ABSTRACT: The fourth Malaysian Stroke Conference was held in Eastern and Oriental Hotel Penang from 12 to 13 August 2022. This conference attracted 254 physical delegates and 378 virtual delegates within Malaysia and internationally from Singapore, Indonesia, Philippines, Brazil, Canada, Egypt, India and Japan. The theme of this conference was “FAST: BRAIN AND HEART ATTACK”, with the take-home message of acting as fast as possible in both acute cerebrovascular and acute coronary disease. The main organiser was the Malaysian Stroke Council, with support from other specialities, namely emergency physicians, geriatricians and advanced acute internal medicine physicians. The event was a great success in gathering various stakeholders in stroke care to share the latest updates on stroke. Issues pertaining to stroke care were discussed to take the stroke service delivery to greater heights. This conference has undoubtedly left a profound impact on all the participants that it is time to embrace the practice of hyperacute stroke treatment which saves lives, and that everyone is responsible for offering the best stroke care to our patients.

Keywords: stroke, conference, Malaysia

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• Family Medicine Association Malaysia
• Delegates from University Hospitals
• Delegates from the Ministry of Health hospitals
• National Stroke Association Malaysia
• Social Security Organisation Malaysia

Contributions from these delegates allowed a broad set of principles to be put in place concerning stroke care that may be generalisable locally and regionally. Given the enormity of the burden of stroke in our country, we all must work together to develop strategies to reduce its negative impact.

2.0 BACKGROUND OF THE MALAYSIAN STROKE ACADEMY
The Malaysian Stroke Academy was established in 2019 during the first Malaysian Stroke Conference. It is a non-profit organisation comprised of doctors and healthcare workers from various disciplines involved in stroke management, focusing on improving stroke development and delivery. The Malaysian Stroke Academy committee members meet yearly during the Malaysian Stroke Conference.

The academy’s meeting this year focused on issues as below:

i. The MSC website includes stroke e-training modules (for general residents/physicians and stroke fellows).
ii. Guidelines for intravenous thrombolysis administration among non-neurologists.
iii. Accreditation of primary stroke center
v. Angel’s initiative, the “FAST HEROS” Programme, aims to teach children and indirectly family members to recognise early signs of stroke and call 999 in cases of emergency.

3.0 FUTURE DEVELOPMENT OF STROKE CARE IN MALAYSIA
There are approximately 102 neurologists (private and public sectors) in Malaysia, serving more than 30 million population in Malaysia (Malaysian Medical Council, n.d.). The ratio is significantly lower than our neighbouring countries including Singapore, Thailand and Indonesia.

Hence, the recent National Stroke Action Plan 2022, which was presented to the Director General on 15 February 2022 at the Ministry of Health (MOH) Headquarters Putrajaya, has highlighted seven main agendas:

1. Appointment of the state stroke champions to liaise stroke care within each state and empower physicians/supporting staff in providing acute thrombolysis services
2. Establishment of Primary Stroke Centres (PSC) equipped with acute stroke units in every state
3. Equipping all MOH hospitals with specialists (major specialist hospitals) and CT scan machines.
4. Establishment of Comprehensive Stroke Centres (CSC) in all regions.
5. Improvement of pre-hospital stroke care.
6. The utilization of information technology (IT), such as telemedicine apps, to aid diagnosis in hyperacute settings.
7. Implementation of clinical audit of the National Stroke Action Plan by the National Stroke Registry to measure outcome.

4.0 MSC 2022 SIDE LINE SYMPOSIUM: WHAT SHOULD MALAYSIAN POLICY AND DECISION MAKERS KNOW ABOUT STROKE, AND HOW CAN WE DO BETTER?
During the MSC 2022, there was a side line symposium organised by the Galen Centre of Health and Social Policy. Galen Centre is an independent non-party think tank promoting a health and social care vision based on accountability, transparency and the public interest. Their organisation is committed to a free market approach in developing patient-centric and community-focused health and social sectors.

Galen Centre had organised an expert meeting with the government, non-government and private sector stakeholders, clinicians and patient groups to discuss the issue of ischaemic stroke in Malaysia. An interesting exchange of opinions between the chairman Dr Azrul Mohd Khalib, Chief Executive of Galen Center and the panellists (Dr Wong Yee Choon, neurologist from Pantai Hospital, Penang; Dr Irene Looi, neurologist from Hospital Seberang Jaya and Miss Lim Yuan Yuan, physiotherapist from Penang Adventist Hospital) was taken place to discuss about the challenges and progress of stroke services in Malaysia and the ways of overcoming it.

A recent White Paper produced by the Galen Centre for Health and Social Policy on stroke care in Malaysia highlighted the improvements and investments needed in the existing stroke management. This includes increasing public education to improve stroke identification; increasing the number of neurologists and related multi-disciplines managing stroke cases; improving access and coverage of thrombolytic therapy; establishing stroke care teams in each hospital;
increasing availability, and improving existing rehabilitation services. Stroke remains one of this country’s most significant health challenges. However, Malaysia has within its means the opportunity to transform people’s outcomes and experiences of stroke. Addressing the gap in the provision of acute stroke services, particularly ensuring that efficacious treatment is available during the critical 4.5 hours, will save lives, improve outcomes, and reduce the overall cost of stroke to society, the economy and most importantly, the individual.

5.0 AWARDS
During the annual Malaysian Stroke Conference, two awards were given to deserving individuals and hospitals, namely The Rising Star Award and the World Stroke Organisation (WSO) Angels Award. The Rising Star Award is a prestigious award given out annually to deserving individuals during the Malaysian Stroke Conference. This award recognises the exceptional efforts of individuals who have contributed to developing and improving their respective stroke hospitals. Every year, 40 Rising Stars Awards will be given out to deserving individuals. The selection committee for the award comprises of the exco members of the Malaysia Stroke Council. Criteria for the selection of awardees include:

i. Initiation of stroke services
ii. Active involvement in training their hospital stroke team
iii. Actively assisting the stroke champions in doing stroke thrombolysis
iv. Diligently helping in data monitoring

Recipients of the Rising Stars Awards MSC 2022:

1. Staff Nurse Daljit Kaur A/P Nasib Singh (Sunway Medical Center)
2. Sharrene Lee Kah Kei (Sunway Medical Center)
3. Staff Nurse Neh Heong Tin (Sunway Medical Center)
4. Molly Aleyammah George a/p Thariyan (Sunway Medical Center)
5. Dr. Norbelinda Binti Norhatta (Gleneagles Hospital Medini Johor)
6. Dr. Md Yuzairif Bin Md Yusof (Gleneagles Hospital Medini Johor)
7. Dr. Ng Yin Jie (Hospital Tuanku Ja'afar Seremban)
8. Dr. Syed Hussein Barakah (Hospital Tuanku Ja'afar Seremban)
9. Dr. Siti Noorfaezah binti Abdul Kadir (Hospital Tuanku Ja'afar Seremban)
10. Staff Nurse Sharifah Bt Jalal (Hospital Canselor Tuanku Muhriz)
11. Siti Norfadilah Bt Abu Zarim (Hospital Canselor Tuanku Muhriz)
12. Staff Nurse Roselyn Ling Ung Ghin (Borneo Medical Centre)
13. Dr. Dayang Rafidah binti Awang Habeni (Hospital Sultan Haji Ahmad Shah)
14. Dr. Tan Hui Jieh (Hospital Raja Permaisuri Bainun)
15. Dr. Raja Ahmad Reza Bin Raja Lope Ahmad (Hospital Raja Perempuan Zainab II)
16. Dr. Hii Ding Wei (Hospital Kuala Lumpur)
17. Dr. Wong Sing Keat (Hospital Kuala Lumpur)
18. Dr. Elaine Chew (Hospital Kuala Lumpur)
19. Dr. Izyan Liyana bt Mohd Helmi (Hospital Kuala Lumpur)
20. Dr. Chey Shin Yee (Hospital Kuala Lumpur)
21. Dr. Noorasyikin bt Mohamed Arifin (Hospital Kuala Lumpur)
22. Dr. Tee Ting Yoong (Hospital Sultanah Nur Zahira)
23. Mahfuzah Ishak (Hospital Sultanah Nur Zahira)
24. Dr. Nur Asma Sapiai (Hospital Universiti Sains Malaysia)
25. Dr. Bazli Md Yusof (Hospital Universiti Sains Malaysia)
26. Dr. Mohamad Masykurin Mafauzy (Hospital Universiti Sains Malaysia)
27. Staff Nurse Zulzamri Ismail (Hospital Universiti Sains Malaysia)
28. Staff Nurse Salmi Zura Mohd Salieh (Hospital Universiti Sains Malaysia)
29. Dr. Tuan Syarifah Atikah Tuan Mat Zin (Hospital Universiti Sains Malaysia)
30. Dr. Yeoh Kok Ming (Pantai Hospital Ipoh)
31. Raathi Krishnamuthi (Pantai Hospital Ipoh)
32. Dr. Kathleen Yeap (Pantai Hospital Ipoh)
33. Dr. Lau Kar Foo (Pantai Hospital Ipoh)

The WSO Angels Award recognises hospitals that have demonstrated a clear commitment to quality stroke care and have established cultures and systems to support continuous improvement. This award will be given to...
hospitals that provide data and evidence of delivery of care and treatment against a set of seven criteria in this way. Angels Awards encourage continuous data capturing, enabling data analysis to identify and act to address areas for improvement. Based on their performance against various measures, participating hospitals can be recognised with Gold-, Platinum- or Diamond-level Awards. All the Angel Awards winners are illustrated in Figure 1.

**Gold Award**
1. Hospital Canselor Tuanku Muhriz, Cheras – Neurology
2. Regency Specialist Hospital, Johor – Neurology

**Platinum Award**
1. Hospital Seberang Jaya – Neurology
2. Loh Guan Lye Specialists Centre – Neurology
3. Pantai Hospital Ipoh – Neurology

**Diamond Award**
1. Fatimah Hospital – Adult Neurology

![Figure 1: The World Stroke Organisation (WSO) Angels Award Winners in the second quarter (Q2) of year 2022.](image)
6.0 THE CURRENT MALAYSIA STROKE COUNCIL
As the main organiser for the conference, Malaysia Stroke Council is a working council within the Malaysian Society of Neuroscience (MSN). This council was formed with the primary objective of achieving high-quality stroke care in Malaysia, with reference to the latest evidence-based stroke guidelines. They advocate for networking among various stroke healthcare practitioners in Malaysia and increase stroke awareness among the public.

The present energetic Malaysia Stroke Council team is determined to steer society to higher ground with more outstanding and significant development, research, and educational activities during their term. Figure 2 depicts the current council members.

The current council members are:

**Advisor**
Professor Dr. Hamidon Basri (Universiti Putra Malaysia)

**Chairman**
Associate Professor Dr. Hoo Fan Kee (Universiti Putra Malaysia)

**Vice Chairman**
Dr. Wan Asyraf Wan Zaidi (Universiti Kebangsaan Malaysia)
Dr. Law Wan Chung (Sarawak General Hospital)

**Secretary**
Dr. Tan Wee Yong (Thomson Hospital Kota Damansara / Columbia Asia Setapak)

**Treasurer**
Dr. Irene Looi (Hospital Seberang Jaya)

**Committees**
- Dr. Khairul Azmi Ibrahim (Hospital Sultanah Nur Zahirah)
- Dr. Zariah Abdul Aziz (Hospital Sultanah Nur Zahirah)
- Dr. Teh Peh Chiek (KPJ Damansara Specialist Hospital)
- Associate Professor Dr. Law Zhe Kang (Universiti Kebangsaan Malaysia)

Figure 2: The Malaysia Stroke Council members. From left to right: Wan Asyraf Wan Zaidi, Tan Wee Yong, Hamidon Basri, Hoo Fan Kee, Law Wan Chung, Irene Looi.

7.0 FUTURE EVENTS BY MALAYSIA STROKE COUNCIL
The year of 2023 will be an exciting year for the Malaysia Stroke Council as it will celebrate its 5th-anniversary stroke conference in Hospital Canselor Tuanku Muhriz, Cheras. This multidisciplinary conference will focus on topics ranging from hyperacute stroke management, emergency medical service (EMS) pre-notification, primary and secondary prevention, and management of post-stroke complications to support life after stroke. This conference will include plenary sessions by local and international experts, multidisciplinary sharing, and discussion of interesting clinical cases. Last but not least, the yearly giving-out of Rising Stars Awards to healthcare personnel who has contributed to the country’s stroke care. Further information is available at https://www.strokecouncil.org/.

Acknowledgement: The authors would like to thank MSN Stroke Council for their continuous support.

Author Contributions: Teoh, C. and Looi, I. drafted the manuscript; Kee, Y-S. attached the photos and tables and refined the paragraphs; Law, W-C. and Hoo, F-K. reviewed the manuscript; Wan Zaidi, W.A. reviewed and edited the manuscript.

Conflicts of Interest: The authors declare no conflict of interest.

References: