



THE INTERNIST

College of Physicians Malaysia

End-Year 2025 Issue



Message from the President

Datuk Seri Dr Paras Doshi



The past year has been one of steady progress and meaningful advancement for the College of Physicians Malaysia. As we reflect on the work accomplished over the past twelve months, it is clear that the College continues to strengthen its role not only as a professional body for internists, but also as an important platform shaping the future of Internal Medicine in Malaysia.

Healthcare systems today face complex challenges. Ageing populations, the growing burden of non-communicable diseases, workforce pressures, and rapid technological change demand thoughtful leadership from the medical profession. In this evolving landscape, physicians must do more than deliver excellent clinical care. We must also contribute to education, leadership, and the stewardship of healthcare systems that remain sustainable, equitable, and patient-centred.

One of the College's key priorities over the past year has been strengthening the foundations of postgraduate training in Internal Medicine. In collaboration with national partners, the College continues to support the implementation of the Internal Medicine National Postgraduate Medical Curriculum (NPMC) through the organisation of Training of Trainers workshops across the country. These initiatives are designed to equip consultants and specialists with the skills required to supervise and mentor future physicians within both university-based and parallel training pathways. To date, more than 200 trainers have been trained cumulatively, significantly strengthening national training capacity and ensuring that postgraduate education in Internal Medicine continues to expand in a structured and sustainable manner.

Alongside strengthening trainers, the College has also focused on supporting trainees navigating the demanding journey towards specialist qualification. Recognising the challenges faced by many doctors preparing for postgraduate examinations, the College introduced a structured MedEx/MRCP Part 1 Preparatory Programme, which brought together candidates from hospitals nationwide through a seven-month academic initiative combining regular teaching sessions and mock examinations. This programme reflects our commitment to ensuring that capable and motivated trainees are given the academic support necessary to progress in their careers.

Looking ahead, the College will embark on further initiatives aimed at supporting our Masters in Internal Medicine (MMed) trainees preparing for the Internal Medicine Qualifying Assessment (IMQA). By strengthening academic preparation and mentorship for these trainees, the College hopes to provide a more inclusive educational ecosystem that supports physicians across the full spectrum of postgraduate training pathways in Malaysia.

Leadership development has also remained a central focus. In collaboration with the Royal College of Physicians, London, the College continued its Clinical Leadership Training programme for the fourth consecutive year. These initiatives aim to nurture physicians who are not only clinically competent, but also capable of guiding institutions, shaping healthcare policy, and leading multidisciplinary teams in an increasingly complex healthcare environment.

Our Annual Scientific Congress 2025, held at Medical Academies Malaysia in Putrajaya, once again served as the

College's flagship academic gathering. Bringing together physicians, trainees, and international faculty, the congress provided an important platform for knowledge exchange and professional engagement. We were deeply honoured by the presence of His Royal Highness Sultan Nazrin Muizzuddin Shah, whose attendance underscored the national importance of advancing medical scholarship and professional excellence.

Beyond our major academic gatherings, the College has continued to sustain a vibrant educational community through national webinars, training initiatives, and collaborations with professional partners. Our partnership with the Malaysian Advanced Acute Internal Medicine and Ultrasound Society (MAAIMUS) has expanded access to Point-of-Care Ultrasound (POCUS) training, ensuring that Malaysian internists remain equipped with the practical diagnostic skills required in modern bedside medicine.

The College has also remained committed to supporting trainees through initiatives such as the MRCP(UK) PACES Mock Examination, providing candidates with valuable exposure to the examination environment and helping prepare them for international postgraduate assessments.

As we look ahead to the coming year, we are particularly excited about the ASEAN Federation of Internal Medicine (AFIM) meeting, which will coincide with the Annual Scientific Congress 2026. This important gathering will bring together physicians and leaders in Internal Medicine from across the region, strengthening academic collaboration and further positioning Malaysia as a regional hub for postgraduate medical education and professional exchange.

The achievements of the past year would not have been possible without the dedication of our Council members, committees, faculty members, and collaborators across Malaysia. Their commitment reflects the enduring spirit of our profession - one built upon service, knowledge, and a shared responsibility to improve the health of our communities.

As we continue this journey, the College of Physicians Malaysia remains committed to advancing clinical excellence, strengthening physician training, and nurturing the next generation of leaders in Internal Medicine.

For ultimately, the strength of our healthcare system will always rest upon the physicians we train, the values we uphold, and the patients we serve.

CONTENTS



Message from the President	1	Case Write Up: Dapsone-Induced Methemoglobinemia in an HIV-Positive Patient Receiving Pcp Prophylaxis	19
College of Physicians Malaysia Council 2024-2026	3	Fatal Pneumococcal Meningitis Secondary to Bilateral Otomastoiditis in a Prisoner with Systemic Lupus Erythematosus	21
Editor's Note	4	Establishing A Comprehensive Cardiac Rehabilitation Programme: A Decade of Development, Implementation and Outcomes at Sarawak Heart Centre	23
Inaugural MRCP Conferring Ceremony 2025	5	Delivering Hospital Care Beyond Hospital Walls: The Universiti Malaya Medical Centre Virtual Ward Programme	26
The 7 th Annual Scientific Meeting of the Dermatology Chapter	10	Open Disclosure: Cultivating Systemic Compassion & Accountability	29
Internal Medicine National Postgraduate Medical Curriculum - Training of Trainers (NPMC-TOT) Workshop at Hospital Melaka on 25 th August 2025	13	The Masquerader of Modern Medicine: Cobalamin Deficiency	31
MRCP(UK) PACES Mock Examination 2025	14	The Current Situation of Neurology Training in Malaysia: Challenges and Opportunities	33
Tuanku Muhriz Travelling Fellowship	15	Less Can Be More: Rethinking Primary Spontaneous Pneumothorax Management	39
CASE REPORT: A Rare Evolution: Mediastinal Mature Teratoma Undergoing Somatic-Type Malignant Transformation to Rhabdomyosarcoma	16	CALENDAR OF FUTURE EVENTS: College Calendar for 2026	41

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Editor Note

Dr Pravind Narayanan
Honorary General Secretary



As 2026 begins, the College of Physicians Malaysia (CoPM) continues to strengthen its role as an advocate for internists and as a key contributor to the advancement of Internal Medicine in the country. Over the past year, the College has undertaken several initiatives aimed at supporting professional development, strengthening training, and fostering collaboration within the medical community.

Many Medical Officers aspire to pursue specialist training in Internal Medicine but face challenges in entering programmes such as the Masters in Internal Medicine or the Parallel Pathway Programme. One of the common barriers is passing the MeDEX (Medical Qualifying Examination) or the MRCP(UK) Part 1 examination. Recognising this need, the College initiated an online preparatory programme to support candidates preparing for these examinations.

The MedEx/MRCP Part 1 Preparatory Programme concluded recently after seven months of structured learning, having commenced on 1st February. A total of 76 candidates from hospitals across the Ministry of Health participated in the programme. Designed to guide candidates in their preparation for the MRCP(UK) Part 1 examination, an important gateway into specialist training, the programme provided a platform for systematic revision, discussion, and assessment.

The initiative was spearheaded by Dr Pravind Narayanan, Honorary Secretary of the College of Physicians Malaysia, with the support of Dr Cheah Wee Kooi and DS Dr Paras Doshi. It represented a collaborative effort between the Internal Medicine Service of the Ministry of Health and the College of Physicians Malaysia. Over the course of 30 Saturdays, participants attended 23 topic-based teaching sessions and completed seven mock or mini-mock examinations. It was my privilege, together with Dr Hor Chee Peng, Dr Chai, Dr Sachin and Dr Rachel, to moderate the sessions throughout the programme.

We hope that the programme has strengthened candidates' knowledge and sustained their motivation as they prepare for the MRCP(UK) Part 1 examination. We wish all participants success in their upcoming examinations.

Beyond examination preparation, the College recognises that qualifications alone do not define effective training. CoPM continues to work closely with the National Postgraduate Medical Curriculum team and contributes to the Training the Trainers workshops. These initiatives aim to ensure that clinicians involved in the training of future physicians, whether through the Masters in Internal Medicine programme or the Parallel Pathway, are appropriately prepared for their supervisory and educational roles.

For the fourth consecutive year, the College also delivered Clinical Leadership Training in collaboration with the Royal College of Physicians, London. The programme was supported by Dr Mo Aye, Associate International Director for Asia Pacific, and Associate Professor Dr Edmund Ong, International Advisor

to the RCP. We are grateful to the faculty from both Malaysia and the United Kingdom who have contributed to strengthening this initiative, which is now firmly embedded within the CoPM annual calendar. Together with Clinical Audit training initiatives, this collaboration reinforces the College's role in providing essential generic skills training for future medical specialists and subspecialists.

The College's flagship academic event, the Annual Scientific Congress (ASC) 2025, held at Medical Academies Malaysia in Putrajaya, once again brought together physicians, trainees and educators from across the field of Internal Medicine. The congress continues to serve as an important platform for learning, professional exchange and the sharing of ideas that shape contemporary medical practice.

We were honoured by the presence of His Royal Highness Sultan Nazrin Muizzuddin Shah Ibni Almarhum Sultan Azlan Muhibbuddin Shah Al-Maghfur-Lah, Sultan of Perak Darul Ridzuan, whose attendance at the opening ceremony added great distinction to the meeting.

The scientific programme featured a wide range of sessions delivered by both local and international faculty, reflecting the breadth and evolving landscape of Internal Medicine. Beyond the formal academic discussions, the congress also provided an opportunity for colleagues to reconnect, exchange experiences and strengthen the professional community that underpins our specialty.

The College's weekly webinar series also continued successfully throughout the year, attracting encouraging participation from physicians across the country. Each month focuses on a designated subspecialty, with experienced speakers delivering topics relevant to current clinical practice. We also extend our appreciation to the Medical Department of Hospital Taiping for their continued collaboration in ensuring the smooth organisation of these sessions.

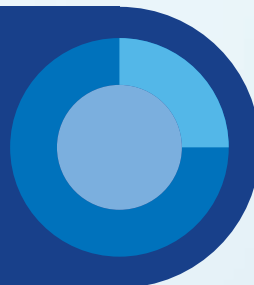
In addition, the College's collaboration with the Malaysian Advanced Acute Internal Medicine and Ultrasound Society (MAAIMUS) has enabled the delivery of Point-of-Care Ultrasound (POCUS) training across the country. These courses support the College's mission of ensuring that internists remain equipped with the clinical skills and technological competencies required in modern medical practice.

As we move into 2026, under the leadership of our President, Datuk Seri Dr Paras Doshi, the College remains committed to strengthening training, supporting physicians at every stage of their careers, and advancing the standards of Internal Medicine practice in Malaysia.

Finally, I would like to express my sincere appreciation to the Council members and collaborators whose dedication continues to drive the College's work forward.

Inaugural MRCP Conferring Ceremony 2025

Dr Firdaus Mat Lawi



On 14th June 2025, the College of Physicians Malaysia organised the inaugural MRCP Conferring Ceremony at the Medical Academies of Malaysia, Putrajaya. The ceremony marked an important milestone for physicians who successfully completed specialist training in Internal Medicine through the Parallel Pathway Programme.

The programme continues to play a significant role in strengthening Malaysia's specialist physician workforce, and the College expresses its appreciation to the Ministry of Health Malaysia for its continued support in the development of this pathway.

The ceremony was graced by the presence of His Royal Highness Sultan Nazrin Muizzuddin Shah Ibni Almarhum Sultan Azlan Muhibbuddin Shah Al-Maghfur-Lah, Sultan of Perak Darul Ridzuan and Royal Patron of the Academy of Medicine of Malaysia, who honoured the occasion and presented awards to the recipients.

Also in attendance were Dr Mike Jones, representing the Federation of the Royal Colleges of Physicians of the United Kingdom, and Dr Diarmuid O'Shea, President of the Royal College of Physicians of Ireland. Their presence highlighted the longstanding international collaboration underpinning the MRCP(UK) and MRCPI training pathways.



The College was also honoured by the attendance of Tan Sri Shamsul Azri bin Abu Bakar, Ketua Setiausaha Negara, and Datuk Dr Mahathar Abd Wahab, Ketua Pengarah Kesihatan, reflecting continued governmental commitment to specialist training and the advancement of healthcare services in Malaysia.



During the ceremony, several awards were presented in recognition of excellence and contributions to medical education and service:

- Eminent Educator Award
 - YABhg Datuk Seri Dr Wan Azizah Wan Ismail
- Distinguished Educator Award
- Young Educator Award
- Dedicated Service Award
- Special Award
 - Hospital Tuanku Fauziah, Kangar, and the Medical Development Division, Ministry of Health Malaysia



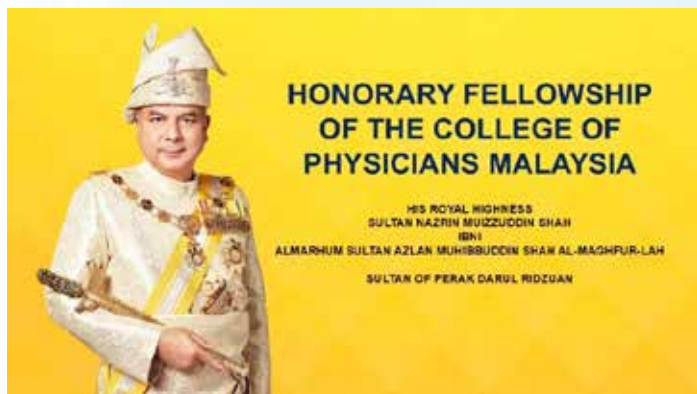
The College congratulates all MRCP(UK) and MRCPI graduates on achieving this important professional milestone. Their dedication and commitment to the practice of Internal Medicine will continue to contribute to the advancement of patient care and the healthcare system in Malaysia.



College of Physicians Malaysia Annual Scientific Congress 2025

Dr Pravind Narayanan

The College of Physicians Malaysia Annual Scientific Congress (ASC) 2025 was successfully held from 1st - 3rd August 2025 at the Medical Academies Malaysia, Putrajaya. As the College's flagship academic event, the congress brought together physicians, trainees, and experts from across multiple subspecialties of internal medicine to share knowledge, discuss new developments, and strengthen professional collaboration.



The congress was graced by the presence of His Royal Highness Sultan Nazrin Muizzuddin Shah Ibni Almarhum Sultan Azlan Muhibbuddin Shah Al-Maghfur-Lah, Sultan of Perak Darul Ridzuan, whose attendance at the opening ceremony added great honour and significance to the occasion.

A total of **391 delegates** participated in the congress, reflecting strong engagement from the medical community both locally and internationally. The scientific programme featured **local and international speakers** delivering updates across a broad spectrum of subspecialties, making the congress a valuable platform for continuing medical education and professional exchange.

Several highlights marked this year's congress. The **Pre-Congress Workshops** attracted **45 candidates and observers**, offering hands-on learning experiences prior to the main congress. The **Khoo Kah Lin Physician Cup** was conducted smoothly and added an engaging academic component to the event. The **Presidents' Roundtable** also provided an important forum for discussion on issues affecting the future of internal medicine practice and training.



Acute Medicine – Getting It Right the First Time!



Overall feedback from delegates was encouraging. Many participants found **Medical Academies Malaysia** to be a convenient and accessible venue. The **Acute Medicine Workshop** was particularly well received, with attendees describing it as interactive, practical, and an eye-opening learning experience. Constructive suggestions were also shared, including improvements to **food arrangements** and



variety, broader inclusion of current and emerging subspecialty topics, further refinement of scientific programme planning, and strengthening technical and audiovisual support to minimise disruptions during sessions.

The success of ASC 2025 was made possible through the dedication of the organising committee, comprising physicians from different subspecialties and regions across Malaysia. Despite being geographically dispersed and balancing demanding clinical responsibilities, the committee worked closely together, conducting most planning meetings online alongside a site visit and in-person discussion hosted by the Chairperson, **Dr Pravind Narayanan**. Their collective effort, supported by the College's secretariat team, ensured the smooth planning and execution of the congress.



The College of Physicians Malaysia would also like to express its sincere appreciation to all **sponsors, supporting organisations, and vendors** whose contributions and partnership were instrumental in making ASC 2025 a success. Their support played an important role in enabling the congress to take place and in ensuring the smooth running of the event.



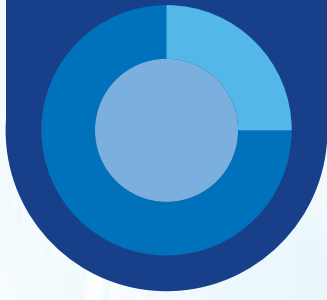
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The 7th Annual Scientific Meeting of the Dermatology Chapter

Dr Henry Foong Boon Bee,
Dr Latha Selvarajah and Dr Leong Kin Fon

The Dermatology Chapter of the College of Physicians Malaysia, Academy of Medicine, successfully held its 7th Annual Scientific Meeting on 22nd - 23rd November 2025 at the Renaissance Johor Bahru Hotel. This annual flagship event has become a cornerstone in the Chapter's educational calendar and continues to reflect its commitment to advancing dermatologic education and clinical excellence in Malaysia.

Meeting Theme

The scientific meeting was conducted under the theme "When Human Intelligence (HI) Meets Artificial Intelligence (AI) in Dermatology," reflecting the evolving role of digital technologies and artificial intelligence in enhancing clinical decision-making, diagnostics, and patient care, while emphasising the continued importance of clinical judgement, experience, and human insight in dermatology practice.

Meeting Overview and Participation

The meeting attracted more than 100 delegates for the main congress, comprising dermatologists, dermatology trainees, junior physicians, primary care doctors, and medical officers from both public and private sectors across Malaysia, as well

as participants from overseas. In addition, the pre-congress workshop on Paediatric Dermatology drew approximately 60 delegates, underscoring strong interest in structured, subspecialty-focused training. The robust attendance highlighted the relevance of the scientific programme and the growing recognition of the Annual Scientific Meeting as a key national dermatology platform.

The faculty comprised approximately 20 local and international speakers, representing a diverse range of expertise across medical dermatology, paediatric dermatology, inflammatory skin diseases, cosmetic dermatology, and emerging technologies in clinical practice. The meeting was further strengthened by the presence of two distinguished speakers from the United States, whose contributions added valuable international perspectives and enriched scientific discourse throughout the congress.

Pre-Congress Workshop: Paediatric Dermatology

The pre-congress workshop, held on 22nd November 2025, focused on Paediatric Dermatology, a field that often presents diagnostic and therapeutic challenges due to age-specific disease patterns and the need for multidisciplinary care. The programme covered a wide spectrum of topics, including neonatal rashes, paediatric infections, inflammatory dermatoses, vascular anomalies, and paediatric dermatologic emergencies.

Through a combination of focused lectures and interactive discussions, participants were equipped with practical frameworks for early recognition, risk stratification, and timely referral of paediatric skin conditions. The workshop was particularly well received for its emphasis on real-world clinical decision-making, reflecting common scenarios encountered in both primary and specialist care settings.

Scientific Programme: Breadth, Depth, and Relevance

The main congress, held on 23rd November 2025, featured a comprehensive and well-structured scientific programme designed to address contemporary challenges in dermatology. Sessions were organised into themed symposia, allowing delegates to engage with both





foundational principles and emerging advances in dermatologic care.

Key areas covered included inflammatory skin diseases, atopic dermatitis, psoriasis, hidradenitis suppurativa, pigmentary disorders, paediatric dermatology, and cosmetic dermatology, with a strong emphasis on evidence-based management and evolving therapeutic strategies. In keeping with the meeting theme, dedicated sessions on artificial intelligence in medical health and AI-assisted diagnostic dermatology explored the practical integration of AI into clinical workflows while reinforcing the complementary role of clinician expertise.

The scientific programme was further strengthened by the participation of two distinguished invited speakers from the United States. Associate Professor Jennifer Huang, Associate Professor of Dermatology and Pediatrics at Harvard Medical School and Director of Oncodermatology at Boston Children's Hospital, is internationally recognised for her expertise in paediatric dermatology, pigmentary disorders, and complex inflammatory skin diseases in children. She delivered highly anticipated lectures on childhood pigmentary disorders and the evolving role of biologics and JAK inhibitors in paediatric dermatology.

The meeting was also honoured by Associate Professor Jean McGee, Associate Professor of Dermatology at Harvard Medical School and Director of Microbiome Research at the Department of Dermatology, Brigham and Women's Hospital, Boston. Her expertise lies in inflammatory skin diseases, immunodermatology, and the gut-skin axis, and her guest lecture provided valuable insights into the role of the microbiome in dermatologic inflammation, effectively bridging translational research with everyday clinical practice.

Sessions on cosmetic dermatology focused on advances in energy-based devices, laser therapy, and procedural dermatology, while maintaining a strong emphasis on patient safety and appropriate patient selection, particularly in skin of colour. The practical orientation of these sessions resonated strongly with participants and reinforced the importance of integrating sound medical judgement with procedural expertise.

Engagement, Feedback, and Knowledge Exchange

The meeting was characterised by a high level of delegate engagement, with active participation during SLIDO-enabled question-and-answer sessions and panel discussions. The interactive nature of the programme facilitated meaningful



exchange of ideas between speakers and participants, fostering a collegial learning environment that extended beyond formal lectures.

Importantly, post-meeting feedback from delegates was exceptionally positive, with an overall average rating of 4.9 out of 5.0, reflecting high satisfaction with the scientific content, speaker quality, relevance of topics, and overall organisation of the meeting. This strong feedback affirmed the value of the meeting and the effectiveness of the programme in meeting educational objectives.

Industry Support and Sponsorship

The success of the 7th Annual Scientific Meeting was made possible through the generous support of pharmaceutical and laser industry partners, whose sponsorship contributed significantly to the delivery of a high-quality scientific programme and exhibition. The Dermatology Chapter gratefully acknowledges the continued collaboration and support from industry partners, which play an important role in advancing dermatologic education while upholding ethical standards and professional integrity.

Strengthening Collaboration and Professional Development

Beyond scientific content, the meeting served as an important platform for professional networking and

collaboration, bringing together dermatologists and trainees from different regions of Malaysia and neighbouring countries. The meeting also reaffirmed the Dermatology Chapter's role in supporting continuous professional development and nurturing the next generation of dermatologists through structured, high-quality educational activities aligned with international standards.

Conclusion

The 7th Annual Scientific Meeting of the Dermatology Chapter was a highly successful event that reflected the Chapter's ongoing commitment to promoting excellence in dermatologic healthcare in Malaysia. With strong attendance, a comprehensive and forward-looking scientific programme, excellent delegate feedback, and active participation from both local and international faculty, the meeting achieved its objectives of education, engagement, and professional enrichment.

By providing high-quality training and opportunities for knowledge exchange, the Dermatology Chapter continues to enhance its members' skills and knowledge to a world-class standard, ultimately benefiting the health and well-being of the community and nation. The Chapter looks forward to building on this momentum and continuing its efforts to support and advance the field of dermatology in the years to come.

Internal Medicine National Postgraduate Medical Curriculum - Training of Trainers (NPMC-TOT) Workshop at Hospital Melaka on 25th August 2025

Dr Ruhaiza Mohamad

In collaboration with the representatives from Public Universities and the College of Physicians Malaysia (COPM), the Department of Medicine of Hospital Melaka has coordinated the Internal Medicine National Postgraduate Medical Curriculum - Training of Trainers (NPMC-TOT) Workshop on 25th August 2025 at Auditorium Hospital Melaka.

The primary goal of the workshop is to acquaint specialists and consultants in MOH facilities (especially Southern Region) with the Internal Medicine National Postgraduate Medical Curriculum. The aim is to empower them as proficient supervisors and mentors for junior doctors aspiring to pursue a career in Internal Medicine through the parallel pathway within MOH facilities.

A full-day workshop was attended by a total of 40 participants, consisting of consultants and specialists from various hospitals in the Central, Northern, and Southern zones of Peninsular Malaysia. The workshop was privileged to host five distinguished speakers, with four representing the Ministry of Higher Education and one from the Ministry of Health. The esteemed speakers included Associate Professor Dr Nor Izzati Binti Saedon from Universiti Malaya, Associate Professor Dr Anim Md Shah from Universiti Putra Malaysia, Associate Professor Dr Nazri Mustaffa from Universiti Sains Malaysia and Associate Professor Dr Rozita Mohd from Universiti Kebangsaan Malaysia. Our inhouse consultant, Dr Ruhaiza Mohamad Consultant Physician Internal Medicine also contributed to the workshop.

Throughout the single-day course, a comprehensive set of 13 topics was covered, addressing areas such as an introduction to the NPMC, guidelines on performing diverse continuous assessments, and strategies for efficient trainee management. Participants shared their insights and offered valuable opinions aimed at enhancing the implementation of postgraduate training within MOH facilities. The question and answer sessions, as well as discussions, fostered fruitful exchanges, with participants providing constructive feedback to the speakers.

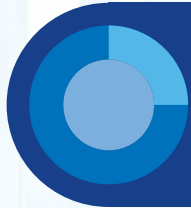
In conclusion, this is a fruitful session for all involved.



Committee members of the NPMC ToT Workshop Hospital Melaka



Speakers and participants of the workshop



MRCP(UK) PACES Mock Examination 2025

Dr Pravind Narayanan

The MRCP(UK) PACES Mock Examination 2025, organised by the College of Physicians Malaysia in collaboration with Hospital Putrajaya, was successfully conducted at the Medical Academies of Malaysia.

Held over the weekend of 20th - 21st September 2025, the programme brought together 60 candidates and 60 observers, supported by 13 experienced examiners and coordinated by 12 committee members from Hospital Putrajaya. The mock examination also involved 16 surrogates and 64 patients, ensuring a realistic and structured simulation of the PACES examination.

Conducted across three cycles on two carousels, the programme provided participants with valuable exposure to the examination format and an opportunity to refine their clinical examination and communication skills in preparation for the actual PACES.

The strong participation and positive feedback from participants reflect the College's continued commitment to postgraduate medical education and the maintenance of high standards in internal medicine training. This successful collaboration further underscores the College's dedication to supporting and nurturing the next generation of physicians.



Tuanku Muhriz Travelling Fellowship

Dr Ayesha

Dr Ayesha successfully completed her Tuanku Muhriz Travelling Fellowship attachment across multiple centres in Malaysia from 4th - 15th January. She began her fellowship at Hospital Ampang under the supervision of Dr Veena, followed by attachments at Queen Elizabeth Hospital II and Queen Elizabeth Hospital I in Kota Kinabalu, as well as the Paediatric Thalassaemia Daycare/Clinic at Likas Hospital.

She then continued her fellowship in Peninsular Malaysia, attending the Thalassaemia Clinic at Hospital Sultanah Bahiyah, Alor Setar, followed by an attachment at Hospital Tuanku Fauziah, Kangar, where she also delivered a Continuing Medical Education (CME) session. Her final attachment was at the Haematology Daycare Clinic, Hospital Tuanku Jaafar, Seremban.

Throughout the fellowship, Dr Ayesha reported highly enriching clinical exposure, particularly in thalassaemia care, and described the programme as a valuable and fruitful learning experience. She also expressed her appreciation for the warm hospitality and professional support extended by the Malaysian healthcare teams.

The fellowship concluded successfully, meeting its objectives of fostering clinical learning, collaboration, and professional exchange.



A Rare Evolution: Mediastinal Mature Teratoma Undergoing Somatic-Type Malignant Transformation to Rhabdomyosarcoma

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ABSTRACT

Mediastinal mature teratomas are typically benign tumours that predominantly occur in the anterior mediastinum. However, rare cases of malignant transformation within mature teratomas have been documented, most commonly involving somatic-type malignancies. This case report presents a 46-year-old female with productive cough and persistent right lung consolidation despite a course antibiotic and Mycobacterium tuberculosis workout negative. Histopathological examination (HPE) revealed a high-grade epithelioid tumour with myogenic and neuroendocrine differentiation, consistent with alveolar rhabdomyosarcoma with neuroendocrine features. The patient underwent chemotherapy. This case report discusses a unique presentation of a mediastinal mature teratoma with somatic-type malignant transformation into rhabdomyosarcoma in a middle-aged female and highlights the importance of considering rare malignancies, such as rhabdomyosarcoma, in the differential diagnosis of a persistent mediastinal mass, though rare, can significantly alter prognosis and treatment strategies.

INTRODUCTION

Mediastinal teratomas are germ cell tumours typically found in the anterior mediastinum, commonly diagnosed in young adults. These tumours are usually benign and composed of well-differentiated tissues from all three germ layers (ectoderm, mesoderm, and endoderm).¹ Mature teratomas, in particular, are generally asymptomatic and can be incidentally discovered during imaging studies. However, in rare cases, these tumours undergo malignant transformation, most often involving somatic-type malignancies such as carcinoma, sarcoma, or other aggressive histologist.²

One of the more unusual and aggressive forms of malignant transformation within a mature teratoma is the development of rhabdomyosarcoma, a rare mesenchymal tumour of striated muscle origin. Rhabdomyosarcoma is a highly malignant soft tissue sarcoma that can present diagnostic and therapeutic challenges. The transformation of a benign teratoma into rhabdomyosarcoma, particularly in the mediastinum, is an exceedingly rare event, with few documented cases in the literature.³

CASE REPORT

A 46-year-old female with a history of hypertension, prediabetic mellitus, and a haemorrhagic stroke in 2023 presented with a three-month history of a productive cough and progressive dyspnoea on exertion. Her symptoms began in November 2024. Despite being treated for pneumonia at a district hospital, the patient's condition did not improve after completing two courses of antibiotics. Serial chest radiographs revealed persistent consolidation in the right lung. Investigations for Mycobacterium tuberculosis, including sputum TB Gene Xpert and culture, were negative. Given the persistence of symptoms, the patient was referred for specialist evaluation.

On examination, the patient exhibited reduced air entry and dullness to percussion over the right upper and middle zones of the chest with reduced vocal resonance. Her vital signs were stable, and laboratory tests, including full blood count (FBC), liver function tests (LFT), and renal function tests, returned normal results. A chest X-ray revealed a homogenous opacity in the right upper to middle zones, suggesting a mass or consolidation (Figure 1).



Figure 1: Chest x-ray: right upper to middle zone opacity

A Contrast-Enhanced Computed Tomography (CECT) scan of the thorax was performed, revealing a large mass located in the right upper lobe of the lung (Figure 2 and 3). The mass extended across the fissure into the right middle and lower lobes, with significant mediastinal extension. Notably, the mass exerted pressure on vital structures, including the superior vena cava, trachea, and bilateral main bronchi. The mass appeared to have a mixed composition, raising the concern for a complex pathology.

An Endoscopic Ultrasound (EUS) biopsy was performed, revealing fragmented cartilaginous tissue with atypical chondrocytes. The differential diagnosis included chondrosarcoma, carcinosarcoma, and malignant teratoma. A resection of the mass was suggested for definitive diagnosis, leading to a repeat CECT scan. This scan demonstrated an enlarging right lung mass with mixed tissue components, compressing the right brachiocephalic vein and involving the posterior right T5 rib. The lesion had extended beyond the rib cage, complicating the surgical approach. The multidisciplinary team (MDT) decided that a Chamberlain procedure, a thoracic surgery technique for accessing the lung and mediastinum, was necessary to obtain a biopsy for further evaluation.

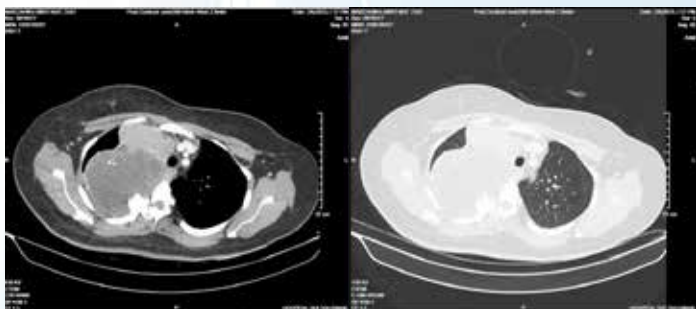


Figure 2 and 3: CECT Thorax : large mass located in the right upper lobe of the lung compressing right brachiocephalic vein

The histopathological examination (HPE) of the biopsy revealed a high-grade epithelioid tumour with both myogenic and neuroendocrine differentiation, consistent with a diagnosis of alveolar rhabdomyosarcoma with neuroendocrine differentiation (Figure 4, Figure 5, Figure 6 and Figure 7). Immunohistochemical staining was performed, revealing strong, diffuse positivity for myogenin, vimentin, CD56, and CD99, which are markers characteristic of rhabdomyosarcoma. The tumour cells also showed rare, heterogeneous positivity for synaptophysin, INSM1, desmin, TLE1, and SATB2. However, the tumour was negative for a wide range of other markers, including cytokeratin (MNF116, AE1/AE3), EMA, chromogranin, WT1, and others, which helped exclude other malignancies such as carcinomas or neuroendocrine tumour.

The loss of RB1 nuclear expression was notable, further supporting the diagnosis of rhabdomyosarcoma, as RB1 gene loss is frequently observed in this tumour type.

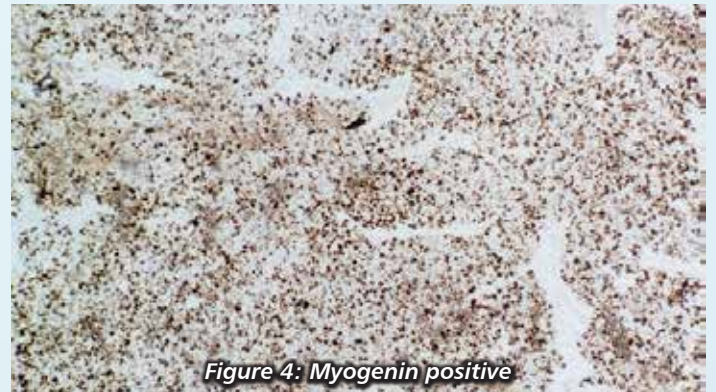


Figure 4: Myogenin positive

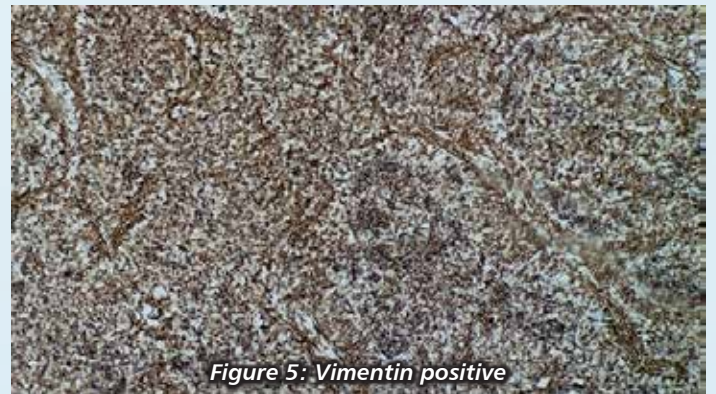


Figure 5: Vimentin positive

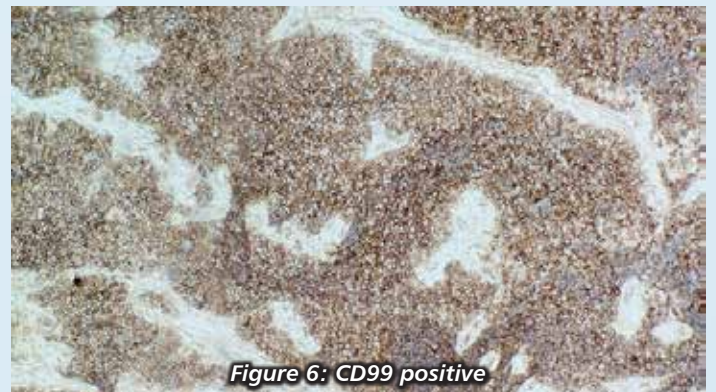


Figure 6: CD99 positive



Based on the clinical, radiological, and histopathological findings, the final diagnosis was mediastinal mature teratoma with somatic-type malignant transformation to rhabdomyosarcoma. This rare and aggressive tumour arises from a mature teratoma, where a somatic-type malignancy, in this case, rhabdomyosarcoma, develops. The patient was referred to the oncology team for further management. Chemotherapy was initiated for the patient.

DISCUSSION

Mediastinal teratomas are rare tumors, typically benign, but they can undergo malignant transformation, as seen in this case. Rhabdomyosarcoma, though more common in children, can arise in adults, particularly in the setting of a preexisting teratoma.⁴ The malignant transformation of a teratoma to rhabdomyosarcoma is an uncommon but well-documented phenomenon, often characterized by the presence of mixed tissue components, as seen in imaging studies.⁵ The most common site for such tumors is the mediastinum, which can complicate diagnosis due to the proximity to vital structures, such as the trachea and major blood vessels.⁶

There are only a limited number of cases reported in the literature. This rarity presents several challenges in both the preoperative and postoperative diagnostic processes. The main challenge is that clinical symptoms, such as chest pain, cough, or breathing difficulty, are vague and not specific to this condition. Blood tests are also unhelpful, as no tumor markers reliably indicate SMT. Imaging with CT or MRI often shows a heterogeneous mass, but it is hard to distinguish between benign teratoma tissue and areas of malignant transformation. While PET scans and MRI with diffusion sequences can sometimes detect suspicious areas, these are not always conclusive.

Biopsy can be limited because teratomas are heterogeneous tumors, and small samples may miss malignant areas. In most cases, somatic-type malignant transformation (SMT) is only confirmed after examining the entire tumor following surgical resection. Identifying rhabdomyosarcoma requires specific immunohistochemical stains like desmin, MyoD1, and myogenin, which may not be routinely done unless transformation is suspected like in our case.⁷

To improve diagnostic accuracy, a multimodal approach is recommended. Enhanced imaging techniques, including diffusion-weighted MRI and fluorodeoxyglucose positron emission tomography (FDG-PET), may help identify hypermetabolic, potentially malignant areas within a teratoma preoperatively. Targeted image-guided biopsies of suspicious solid areas, rather than random sampling, could increase the likelihood of detecting SMT.

Moreover, integrating preoperative multidisciplinary team discussions involving radiologists, pathologists, thoracic surgeons, and oncologists can facilitate early suspicion and appropriate diagnostic planning. Comprehensive histopathological evaluation, including immunohistochemistry for all resected mediastinal teratomas with solid areas, is crucial. In the future, techniques like liquid biopsy and greater awareness through case reporting may help detect malignant transformations earlier.

CONCLUSION

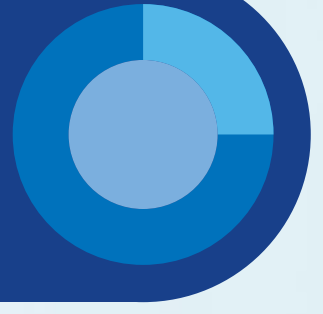
In summary, there are limited case reports on rhabdomyosarcoma in the literature. To the best of our knowledge, this is the first documented case of adult in Malaysia. This case highlights the importance of considering rare malignancies, such as rhabdomyosarcoma, in the differential diagnosis of a persistent mediastinal mass, particularly when a mature teratoma is involved. A heightened clinical awareness, multidisciplinary collaboration, multimodal diagnostic strategy, and proactive pathological assessment are essential for timely diagnosis and management of this rare but aggressive entity for managing rhabdomyosarcoma.

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Case Write Up: Dapsone-Induced Methemoglobinemia in an HIV-Positive Patient Receiving Pcp Prophylaxis

Dr Shalini A/P Varatharasan



INTRODUCTION

Case Presentation: We report a 31-year-old HIV-positive man who developed acute methemoglobinemia one month after starting dapsone. He presented with dyspnea and unresponsive to oxygen therapy. Arterial blood gas revealed normal PaO₂ despite low pulse oximetry readings, and blood gas confirmed a methemoglobin level of 19.6%. Dapsone was discontinued, and methylene blue was administered, resulting in rapid clinical improvement.

Conclusion: This case underscores the importance of early recognition of methemoglobinemia in patients taking dapsone, especially those with HIV, who may be at higher risk for oxidative complications.

Keywords: Dapsone, Methemoglobinemia, HIV, Pneumocystis prophylaxis, Methylene blue

BACKGROUND

Dapsone is a commonly used alternative for PCP prophylaxis in HIV-infected individuals who cannot tolerate or allergic to trimethoprim-sulfamethoxazole.² Its metabolism produces hydroxylamine derivatives that can oxidise haemoglobin to methaemoglobin, resulting in impaired oxygen delivery. Patients with HIV may be more vulnerable due to polypharmacy, underlying anaemia, and altered oxidative metabolism.

Recognising the clinical pattern - dyspnea with disproportionately low pulse oximetry despite normal arterial oxygen tension - is crucial for timely diagnosis. This case demonstrates a classic presentation of dapsone-induced methaemoglobinaemia and successful management.

CASE PRESENTATION

A 31-years old man diagnosed HIV infection had history of PCP prior to presentation. Then, trimethoprim - sulfamethoxazole used for PCP prophylaxis was discontinued due to a hypersensitivity reaction. He was started on dapsone 100 mg daily.

Within one month, he presented with worsening shortness of breath and fatigue. He reported no fever, cough, chest pain, or recent exposure to local anaesthetic sprays or nitrates. He was on antiretroviral therapy (tenofovir/ dolutegravir). He had no known G6PD deficiency.

Examination: Appearance - not tachypneic, no central and peripheral cyanosis

HR 87/min, BP 132/91mmHg, RR 20/min, Temp 37°C

SpO₂: 84-85% on room air, rising only to 88% on high-flow oxygen

Cardiac and respiratory examinations were otherwise unremarkable.

INVESTIGATIONS



Figure 1: CXR shows clear lung field

Table I: Blood investigations

Arterial Blood Gas (on HFMO ₂):	
pH	7.436
PaO ₂	305 mmHg
SaO ₂	99.5%
Methaemoglobin	19.6% (normal <1%)
Laboratory Tests:	
Haemoglobin	12.2g/dl
Total white cell	5.9
Hematocrit	39.8
Platelet	330
LDH	473

Normal renal and liver function

G6PD enzyme level: normal

The striking discrepancy between pulse oximetry and PaO₂ suggested methaemoglobinaemia.

DIFFERENTIAL DIAGNOSIS

Dapsone-induced methaemoglobinaemia.

Other oxidant drug-induced methaemoglobinaemia (eg, benzocaine, nitrates).

TREATMENT

Dapsone was discontinued immediately. The patient received High-flow supplemental oxygen. Methylene blue 1-2mg/kg IV (50mg in 50cc of D5%) over 10minutes.

Cardiac and oximetry monitoring. Clinical improvement was noted within 30 minutes. Spo₂ increased to 89%. Repeat blood gas showed methaemoglobin reduced to 4%. Given another dose on next day and patient's condition improved tremendously. He was transitioned to IV Pentamidine for PCP prophylaxis.

OUTCOME AND FOLLOW-UP

Within 72 hours, the patient's symptoms resolved. He was discharged 2 days later once condition stabilised.

At 2-week follow-up, he remained asymptomatic with normal methaemoglobin levels and no further episodes of cyanosis.

DISCUSSION

Dapsone undergoes hepatic N-Hydroxylation by CYP450 enzymes into dapsone hydroxylamine, a potent oxidizing agent.¹ This metabolite oxidises the ferrous iron (Fe²⁺) in hemoglobin to ferric iron (Fe³⁺) then to methemoglobinemia, which cannot bind oxygen, leading to functional anaemia despite a normal PaO₂.

Dapsone-induced methaemoglobinaemia is an important complication, particularly in HIV patients who frequently require PCP prophylaxis and may have increased oxidative

susceptibility. Methaemoglobin impairs oxygen delivery by shifting the oxygen-haemoglobin dissociation curve leftwards and reducing the oxygen-carrying capacity of haemoglobin.

A saturation gap - low SpO₂ with a normal PaO₂ - is a key diagnostic clue. Definitive diagnosis requires co-oximetry.

Management involves stopping the oxidising agent and administering methylene blue, provided the patient is not G6PD deficient. Methylene blue promotes reduction of methaemoglobin via the NADPH-dependent pathway.

Alternative prophylactic agents (eg, atovaquone or pentamidine) should be considered in patients with previous methaemoglobinaemia.

This case reinforces the need for heightened vigilance and early recognition of symptoms, particularly in high-risk populations such as people living with HIV.

LEARNING POINTS

Dapsone is a common cause of acquired methaemoglobinaemia, especially in HIV patients receiving PCP prophylaxis.⁴

Cyanosis with a saturation gap (low SpO₂ but normal PaO₂) should prompt evaluation for methaemoglobinaemia. Co-oximetry is essential for diagnosis.

Methylene blue is the treatment of choice in patients without G6PD deficiency.

Clinicians should consider alternative PCP prophylaxis after an episode of dapsone-induced methaemoglobinaemia.

Official guidelines, such as those from the NIH Panel on Opportunistic Infections in Adults and Adolescents with HIV, address the prevention and treatment of opportunistic infections, which includes considering the side effects of medications like dapsone.⁵

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Fatal Pneumococcal Meningitis Secondary to Bilateral Otomastoiditis in a Prisoner with Systemic Lupus Erythematosus

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ABSTRACT

Pneumococcal meningitis remains one of the most severe forms of bacterial meningitis and continues to carry a high mortality rate, particularly among immunocompromised patients.¹ We present a case of a 52-year-old male prisoner with underlying systemic lupus erythematosus (SLE), hypertension, dyslipidaemia, and bipolar disorder who presented with loss of consciousness while incarcerated. He was initially admitted for electrolyte imbalance but subsequently developed generalized tonic-clonic seizures with further deterioration in consciousness. Neuroimaging revealed bilateral otomastoiditis, and cerebrospinal fluid (CSF) analysis confirmed *Streptococcus pneumoniae* infection. Despite prompt initiation of intravenous ceftriaxone, metronidazole, and dexamethasone, his condition deteriorated into septic shock. Empiric antibiotics were later escalated to intravenous vancomycin and meropenem, but he succumbed to his illness after eight days of hospitalization. This case underscores the diagnostic and therapeutic challenges of pneumococcal meningitis secondary to otogenic infection in an immunocompromised host, particularly within custodial healthcare environments.

INTRODUCTION

Bacterial meningitis is a medical emergency that requires rapid diagnosis and prompt initiation of appropriate antibiotic therapy.² Among causative agents, *Streptococcus pneumoniae* is one of the most frequent and devastating pathogens in adults.¹ The disease carries a high mortality rate, ranging between 20% and 30%,¹ and a substantial proportion of survivors develop neurological sequelae such as hearing loss, cognitive impairment, or focal deficits.

In immunocompromised individuals such as those with systemic lupus erythematosus (SLE), the infection can progress more rapidly and present atypically,^{3,4} complicating timely diagnosis. Otogenic spread from otomastoiditis represents an uncommon but important route of central nervous system (CNS) invasion by pneumococcus.^{5,6} This case report details a rapidly fatal course of pneumococcal meningitis secondary to bilateral otomastoiditis in a prisoner with long-standing SLE, highlighting the interplay between chronic disease, infection risk, and environmental factors influencing outcome.

CASE PRESENTATION

A 52-year-old male prisoner, incarcerated for three months, with a known history of systemic lupus erythematosus (diagnosed at 12 years of age and on hydroxychloroquine 200 mg once daily), hypertension, dyslipidaemia, and bipolar disorder, was brought to the Emergency Department after an episode of syncope while in prison. On arrival, his Glasgow Coma Scale (GCS) was E4V1M6. Initial assessment showed no focal neurological deficits, and he was admitted for correction of electrolyte imbalance. Routine investigations including renal function, electrolytes, and full blood count were performed. There was mild hyponatraemia, which was corrected with intravenous fluids.

On the second day of admission, the patient developed a sudden generalised tonic-clonic (GTC) seizure lasting approximately two minutes. Postictally, his pupils were noted to be dilated and non-reactive, and his GCS dropped to E1V1M1. He was immediately intubated for airway protection. A lumbar puncture performed the following day revealed turbid cerebrospinal fluid with elevated white blood cell count (predominantly neutrophils), low glucose, and high protein concentration. Gram stain and culture confirmed the presence of *Streptococcus pneumoniae*. An urgent contrast-enhanced CT (CECT) scan of the brain revealed bilateral otomastoiditis, suggesting otogenic spread as the source of infection.

The patient was started on intravenous ceftriaxone (Rocephine), intravenous metronidazole (Flagyl), and intravenous dexamethasone, in accordance with the lumbar puncture findings. Despite antibiotic therapy, he remained febrile and hypotensive, requiring inotropic support for septic shock. Serial laboratory investigations demonstrated worsening leukocytosis and metabolic acidosis. On day seven of admission, due to persistent fever and concern for hospital-acquired infection, antibiotics were escalated to intravenous vancomycin and meropenem. However, his condition continued to deteriorate. On day eight, he developed fast atrial fibrillation and subsequently suffered a cardiac arrest. Despite multiple cycles of cardiopulmonary resuscitation, there was no return of spontaneous circulation (ROSC), and death was pronounced.

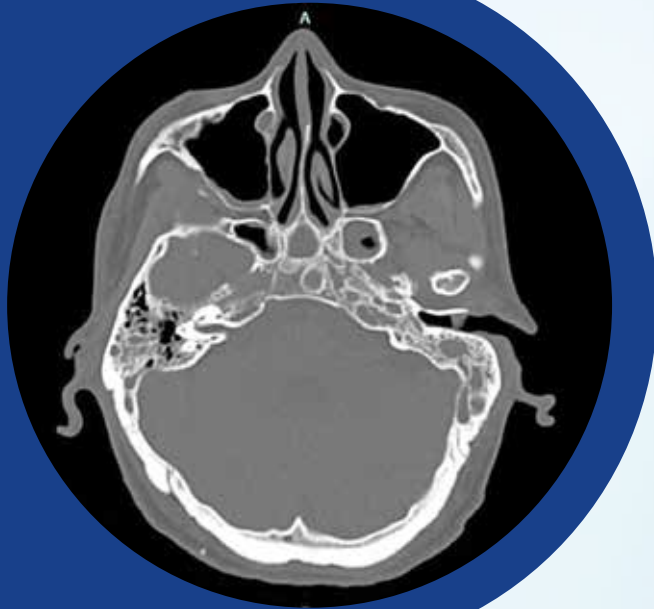


Figure 1: shows soft tissue densities within bilateral middle ear and bilateral mastoid air cells suggestive of bilateral otomastoiditis

DISCUSSION

This case demonstrates the fulminant course of pneumococcal meningitis secondary to bilateral otomastoiditis in a patient with systemic lupus erythematosus. Patients with SLE are at heightened risk of severe bacterial infections due to complement deficiency, immunological dysfunction, and the effects of chronic immune dysregulation.^{3,4} Although hydroxychloroquine is not strongly immunosuppressive, chronic immune impairment increases vulnerability to encapsulated organisms such as *Streptococcus pneumoniae*.⁴ In such patients, infection may progress rapidly, and symptoms may be subtle initially, delaying diagnosis.

The route of infection in this case was likely otogenic, as evidenced by the presence of bilateral otomastoiditis on imaging. Otomastoiditis can lead to direct extension of infection through bone erosion or venous channels into the meninges, resulting in meningitis or intracranial abscess formation.⁵⁻⁷ Clinically, the progression from localized infection to diffuse CNS involvement can occur within days, emphasizing the need for early imaging and aggressive treatment.

The management of pneumococcal meningitis involves prompt administration of high-dose intravenous antibiotics - typically a third-generation cephalosporin such as ceftriaxone or cefotaxime.⁸ In areas with high resistance rates or poor clinical response, vancomycin is often added for broader coverage.⁸ Metronidazole is indicated when anaerobic infection or intracranial abscess is suspected.

Adjunctive dexamethasone is recommended to reduce inflammatory complications, particularly if given before or

concurrently with the first antibiotic dose.⁹ However, its benefit diminishes once septic shock has developed.

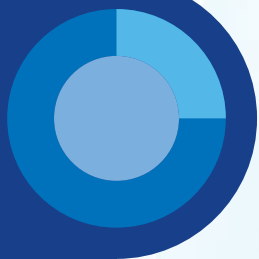
Preventive measures, such as pneumococcal vaccination, should be strongly recommended for patients with SLE and other chronic illnesses, as they are at increased risk for invasive pneumococcal disease.^{10,11} In custodial settings, improving access to timely healthcare evaluation, infection surveillance, and hygiene standards is vital in reducing morbidity and mortality from communicable diseases.

CONCLUSION

Pneumococcal meningitis secondary to otomastoiditis is an uncommon but severe clinical entity, particularly in immunocompromised individuals such as patients with systemic lupus erythematosus. Early clinical suspicion, prompt imaging, timely lumbar puncture, and aggressive antibiotic therapy are essential to improving survival. This case underscores the need for heightened awareness among clinicians caring for high-risk patients and emphasizes the importance of preventive strategies, including vaccination and infection control measures, within custodial healthcare settings.

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Establishing A Comprehensive Cardiac Rehabilitation Programme: A Decade of Development, Implementation and Outcomes at Sarawak Heart Centre

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BACKGROUND INFORMATION

The burden of non-communicable diseases (NCDs) had increased significantly, posing a major public health challenges in Malaysia. The combined direct and indirect healthcare costs associated with NCDs were estimated at RM22.5 billion based on data from year 2017, reflecting profound clinical and socioeconomic impact of these chronic conditions.

Obesity, recognised as a complex chronic disease, plays a central role in the development of cardiovascular disease, diabetes mellitus, and multiple metabolic complications. The National Health and Morbidity Survey (NHMS) has documented a striking rise in overweight and obesity among Malaysia adults, from 44.5% in 2011 to 54.4% in 2023, underscoring an urgent need for preventive and rehabilitative interventions.

Cardiac rehabilitation (CR) has been well established as an effective, evidence-based strategy capable of reducing cardiovascular morbidity and mortality in addition to improving quality of life, functional capacity and psychosocial well-being. In response to the escalating burden of cardiovascular disease, our dedicated staff from Sarawak Heart Center embarked on the development of a comprehensive multidisciplinary CR programme aimed at promoting prevention, supporting recovery and facilitating sustainable lifestyle change.

We outline the program's development, implementation and major milestones, highlighting lessons learned and opportunities for strengthening CR services within the broader national healthcare landscape.

OBJECTIVES

The objectives of the cardiac rehabilitation initiative at Sarawak Heart Center were:

1. **To establish a comprehensive and structured multidisciplinary CR programme grounded in best**

practices for cardiovascular prevention and secondary care.

2. **To document the process, milestones and outcomes** associated with developing a sustainable CR ecosystem.
3. **To promote awareness and knowledge sharing** regarding CR implementation, patient engagement and long term behavioural change strategies.
4. **To contribute to national and regional cardiovascular rehabilitation capacity-building** by disseminating experience and data.

METHODS

The programme has been developed by a multidisciplinary team comprising clinicians, nurses, physiotherapists, occupational therapists, dieticians and pharmacists. Key cardiac rehabilitation programme components include:

- **Patient selection:** Candidates were identified through regular clinical meetings, with consideration of clinical stability, cardiovascular status, risk stratification, and readiness for behavioural change.
- **Pre- and Post- Program Assessments:** Functional, clinical and psychosocial assessments were conducted to facilitate personalised intervention and monitoring.
- **Individualised Interventions:** Tailored exercise prescriptions, nutritional counselling, medications optimisation and psychosocial support were delivered.
- **Behavioural Change Support:** Motivational interviewing techniques were employed to encourage adherence, foster intrinsic motivation and address lifestyle barriers.
- **Clinical Governance:** Continuous audits, documentation and interdisciplinary discussion ensured program quality and safety.

JOURNEY MILESTONES

The development of Sarawak Heart Center CR programme was marked by several pivotal achievements:

2014-2015 - Programme Restructuring and Official Launch

A structured CR programme was launched with enhanced workflows, risk stratification and systematic pre/post assessments. This strengthened governance and improved quality assurance.



2017 - Professional Capacity Building

The Sarawak Cardiac Rehabilitation team hosted the 6th National Cardiac Rehabilitation Conference & 9th Malaysian Annual Rehabilitation Medicine Conference, supporting national knowledge sharing and workforce upskilling.



2018 - Establishment of Cardiac Rehabilitation Support Group

A patient-centred support group was initiated for individuals who completed the outpatient CR, promoting peer support, motivation and long term adherence.



2019-2021 - Continuity During COVID-19

Despite pandemic disruptions, the program adapted its delivery and continued offering essential rehabilitation services.



2021 - High Risk Heart Failure Rehabilitation Programme

A dedicated CR pathway for patients with more advanced heart failure was introduced, addressing an underserved but high-risk population.

2022 - Participation in the International Cardiac Rehabilitation Registry (ICRR)

The centre joined the ICRR, enabling benchmarking against global data and further enhancing program transparency and quality monitoring.



2023 - Scientific Presentation

Programme outcomes, including employment trends among CR graduates, were presented at the Singapore Prevention & Cardiac Rehabilitation Symposium.



2024 - National Leadership in Heart Failure Rehabilitation

Collaboration between cardiologists and rehabilitation physicians to publish the 1st Malaysian Consensus Statement on Cardiac Rehabilitation for Patients Living with Heart Failure.



2025 - Support Group Programme 2.0

A revitalised support group initiative was held to sustain community engagement and promote active lifestyle.



DISCUSSION

The success of cardiovascular prevention and rehabilitation programmes relies on several foundational principles. While medical treatment often targets downstream complications such as acute coronary events or heart failure, rehabilitation addresses upstream determinants of health, particularly lifestyle behaviours.

The concept of Cardiovascular-Kidney-Metabolic (CKM) syndrome highlights the interconnected nature of obesity, diabetes mellitus, dyslipidemia, fatty liver disease, kidney dysfunction and cardiovascular pathology. Effective intervention thus requires an integrated, multidisciplinary strategy.

Behavioural change remains central to long-term success. Motivational interviewing supports patient autonomy, reduces resistance, and foster sustainable lifestyle adoption. Emotional intelligence, effective communication and positive psychology among healthcare providers are essential to building trust, promoting adherence and empowering patients to take ownership of their health.

The Sarawak Heart Center experience demonstrated that combining structured clinical interventions with strong psychological support can produce meaningful and lasting improvements in cardiovascular health.



CONCLUSION

Confronting the rising burden of NCDs requires systematic multidisciplinary and patient centred strategies. The cardiac rehabilitation program at Sarawak Heart Center exemplifies how structured lifestyle interventions, supported by clinical experience, behavioural science and continuous innovation can address the root causes of cardiovascular disease and promote long term health.

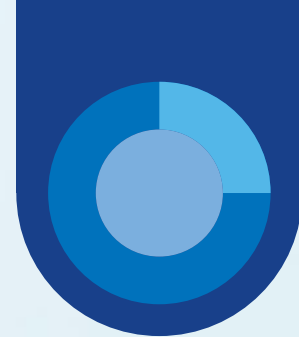
The integration of both hard skills (clinical knowledge, assessment, exercise prescription) and soft skills (communication, emotional intelligence, motivational interviewing) is essential to resolving the lifestyle conflicts and improving patient outcomes. As Malaysia continues to grapple with rising rates of obesity and cardiovascular disease, comprehensive lifestyle intervention programs will play an increasingly critical role in promoting population health.



Delivering Hospital Care Beyond Hospital Walls: The Universiti Malaya Medical Centre Virtual Ward Programme

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BACKGROUND

Malaysia's population is ageing. Unfortunately, longer lifespans has not translated to healthier years. Non-communicable diseases such as diabetes, heart disease and dementia are on the rise which increases demand for hospital care.¹ This surge in healthcare needs and expenditure, coupled with limited hospital beds and workforce shortages strains hospital capacity. Such constraints compromise the efficiency and quality of healthcare, leading to poorer outcomes, patient dissatisfaction, and rising healthcare costs. Long emergency department waits, lengthy wait for hospital beds, and staff burnout have become routine headline news. Continuing with the current hospital inpatient-centric model is not sustainable.



Figure 1: Counselling and consent taking with family members

To bridge this demand-supply gap and improve capacity without building new facilities, alternatives to inpatient care, like virtual wards and hospital-at-home models, have been proposed. Virtual Wards (VW) deliver hospital-level care in a person's own home, instead of being admitted to hospital for treatment.² It leverages on digital tools, such as remote monitoring and telemedicine platforms to track patients' health status, assess their response to treatment, and provide continuous hospital support without the person physically in a hospital. This optimises the use of hospital inpatient beds, ease hospital congestion, and improve resource efficiency. Such services are already commonly provided in countries such as United Kingdom, Australia and Singapore. They have demonstrated to deliver care comparable to hospitalised care, with no difference in mortality, similar to slightly lower

readmissions, shorter hospital length of stay, greater patient satisfaction and no increase in adverse outcomes.² However, it remains a very novel concept in Malaysia and other low-to-middle-income countries.

VIRTUAL WARD - UMMC

At UMMC, nearly one-third of patients requiring treatment are older adults. Hospitalisation poses risks for them, such as hospital-acquired infections, falls, confusion and functional decline. UMMC's VW programme was spurred by the need to ease pressure on inpatient beds, and to give older adults the opportunity to be treated and recover at home. The 42-bedded geriatric medicine ward which admits over 1100 patients annually in UMMC has seen demand far exceeding its capacity leading to long waiting times to be admitted. Studies on VWs for older people with frailty have demonstrated that with proper patient selection, looking after these patients at home is effective and safe.³ Recovery is also quicker for older adults in their own home surrounded by loved ones. Hence, anyone who wants to be at home, can be at home, should be supported at home.

Spurred by this vision, the geriatric medicine team worked with various stakeholders on this journey to create a VW service in UMMC. However, existing hospital policies, governance and indemnity only cover care within hospital walls. Care has conventionally been separated into inpatient and outpatient, with clear boundaries. Looking after patients as inpatients but outside the hospital wall in a VW, required a new way of working. It required new procedures, clinical pathways, medical record documentation, legal frameworks and governance structures. Additionally, it was uncertain whether older adults and their families would accept this. Resources had to be secured to support such an initiative within a resource constrained public healthcare system.



Figure 2: Virtual Ward nurse assessment in the Emergency Department

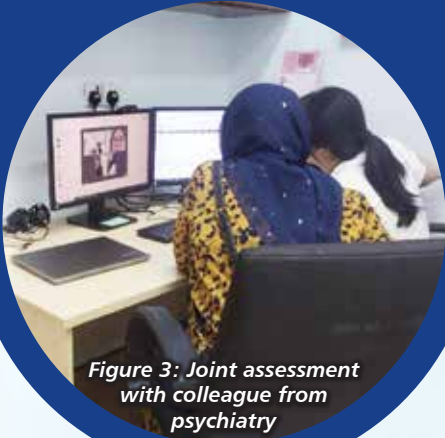


Figure 3: Joint assessment with colleague from psychiatry

Over the course of a year, the VW development team collaborated across multiple departments, including senior management, human resources, finance, legal, facilities, engineering, medical records, information technology and multiple clinical services, including emergency medicine, primary care, rehabilitation, nursing, pharmacy, dietetics and rehabilitation. Together, a safe, effective, and publicly acceptable VW service was created. UMMC provided resources to establish an operations room, procured hardware and remote monitoring equipment. The core staff of doctors and nurses working on the VW upskilled themselves. Remote monitoring, teleconsultation and communication were integrated into UMMC's electronic platform. Patients in the VW service could have their vitals done remotely, the information automatically downloaded onto their hospital electronic medical records, clinicians can monitor vitals on a secured web-based portal, and communicate with patients and their caregivers via teleconsultation platforms. All this created the VW ecosystem. Following Medical Advisory Committee approval, the VW opened its virtual doors to admission on 9th Jan 2024.

The work did not stop there. There was a need to create awareness of the service among the UMMC staff and members of the public. This included hospital-wide circulars, posters in high traffic patient areas, video of the service shown on-loop in waiting areas and engagement with different clinical teams took place regularly. Patient feedback was actively collected to refine the service.

To date, over 170 patients with an average age of 79 years, have been cared for through the VW. It has supported both patients admitted directly from the emergency department (admission avoidance) and those from the hospital wards (early supportive discharge to reduce length of inpatient stay). About half of those approached to enter the VW

declined. This experience allowed the team to better address patients and their families' concern for future recruitment. Feedback obtained from almost 60% of patients managed by the VW showed strong approval. Over 90% found the training provided before VW admission was clear and felt confident using telemedicine. Almost 90% felt the VW met their expectation, and were happy with the support provided. 89% reported that they felt safe and would recommend it to others. The VW also received personal messages of thanks.

MAKING A DIFFERENCE

The VW team has been consistent with its goals of providing effective and safe hospital care in people's own home. It has managed older adults with infections, blood abnormalities, medication adjustment, initiated enteral tube feeding and even supported end-of-life care in the community. Several patients have passed peacefully at home surrounded by loved ones, with the VW team collaborating with palliative care services. This ensured that the person remained pain-free and comfortable during their last days.

In almost 2 years of operations, the VW team has built a new and novel service that is now fully embedded within UMMC. It stands as a model of successful interdepartmental collaboration, with strong patient feedback affirming its value and acceptance. It remains the only hospital-based VW service in Malaysia.

The service continues to grow and is now open to all patients who prefer home care. The team aims to expand hospital-level treatment in the community so that more patients may benefit. The ultimate vision is to provide hospital-level service in the community that is of high quality and person-centeredness that enhances their wellbeing.



Figure 4: Reviewing potential patients in the Emergency Department

CASE 1

Mrs K, an 86-years-old woman was admitted to the geriatric medicine ward with decompensated heart failure precipitated by community acquired pneumonia. She completed 1-week of antibiotics with resolution of infection. However, her pulmonary oedema took longer to fully resolved and she required intravenous diuretics and oxygen supplementation (SpO₂ reaching low 80s on room air). She was starting to deconditioned and became depressed. Family members were concerned as she started to deconditioned and became depressed.

The VIRTUAL WARD (VW) team:

- Identified the adverse event of prolonged hospitalisation.
- Recognised that there are still outstanding medical issues that still required inpatient management, i.e. diuretics and oxygen supplementation.

CASE 2

Mrs W, an 83-years-old woman with dementia presented to the Emergency Department (ED) with hyperactive delirium after two days of vomiting and diarrhoea. She was given intravenous fluids. In ED, the patient was given intramuscular haloperidol to manage her delirium as she was restless, walking around, and kept pulling out her intravenous cannula. She was identified for admission to the geriatric medicine ward. The following day, she was reviewed by the VIRTUAL WARD team.

The VIRTUAL WARD (VW) team:

- Recognised hospitalisation will worsen her acute delirium and she is vulnerable to hospital adverse events.

- Discussed transition to VW. Family arranged for oxygen supplementation to be available at home, diuretics were converted to oral, fluid charting would be done by a nominated family member, and remote patient monitoring device would be used to regular monitor vitals. The patient agreed to return to the VW operations room for a physical assessment and blood test.

While she was at home, Mrs K was able to wean off her oxygen supplementation by day 4 of her VW observation. Her repeat blood test was done in the operations room. By day 4, she was back on to her usual medication and was discharged with the appropriate follow ups in place. The VW provided early supportive discharge for her.

- Identified social and care set up (patient has a daughter and carer that lives with her).
- Discussed admission to VW, non-pharmacological and pharmacological management (use of antipsychotics with VW team oversight) for her delirium, and how to reach out to the VW team (accessible 24/7).

During the VW stay, Mrs W had no further gastrointestinal symptoms. Delirium improved without antipsychotic use as she remained in a familiar environment. After 3 days, she was discharged with appropriate outpatient follow up.



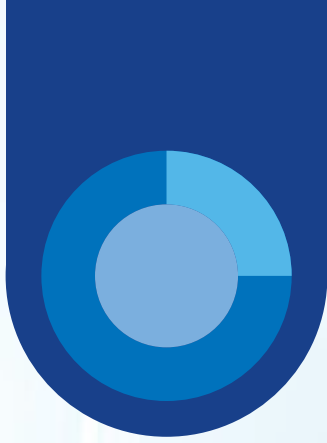
Figure 5: Telemedicine consultation by the dietitian



Figure 6: Remote patient monitoring equipment

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Open Disclosure: Cultivating Systemic Compassion & Accountability

Dr Thinesh Rajasingam

In the complex ecosystems of modern healthcare, the occurrence of critical incidents are an inevitable reality. The key question that defines a developed healthcare system's integrity is not whether something goes wrong - but how its clinicians respond when it does.

Our default response (perhaps predictably and understandably) as doctors has been a traditional "Deny & Defend" culture. This approach however, is unsustainable for both patients and their families, as it may exacerbate feelings of betrayal, anger and a loss of trust in their therapeutic alliances. It often heightens their risk of litigation, not necessarily for compensation, but for closure.

For clinicians, this response fosters fear, shame, and isolation. It prevents learning and tragically perpetuates cycles of error.

For the healthcare system at large, it erodes public confidence and prevents any meaningful quality improvement. It is an approach fundamentally at odds with the principles of accountability and transparency embedded into modern clinical governance.

Open Disclosure (first developed as a national standard in Australia in 2003) represents a paradigm shift in this culture. It is defined as an open, honest, and timely discussion with a patient and/or their family about a critical incident that caused, or could have caused, harm, on the other hand. It is also a wider clinical governance response, one that is intrinsically linked to critical incident reporting, risk management, and quality improvement for patient care (exemplified by the SISPA in Kementerian Kesihatan Malaysia).

This process is not a single event but unfolds in two key phases:



Phase 1: Clinician Disclosure (The Immediate Response)

This is led by the treating clinician or team, ideally occurring as soon as practicable (within 24-48 hours). It involves sharing the initial facts, offering a sincere apology, and outlining future steps to avoid such incidents occurring again.



Phase 2: Formal Open Disclosure (The System Response)

This follows the initial disclosure and is led by senior clinicians and hospital management after an investigation. This phase provides detailed information, discusses the root cause analyses and oversees the system changes being implemented to prevent recurrence.

For open disclosure to be effective, it must be structured and genuine. The goal is to move from a blame-centred culture to one of accountability, learning, and healing. As leaders in the Malaysian healthcare system, there are already guidelines from KKM and MMC (like the IRLS 2.0) which encourage such qualities and compel us to be honest whilst showing empathy after adverse events.

However unlike other countries, Malaysia has no specific "Apology Laws" protecting clinicians' apologies from being seen as admissions of medicolegal liability. Indeed, past court rulings, such as in the cases of *Norizan binti Abd Rahman* and *Gurmit Kaur*, have interpreted apologies as admissions of negligence. This important context injects fear and hesitation into the framework for open disclosure in our country, with

medicolegal departments understandably wary about when and how their doctors issue 'apologies'.

It is therefore important that open disclosure is seen as a formal, systemic intervention within organisations, rather

than as an individual bearing the burden of admitting guilt for a single act. It is equally important for all stakeholders to recognise how international data consistently shows that a sincere apology and clear explanation significantly reduce the likelihood of malpractice claims.

Clinician disclosure is one of the most difficult conversations in medicine. To guide this, frameworks like the Queensland Health 'STARS' Tool can be valuable. This particular tool comprises several key elements:



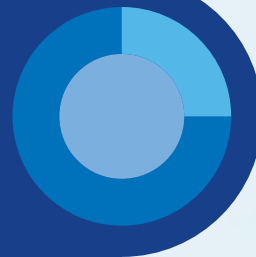
We should also remember that open disclosure involves support mechanisms for both our patients and our clinicians. The clinician involved in a patient safety incident is often called the "second victim", and can experience significant emotional distress, guilt, anxiety, and burnout if their needs are neglected. A humane system replaces blame with support. It frames the error in a systems context rather than blaming the individual. When done well, the process should allow clinicians to process the event, express remorse, and participate constructively in the solution. When clinicians feel

supported by their leadership after an error, they are more likely to learn, recover, and remain in the profession.

Modern healthcare systems require a courageous leadership culture which models openness and creates psychological safety for all stakeholders. Open disclosure is one framework in which such qualities can be demonstrated by compassionate and reflective medical leaders - ones who can lead their teams to uphold a professional duty of candour while navigating a system that does not yet fully sanction it.

The Masquerader of Modern Medicine: Cobalamin Deficiency

by Dr Lee Bee Sun



During the early phase of my hematology training, I was once asked the most common etiology of pancytopenia in elderly. My immediate response to the consultant was myelodysplastic syndrome, thinking that the answer would be a diagnosis treated commonly in hematology ward. He gently shook his head and corrected me - highlighting that vitamin B12 deficiency is, in fact, the most common cause. How could I forget about this often over-looked yet prevalent condition?

Vitamin B12 or cobalamin deficiency is a relatively common disorder, affecting both children and adults with considerable geographic and demographic variability. It can present with multifaceted clinical manifestations, masking its identity and often leading to delay in diagnosis. There are cases of cobalamin deficiency reported without anemia. Anemia is present in fewer than 20% of people with B12 deficiency.¹ In many people, neurological and neuropsychological or cognitive symptoms are the main presenting symptoms,² besides mucocutaneous or dermatologic manifestations.

It is not uncommon for vitamin B12 deficiency coexists with other nutritional deficiencies leading to diagnostic challenge, especially in the geriatric population. In such situations, anemia may appear normocytic or even microcytic rather than the expected classical macrocytic. The following two cases illustrate the diverse clinical spectrum of vitamin B12 deficiency, with presentations ranging from hematologic abnormalities to neurologic involvement.

CASE 1

A 50-year-old woman with a history of thyroid disorder presented with one-week history of progressive lethargy and bilateral feet paresthesia. She self-discontinued her carbimazole a month ago as she felt clinically well and was not taking any other medication. She was a non-vegan, and there were no symptoms suggestive of chronic blood loss. On examination, she appeared pale with mild jaundice. She was clinically euthyroid. Her initial full blood count showed Hb 3.2g/dL (MCV 110fL, MCH 37pg), WCC 2.3×10^9 /L and platelet 27×10^9 /L. Other investigation results revealed hyperbilirubinaemia, elevated lactate dehydrogenase (LDH),

reticulocytosis of 5.5%, low haptoglobin <0.1 g/L (reference range 0.3-2.0g/L), low serum B12 level 54pmol/L (reference range 145-569pmol/L), normal folate level, thyroid function, iron studies and renal function. Peripheral blood film showed macrocytes, macro-ovalocytes and occasional hypersegmented neutrophils.

These findings supported a diagnosis of severe vitamin B12 deficiency with pancytopenia, hemolysis and neurologic symptoms. The patient received two units of packed red blood cells and commenced on intramuscular cyanocobalamin 1mg daily for five days. At discharge, her Hb had improved to 7.6g/dL without additional transfusion. Her WCC was 2.0×10^9 /L and platelet 32×10^9 /L, with declining LDH and total bilirubin levels. She was given outpatient appointments for weekly cyanocobalamin injection. At her one-month follow-up, her Hb was 11.1g/dL, WCC 5.4×10^9 /L and platelet 268×10^9 /L. Further evaluation for the etiology of her profound vitamin B12 deficiency revealed positive anti-parietal cell antibodies and anti-intrinsic factor antibodies, confirming pernicious anemia. She was subsequently transitioned to oral methylcobalamin, with sustained normalization of blood counts and complete resolution of her feet paresthesia.

CASE 2

A 90-year-old woman was referred for evaluation of a-month history of dizziness, dysphagia and lethargy. Despite having no loss of appetite, her oral intake has declined due to difficulty swallowing. Her caretaker also reported noticeable weight loss. She had been a strict vegan for many years, was not taking any other medications and had no prior surgeries. On physical examination, she appeared cachectic and mildly pale with no jaundice. Initial laboratory investigations demonstrated pancytopenia with Hb 8g/dL (MCV 68fL, MCH 21pg), WCC 3.1×10^9 /L and platelet 113×10^9 /L. Peripheral blood film showed hypochromic microcytic red blood cells, with mild thrombocytopenia.

Iron studies revealed serum iron of $5.8 \mu\text{mol/L}$ (reference range $10\text{-}29 \mu\text{mol/L}$), ferritin $284 \mu\text{g/L}$ and transferrin saturation 15% (reference range 20-40%), while her serum vitamin B12 level was 172pmol/L (reference range

145-569pmol/L). Folate level, renal profile and thyroid functions were within normal limits. A diagnosis of nutrition-related anemia was made, likely secondary to iron and vitamin B12 deficiency in the context of strict veganism and reduced oral intake. She was started on oral iron syrup due to her dysphagia and subcutaneous cyanocobalamin 1mg daily for three days. She was subsequently arranged for weekly outpatient injections. At one-month follow-up, her Hb had improved to 9.4g/dL, with a WCC of $3.4 \times 10^9/L$ and platelet of $156 \times 10^9/L$. Serum vitamin B12 increased to 525pmol/L and iron studies had normalized. Her symptoms of dizziness and dysphagia had improved, and her oral intake has significantly increased.

However, her red cell indices remained microcytic, with MCV of 69fL and MCH of 22pg. Further history revealed that both of her daughters are known thalassemia carriers. This supported the suspicion of an underlying thalassemia trait in her, explaining the persistent hypochromic microcytic red blood cells despite correction of her nutritional deficiencies.

DISCUSSION

Vitamin B12 is an essential nutrient that plays key role in proper hematopoiesis, DNA synthesis and maintaining nervous system function. Its deficiency affects an estimated 5-20% of adults with higher prevalence in older individuals and those with malabsorptive disorders or restrictive diet.² Malabsorption syndrome could be related to conditions such as pernicious anemia, chronic atrophic gastritis, post-gastrectomy, ileal resection, *Helicobacter pylori* infection or prolonged use of medications - for example, proton pump inhibitors or H2-receptor antagonists.

Diagnosing B12 deficiency can be challenging as there is no single specific test available to reliably diagnose or refute the presence of B12 deficiency.³ Often a serum B12 concentration

within the normal limit does not exclude deficiency. Day-to-day variation of serum B12 can occur, and substantial variability exists between different commercially available serum B12 assays.⁴ When clinic suspicion remains high despite a low-normal B12 value as illustrated in Case 2, treatment for cobalamin deficiency should be considered, as the management is straightforward and highly effective when initiated early. Recognizing the limitations of serum B12 level testing, measurement of homocysteine (HCys) and methylmalonic acid (MMA) provides improved sensitivity, as both markers are typically elevated in deficiency. However, these tests which are not often done, also have limitations, including falsely elevated levels in presence of renal dysfunction,⁴ and physiological variation during pregnancy, for which validated reference ranges are lacking.⁵

Treatment of B12 deficiency has traditionally centered on intramuscular injection of synthetic vitamin, with cyanocobalamin being the most used preparation. Therapy should be continued indefinitely if the underlying etiology of malabsorption is uncertain or irreversible. Despite the commonly used injection route, there is accumulating evidence that oral cobalamin therapy is equally effective. Finding of the alternative intrinsic factor-independent mechanism for vitamin B12 absorption resulted in discovery that if large doses were given (range of 100-100,000µg), it was sufficient to provide the daily requirement in this group of patients.⁶

In summary, B12 or cobalamin deficiency is a common, yet often overlooked entity as its clinical manifestations may be subtle, and it may occur even in the absence of the classical hematological abnormalities. The two cases presented illustrate the myriad presentations of cobalamin deficiency, including pancytopenia, hemolysis and neurological involvement.

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The Current Situation of Neurology Training in Malaysia: Challenges and Opportunities

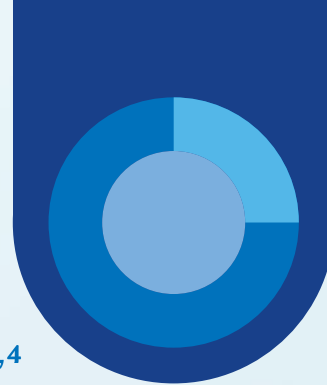
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ABSTRACT

Neurology training in Malaysia has made significant strides over the past decades, yet it continues to face substantial challenges, primarily an inadequate neurologist-to-patient ratio and a rigorous, lengthy training pathway. The current system mandates a prerequisite certification in internal medicine before subspecialty neurology training, resulting in a total training duration that can exceed ten years post-graduation. While the number of neurologists has doubled since 2007, the density remains low compared to neighbouring countries like Singapore, Thailand, Indonesia and Vietnam. Key issues include managing "neurophobia" among junior doctors, standardizing curriculum across diverse institutions (Ministry of Health and universities), and addressing the high demand for general neurologists in the nation. This report outlines the current structured training landscape, identifies key challenges, and highlights ongoing initiatives and opportunities for improvement.

Keywords: Neurology training, Malaysia, Ministry of Health, workforce challenges, continuous professional development.

INTRODUCTION

The global burden of neurological disorders is increasing, necessitating a robust neurological workforce. Malaysia is a country with over 34.2 million population with approximately 172 neurologists nationwide.¹ This is a significantly lower neurologist-to-population ratio (0.43 neurologists to 100,000 population) as of 2024 than is required for optimal patient care, as compared to other countries and specialties.^{2,3} The number of neurologists within the Ministry of Health hospitals remained largely static, fluctuating between 47 and 51 from 2018 to 2022,

and standing at 45 in 2025, with only four new trainees recruited as of 2025. This workforce is likely to plateau or decline further in the near future, with substantial implications for the capacity, accessibility, and quality of neurological care nationwide. These disparities placed immense pressure on the existing specialists and highlighted the urgent need to produce more neurologists.

Neurology training in Malaysia operates primarily through a dual system involving the Ministry of Health (MOH) and local university hospitals under the Ministry of Higher Education (MOHE) (e.g., Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Sains Malaysia (USM), Universiti Putra Malaysia (UPM) and Universiti Teknologi Mara (UiTM)). The Malaysian Society of Neurosciences (MSN) plays a crucial role in maintaining standards and promoting educational activities. This report examines the structure of this training and the dynamic environment shaping the future of neurology practice in the country.

STRUCTURE AND PATHWAY OF TRAINING: FROM INTERNAL MEDICINE (IM) TO NEUROLOGY TRAINING

The Malaysian training pathway is distinct in its requirement for prior internal medicine (IM) specialization. Aspiring neurologists must first obtain a qualification in IM, typically an MRCP (UK) or a Master of Medicine (M.Med) from local universities. This rigorous process, which takes several years after initial housemanship and 3 years of compulsory IM training, ensures a strong foundation in general medicine before subspecialisation. Upon successful completion of the IM prerequisite, candidates enter the 3-4 year formal neurology subspecialty training program. This is a structured fellowship programme, involving supervised clinical training

in accredited hospitals. (Figure 1) The neurology training curriculum in both systems includes rotations in core areas such as neurophysiology, movement disorders, neuro-immunology and neuroinfection, neuropathology, comprehensive stroke management, headache, and epilepsy. Emphasis is on direct, extensive case exposure, actively managing cases and continuous assessment via logbooks and supervisor feedback.

- **MOH Trainees:** Many MOH trainees use a 2+1-year programme, spending two years in local MOH hospitals

and 6 months to 1 year in an overseas institution (e.g., Australia, United Kingdom (UK), Singapore) for specialized exposure in a specific sub-neurology field. (Figure 1)

- **University Trainees:** Trainees within the university system engage in 3-year in-house structured programme which include core curriculum training and comprehensive assessments. Overseas training is not compulsory during the training period but can be undertaken later as a short clinical attachment or as Doctor of Philosophy (PhD) after completion of neurology training. (Figure 1)

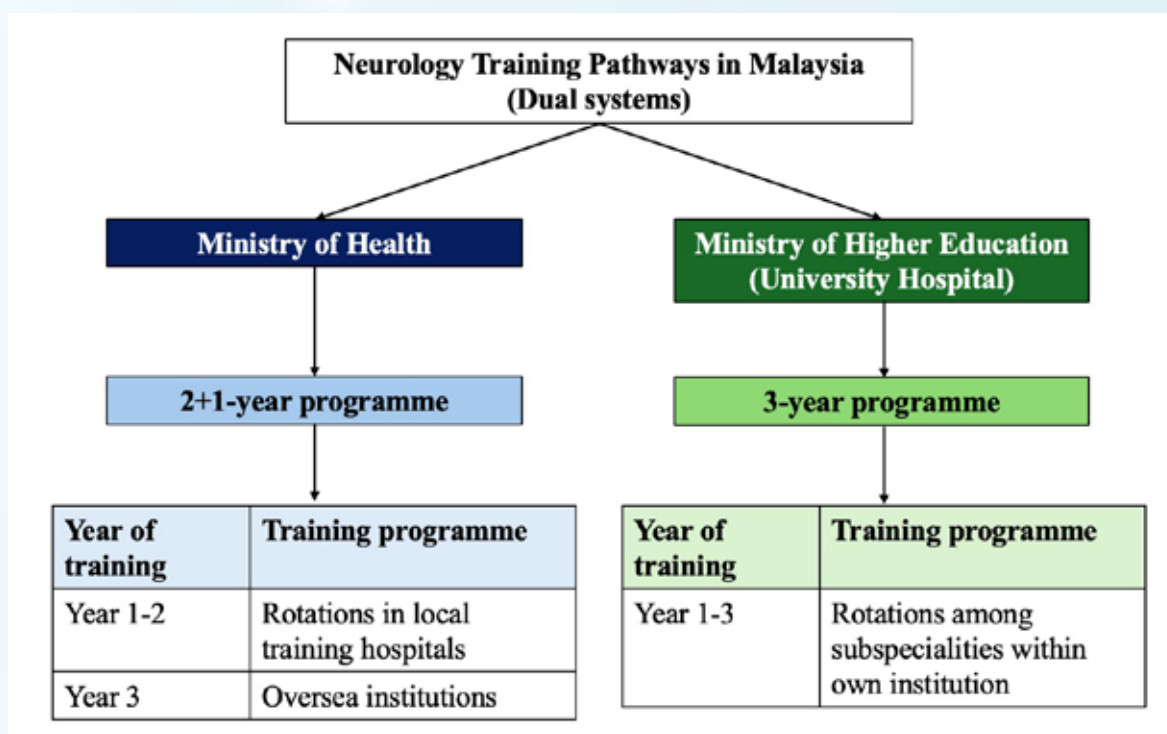


Figure 1: Dual-system neurology training pathways in Malaysia

CURRENT CHALLENGES IN THE MALAYSIAN CONTEXT

The Malaysian neurology training landscape faces several interconnected challenges.

1. Workforce Shortage and Imbalance (Agree)

Within-country comparison: An imbalance in trainee recruitment across medical specialties is evident, whereby endocrinology, cardiology, gastroenterology, and nephrology have proportionally higher trainee numbers compared to neurology. (Table I) There is a growing concern about the gradual loss of neurology as a subspecialty. Beyond differences in financial incentives across disciplines, where certain specialties (e.g., intervention-based subspecialties such as cardiology and gastroenterology) offer more competitive remuneration, neurology continues to encounter structural and systemic challenges.

Table I: Distribution of specialists, trainees and new trainees intake in different subspecialties in Ministry of Health Hospitals in 2025

Subspecialties	Number of Specialists in MOH	Number of Trainees (Exclude New Intake 2025)	Number of Intake in 2025	Number of Resigned or Resigning Specialists	Number of Retired Specialists	Attrition Rate (%)
Dermatology	66	27	6	11	0	16.67
Endocrinology	74	35	9	8	0	10.81
Gastroenterology & Hepatology	32	20	11	6	3	28.13
Geriatric	39	15	5	5	0	12.82
Clinical Haematology	47	19	7	1	1	4.26
Cardiology	66	75	19	3	2	7.58
Nephrology	104	35	17	6	0	5.77
Neurology	45	Pending	4	1	0	2.22
Palliative	33	7	3	2	0	6.06
Infectious Disease	58	15	4	4	0	6.90
Respiratory	58	24	12	3	0	5.17
Rheumatology	61	20	4	4	3	11.48
Acute Internal Medicine	24	5	2	1	0	4.17

(Source: Unpublished data from Medical Development Division, Ministry of Health Malaysia, accessed in July 2025)

One of the main challenges is limited institutional support which includes restricted scope of practice, such as the lack of formal recognition for neurologists to perform interventions such as thrombectomy, insufficient funding for (a) advanced neurophysiological equipment such as polysomnogram, autonomic testing tools, peripheral nerve and musculoskeletal ultrasonography and intraoperative neuromonitoring devices, (b) specialised training, and (c) the lack of policies to subsidise high cost yet clinically effective neurological interventions, including deep brain stimulation, epilepsy surgery, and other advanced treatments aligned with current international standards of care. Additionally, the prolonged learning

curve inherent to neurology training may further affect trainee recruitment. Collectively, these factors highlighted the complexity of neurology, which may warrant expanded training privileges and structural recognition.

Between-country comparison:

When benchmarked against our ASEAN counterparts, especially Vietnam and Indonesia, Malaysia is falling behind in the foundational development of neurology services. Annual neurology trainee intake in Vietnam and Indonesia exceeds that of comparable Malaysian centres by an estimated 10 to 15-fold. (Table II) The other most pressing challenge is the persistent and significant shortage of neurologists relative to the population size. (Table II) The current number of specialists is insufficient to meet service demands, leading to heavy workloads for existing neurologists. This shortage is exacerbated by an unequal distribution, with most specialists concentrated in major cities and tertiary hospitals like Hospital Kuala Lumpur, other university hospitals in Klang Valley such as Universiti Malaya Medical Centre (UMMC), Hospital Canselor Tunku Muhriz UKM (HCTM), Sultan Abdul Aziz Shah Hospital UPM (HSAAS), and Al-Sultan Abdullah Hospital UiTM, leaving rural areas underserved.

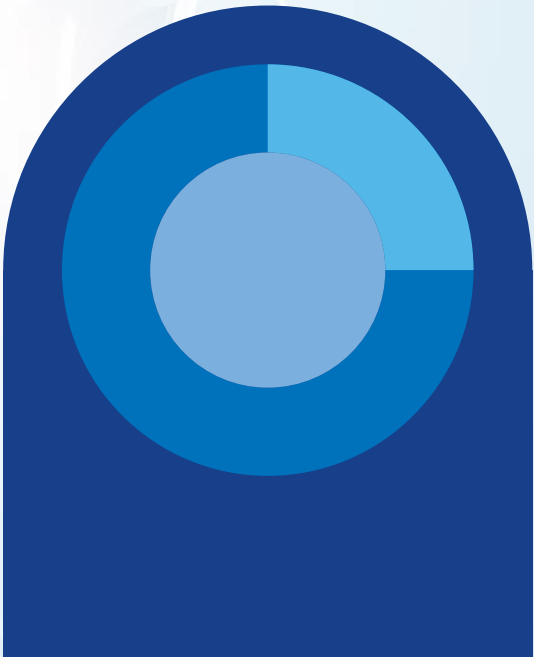


Table II: Comparison of the number of neurologists, the ratio of neurologists to population, the availability of national neurology training program, the number of neurology training centres, and the number of neurology trainees enrolled per year between 2007 and 2024

Year	Population (million)		Number of Neurologists		Ratio Neurologist: 100,000 Population		Availability of National Neurology Training Programme		Number of Neurology Training Centres		Number of Neurology Trainees Enrolled per Year ¹
	2007 ²	2024 ³	2007	2024	2007	2024	2007	2024	2007	2024	2024
Brunei Darussalam	0.37	0.45	4	6	1.08	1.33	N	Y ⁴	0	1 ⁴	1
Cambodia	11.0	17.0	3	32	0.03	0.19	N	Y ⁵	0	2 ⁵	5 ⁵
Indonesia	223.0	277.0	720	2361	0.32	0.85	Y	Y	13	14	140-200
Lao PDR	5.9	7.7	3	12	0.05	0.16	N	Y	0	1	1-2 ⁶
Malaysia	25.0	32.7	50	140	0.20	0.43	Y	Y	4	16	12
Myanmar	10.0	54.7	10	39	0.10	0.07	Y	Y	1	4	1-11
Philippines	83.0	118.2	270	703	0.33	0.59	Y	Y	6	15	48-52
Singapore	4.3	6.0	53	140	1.23	2.33	Y	Y	3	2	6 ⁷
Timor Leste	0.8	1.3	0	3	0.00	0.23	N	N	0	0	0
Thailand	64.0	71.6	359	839	0.60	1.20	Y	Y	9	11	47
Vietnam	84.0	98.8	402	870	0.48	0.88	Y	Y	12	7	140

1, Data in 2007 was not available for comparison; 2, Data as of 2007; 3, Data as of 2023; 4, Awaiting accreditation; 5, National Diplôme d'études spécialisées (DES) curriculum will be finalised in 2024 for resident acceptance in 2025; 6, Last batch of local neurology trainees in 2023. A new fellowship programme will be started in collaboration with other ASEAN countries; 7, Six started in July 2024 (even though there are 12-13 training positions per year. (Source: Fong et al., 2025. Reproduced with permission.)

The critically low recruitment of neurology trainees has resulted in a persistent shortage of neurologists, which has directly constrained the expansion of neurology subspecialty services. Neurology is a very diverse specialty, with as many as 13 recognised subspecialties (significantly more than other subspecialties in internal medicine in addition to many emerging subspecialties. However, meaningful development of these subspecialties is not possible without a sufficient trainee pipeline. To date, only major fields like stroke have been developed while equally essential but less prominent subspecialties, such as headache is markedly underdeveloped.

Cerebrovascular disease, just one of the many neurological disorders, is already the third leading cause of death in Malaysia.⁴ National data from 2019 demonstrate a continued rise in stroke incidence, prevalence, and mortality.⁵ Despite this substantial and growing disease burden from a single neurological condition, the current number of neurologists is clearly insufficient to meet the escalating demands of stroke care. This shortfall is particularly evident in acute stroke care, which requires

continuous 24-hour specialist availability for time-critical interventions such as intravenous thrombolysis and endovascular thrombectomy. The escalating need for round-the-clock on-call coverage further strains an already limited workforce, underscoring a widening and unsustainable gap between neurological disease burden and specialist capacity, especially when considering the parallel rise of other neurological disorders.

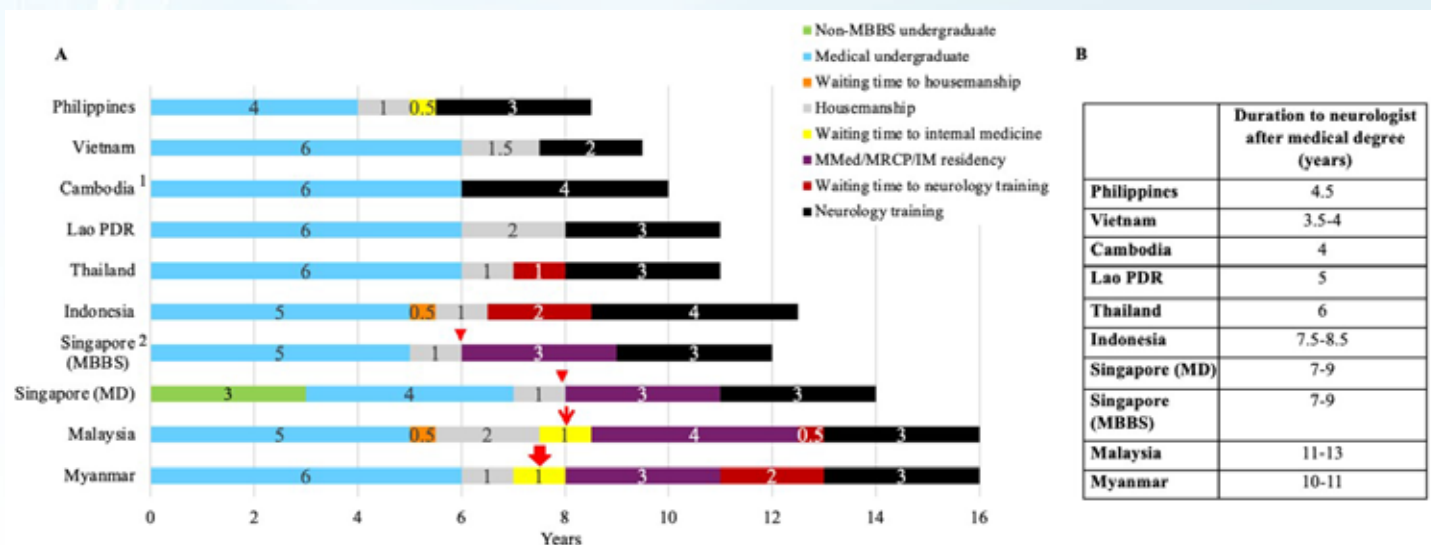
Sustainable growth of neurology services across all subspecialties is fundamentally dependent on strengthening and expanding the neurology trainee workforce. Given the breadth, complexity, and service demands of neurology, there is a strong case for neurology to be recognised and positioned as a stand-alone specialty rather than a subspecialty of internal medicine.

2. Protracted Training Duration

The extended overall training duration, largely due to the mandatory IM prerequisite, is a potential deterrent for some medical graduates who may opt for other, faster-track specialties. While the compulsory IM training

produces highly competent candidates, it significantly lengthens the total training period, often exceeding a decade from medical school to certification.³ Malaysia and Myanmar are the two countries among ASEAN countries with a minimum 10-year training after graduation to be a

board-certified neurologist, compared to the Philippines, Vietnam, Cambodia, and Lao PDR, with an average of only 3.5 to 5 years after completion of medical degree to become a neurologist. (Figure 2)



1, expected training duration based on the drafted National Diplôme d'études spécialisées (DES) curriculum; 2, additional two years for males for compulsory national service; waiting time ranges from 0 to several years depending on the success of internal medicine residency application (red triangle arrows); minimum 1-2 years depending on acceptance into internal medicine program (MMed or MRCP parallel pathway)(red line arrow); minimum 1-2 years before trial of entrance examination for MMed (red solid arrow). MD, Doctor of Medicine; MBBS, Bachelor of Medicine and Surgery; MRCP, membership of Royal Colleges of Physicians; MMed, Master of Medicine; IM, internal medicine. (Source: Fong et al., 2025. Reproduced with permission.)

Figure 2: Duration of neurology training in ASEAN countries. (A) Minimum total training duration in ASEAN countries and duration spent in each stage before enrolment into the neurology training programme, (B) Duration to become a neurologist after medical degrees in ASEAN countries.

3. "Neurophobia" Among Junior Doctors

A significant cultural and educational barrier is the high prevalence of "neurophobia" (fear of neurological subjects) among medical students and junior doctors. Studies have shown that factors contributing to this include the perceived complexity of neuroanatomy, the neurological clinical examination, insufficient teaching, and limited exposure to neurologists during early training. This phobia negatively impacts interest in the specialty and potentially discourages promising candidates from pursuing neurology careers.

4. Retention and Public Service Obligation

While no tuition fees are charged for training, trainees are often bound by a compulsory 6-year public service commitment after certification. Leaving public service prematurely incurs substantial financial penalties (up to MYR 600,000 since 2018). This policy aims to retain talent within the public healthcare system but can limit career mobility and negotiation power for certified neurologists.

5. Need for Standardized Assessment and Accreditation

As various universities and MOH hospitals are involved in training, ensuring a standardized, competence-based, objective assessment and accreditation process across the board remains a continuous effort. Harmonizing diverse curricula is crucial for consistent quality of care. The current exit viva for the neurologist board examination now consists of a panel from MOH and MOHE hospitals to ensure standardization and harmonization of neurological training across the country.

OPPORTUNITIES AND ONGOING INITIATIVES

Despite the challenges, several initiatives are underway to improve the situation.

1. MSN Pre-Neurology Training Programme

In response to the "pre-neurology gap" (the 3-4 year period between passing MMed/MRCP and starting formal neurology training), the Malaysian Society of Neurosciences (MSN) established a Pre-Neurology

Education Task Force. This program offers structured, intensive, case-based modules and hands-on workshops four times a year. This initiative aims to build foundational clinical neurology skills among interested Medical Officers (MOs) and cultivate interest, particularly in hospitals without resident neurologists.

2. Royal College initiatives

The College of Physicians Malaysia (CoPM) was founded in 1995 under the umbrella of the Academy of Medicine of Malaysia (AMM). It is a prestigious body to support the physicians and advances the field of internal medicine in Malaysia. Its mission is to enhance the quality of healthcare in Malaysia through continuous professional development, advocacy, and the dissemination of medical knowledge. Each subspecialty takes part in a weekly continuing medical education (CME) webinar for four weeks. It is one of the college's initiatives to keep the interested participants and juniors abreast of medical skills and knowledge in various fields, including neurology. The College also organizes certification programmes and training courses, including MRCP (UK) and MRCPI (Ireland) examinations. There is continuous and dynamic collaboration between the College and the other internationally renowned colleges of physicians. This serves as a good platform where local research and clinical experience can be shared.

3. International Cooperation and Certification

Malaysian training benefits from international linkages supported by the society. Joint certifications, such as the EEG Certification by ASEPA. Neurodiagnostic workshop to increase competencies and enhance the quality of local practice.

4. Focus on General Neurology and Subspecialisation

There is a growing recognition of the need for general neurologists to manage common disorders in community and district hospitals, acting as "goalkeepers" for complex cases. Simultaneously, subspecialty chapters within the MSN are promoting advanced skills in areas like stroke, epilepsy, movement disorders, and neuroimmunology, reflecting the increasing complexity of neurotherapeutics. MOH is also planning to start a special interest group (SIG) for hospitals without a neurologist to deliver comprehensive management of stroke, including acute thrombolysis therapy.

5. Continued Professional Development

The organization of regular national and international conferences, such as the Malaysian Society of Neurosciences Annual Scientific Meetings, Malaysia Stroke Conference, and Malaysian Epilepsy Conference, ensures

continuous professional development and knowledge sharing among neurology healthcare professionals in Malaysia.

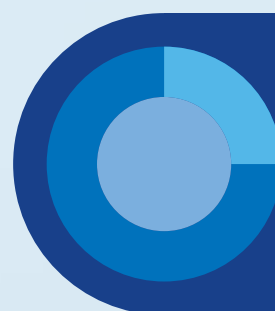
CONCLUSION AND FUTURE DIRECTIONS

The current situation of neurology training in Malaysia is characterized by a high-quality, rigorous program that effectively produces competent specialists, albeit slowly, within a system struggling with workforce shortages. The mandatory internal medicine prerequisite ensures clinical depth but prolongs the pathway.

Moving forward, strategies should focus on reducing the duration of training without compromising quality, perhaps by integrating neurology exposure earlier into the internal medicine curriculum, and actively combating neurophobia at the undergraduate and junior doctor levels. Increased government investment in healthcare infrastructure and improved working conditions for general neurologists will be essential to attract and retain the number of specialists required to meet the increasing burden of neurological diseases in Malaysia.

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Less Can Be More: Rethinking Primary Spontaneous Pneumothorax Management

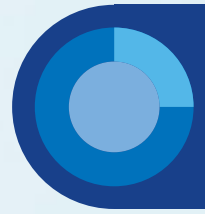
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Pneumothorax is a major and growing health issue, responsible for more than 265,000 hospital visits annually in the United States alone.¹ It is defined as the presence of air in the pleural space - between the lung and the chest wall, causing partial or complete lung collapse. Clinical presentations range from asymptomatic disease to acute life-threatening respiratory failure.

The aetiology of pneumothorax is diverse. It may occur spontaneously, following trauma, or as an iatrogenic complication of procedures such as lung biopsy, pacemaker or central line insertion.² Spontaneous pneumothorax can be secondary to underlying lung diseases (secondary spontaneous pneumothorax, SSP) or without an apparent cause (primary spontaneous pneumothorax, PSP). Patients with PSP may be asymptomatic, or present with chest pain and/or mild breathlessness. In contrast, SSP occurs in patients with compromised lung function, and is typically associated with more severe symptoms, higher morbidity and increased mortality.³

The burden of pneumothorax is rising. Epidemiological data demonstrate increasing incidence of SSP, most related to chronic obstructive pulmonary disease (COPD), pulmonary tuberculosis in endemic regions, as well as iatrogenic pneumothorax (e.g. post lung biopsy).^{3,4} This trend, coupled with an aging population, places growing pressure on healthcare resources, especially hospital bed-days.

The past decade has witnessed unprecedented surge in research interest in pneumothorax.⁵ High quality randomised controlled trials have challenged decades of conventional teaching. PSP care was (and still commonly is, in many regions) anchored to radiographic size: “success” was equated with rapid radiological resolution. Hence chest tube drainage (with or without suction) and hospital admission became routine practice worldwide. Contemporary trials have now fundamentally disrupted this paradigm.

The landmark Australasian PSP randomised trial (316 participants across 39 centres) demonstrated that

conservative management (i.e. no pleural intervention), successfully treated most patients with symptomatic, moderate-to-large PSP. 85% avoided drainage, despite a median pneumothorax size of 64% (Collin’s method) of the hemithorax.⁶ The interventional arm was more likely to experience persistent air leak or require surgery, had longer hospital stays (3.8 vs 0.2 days), and more time off work/school (6.0 vs 3.0 days). Recurrence was also higher in the interventional group (16.8% vs 8.8%). Allowing the lung to remain collapsed may facilitate healing of the pleural defect, rather than perpetuating air leak through forced re-expansion.⁷

“Conversative” does not mean “hands-off”. Safety depends on structured observation and physiological criteria. Current recommendations emphasise that PSP management can be symptom-guided irrespective of radiographic size, provided the patient has no haemodynamic instability and can ambulate comfortably after a four-hour observation period.⁵ Radiological progression alone, without clinical deterioration, can be met with longer observation rather than reflex chest tube intervention.

These findings have now been incorporated into international guidance, with major societies including the European Respiratory Society (ERS)⁸ and the British Thoracic Society (BTS)⁹ endorsing conservative management as an appropriate first-line strategy for selected, clinically stable patients with PSP.

Despite this, practice change has been slow, understandably so. A survey of 456 Australasian clinicians revealed marked heterogeneity, low guideline awareness, and continued reliance on radiographic features.¹⁰ Many clinicians feeling compelled to drain “larger” pneumothoraces. Locally, conservative management may also be inappropriate for patients with significant barriers to re-presentation to healthcare facilities or those unable to demonstrate adequate understanding of their condition and when to seek medical attention.

Medicolegal anxiety is another barrier, as “doing less” may be misinterpreted as “withholding treatment.” Reassuringly, post-hoc and economic analyses support conservative management: even in very large (>80%) or complete PSP, >80% still avoided intervention with fewer adverse events.¹¹ Cost-utility studies demonstrate that outpatient conservative care is substantially more economical than routine chest tube drainage.^{12,13}

Another important aspect is a diagnostic correction: tension pneumothorax is a clinical diagnosis, defined by haemodynamic compromise, not mediastinal shift on imaging alone. Radiology reports labelling “tension” based solely on radiographic findings may drive unnecessary drains.¹⁴ True tension pneumothorax is rare in PSP, while patients with SSP may develop severe respiratory compromise in the absence of mediastinal shift on chest radiograph. Furthermore, most PSP patients present with chest pain rather than shortness of breath. Analgesia is

therefore the most appropriate first-line treatment, rather than chest tube insertion, which is itself a painful procedure.

Finally, it is essential not to overgeneralise. Evidence supporting conservative management in PSP cannot be directly extrapolated to SSP or iatrogenic/traumatic pneumothorax, particularly in patients with limited respiratory reserve where breathlessness can be severe and drainage necessary. SSP patients should always be considered for recurrence prevention even at first presentation.

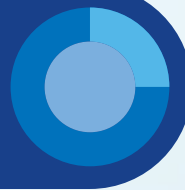
The future of pneumothorax care must move beyond “drain or no drain” toward improved recurrence prediction, better patient selection, better understanding of air-leak pathophysiology, and ultimately prevention. While further evidence is awaited, the shift toward conservative management represents a meaningful first step in revolving pneumothorax care around the patient rather than the radiograph.

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Calendar of Future Events

College Calendar for 2026



The College remains true to its mission to provide training opportunities to develop a professional medical workforce of the highest quality.

Discounts will be offered to all members for our paid events. Please do share our college events calendar and information about upcoming events with colleagues to help ensure our events are able to benefit as many as possible.



MRCP(UK) PACES Diet 2026/1 (Kuala Lumpur & Perlis)

- Hospital Tuanku Fauziah, Kangar: 13th to 14th April 2026
- Hospital Selayang: 15th April 2026
- IMU / HTJ Seremban: 17th April 2026

HTAR, Klang: 18th April 2026



Annual Scientific Congress (ASC) 2026: 15th to 17th May 2026



Clinical Audit Training 2026: 12th & 13th June 2026



MRCP(UK) PACES Diet 2026/2 (Penang)

- Hospital Seberang Jaya: 17th July 2026
- Hospital Pulau Pinang: 18th & 19th July 2026

MRCP Conferring Ceremony 2026



MRCP(UK) PACES Diet 2026/3 (Kuala Lumpur, Kuching - Kota Kinabalu, Johor Bahru)

- HSIS Serdang/HSAAS UPM Centre: October 2026
- Sunway Medical Centre: October 2026
- UMMC: October 2026

Clinical Leadership Training 2026: 30th & 31st October 2026



MRCP(UK) PACES Diet 2026/3 (Kuala Lumpur, Kuching - Kota Kinabalu, Johor Bahru)

- Hospital Umum Sarawak Centre: November 2026
- HQE-UMS Centre: December 2026
- Monash University Malaysia Centre: December 2026
- Newcastle University Medicine Malaysia Centre: December 2026