 – 1.99) years totalling 1440 person-years, there were 2 decompensations and 16 cardiovascular events.

**Conclusion:** Despite the incorporation of automatically calculated FIB-4 into laboratory report, it remains under-utilised in patients

with T2D, with most high-risk patients not further evaluated. This highlights significant gaps in liver fibrosis risk stratification and missed opportunities for timely management of advanced liver disease. Structured referral pathways, including EMR-based alerts or simplified paper-based risk charts may improve appropriate specialist referral.

#### ABSTRACT NUMBER: OA\_044

### Development and validation of knowledge, attitude, self-efficacy, and practice towards childhood autism spectrum disorder questionnaire (KASP-ASDQ) among primary care doctors

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**Introduction:** Primary care doctors (PCDs) role is pivotal in early identification of autism spectrum disorder (ASD). However, their knowledge, attitude, self-efficacy, and practice (KASP) towards childhood ASD remain insufficiently explored, and validated tools are limited. This study aimed to develop and validate a comprehensive questionnaire to measure the knowledge, attitude, self-efficacy, and practice towards childhood ASD (KASP-ASDQ).

**Methods:** A cross-sectional study was conducted in two phases. Phase 1 involved item development based on literature review and existing instruments. Phase 2a included content validation by seven experts and face validation by ten PCDs. Phase 2b involved construct validity using exploratory factor analysis (EFA). Internal consistency was evaluated using Kuder-Richardson Formula 20 (KR-20) for knowledge items and Cronbach’s alpha for other domains. Test-retest reliability used intraclass correlation coefficients (ICC) over 2-4 weeks period.

**Results:** Two items were removed during content validation due to low I-CVI scores. Face validation index for remaining items was above 0.80. Following validation, 70 items underwent psychometric testing with 155 PCDs. During EFA of the attitude, self-efficacy and practice domains, items with low factor loadings ( $\leq 0.30$ ) and problematic cross-loadings were removed, resulting in 64 remaining items. Factor structures identified were three factors for attitude, two for self-efficacy, and three for practice. Additional reduction of ten poorly performing knowledge items was done based on internal consistency analysis, resulting in moderate reliability with KR-20 of 0.50. Cronbach’s alpha value for attitude, self-efficacy and practice domains was 0.74, 0.94 and 0.89 respectively. Most items showed good to excellent stability with ICC  $\geq 0.60$ .

**Conclusion:** The 54-item KASP-ASDQ demonstrates satisfactory validity and reliability for assessing the level of knowledge, attitude, self-efficacy and practice towards childhood ASD among Malaysian PCDs. This tool helps identify needed interventions and clinical education, enabling efficient, targeted use of resources to improve clinical management.

## ABSTRACT NUMBER: OA\_046

### Prevalence of diabetes distress among men and its predictive factors

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**Introduction:** Diabetes distress (DD) is a common psychological burden among individuals with type 2 diabetes (T2D) that adversely affects glycaemic control and quality of life. Men may experience unique challenges, including underreporting of psychological symptoms and the impact of sexual dysfunction, particularly erectile dysfunction (ED). This study aimed to determine the prevalence of DD among men with T2D and to identify its predictive factors.

**Methods:** A cross-sectional study was conducted from December 2024 to March 2025 at Bandar Baru Bangi Health Clinic, Selangor. A total of 184 adult men with T2D were recruited via systematic random sampling. Data on sociodemographic and clinical characteristics were collected. DD was assessed using the 5-item Problem Areas in Diabetes (PAID-5) scale, while ED was evaluated using the International Index of Erectile Function-5 (IIEF-5). Data were analysed using descriptive analysis and bivariate analysis to identify predictors of DD.

**Results:** The mean age of participants was 58.4 ( $\pm 10.35$ ) years. The prevalence of DD was 35.9%, while ED was also commonly reported among participants (81%). Bivariate analysis showed that employment status ( $p: 0.048$ ), poor glycaemic control ( $p: 0.027$ ), insulin therapy ( $p: 0.002$ ), and ED ( $p: 0.011$ ) were significantly associated with DD.

**Conclusion:** One in three men with T2D experienced DD. Key predictors include socioeconomic factors, poor glycaemic control, insulin therapy, and ED. These findings highlight the importance of integrating routine screening for DD and sexual dysfunction into primary care practice, enabling holistic diabetes management and to improve patient quality of life and diabetes outcome.

## CASE REPORT

### ABSTRACT NUMBER: CR\_047

#### The heart behind the breathlessness: Unmasking peripartum cardiomyopathy in primary care

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**Background:** Peripartum cardiomyopathy (PPCM) is a potentially life-threatening cause of heart failure occurring late in pregnancy or early postpartum. In our clinic managing approximately 1,100 annual live births, we identified four cases over a two-year period, underscoring that PPCM is not merely a theoretical rarity in frontline practice. Early diagnosis remains a challenge because symptoms often overlap with normal physiological changes in pregnancy.

**Case Presentation:** We report four mothers (aged 29–40) presenting between 24 weeks gestation and the second postnatal day with progressively worsening dyspnoea, orthopnoea, and pedal oedema. Common comorbidities included maternal obesity (75%), chronic hypertension, diabetes, and anaemia. Notably, 50% had significant psychosocial histories, including PTSD and borderline personality disorder. Initial presentations were misattributed to "safer" diagnoses such as uncontrolled asthma, anaemia, or panic attacks, resulting in diagnostic delays ranging from two to six weeks. Recognition was triggered by failure to respond to standard treatment or worsening congestion. Echocardiography confirmed left ventricular systolic dysfunction (ejection fraction 35–45%) with global hypokinesia, with exclusion of other causes of cardiomyopathy supporting the diagnosis of PPCM. All patients were initiated on heart failure therapy and followed up. Two patients demonstrated partial recovery of left ventricular function, while two had persistent systolic dysfunction on follow-up.

**Discussion:** This series reveals an "invisible wall" built by cognitive biases, specifically anchoring bias and attribution bias. Clinicians frequently anchor on common conditions like asthma or normalise breathlessness as "pregnancy fatigue". The presence of obesity or mental health disorders may divert attention away from cardiac causes, creating a dangerous normalisation of symptoms. Persistent or worsening cardiopulmonary symptoms must prompt reconsideration of the diagnosis, and failure to respond to standard therapy should significantly lower the threshold for echocardiography.

**Conclusion:** PPCM may remain unrecognised in plain sight. Clinicians must maintain diagnostic vigilance when recovery does not follow the expected course. Early cardiac assessment is essential to mitigate cognitive biases that may contribute to delays in life-saving care.

### ABSTRACT NUMBER: CR\_049

#### Thyroid eye disease mimics conjunctivitis, as the initial presentation of Graves' disease: A diagnostic challenge

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**Background:** Thyroid eye disease (TED) is an autoimmune orbital disorder classically characterized by proptosis, lid retraction, and restrictive extraocular muscle movement. In its early inflammatory phase, TED may present with conjunctivitis-like symptoms, which can lead to diagnostic delay, particularly in patients without overt hyperthyroidism.

**Case presentation:** We report a case of a 46-year-old woman who presented with a 2-week duration of bilateral eye gritty sensation, excessive lacrimation, itchiness, and discomfort to a primary care clinic. She was initially treated by general practitioners as having allergic conjunctivitis, but the symptoms did not respond to standard treatment. She was then referred to an ophthalmologist, and the diagnosis was revised to active TED. Two weeks later, she was diagnosed with Graves' disease (GD) with elevated Free Thyroxine (FT4), low thyroid-stimulating hormone (TSH), and positive thyroid peroxidase antibody (TPOAb), thus anti-thyroid therapy was initiated. Orbital imaging revealed bilateral extraocular muscles enlargement with proptosis. She subsequently reported bilateral eye pain on movement, consistent with progression to moderate-to-severe active TED. Intravenous methylprednisolone was initiated to control the flares during hospitalization.

**Discussion/Learning points:** Conjunctivitis is a common presentation in the primary healthcare setting. Yet, not all conjunctivitis derives from a benign aetiology; some are more sinister and pose potential vision-threatening complications. TED, also known as Thyroid-associated ophthalmopathy, is a serious disorder that masquerades as conjunctivitis in the early phase. Therefore, conjunctivitis that does not resolve or improve with standard treatment should raise a high suspicion of a more serious aetiology.

**Conclusion:** This case highlights the importance of early recognition of TED and timely referral by primary care professionals to ophthalmology services to prevent disease progression and visual morbidity.

#### ABSTRACT NUMBER: CR\_051

##### **Mirror syndrome overlooked: A case report highlighting challenges in early detection**

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**Background:** Mirror syndrome, also known as Ballantyne syndrome is a rare obstetric condition characterized by maternal edema, fetal hydrops and placental edema. Early diagnosis is often challenging due to nonspecific maternal symptoms and clinical overlap with preeclampsia

**Case presentation:** A 24-week pregnant woman presented with shortness of breath for three days, prompting referral for suspected pulmonary embolism. However, she was discharged with a diagnosis of acute stress and referred for counselling. A week later, she returned with progressive symptoms and foetal hydrops, requiring urgent hospital admission. Retrospectively, she had gained 9 kg since 20 weeks gestation, and uterus was larger than expected at 24 weeks, yet no further assessment was carried out. Her condition deteriorated despite supportive care; laboratory findings were atypical, and blood pressure remained normal. Ultrasound revealed foetal hydrops and placentomegaly, raising suspicion for Mirror syndrome. Maternal oedema resolved rapidly following delivery, confirming the diagnosis.

**Discussion/Learning points:** The pathogenesis of Mirror syndrome is unknown; however, it may share similar underlying mechanism with preeclampsia. The incidence is about 1 in 3,000

pregnancies, although it is likely underreported. Excessive weight gain may be overlooked if clinical focus is limited to blood pressure monitoring, which is why rare conditions like Mirror syndrome can be missed. Clinicians should remain vigilant for warning signs, look beyond blood pressure and refer early for further evaluation.

**Conclusion:** Mirror syndrome should be considered in pregnant patients presenting with unexplained maternal oedema and nonspecific symptoms, particularly when foetal hydrops is present. Early diagnosis and intervention are essential to prevent maternal complications and provide accurate counselling regarding foetal prognosis. This case highlights the importance of heightened clinical awareness and careful evaluation in atypical presentations of maternal oedema.

#### ABSTRACT NUMBER: CR\_053

##### **Caesarean scar endometriosis – A rare cause of abdominal pain in primary care**

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**Background:** Caesarean scar endometriosis (CSE) is a rare postoperative complication caused by implantation of endometrial tissue into a surgical scar, affecting 0.03–3.5% of post-caesarean patients. Symptoms may appear months to years after surgery. Awareness in primary care is essential to prevent misdiagnosis and reduce morbidity.

**Case Presentation:** A 37-year-old woman presented with one-month history of intermittent left lower abdominal pain at her Pfannenstiel scar, 11 months after a caesarean section. Pain worsened during menstruation. She had polycystic ovary syndrome and no prior history of endometriosis. Examination revealed localised tenderness without a palpable mass. Ultrasound demonstrated a 2.23 × 2.67 cm hypoechoic lesion with irregular margins, internal hyperechoic foci, and vascularity. She was commenced on Dienogest 2 mg daily for hormonal suppression. Surgical excision, the definitive treatment, was discussed, but the patient opted for medical management. After six months, she achieved complete symptom resolution, with no residual lesion on repeat imaging.

**Discussion:** CSE is rare and frequently misdiagnosed as abscesses, hernias, haematomas, or neuromas. Although a classic triad has been described to include prior surgery, cyclical pain, and palpable mass, palpable mass may be absent. Diagnosis relies on careful history, targeted scar examination, and first-line ultrasound imaging. Family physicians play a crucial role in early recognition, symptom management, patient counselling, and follow-up arrangement. Hormonal therapy may be initiated in primary care when CSE is suspected and other differentials excluded. Referral to a gynaecologist is indicated for diagnostic uncertainty, enlarging lesions, or planned surgery. Early lesions may respond completely to medical therapy, demonstrating the value of shared care in symptom control and treatment planning.

##### **Conclusion:**

This case highlights how community-based primary care can improve outcomes in rare surgical complications. Through early detection, patient-centred education, and coordinated care,

family physicians empower patients in decision-making, optimise symptom control, and facilitate timely specialist referral, enhancing women's reproductive health.

#### ABSTRACT NUMBER: CR\_057

### Detection of abnormal umbilical artery Doppler in a high-risk pregnancy at primary care level: A case report

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**Background:** Umbilical artery Doppler velocimetry is a well-established, non-invasive modality for assessing fetoplacental circulation and identifying placental insufficiency. Its use in high-risk pregnancies has been shown to reduce perinatal mortality and guide timely obstetric intervention. Despite its clinical value, Doppler assessment is not routinely performed in many primary care settings, potentially delaying the recognition of fetal compromise.

**Case Presentation:** A 38-year-old Malay woman, gravida 4 para 3, at 35 weeks' gestation was followed up at a primary care clinic after referral from a specialist obstetrics clinic at 33 weeks for continuation of antenatal care. Her pregnancy was complicated by severe pre-eclampsia, foetal growth restriction (FGR), and gestational diabetes mellitus. FGR was diagnosed at 31 weeks, and she received antenatal corticosteroids for foetal lung maturation. Weekly umbilical artery Doppler surveillance at the hospital had previously demonstrated normal findings (normal waveform, PI 1.2–1.34, RI 0.86).

At 35 weeks' gestation, she presented for routine follow-up and remained asymptomatic for pre-eclampsia. However, clinical examination revealed a fundal height smaller than expected for gestational age. A targeted ultrasound performed in the clinic demonstrated an estimated foetal weight of 1370 g with reversed end-diastolic flow (REDF), along with markedly elevated pulsatility index (PI 5.88) and resistance index (RI 1.28). She was urgently referred and underwent an emergency caesarean section within 2 hours for foetal distress. A live infant weighing 1.3 kg was delivered with a good Apgar score and was admitted to the neonatal intensive care unit for prematurity care.

**Discussion:** Absent or reversed end-diastolic flow is strongly associated with severe placental insufficiency, foetal hypoxia, and increased perinatal morbidity and mortality, warranting urgent delivery. Importantly, Doppler findings may deteriorate rapidly despite previously normal surveillance, as demonstrated in this case. Early detection and prompt referral from primary care are therefore crucial for improving perinatal outcome.

**Conclusion:** This case highlights the pivotal role of primary care clinicians in recognising abnormal Doppler findings. Strengthening Doppler awareness and referral pathways in primary care may facilitate timely intervention and reduce adverse perinatal outcomes.

#### ABSTRACT NUMBER: CR\_058

### From viral-like symptoms to fatal encephalitis: A diagnostic pitfall

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**Introduction:** N-methyl-D-aspartate receptor (NMDAR) antibody encephalitis is a rare autoimmune encephalitis with low awareness among clinicians, posing a diagnostic challenge. First described in 2007, it predominantly affects young females and presents with neuropsychiatric manifestations preceded by nonspecific viral-like symptoms. Fewer than 20 cases have been reported in Malaysia.

**Case Presentation:** A 23-year-old woman presented with a one-week history of headache, vomiting, and fatigue. She failed to improve after symptomatic treatment for presumed tonsillitis and sinusitis by different general practitioners. Further assessment revealed forgetfulness, echolalia, and marked disorientation despite an otherwise normal neurological examination. Laboratory investigations demonstrated mild leukocytosis with neutrophilia. An urgent computed tomography (CT) scan of the brain showed no evidence of intracranial hemorrhage or leptomeningeal enhancement.

The patient was admitted and empirically treated for meningitis but subsequently developed bilateral tonic-clonic seizures, prompting lumbar puncture. Extensive evaluation for infectious, metabolic, toxic, and autoimmune causes identified anti-NMDAR antibodies, with an incidental finding of a right ovarian cystic teratoma. Magnetic resonance imaging (MRI) revealed bilateral cortical signal abnormalities, tally with the features of anti-NMDAR encephalitis. Despite supportive management, the patient deteriorated rapidly, requiring prolonged mechanical ventilation complicated by ventilator-associated pneumonia, and died after 42 days of hospitalization.

**Discussion:** Anti-NMDAR encephalitis often presents with nonspecific prodromal symptoms and subtle neuropsychiatric features, leading to misdiagnosis and delayed treatment. MRI is choice of imaging as it is more sensitive in detecting characteristic temporal and cortical abnormalities. Young females presenting with unexplained neuropsychiatric symptoms and seizures should prompt consideration of autoimmune encephalitis, particularly in the presence of ovarian teratomas.

**Conclusion:** This case emphasizes the importance of early recognition of anti-NMDAR encephalitis. Clinicians should look out for early warning signs such as confusion, memory deficits or psychiatric symptoms that develop rapidly warrants an urgent referral as delayed diagnosis may result in severe complications and increased mortality.

**ABSTRACT NUMBER: CR\_059****Multidrug resistance (MDR) *Neisseria gonorrhoeae* in pregnancy: A case report from primary health care**

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**Background:** The emergence of multidrug-resistant (MDR) *Neisseria gonorrhoeae* poses a critical threat to global reproductive health, particularly during pregnancy where it increases the risk of preterm labour, chorioamnionitis and neonatal sepsis. In primary care, the Family Medicine Specialist (FMS) is crucial in coordinating multidisciplinary care balancing aggressive antimicrobial stewardship with maternal-fetal safety while managing the psychosocial distress associated with STI diagnoses.

**Case Presentation:** A 25-year-old G2P1 woman at 22 weeks gestation was referred to the FMS following a positive gonorrhoeae notification through partner contact tracing. Despite minimal symptoms—yellowish vaginal discharge and mild back pain—a cervical swab gram stain confirmed gram-negative diplococci suggestive of gonorrhoeal infection. She received first-line treatment with intramuscular ceftriaxone 500 mg stat and oral azithromycin 1 g followed local management guideline published in 2021. Subsequent cultures and antimicrobial susceptibility testing revealed an MDR strain of *Neisseria* which were non-susceptible to ceftriaxone and resistant to cefixime, azithromycin, penicillin, and ciprofloxacin (MIC >0.25 mg/L) based on Clinical and Laboratory Standards Institute (CLSI) /EUCAST guidelines. Following multidisciplinary consultation with Infectious Disease and Obstetrics & Gynaecology teams, the patient and the partner was successfully treated with a second-line therapy: intramuscular gentamicin (200 mg) and high-dose oral azithromycin (2 g). Throughout the clinical course, repeated infective screening were non-reactive, clinical symptoms were improved, and fetal wellbeing was appropriate to gestations. The patient also developed an acute stress reaction and marital strain following her husband's disclosure of high-risk behaviour, requiring psychiatric counseling. Coordination with the pediatric team was arranged for neonatal assessment and prophylaxis at delivery.

**Discussion:** This represents the first reported MDR gonococcal case in Perlis during pregnancy. It underscores the FMS's role as the essential anchor for coordinated, holistic care. Early detection via contact tracing and timely specialist collaboration are vital to ensuring maternal recovery and preventing adverse neonatal outcomes.

**ABSTRACT NUMBER: CR\_060****Recurrent menstrual pain masking ovarian pathology: A primary care diagnostic challenge**

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**Background:** Primary care is the frontline of the healthcare system, providing early assessment and initial diagnosis while functioning as key gatekeeper to specialised services. However, its diagnostic capacity is often challenged by high patient volumes, workforce limitations, and limited access to on-site investigations. Dysmenorrhea is a common presentation where women with chronic, recurring symptoms are frequently assumed to have primary dysmenorrhea. Recognising red flag features is essential to avoid missed or delayed diagnosis of underlying pelvic pathology.

**Case presentation:** A 27-year-old, para 1, with severe dysmenorrhea since age 14; presented repeatedly with cyclical lower abdominal pain. At times she would require short medical leave due to dysmenorrhea and managed symptomatically without further investigation. Over the course of six months, she had multiple visits for worsening abdominal pain, unintentional weight loss of 3kg, and early satiety. She was managed symptomatically as primary dysmenorrhea and intermittently treated for presumed gastritis. During a subsequent presentation with severe lower abdominal pain, physical examination revealed palpable abdominal mass. Transabdominal-ultrasonography demonstrated well-defined adnexal mass with mixed echogenicity measuring 7x8cm. This case was referred for suspected ovarian cyst torsion in view of severe abdominal pain. The patient underwent laparoscopic right cystectomy with biopsy confirming mass as right twisted dermoid cyst. Post-operatively, the patient experienced complete resolution of both pelvic pain and dysmenorrhea.

**Discussion:** This case illustrates the risk of diagnostic anchoring when chronic dysmenorrhea masks evolving pelvic pathology. Red flag features, including progressive pain, constitutional symptoms, early satiety, and palpable mass—should prompt immediate reassessment. Recurrent presentations warrant systematic clinical review rather than continuation of previous diagnoses. Early imaging and timely referral are essential to prevent complications such as torsion and to preserve fertility in reproductive age women.

**Conclusion:** Chronic cyclical pelvic pain should not preclude evaluation for new pathology. Vigilance, physical examination, and structured reassessment are critical in primary care to avoid diagnostic delays and improve outcomes.

**ABSTRACT NUMBER: CR\_061****When nightmares signal disease - a rare sleep-related presentation of paediatric Graves' disease: A case report**

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**Background:** Paediatric Graves' disease commonly presents with classical thyrotoxic symptoms. However, children may also present with atypical manifestations, posing a diagnostic challenge in primary care. Sleep disturbance as an initial presentation is rare in the paediatric population and may delay diagnosis.

**Case Presentation:** This case illustrates a 10-year-old girl brought by her mother due to recurrent nightmares over one month. The child would suddenly awaken at night, appear short of breath, and was noted by her mother to have a fast heartbeat. The child otherwise felt well and denied palpitations, chest pain, behavioural

changes, or other symptoms of thyrotoxicosis. Further history revealed subtle symptoms of heat intolerance, increased appetite, and mild weight loss. On examination, the child appeared well with stable vital signs. Growth assessment showed a low body mass index for age. Neck examination revealed a diffuse, non-tender goitre, fine tremor, sweaty palms, and mild ocular prominence. Blood investigations were normal except for thyroid function tests, which showed markedly suppressed thyroid-stimulating hormone ( $<0.01 \mu\text{IU/mL}$ ) with severely elevated free thyroxine ( $>100 \text{ pmol/L}$ ). Despite minimal symptoms, biochemical thyrotoxicosis was profound. She was admitted with a working diagnosis of Graves' disease and referred for specialist management. Treatment with carbimazole 10 mg twice daily was initiated, resulting in clinical improvement with resolution of sleep disturbance.

**Discussion / Learning Points:** This case highlights how paediatric Graves' disease may present through parental observation rather than patient complaint. It demonstrates clinical-biochemical discordance, where children may appear well despite severe hyperthyroidism. Sleep disturbance and growth faltering were key indicators of underlying endocrine disease, highlighting the importance of careful assessment in primary care.

**Conclusion:** Sleep disturbance in children may represent an underlying medical condition rather than a behavioural or psychological issue. Early recognition of paediatric Graves' disease in primary care can prevent diagnostic delay and long-term complications.

#### ABSTRACT NUMBER: CR\_062

##### Embarking on a difficult journey: Navigating misconception and delayed sputum conversion in pulmonary tuberculosis

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**Background:** Tuberculosis (TB) continues to be a predominant global cause of infectious mortality, with Malaysia witnessing an 8.4% rise in incidence from 2015 to 2021. This case illustrates the important role of primary care in mitigating patient-centred barriers and managing clinical complications like delayed sputum conversion.

**Case Presentation:** This case report describes a 29-year-old female who presented with a month history of chronic cough, fever, and constitutional symptoms. Chest X-ray done showed cavitation over the right upper zone with consolidation extending to the midzone, and sputum investigations confirmed the diagnosis of TB. Her course was complicated by mild anxiety and delayed sputum conversion. Management included starting the patient on a standard anti-TB regimen under Directly Observed Treatment Short-course, referral to a counsellor for mood stabilisation, and family counselling to ensure good social support. Following the exclusion of drug resistance and extension of the intensive phase, she achieved sputum conversion after 97 days.

**Discussion / Learning Points:** Delayed sputum conversion is defined as non-conversion to smear-negative PTB at the end of the intensive phase and is often multifactorial. In this case, it was driven by a high acid-fast bacilli load (AFB 3+) and advanced

radiological cavitation resulting from a one-month diagnostic delay. Higher AFB load indicates a heavier mycobacterial burden, thus requiring more time for clearance. Moreover, TB diagnosis often triggers anxiety due to the fear of contagion, social stigma, and the apprehension of a long treatment course, and this can lead to poor adherence if untreated.

**Conclusion:** This case highlights how delayed health-seeking leads to severe disease presentation and delayed sputum conversion. Primary care physicians must adopt a holistic approach by applying the core principles of family medicine to address both physical and psychological needs of patients, while actively raising public awareness to facilitate early diagnosis.

## COMMUNITY ENGAGEMENT

#### ABSTRACT NUMBER: CE\_063

##### Community engagement and health empowerment among the indigenous (Orang Asli) community in POS Piah, Sungai Siput Utara, Perak

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**Background:** Indigenous communities in rural areas often face significant challenges in accessing basic healthcare services and health education. POS Piah Village in Sungai Siput Utara, Perak, is a remote settlement inhabited by Temiar sub-ethnic group. Limited infrastructure and resources affect both school-based and community health support. In response, a structured community engagement was initiated to empower the community, focusing on emergency preparedness and health education.

**Approach:** This project was implemented from September 2024 to August 2025 under the Knowledge Transfer Grant Scheme (KTGS) and KPT Madani, in collaboration with Hospital Sultan Abdul Aziz Shah and Taylor's University. Engagement with the Temiar community was facilitated through collaboration with teachers from Sekolah Kebangsaan POS Piah. This participatory and culturally sensitive approach fostered trust, ownership, and sustainability. Three community visits were conducted to deliver emergency response training, strengthen health knowledge, and provide health and social support. The project also included upgrading the school treatment room to function as a basic treatment facility for the community.

**Outcomes:** The project enhanced teachers' and community knowledge and confidence in providing first aid for common emergencies such as wound care, fracture and choking. This project successfully trained 19 first aiders among the community. The school treatment room was upgraded with essential equipment, including a stretcher, wheelchair, and first aid kits. A total of 122 students were checked for basic health screening, and few referral letters were issued for further assessment at appropriate health facilities. Community activities, including cooking competitions, games for children, and free market strengthened social support and community cohesion.

**Lessons Learned:** Sustained engagement and culturally respectful communication were essential in building trust and partnerships with this community.

**Conclusion:** This project demonstrated the impact of collaborative between university, school and healthcare organisation. This collaboration effectively empowers the underserved indigenous community in improving health literacy, emergency preparedness, and overall wellbeing.

#### **ABSTRACT NUMBER: CE\_064**

#### **Clinical audit on blood pressure measuring technique among adult patients in PPAT, Sg besi: A community engagement audit**

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**Background:** Nearly one in three Malaysian adults has hypertension, with an estimated 11.9% remaining undiagnosed. Accurate blood pressure measurement is essential for early detection and to prevent serious complications, including stroke, heart disease, and kidney failure. This clinical audit evaluated healthcare personnel adherence to recommended BP measurement techniques among adult patients attending Pusat Perubatan Angkatan Tentera (PPAT) Sungai Besi, based on the Malaysian Clinical Practice Guidelines (CPG) for the Management of Hypertension.

**Methods:** A cross-sectional observational, process of care audit was conducted over two weeks using convenience sampling. Thirty adult patients aged 18 years and above were included. Data were collected through direct observation of BP measurements performed at the triage counter using a structured checklist. Four criteria were assessed: (1) patient preparation (avoidance of smoking, caffeine, exercise, or meals 30 minutes prior), (2) patient positioning (seated  $\geq 1$  minute, back supported, arm supported at heart level), (3) patient behaviour (legs uncrossed, no talking), and (4) appropriate cuff size selection (bladder encircling  $\geq 80\%$  and width covering  $\geq 40\%$  of arm circumference). The standard of 50% was set for all the criterias as there were no prior similar audit conducted at the clinic.

**Outcomes:** Patient preparation did not meet the 50% standard, indicating poor compliance. For patient positioning, only two of the sub-criterias achieved the standard of above 50%, they were back supported, arm supported at heart level. Patient behaviour and cuff size selection met the required standard of 50%.

**Lessons learned:** The audit highlights gaps in adherence, particularly in pre-measurement preparation. Targeted staff education, standardized checklists, and workflow modifications are recommended to enhance blood pressure measurement accuracy among adults in health clinics.

**Conclusion:** Inadequate pre-measurement preparation risks hypertension misdiagnosis. Standardizing techniques through staff education and checklists is essential to ensure measurement accuracy and improved clinical outcomes in the Sg Besi health clinic.

#### **ABSTRACT NUMBER: CE\_065**

#### **ACTIVE 1.0: Empowering adolescents as community health advocates in a low-income urban population**

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**Background:** Adolescent health in low-income urban communities (PPR) is often challenged by limited health literacy and sedentary lifestyles. ACTIVE 1.0 (Active Choices Towards Values and Health) was a community-based intervention designed to empower adolescents aged 13–19 as peer influencers. The program was a collaboration between the Departments of Primary Care at UiTM and UKM, Cheras Health Office, and PERKASA UKM, aimed to cultivate a cohort of teen advocates and peer influencers dedicated to promoting healthy lifestyles.

**Methods/approach:** The program was conducted at the PERMATA Youth Community Centre, PPR Pantai Ria, consisting of three thematic sessions between September 2025 and January 2026. The themes were "Move with Me" (physical activity via gamified learning), "My Body, My Rights" (sexual and reproductive health using the Modul Cakna Diri and refusal skill role-plays), and mental health (stress management and community problem-solving). Impact was assessed using pre- and post-intervention questionnaires evaluating knowledge, intention to help others, and readiness to share health information with peers.

**Outcomes/impact:** A total of 25 adolescents participated. Knowledge of sexual and reproductive health increased significantly from 20% to 73%, while mental health literacy rose from 27.3% to 63.6%. Although stress management proficiency remained stable (54.5%), the program successfully fostered advocacy: 72.7% expressed an intention to help others and 63.6% reported readiness to share knowledge with peers. Notably, 81.8% of participants felt more confident in accessing professional health support for physical and mental health issues.

**Lessons learned:** The results suggest that while knowledge-based gains are rapid, behavioural skills—such as stress management—require longitudinal reinforcement. Future recommendations include establishing peer-led support circles, regular ‘booster’ interventions, and mentorship programs to translate theoretical knowledge into sustainable practical application.

**Conclusion:** ACTIVE 1.0 effectively improved health literacy and empowered adolescents to take on advocacy roles within their community. This collaborative model demonstrates the potential of primary care-led community engagement in bridging health gaps for marginalized urban youth.

