

**Malaysian Diabetes Educators Society Conference 2024**

7 - 9 June 2024

The Vertical @ CCEC, Kuala Lumpur

Continuing Professional Development Program

Organised by

**mdEs**

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Topics: Healthy Coping, Self Monitoring, Medications, Healthy Eating, Reducing Risks, Problem Solving, Being Active.

# E – PROGRAMME

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## Welcome Message From the President

Welcome to the 9th Malaysian Diabetes Educators Society Conference 2024.

Diabetes is a global growing disease without geographical boundary affecting people of all ages, ethnicity, and gender. Around the world, International Diabetes Federation (IDF) expects 643 million will be living with diabetes by 2030, and 541 million adults who have Impaired Glucose Tolerance are at risk of Type 2 Diabetes. The aim of preventing and managing diabetes is to achieve living a quality of life lifelong. IDF highlighted it is important for healthcare professionals to have sufficient training and resources to detect complications early and provide the best possible care.

There are 4 basic mandatory skills to acquire for self-managing diabetes which include active living, healthy eating, monitoring, and taking medications. Diabetes disease is complex, changes of life events is equally complex that often mess up individuals' routine practices of self-managing diabetes. Thus, it is challenging to sustain a good diabetes control for long term. MDES conference is one of the importance conferences that addresses common psychosocial and cultural issues through interactive learning sessions.

It is known that the more engagement an individual with diabetes with the healthcare professionals is more likely to achieve better clinical outcomes. The latest digital glucose monitoring devices changes the landscape of diabetes management from reactive diabetes management to proactive diabetes management. The new technology enhances patient and healthcare professionals share care in monitoring glucose remotely and share decision making on the treatment plan more rapidly. MDES Conference served as a platform for learning from the experts and peers the advances of diabetes management.

I would like to take this opportunity to thank the Ministry of Health and the Director of General Health Malaysia Datuk Dr Muhammad Radzi Abu Hassan for supporting MDES Conference 2024 and launching the MDES Diabetes Education Manual 2024. I also would like to thank all the Sponsored Companies for sponsoring MDES conference. The sponsor companies have been generous and supportive. Do visit their booths for the latest products and diabetes treatment.

A sincere thank you to Prof Dr Norlaila Mustafa, Prof Dr Muhammad Yazid Jalaludin, international speakers, local speakers, MDES Conference Scientific Committee and MDES Conference Organising Committee for their leadership and effort in making this conference a success.

It is your presence that fulfilled the purpose of this conference. Wishing you have a fruitful conference.



**Ms Yong Lai Mee**

President

Malaysian Diabetes Educators Society



## Welcome Message From the Scientific Chair

Attendees, guests, and colleagues - welcome!

On behalf of the scientific Committee, would like to thank you for joining this incredible opportunity to learn and share from the delegates and fellow professionals. The speakers and presenters are the pivotal part of this conference, and undoubtedly all the delegates. With your support and input, this meeting will surely be a huge success.

As in the years past, we have put together an energetic collection of symposia, case studies and plenaries. For this year's schedule, we are introducing a workshop session as to inspire the delegates in partaking and sharing their thoughts and experience. Significantly, the conference involved our industry partners who contributed to the diabetes care. Please indulge in the exhibition session that provides a platform for the industries to display their latest innovation in diabetes care.

We have received a sufficient number of abstracts that will be presented as poster and you are welcome to join the presentation. This conference will surely provide invaluable opportunities to facilitate high quality professional development for diabetes educators. We hope you will enjoy this meeting.

We look forward to seeing you soon.



**Prof Dr Norlaila binti Mustafa**  
Scientific Chair  
MDES 2024



## Organising Committee



**Ms Choong Shiau Yin**

**Organising Chairperson**



**Dr Tan Ming Yeong**

**Co-Chairperson**



**Ms Yong Lai Mee**

**President**  
(MDES 2022 - 2024)



**Ms Tracey Kok Thin Moi**

**Committee Member**



**Dr Hanis Saadah bte Husin**

**Committee Member**



**Ms Jessica Saw Ching Yee**

**Committee Member**



**Ms Celestina Chirayil**

**Committee Member**

## Scientific Committee

**Datuk Dr Zanariah binti Hussein**

**Conference Advisor**

**Dr Feisul Idzwan bin Mustapha**

**Conference Advisor**

**Prof Dr Norlaila binti Mustafa**

**Chairperson**

**Prof Dr Muhammad Yazid bin Jalaludin**

**Chairperson**

**Prof. Dr. Winnie Chee Siew Swee**

**Committee Member**

**Dr Navin Kumar Loganadan**

**Committee Member**

**Dr Wong Ping Foo**

**Committee Member**

**Dr Tan Ming Yeong**

**Committee Member**

**Ms Choong Shiau Yin**

**Committee Member**





## Invited Faculty



**Prof Margaret McGill**

University of Sydney



**Dr Evelyn Parr**

Australian Catholic University  
(ACU)



**Prof Emeritus Dr  
Chan Siew Pheng**

University Malaya Medical  
Centre



**Prof Dr Barakatun Nisak  
Mohd Yusof**

Universiti of Putra Malaysia



**Prof Dr Firdaus Mukhtar**

Universiti of Putra Malaysia



**Prof Dr Muhammad Yazid  
Jalaludin**

University Malaya Medical  
Centre



**Prof Dr Mazlina Mazlan**

University Malaya Medical  
Centre



**Prof Dr Noor Azah Binti  
Abd Aziz**

Universiti Kebangsaan  
Malaysia



**Prof Dr Norlaila Mustafa**

Hospital Canselor Tuanku  
Mukhriz UKM



**Prof Dr Rohana Abd  
Ghani**

MARA Technology University  
(UiTM)



**Prof Dr Shireene Ratna  
Vethakkan**

University Malaya Medical  
Centre



**Prof. Dr. Winnie Chee  
Siew Swee**

International Medical  
University



**Assoc Prof Dr Azriyanti  
Anuar Zaini**

University Malaya Medical  
Centre



**Assoc Prof Dr Mohd  
Helmy Mokhtar**

Hospital Canselor Tuanku  
Mukhriz UKM



**Datuk Dr Zanariah  
Hussein**

Ministry of Health



**Dr Chang Li Cheng**

Ministry of Health



**Dr Devamalar Selvi  
Naicker  
A/P Subramaniam**

Ministry of Health



**Dr Hafidz Abd Hadi**

National Heart Institute



**Dr Hanihaselah Mohd.  
Saleh**

Ministry of Health



**Dr Hariyati Shahrma  
Abdul Majid**

Institut Jantung Negara  
College



**Dr Lee Ching Li**International Medical  
University**Dr Luqman Ibrahim**

Regency Specialist Hospital

**Dr Meenal Mavinkurve**International Medical  
University**Dr Mohd Zaquan Arif  
Abd.Ghafar**MARARA Technology University  
(UiTM)**Dr Navin Kumar  
Loganadan**

Ministry of Health

**Dr Rokiah Ismail**University Malaya Medical  
Centre**Dr Sunita Bavanandan**

Ministry of Health

**Dr Tan Ming Yeong**International Medical  
University**Dr Wong Ping Foo**

Ministry of Health

**Ms Anis Adilah  
Muhammad Patel**

Ministry of Health

**Ms Harpreet Kaur A/P  
Niranjana Singh**

Subang Jaya Medical Centre

**Ms Lee Lai Fun**

Puchong Specialist Clinic

**Ms Nur Ilyana Hanani  
Siong Abdullah**

Ministry of Health

**Ms Shahreen Hairi  
Hariharan**Hospital Tengku Ampuan  
Rahimah**Ms Siti Raudziah Raya  
Hamdan**Hospital Canselor Tuanku  
Mukhriz UKM**Ms Siti Zarina Yaakop**University Malaya Medical  
Centre**Ms Teong Lee Fang**

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**Ms Toh Peik Khlam**

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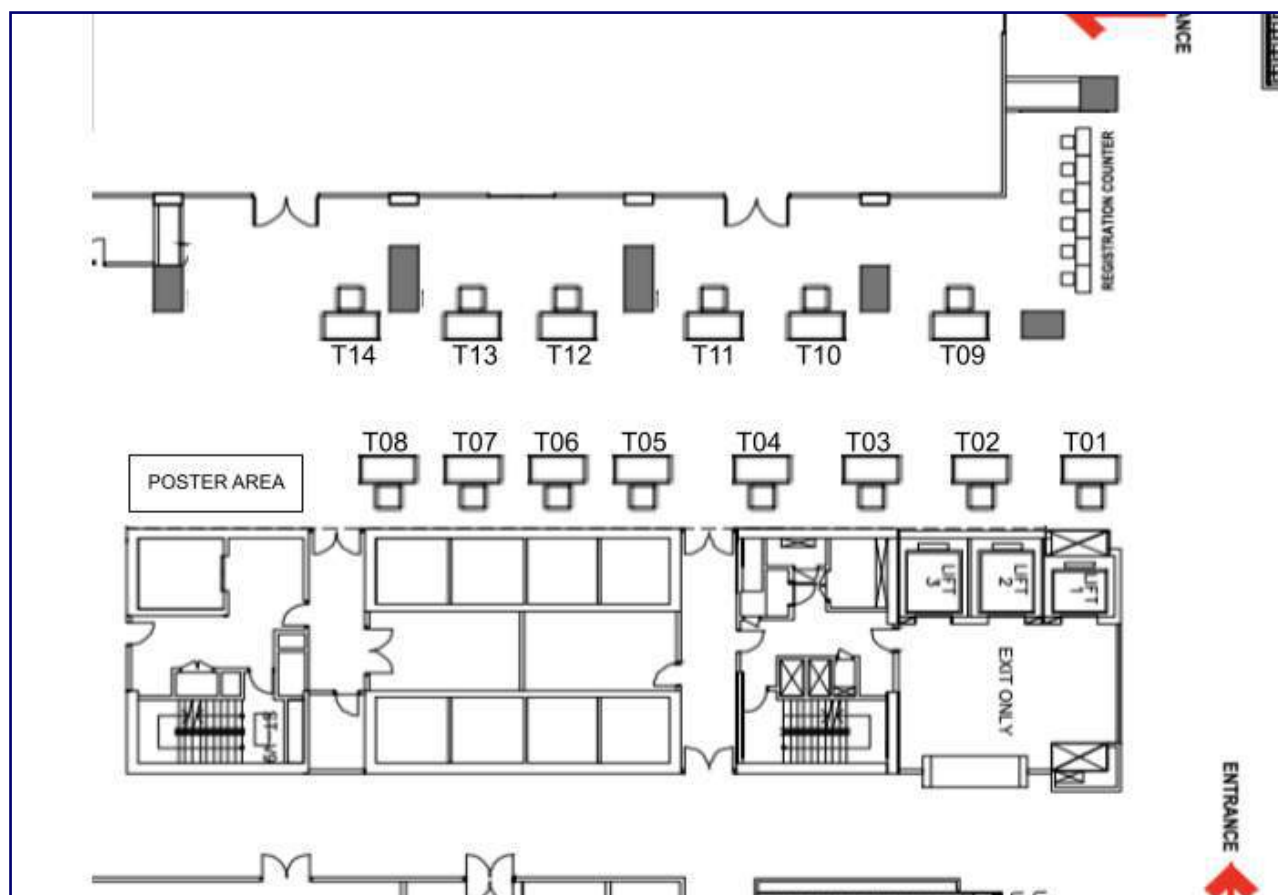
**Ms Yong Lai Mee**

Subang Jaya Medical Center





## Exhibition Floor Plan



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### TABLE

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# The **mySugr** app, made by people with diabetes, for people with diabetes



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Log diabetes diary (blood glucose level, meal, exercise, etc)  
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By just taking a picture, you will have a clearer picture on how  
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\* From 1 Jan 2019 to 4 Mar 2024, based on aggregated numbers  
provided by the App stores consoles.

\*\* [www.mysugr.com/en/diabetes-app](http://www.mysugr.com/en/diabetes-app). Average app rating in App  
Store and Google Play. Accessed on 5 Mar 2024.

† Available in mySugr PRO version only. Privilege for Accu-Chek  
Guide Me and Accu-Chek Instant meter users in Malaysia.

†† The eHbA1c is based on your imported measurements and does  
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must log at least 3 blood glucose values every day, for 7 days.

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## Key Events

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### Opening Ceremony

7 June 2024 (Day 1), 10:30 – 11:00

Welcome Address

*Dr Thilaka a/p Chinnayah@Nadarajah, Deputy Director (Disease Surveillance), Ministry of Health Malaysia*

Launching of the 3rd Edition Diabetes Education Manual

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### Malaysian Diabetes Educators Society Annual General Meeting

7 June 2024 (Day 1), 17:00 – 18:00

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### Closing Ceremony

9 June 2024 (Day 3), 12:45 – 13:00

Prize Giving Ceremony

Closing Remark

*President of MDES 2024 - 2026*

Buffet Lunch





# Scientific Programme

7 June 2024, Friday (Day 1)

Time	Session	
08:30 - 09:00	<b>Plenary 1</b> <i>Chairperson: Ms Choong Shiau Yin</i> <b>Advancements in Managing Paediatric Type 2 Diabetes: Current Strategies and Recent Updates</b> <i>Prof Dr Muhammad Yazid Jalaludin</i>  <b>Summit 1</b>	
09:00 - 10:30	<b>Symposium 1</b> <b>New Insight in Type 1 Diabetes Management (T1DM)</b> <i>Chairperson: Ms Wong Soh San</i> <ul style="list-style-type: none"> <li><b>Prevention of T1DM</b> <i>Prof Dr Muhammad Yazid Jalaludin</i></li> <li><b>Diabetic Ketoacidosis (DKA) Management</b> <i>Dr Meenal Mavinkurve</i></li> <li><b>New Technology in T1DM</b> <i>Assoc Prof Dr Azriyanti binti Anuar Zaini</i></li> </ul>  <b>Summit 1</b>	<b>Symposium 2</b> <b>Diabetes Treatment Non-Adherence: Issues and Solution</b> <i>Chairperson: Ms Jessica Saw Ching Yee</i> <ul style="list-style-type: none"> <li><b>Contributors to Non-adherence</b> <i>Prof Dr Norlaila Mustafa</i></li> <li><b>Motivational interviewing skill and technique - behaviour change</b> <i>Prof Dr Firdaus Mukhtar</i></li> <li><b>Steering the non-adherent patients back on track: The DMTAC approach</b> <i>Dr Navin Kumar Loganadan</i></li> </ul>  <b>Zenith</b>
10:30 - 11:00	<b>Opening Ceremony</b> <i>Master of Ceremony: Dr Hanis Saadah bte Husin, Dr Mohamad 'Ariff Fahmi bin Ahmad Zawawi</i> <b>Welcome Address</b> <b>Launch of 3rd Edition Diabetes Education Manual</b>  <b>Summit 1</b>	
11:00 - 11:30	Morning Tea Break & Exhibitor Visit  <b>Foyer</b>	
11:30 - 12:30	<b>Case Study 1</b> <b>Diabetes and Coronary Artery Disease</b> <i>Chairperson: Ms Celestina Chirayil</i> <ul style="list-style-type: none"> <li><b>Cardiologist</b> <i>Dr Hafidz Bin Abd Hadi</i></li> <li><b>Endocrinologist</b> <i>Prof Dr Rohana Abd Ghani</i></li> </ul>  <b>Summit 1</b>	<b>Case Study 2</b> <b>Type 1 Diabetes: Brittle Diabetes</b> <i>Chairperson: Dr Navin Kumar Loganadan</i> <ul style="list-style-type: none"> <li><b>Paediatric Endocrinologist</b> <i>Assoc Prof Dr Azriyanti Anuar Zaini</i></li> <li><b>Diabetes Educator</b> <i>Ms Zarina Yaakop</i></li> <li><b>Dietitian</b> <i>Dr Rokiah Ismail</i></li> </ul>  <b>Zenith</b>



12:30 - 13:30	<b>Lunch Symposium 1: The “R” factors in Revolutionary T2D Management</b> <i>Novo Nordisk Pharma (M) Sdn Bhd</i>  <b>Leading the innovation – A peptide pill with synergistic approach in T2D management</b> <i>Dr Malathi Karupiah</i>  <b>Patient journey: From naïve to experienced</b> <i>Dr. Shalini Sree Dharan</i>  <b>Panel Discussion</b>   Summit 1	
13:30 - 14:30	Buffet Lunch   Summit 1	
14:30 - 16:00	<b>Workshop 1</b> <b>Insulin Therapy Titration and Optimization</b> <i>Chairperson: Dr Navin Kumar Loganadan</i>  <ul style="list-style-type: none"> <li>▪ <b>Endocrinologist</b> <i>Prof Dr Norlaila Mustafa</i></li> <li>▪ <b>DMTAC Pharmacist</b> <i>Dr Navin Kumar Loganadan</i></li> <li>▪ <b>Diabetes Educator</b> <i>Ms Siti Raudziah Raya Hamdan</i></li> </ul>  Summit 1	<b>Workshop 2</b> <b>Physical Activities and Exercise Regimen for People With Diabetes</b> <i>Chairperson: Ms Celestina Chirayil</i>  <ul style="list-style-type: none"> <li>▪ <b>Sports Medicine Physician</b> <i>Dr Devamalar Selvi Naicker A/P Subramaniam</i></li> <li>▪ <b>Physiotherapist</b> <i>Ms Shahreen binti Hairi Hariharan</i></li> </ul>  Zenith
16:00 - 16:45	<b>Hi Tea Symposium 1: Translating data into insights for personalised diabetes care</b> <i>Roche Diagnostic (M) Sdn Bhd</i>  <b>Integrated personalised diabetes management: A clinical example.</b> <i>Ms Yong Lai Mee</i>  <b>How can mobile health solutions support optimal care provision?</b> <i>Dr Tan Siow Foon</i>  <b>Panel Discussion</b>   Summit 1	
16:45 - 17:00	Evening Tea Break & Exhibitor Visit   Foyer	
17:00 - 18:00	<b>Malaysian Diabetes Educators Society - AGM</b>   Summit 1	

## 8 June 2024, Saturday (Day 2)

Time	Session	
08:30 - 09:00	<b>Plenary 2</b> <i>Chairperson: Dr Tan Ming Yeong</i> <b>Developing Effective and Sustainable Diabetes Services: Why and How?</b> <i>Assoc Prof Dr Margaret McGill</i> 📍 Summit 1	
09:00 - 09:30	<b>Plenary 3</b> <i>Chairperson: Prof Dr Winnie Chee Siew Swee</i> <b>What is time-restricted eating and how could it be used to manage hyperglycaemia?</b> <i>Dr Evelyn Parr</i> 📍 Summit 1	
09:30 - 10:30	<b>Case Study 3</b> <b>Continuous Glucose Monitoring Interpretation</b> <i>Chairperson: Dr Tan Ming Yeong</i> <ul style="list-style-type: none"> <li><b>Endocrinologist</b> <i>Dr Luqman Ibrahim</i></li> <li><b>Credentialed Diabetes Educator</b> <i>Dr Tan Ming Yeong</i></li> <li><b>Dietitian</b> <i>Prof Dr Winnie Chee Siew Swee</i></li> </ul> 📍 Summit 1	<b>Case Study 4</b> <b>Management of Diabetes and Pregnancy</b> <i>Chairperson: Ms Toh Peik Khiam</i> <ul style="list-style-type: none"> <li><b>Endocrinologist</b> <i>Prof Dr Shireene Ratna Vethakkan</i></li> <li><b>Nursing Tutor/ Diabetes Educator</b> <i>Ms Toh Peik Khiam</i></li> <li><b>Dietitian</b> <i>Prof Dr Barakatun Nisak Binti Mohd Yusof</i></li> </ul> 📍 Zenith
10:30 - 11:00	Morning Tea Break & Exhibitor Visit 📍 Foyer	
11:00 - 12:30	<b>Symposium 3</b> <b>Dealing with Challenging Clients</b> <i>Chairperson: Dr Navin Kumar Loganadan</i> <ul style="list-style-type: none"> <li><b>Personal experience living with Diabetes</b> <i>Assoc Prof Dr Mohd Helmy Mokhtar</i></li> <li><b>Complicated Cases - How to Handle?</b> <i>Datuk Dr Zanariah Hussein</i></li> <li><b>Challenging Clients: How do Psychologists Deal?</b> <i>Dr Hariyati Shahrina Abdul Majid</i></li> </ul> 📍 Summit 1	<b>Symposium 4</b> <b>Medical Nutrition Therapy</b> <i>Chairperson: Ms Yong Lai Mee</i> <ul style="list-style-type: none"> <li><b>Plant Based Diet: Is this a solution?</b> <i>Prof Dr Barakatun Nisak Binti Mohd Yusof</i></li> <li><b>Nutrition Considerations in Older Adults</b> <i>Ms Lee Lai Fun</i></li> <li><b>Optimising Diets Beyond Carb Counting</b> <i>Prof Dr Winnie Chee Siew Swee</i></li> </ul> 📍 Zenith
12:30 - 13:30	<b>Lunch Symposium 2: ZP Therapeutics Lunch Symposium: Unlocking the role of Basal Insulin</b> <i>Zuellig Pharma Sdn Bhd</i> <b>Unlocking the role of Basal Insulin</b> <i>Dr Foo Siew Hui</i> <b>Q&amp;A</b> 📍 Summit 1	





13:30 - 14:30	<b>Poster Presentation</b>	
	📍 Foyer	
13:30 - 14:30	Buffet Lunch	
	📍 Summit 2	
14:30 - 15:45	<p><b>Workshop 3</b> <b>Personalised / Individualised Diabetes Education</b> <i>Chairperson: Ms Yong Lai Mee</i></p> <ul style="list-style-type: none"> <li>▪ <b>Health Psychologist</b> <i>Dr Hariyati Shahrina binti Abdul Majid</i></li> <li>▪ <b>Diabetes Educator</b> <i>Ms Yong Lai Mee</i></li> <li>▪ <b>Diabetes Educator</b> <i>Ms Harpreet Kaur A/P Niranjan Singh</i></li> <li>▪ <b>Dietitian</b> <i>Dr Lee Ching Li</i></li> </ul> <p>📍 Summit 1</p>	<p><b>Workshop 4</b> <b>Inpatients Diabetes Management</b> <i>Chairperson: Ms Wong Soh San</i></p> <ul style="list-style-type: none"> <li>▪ <b>Endocrinologist</b> <i>Datuk Dr Zanariah Hussein</i></li> <li>▪ <b>Dietitian</b> <i>Ms Anis Adilah binti Muhammad Patel</i></li> </ul> <p>📍 Zenith</p>
15:45 - 16:30	<p><b>Hi Tea Symposium 2</b> <i>Embecta Malaysia Sdn Bhd</i></p> <p><b>Does Injection Technique Really Matters?</b> <i>Dr Wong Ping Foo</i></p> <p><b>Q&amp;A</b></p> <p>📍 Summit 1</p>	
16:30 - 17:15	<p><b>Hi Tea Symposium 4</b> <i>Pfizer Malaysia Sdn Bhd</i></p> <p><b>Pneumococcal Infections and Immunization in Diabetic Patients</b> <i>Dr Luqman Bin Ibrahim</i></p> <p>📍 Summit 1</p>	
17:15 - 18:00	<p>Evening Tea Break &amp; Exhibitor Visit</p> <p>📍 Foyer</p>	



## 9 June 2024, Sunday (Day 3)

Time	Session	
08:30 - 09:00	<b>Plenary 4</b> <i>Chairperson: Prof Dr Norlaila binti Mustafa</i> <b>GLP-1 Receptor Agonists: Beyond Their Pancreatic Effects</b> <i>Prof Emeritus Dr Chan Siew Pheng</i> 📍 Summit 1	
09:00 - 10:30	<b>Symposium 5</b> <b>Diabetes and Chronic Kidney Disease (CKD)</b> <i>Chairperson: Ms Jessica Saw Ching Yee</i> <ul style="list-style-type: none"> <li><b>Strengthening CKD Screening in Primary Care</b> <i>Dr Chang Li Cheng</i></li> <li><b>CKD dietary management</b> <i>Ms Teong Lee Fang</i></li> <li><b>Comprehensive Care in CKD Management</b> <i>Dr Sunita Bavanandan</i></li> </ul> 📍 Summit 1	<b>Symposium 6</b> <b>Diabetes and Stroke</b> <i>Chairperson: Dr Wong Ping Foo</i> <ul style="list-style-type: none"> <li><b>Innovation in Stroke Rehabilitation</b> <i>Prof Dr Mazlina Mazlan</i></li> <li><b>Long Term Stroke Care</b> <i>Prof Dr Noor Azah Binti Abd Aziz</i></li> </ul> 📍 Zenith
10:30 - 11:00	Morning Tea Break & Exhibitor Visit 📍 Foyer	
11:00 - 11:45	<b>Hi Tea Symposium 3</b> <i>Zuellig Pharma Sdn Bhd (Therapeutics)</i> <b>Achieving CV control in T2DM: Which Data Truly Matters?</b> <i>Dr Chooi Kheng Chiew</i> <b>Q&amp;A</b> 📍 Summit 1	
11:45 - 12:45	<b>Case Study 5</b> <b>Diabetic Wound Management</b> <i>Chairperson: Dr Wong Ping Foo</i> <ul style="list-style-type: none"> <li><b>Consultant Family Medicine Specialist</b> <i>Dr Hanihaselah Binti Mohd. Saleh</i></li> <li><b>Family Medicine Specialist</b> <i>Dr Wong Ping Foo</i></li> <li><b>Wound Care Nurse</b> <i>Ms Nur Ilyana Hanani Siong Binti Abdullah</i></li> </ul> 📍 Summit 1	<b>Case Study 6</b> <b>Management of Older Person With Diabetes</b> <i>Chairperson: Ms Toh Peik Khiam</i> <ul style="list-style-type: none"> <li><b>Geriatrician</b> <i>Dr Mohd Zaquan Arif Abd.Ghafar</i></li> <li><b>Credentialed Diabetes Educator</b> <i>Dr Tan Ming Yeong</i></li> <li><b>Dietitian</b> <i>Dr Lee Ching Li</i></li> </ul> 📍 Zenith
12:45 - 13:00	<b>Closing Ceremony</b> 📍 Summit 1	
13:00 - 14:30	Buffet Lunch 📍 Summit 2	



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For healthcare professional use only.

<sup>^</sup>Minimum accuracy requirements of ISO15197: 2013 standard require  $\geq 95\%$  of the measured values to fall within  $\pm 0.83\text{v}$  mmol/L at glucose concentrations  $< 5.5$  mmol/L or within  $\pm 15\%$   $\geq 5.5$  mmol/L of the referenced results.

1. Kluft L et al. Accuracy and User Performance of a New Blood Glucose Monitoring System [published online ahead of print, 2020 Nov 26] J Diabetes Sci Technol. 2020; <https://doi.org/10.1177/1932296820974348>. 2. CONTOUR®PLUS ELITE User Guide, November 2019, Revision 11.19. 3. Richardson JM et al. Clinical Relevance of Reapplication of Blood Samples During Blood Glucose Testing. Poster presented at the 20th Annual Diabetes Technology Meeting (DTM); November 12-14, 2020.

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## Speaker Abstract

### Plenary 1

#### Advancements in Managing Paediatric Type 2 Diabetes: Current Strategies and Recent Updates

Prof Dr Muhammad Yazid Jalaludin, *University Malaya*

Youth-onset type 2 diabetes mellitus (T2DM) once considered an illness of older adults is increasingly affecting more children. Sedentary lifestyles, unhealthy eating, obesity and insulin resistance contribute to an explosive increase in the incidence. Children with T2DM have the risk of developing complications in early adulthood, which would place a significant burden on the family and society.

The aims of therapy in youth-onset T2DM are to improve glycemia; to prevent acute and chronic complications; to prevent metabolic decompensation; to improve insulin sensitivity; to improve endogenous insulin secretion and glucagon and incretin physiology, if possible; and to provide exogenous insulin when necessary while reducing the burden of chronic disease management. While many anti-hyperglycemic agents are approved for use in adults, until recently therapy in youth was limited to metformin in most countries. However, an increasing number of clinical trials of agents in youth-onset T2DM have been completed or are nearing completion, resulting in the availability of more efficacy data and regulatory approval for two Glucagon-like peptide-1 (GLP-1) receptor agonists and SGLT-2 inhibitor.

While managing blood glucose is paramount, do not forget the comorbidities, should we then treat? What about prevention of T2DM, should we screen those at risk? When?

### Plenary 2

#### Developing Effective and Sustainable Diabetes Services: Why and How?

Assoc Prof Dr Margaret McGill, *Royal Prince Alfred Hospital Diabetes Centre, Australia*

Threats exist to sustainability of current health services due to i) escalating costs, ii) expensive technologies, iii) outdated information and digital systems, iv) changing community expectations of health care systems, v) ageing populations and comorbidities, vi) workforce shortages and vii) focus on volume rather than value. To address this we need to consider the advantages of value based care that is patient focussed, where clinical design is data driven and that consideration is given to low versus high value care and not continue services mindlessly eg bringing a person back to clinic every 6 months because that is what has always been done! Patient centred-care is paramount, every member of the MDT needs to feel their contributions are valued, innovative services should be implemented based need and evidence and their impact evaluated and systems and standards must be embedded into every day practice. All this, driven by visionary leadership and tight management, needs to be underpinned by quality improvement and research to ensure excellence is achieved. The Royal Prince Alfred Diabetes Centre which is a National Diabetes Centre, Centre of Excellence will be described to exemplify some of these features.



## Plenary 3

### What is time-restricted eating and how could it be used to manage hyperglycaemia?

Dr Evelyn Parr, *Australian Catholic University (ACU), Australia*

An increased appreciation of when we eat, alongside what we eat, has led to many dietary strategies being designed to optimise the timing of eating. This plenary presentation will overview chrono-nutrition and the effects on the nutrition management of obesity and type 2 diabetes. Here, the presentation will focus on research involving time-restricted eating (TRE) and why it differs from other types of intermittent fasting. The role of TRE in improving metabolic outcomes and reducing hyperglycaemia in people with obesity and/or type 2 diabetes will be provided in detail. The presentation will also overview practical strategies which may be useful in implementing TRE with patients/clients.

## Plenary 4

### GLP-1 Receptor Agonists: Beyond Their Pancreatic Effects

Prof Emeritus Dr Chan Siew Pheng, *University Malaya*

GLP1-RAs (that began life as a class of glucose-lowering agents), have changed the face of T2DM management and is now being touted for obesity without T2DM. The CVOTs' results have convincingly established GLP1-RAs as cardio-protective, beyond their role of glucose-lowering. The GLP1-RA CVOTs' benefits in people with diabetes who either have established CVD or are at high CV risk have solidified their position and elevated their place in the new paradigm for management of T2DM with high CV risk.

Weight reduction – GLP1-RAs (as well as the newer dual-cretins and more) are the most potent agents for achieving weight reduction, with weight loss approximating that obtained with bariatric/metabolic surgery. Activation of GLP-1 receptors in the CNS is important for mediating satiety and weight loss. Other contributory mechanisms include delayed gastric secretion and motility, which prolongs carbohydrate absorption and vagus nerve activation.

Renal protection – From the original CVOTs (LEADER, ELIXA, REWIND and SUSTAIN-6), as part of their 2<sup>o</sup> outcomes, were found to reduce renal related endpoints; ie new onset macroalbuminuria, sustained decline in eGFR or need for renal replacement therapy. Mechanisms thought to contribute include, reduction in glomerular sclerosis by suppressing oxidative stress, local inflammation; and natriuresis.

Another exciting area of potential utility is in MASLD (metabolic dysfunction-associated steatotic liver disease). There is growing evidence proving GLP-1RAs' resulted in histological resolution of biopsy-proven NASH; providing a strong basis for their therapeutic applications in these patients. Some early promising results have been noted in Alzheimer's and Parkinson's disease; including improvement of cognitive function, and improving motor function.

GLP1-RAs have revolutionised management of T2DM beyond the pancreas; including significant weight reduction, cardio and renal protection. The future continues to hold promise for other indications such as MASLD, and neurodegenerative disorders.



# MAKING A DIFFERENCE where IT COUNTS

One of the leading Malaysian organizations initiated in May 2007 for healthcare professionals providing diabetes education and management.



## Our Vision

Improving life of people affected by, and at risk of diabetes through optimal health and wellness.



## Our Mission

To lead and advocate best practice of diabetes education by promoting healthy living and diabetes self-management.



## History

The Malaysian Diabetes Educators Society (MDES) was initiated by Prof Dato' Dr Mustafa Embong in 2004. On 29 May 2007, MDES was successfully registered with the support of Lifescan Johnson & Johnson Medical Malaysia.

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***or email us at***

**[mdes0507@gmail.com](mailto:mdes0507@gmail.com)**



## Membership

**MDES membership is open to healthcare professionals that includes doctors, diabetes educators, nurses, dietitians, pharmacists, psychologist and other categories.**

## Benefits of Becoming MDES member:

- Scholarships
- Access to Members-only materials
- Regular Updates related to Diabetes Education
- Discounts for MDES events and lots more

## Symposium 1: New Insight in Type 1 Diabetes Management (T1DM)

### Prevention of T1DM

Prof Dr Muhammad Yazid Jalaludin, *University Malaya*

Type 1 Diabetes (T1D) is the most common form of diabetes in children and adolescents, accounting for >90% of childhood diabetes in most westernized countries. More than 70 genetic T1D variants have been identified through genome-wide association studies. HLA DR and HLA DQ loci confer approximately half of the genetic risk for T1D.

Individuals with a first degree relative with T1D have an ~15-fold increased relative lifetime risk of T1D compared to the general population and the prevalence of T1D by age 20 years is ~5% compared to ~0.3%, respectively, making family members the logical target population for studies of interventions to prevent diabetes.

The number of studies aimed at prevention of beta cell loss prior to or soon after the development T1D has accelerated in recent years. Prevention of T1D requires interventions aimed at avoiding or altering exposure to environmental trigger(s) prior to the development of autoimmunity – primary prevention; interfering with the autoimmune process that causes  $\beta$  cell destruction – secondary prevention; or halting or reversing  $\beta$  cell loss after clinical presentation of T1D – tertiary prevention. Studies have shown mixed results with evidence of maintained insulin secretion after the time of diagnosis described in several studies.

More recently screening for risk of T1D is gaining international momentum and this has been included in ISPAD 2022 Guidelines. The long-term vision for T1D screening programs is to identify individuals at risk of, or with early-stage T1D to offer them interventions to delay and, ultimately, prevent the condition. Is this possible?

### Diabetic Ketoacidosis (DKA) Management

Dr Meenal Mavinkurve, *IMU Healthcare and Thomson Hospital*

Diabetic ketoacidosis is a paediatric emergency. It occurs as a result insufficient insulin or insulin action, which is then compounded by a dehydration and ketosis. The hallmark biochemical features of DKA are hyperglycaemia, ketosis and metabolic acidosis. It occurs in approximately 20-70% of children Type 1 diabetes at initial diagnosis but also occurs in children with Type 2 diabetes. In Malaysia the rates of DKA at initial presentation of Type 1 diabetes range between 50-70% at diagnosis. The causes of DKA in children are varied, and can occur at first diagnosis of diabetes mellitus but can also occur in children who have an existing diagnosis. The main goals of therapy are to correct the shock and dehydration with fluid therapy, to address the hyperglycaemia with intravenous insulin infusion and to meticulously monitor and manage any electrolyte abnormalities. Furthermore, complications of DKA must also be monitored for. This presentation will highlight the management of paediatric DKA based on the recent ISPAD 2022 guidelines.





## New Technology in T1DM

Assoc Prof Dr Azriyanti binti Anuar Zaini, *University Malaya Medical Centre*

Knowledge on T1DM has evolved since the discovery of insulin nearly 100 years ago. Advancing technology on both insulin delivery as well as blood glucose monitoring will ensure a better wellbeing and health care support for the young children and people living with T1DM. what we know 10-15 years ago may not be the same now as rapid advancement in knowledge blooms in the last decade. This lecture will highlight new technologies available worldwide and what is available here in Malaysia.



## Symposium 2: Diabetes Treatment Non-Adherence: Issues and Solution

### Contributors to Non-adherence

Prof Dr Norlaila Mustafa, *Universiti Kebangsaan Malaysia*

Medication non-adherence is widely recognized as a common and costly problem. In Malaysia, the non-adherence rate is reported to be about 50%. Adherence to both a healthy lifestyle and antidiabetic medications reduces complications associated with this disease. Unintentional non-adherence may occur when patients are unable to take their medications due to external factors beyond their control. This includes forgetfulness, inability to pay for the medications, and lack of access to medications. Some of the reasons such as forgetfulness however can be overcome easily with the help of a caretaker and regular and scheduled reminders. The most common and challenging is intentional non-adherence, and the reasons for this are many such as fear of the side effects, misunderstanding about the need for medications, too many medications, lack of symptoms which is very common among diabetic patients, mistrust of their doctors, and depression.

### Motivational Interviewing Skill and Technique - Behaviour Change

Prof Dr Firdaus Mukhtar, *Universiti Putra Malaysia*

Numerous studies have demonstrated the effectiveness of MI in improving health behaviors in patients with chronic conditions, including diabetes. Research shows that MI can lead to better glycemic control, weight management, and overall health outcomes by fostering a collaborative and supportive environment. MI focuses on enhancing intrinsic motivation, which is crucial for long-term behavior change. Patients are more likely to adhere to diabetes management plans if they feel motivated from within rather than feeling pressured by external forces. MI helps patients resolve ambivalence about behavior change. Many individuals with diabetes may understand the importance of lifestyle modifications but struggle with conflicting feelings. MI techniques, such as reflective listening and developing discrepancy, can clarify and resolve these ambivalent feelings. MI promotes self-efficacy, enabling patients to believe in their ability to manage their diabetes. By setting realistic goals and celebrating small successes, patients gain confidence in their self-management skills. Motivational Interviewing offers a promising approach to facilitating behavior change in patients with diabetes by focusing on patient-centered care, enhancing intrinsic motivation, and building self-efficacy. However, its implementation is not without challenges. Time constraints, the need for specialized training, patient resistance, the requirement for consistent follow-up, and cultural sensitivity are significant barriers that need to be addressed to maximize the effectiveness of MI in diabetes care. Overcoming these challenges requires a concerted effort from healthcare providers, policymakers, and educators to ensure that MI can be effectively integrated into diabetes management practices.



## Steering The Non-adherent Patients Back on Track: The DMTAC approach

Dr Navin Kumar Loganadan, *Hospital Putrajaya*

Uncontrolled diabetes leads to various microvascular and macrovascular complications which not only reduce the quality of life of diabetes patients but also constrain healthcare expenditure due to the high cost of managing these complications. Despite wide access to treatment, only 30.7% of Malaysian type 2 diabetes patients attained HbA1c < 6.5% as reported in the National Diabetes Registry Report 2020. A scoping review and meta-analysis conducted in 2022 have shown that the pooled medication adherence of diabetes patients in Malaysia is low at about 34.2%. Pharmacists in the Ministry of Health have been helping to improve the medication adherence and glycemic control of diabetes patients through the Diabetes Medication Therapy Adherence Clinic (DMTAC). Since its inception in 2006, the DMTAC clinic has expanded to about 419 hospitals and health clinics in the Ministry of Health. In DMTAC, type 2 diabetes patients receive medication knowledge assessment, medication adherence assessment, insulin injection technique assessment, hypoglycemia assessment, review of self-monitoring of blood glucose (SMBG) readings, monitoring of medication side effects, and adjustment of insulin doses during scheduled follow-ups. Besides, diabetes education is provided using the DMTAC education modules during each clinic visit. Among the common medication-related issues of diabetes patients include poor understanding of medication-taking instructions, poor medication adherence, refusal of insulin, poor insulin injection technique, and hypoglycemia. The DMTAC pharmacists undertake several approaches to tackling these issues. This includes personalized medication counselling, organizing their medications, and helping them remember the medication's timing and dosage. DMTAC pharmacists also educate diabetes patients on barriers to accepting insulin treatment which involves breaking their myths about insulin. In addition, correct insulin injection techniques are emphasized whilst carefully avoiding lipodystrophy. They also adjust the patient's insulin doses based on the SMBG readings to ensure the pre-meal and post-meal glucose readings are within target. These interventions in DMTAC have resulted in improved medication adherence which also translated into better glycemic control. A study in Hospital Kuala Lumpur has reported significant improvements in medication adherence scores and HbA1c reduction of about 1.7% after 9 months in patients in the DMTAC group compared to Standard Care. This service was also proven to be more cost-effective. Similar findings have been reported by another study from Hospital Pulau Pinang and a multicenter study involving nine major state hospitals in Malaysia. The DMTAC service also recently endured the challenges of the COVID-19 pandemic where initiatives such as virtual medication review and virtual medication counselling were employed to sustain the service given by pharmacists to diabetes patients. In conclusion, the DMTAC service by pharmacists has improved medication adherence and clinical outcomes for diabetes patients.



## **Symposium 3: Dealing with Challenging Patients**

### **Personal Experience Living With Diabetes**

Assoc Prof Dr Mohd Helmy Mokhtar, *Universiti Kebangsaan Malaysia*

### **Complicated Cases - How to Handle?**

Datuk Dr Zanariah Hussein, *Hospital Putrajaya*

### **Challenging Clients: How do Psychologists Deal?**

Dr Hariyati Shahrina Abdul Majid, *IJN College*

Interactions between healthcare providers and patients are often challenging. Both healthcare providers and patients bring with them to the consultation their own expectations, emotions and cognitive biases. As a result, consultations are sometimes less than optimal which, in turn, may affect patients' treatment adherence and adoption of lifestyle modifications. This session aims to highlight the importance of person-centered care in supporting patients throughout their journey living with medical illnesses. It will first address healthcare providers' own cognitive biases that may affect the way they perceive and engage with patients. Then, the presentation will focus on basic therapeutic communication and listening skills that can be used especially on patients perceived to be challenging to deal with, and those resisting changes.





## Symposium 4: Medical Nutrition Therapy

### Plant Based Diet: Is this a solution?

Prof Dr Barakatun Nisak Binti Mohd Yusof, *Universiti Putra Malaysia*

A plant-based diet, rich in fruits, vegetables, whole grains, legumes, nuts, and seeds, offers numerous health benefits that align with the needs of individuals with diabetes. Current research indicates that plant-based diets can significantly reduce HbA1c levels, improve insulin sensitivity, aid in weight management, and lower the risk of cardiovascular complications, key factors in diabetes management. Significant gaps remain in our understanding of the long-term sustainability and adherence to plant-based diets among diverse populations, as cultural, socioeconomic, and individual barriers often hinder consistent adherence. Thus, this presentation discusses these gaps and the mechanisms through which plant-based diets exert their beneficial effects, including enhanced fiber intake, improved gut microbiota composition, and anti-inflammatory properties. Potential challenges and nutritional considerations in adopting a plant-based diet will also be addressed, ensuring that all essential nutrient requirements are met. Practical strategies for encouraging dietary shifts among patients will be highlighted, supported by evidence-based recommendations.

### Nutrition Considerations in Older Adults

Ms Lee Lai Fun, *Puchong Specialist Clinic*

Diet therapy is an important component of diabetes care for all age groups. However, there are important additional nutrition concerns for older adults with diabetes. Older adults with diabetes represent a diverse population with different care needs. There are wide variations in co-morbidities, physical and cognitive impairment and life expectancy. Besides these, there are also considerations of social, financial and physical barriers in nutrition management.

Both obesity and malnutrition (undernutrition) are prevalent in this group. Obesity worsens the age-related decline in physical function and increases the risk of frailty. There is also risk in intentional weight loss in overweight and obese older people which can worsen bone mineral density and nutritional deficits. Thus, there is a need to prioritize the nutrition goals tailoring to the individual needs. For some, there may be a need to shift the focus from managing the obesity and metabolic control to management of frailty especially for those over 75 years of age, have frailty or sarcopenia and malnourished. There is no single one-size-fits-all nutrition management plan that can address all of the issues in this diverse group.



## Optimising Diets Beyond Carb Counting

Prof Dr Winnie Chee Siew Swee, *International Medical University (IMU)*

A diet that optimizes glucose levels should minimize spikes after meals, maintain blood sugar levels in a narrow and healthy range and keep fasting glucose in a range that carries the lowest risk, as well as be able to support weight management & promote cardiometabolic health. Dietary strategies to manage post-prandial blood glucose rise are well documented including reducing carbohydrate intake, increasing dietary fiber, and consuming low GI foods. The use of technologies such as continuous glucose monitoring devices have provided more understanding on the effects of fats, proteins, order of meals, protein pre-load and physical activity on post-prandial glucose. These offer additional dietary solutions in the context of the Malaysian diet. Nevertheless, there is simply no one-size-fits-all metabolic eating plan that works for everyone. The metabolic impact of lifestyle choices and other individual factors are difficult to measure, and the use of technology can help to obtain more objective, actionable information about how food and lifestyle choices affect glucose levels. Hence, it would then be possible to create an individualized diet to support optimal health.



## Symposium 5: Diabetes and Chronic Kidney Disease (CKD)

### Strengthening CKD Screening in Primary Care

Dr Chang Li Cheng, *Ministry of Health*

Over the past 20 years, the incidence and prevalence of chronic kidney disease (CKD) have been increasing in Malaysia. CKD is a common clinical problem in primary health care setting. CKD can be defined as any abnormality of the kidney structure and/ or function that has been present for at least 3 months. The treatment of CKD is very much dependent on the early diagnosis and prevention of CKD progression. This presentation aims to illustrate a practical approach to CKD screening and diagnosis in primary care.

### CKD Dietary Management

Ms Teong Lee Fang, *Selayang Hospital*

Chronic kidney disease dietary management in CKD is a comprehensive approach that highly values patient education towards patient empowerment and self-management. It is crucial for slowing renal decline through managing comorbid conditions and improving patient outcomes. Key dietary strategies include restricting protein intake to reduce the production of nitrogenous waste and proteinuria, regulating carbohydrate and sodium intake to optimise blood sugar and blood pressure, and weight loss for overweight and obese patients. Recent findings suggest the benefits of plant-based diets and the potential of personalised nutrition approaches. A novel approach to restricting dietary potassium and using personalised dietary plans to meet individual patient needs are also important. This comprehensive approach supports kidney function and enhances CKD patients' overall quality of life.

### Comprehensive Care in CKD Management

Dr Sunita Bavanandan, *Hospital Kuala Lumpur*

In Malaysia, as in general worldwide, half of all chronic kidney disease (CKD) is attributable to diabetes. Comprehensive CKD management must include strategies to prevent CKD progression to more advanced stages including End Stage Kidney Disease, as well as reduction in cardiovascular risks because most deaths in patients with diabetes and CKD are primarily due to cardiovascular causes. In more advanced stages of CKD patients will need to be monitored and treated for complications such as anemia and CKD-mineral bone disease, and shared decision making on kidney replacement therapy (KRT) or comprehensive conservative care need to be addressed. Kidney supportive care is essential, irrespective of decisions for KRT or conservative care.

Patient education and empowerment for self-management, in addition to multidisciplinary team support and management are important aspects of comprehensive CKD management. This talk will highlight many of the key recommendations from the KDIGO 2024 Clinical Practice Guidelines for the Evaluation and Management of CKD.



## Symposium 6: Diabetes and Stroke

### Innovation in Stroke Rehabilitation

Prof Dr Mazlina Mazlan, *Universiti Malaya*

Stroke rehabilitation is entering an era of rapid transformation, driven by advances in technology and a deeper understanding of neuroplasticity. As stroke remains a leading cause of disability worldwide, the urgency for more effective therapeutic strategies is crucial. This presentation explores the innovations that are shaping the future of stroke recovery and rehabilitation with highlights on the latest developments in the field, including robotics, virtual reality, non-invasive brain stimulation and novel pharmacological approaches. Robotic for example, have shown promise in enhancing motor recovery by providing high-intensity, repetitive, task-specific interactive feedback. The discussion will extend to the integration of VR environments that offer engaging therapeutic options which can be designed to suit individual patient needs. Additionally, the presentation will cover breakthroughs in neuropharmacology that support rehabilitation. This includes drugs that enhance neuroplasticity and potentially increase the effectiveness of rehabilitation therapies. The session will also touch upon the role of non-invasive brain stimulation techniques, such as transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS), which are being used to modulate neural activity and accelerate recovery.

### Long Term Stroke Care

Prof Dr Noor Azah Binti Abd Aziz, *Universiti Kebangsaan Malaysia*

The World Health Organization or WHO has defined stroke as 'rapidly developing clinical signs of focal loss of cerebral function, with symptoms lasting more than 24 hours or leading to death, with no apparent cause other than that of vascular origin. Stroke is a unique entity due to its evolution of its complications. These complications are complex, mostly influenced by various factors; either the patients' comorbid conditions namely diabetes and hypertension or even external factors. The 2005 WHO Report identified stroke and coronary heart disease as major contributors for adult mortality, causing up to 20% of deaths worldwide. The further (or longer stroke care) which is one of the components in comprehensive stroke care was introduced early 2000, involving components of transfer of care, follow-up care, leisure intervention and community re-integration. The stroke providers now in consensus that this phase of longer-term stroke care should begin as soon as the patient is being discharged from the ward to the community and should involve a multi-disciplinary approach in managing the various needs of the patient and the family. The concept of longer-term care in primary care is new in Malaysia compared to the established care in hospitals. The shared care approach involving a multi-disciplinary team is viewed as the most suitable approach for longer-term stroke care, as survivors at this stage require various care approaches to fulfill the various needs and issues of the patient and the family. With the increased prevalence of diabetes in Malaysia, more concerted effort should be made in reducing recurrences after stroke. The Longer-Term Stroke Clinic (Klinik Lanjutan Strok) UKM Medical Centre was introduced in September 2008, to fulfill the needs for longer-term stroke care in primary care settings. It is the first of its kind in Malaysia that provides comprehensive stroke care for the community, focusing on those who have been discharged from the hospital back to their homes.





# MDES ACTIVITIES



**FACILITATING EFFECTIVE NETWORKS** between Diabetes Educators, the health system and the community



**ADDRESSING AND ASSISTING** health needs of communities including targeting chronic disease management, self-care and continuous diabetes education



**SUPPORTING DIABETES EDUCATORS** through education and training, capacity building, workplace initiatives, advocacy and representation



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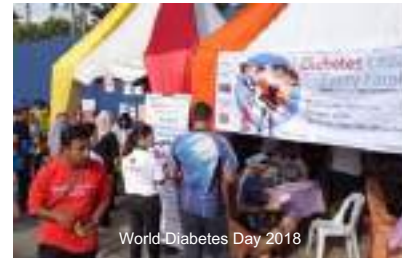
Launching of FIT-MY 2017



FIT-MY Private Hospital Workshop 2020



World Diabetes Day



World Diabetes Day 2018

*Our latest Programs*



WDD 2022 Workshop at Island Hospital Penang

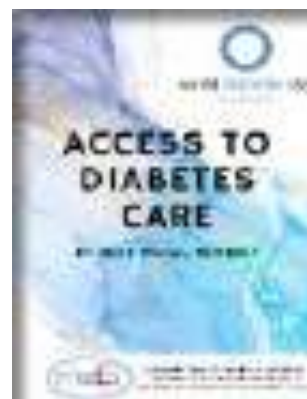


Launching of Stand Against Prediabetes



Diabetes Lifestyle Summit 2022

# MDES PUBLICATIONS



*Our latest publication*

**For more info on MDES activities, publications & collaborations kindly visit our website**

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# List of Poster Presentation

## P001

### IMPACT OF PHARMACIST LED DIABETES EDUCATION ACCORDING TO INDIVIDUALIZED DIABETES TARGET BASED ON PATIENT CHARACTERISTIC

Tan Wen Hui<sup>1</sup>, Nabilla Husna binti Azman<sup>2</sup>, Noorhidayah binti Zaharuddin<sup>3</sup>, Muhammad Ashraf bin Abd Nasir<sup>1</sup>, Norlizah binti Paid<sup>3</sup>

<sup>1</sup>Klinik Kesihatan Ibu dan Anak Kota Tinggi

<sup>2</sup>Klinik Kesihatan Bandar Tenggara

<sup>3</sup>Klinik Kesihatan Bandar Mas

## P002

### DIABETES CARE IN MANJUNG, PERAK: A DESCRIPTIVE ANALYSIS FROM THE DIABETES CONTROL AND MANAGEMENT REGISTRY (2020-2023)

Buwaneswari Morgan<sup>1</sup>, Suzana Binti Burdarto<sup>2</sup>, Nursazila Asikin Mohd Azmi<sup>2</sup>, Liliwati Binti Ismail<sup>1</sup>, Izzaty Dalawi<sup>2</sup>, Yuarrani Gunasekaran<sup>1</sup>

<sup>1</sup>Pantai Remis Health Clinic Manjung

<sup>2</sup>Manjung Health District

## P003

### ASSOCIATIONS BETWEEN INSULIN PEN NEEDLE DESIGN AND THE RISK OF NEEDLE STICK INJURIES

Yong Lai Mee<sup>1</sup>, Hew Fen Lee<sup>1</sup>, Harpreet Kaur<sup>1</sup>, Jason Lee Choon Woi<sup>1</sup>, Ng Ching See<sup>1</sup>, Choong Chooi Ling<sup>1</sup>, Nurul Omar<sup>1</sup>, Shamala Anandan<sup>1</sup>, Jamaliah Hamuddin<sup>1</sup>, Mohd Firdaus Idris<sup>1</sup>

<sup>1</sup>Subang Jaya Medical Centre (SJMC)

## P004

### THROUGH RURAL WINDOWS: HOME-BASED DIABETES CARE IN THE HOME-D STUDY

Karen Christelle<sup>1</sup>, Feisul Idzwan Mustapha<sup>2</sup>, Baharom bin Mohamed<sup>1</sup>, Syahrizzaman bin Hassin<sup>1</sup>

<sup>1</sup>Klinik Kesihatan Felda Bersia

<sup>2</sup>Perak State Health Department

## P005

### PATIENT EMPOWERMENT AND DIABETES: IMPROVING HBA1C OUTCOMES WITH DIABETES EDUCATION

Kavitha Kuppanan<sup>1</sup>, Nur Marlyna Aminah bt Dato Mokhtar Annuar<sup>1</sup>

<sup>1</sup>KPJ Pahang Specialist Hospital

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### CHRONOTYPE AND GLYCAEMIC STATUS IN THE MALAYSIAN PREDIABETIC POPULATION: INSIGHTS FROM CHRONO-DMTM STUDY

Chong Guey Yong<sup>1</sup>, Satvinder Kaur<sup>2</sup>, Ruzita Abd Talib<sup>3</sup>, Loy See Ling<sup>4</sup>, Tan Hui Yin<sup>1</sup>, Rosmiza Binti Abdullah<sup>5</sup>, Hanisah Binti Mahmud<sup>5</sup>, Siah Woan Yie<sup>5</sup>, Tan Lay Kim<sup>6</sup>, Kee Chee Cheong<sup>6</sup>, Koo Hui Chin<sup>1</sup>

<sup>1</sup>Tunku Abdul Rahman University of Management and Technology

<sup>2</sup>UCSI University, Malaysia

<sup>3</sup>The National University of Malaysia, Malaysia

<sup>4</sup>KK Women's and Children's Hospital, Singapore and Duke-NUS Medical School, Singapore

<sup>5</sup>Klinik Kesihatan Batu Berendam, Malaysia

<sup>6</sup>National Institute of Health, Ministry of Health Malaysia, Malaysia

## P007

### A SURVEY ON DIABETES TREATMENT SATISFACTION AT A PRIMARY HEALTH CLINIC IN MALAYSIA

Nor Ameerza binti Md Amin<sup>1</sup>, Iyyaneswary Nyanasegar<sup>1</sup>, Tai Chia Woon<sup>1</sup>, Chong Hui Jing<sup>1</sup>

<sup>1</sup>Mahmoodiah Health Clinic, Johor Bahru

## P008

### ASSESSMENT OF GLYCAEMIC PATTERNS IN TYPE 2 DIABETES MELLITUS PATIENTS ON MAINTENANCE HAEMODIALYSIS: AN OBSERVATIONAL STUDY

Lee Wai Han<sup>1</sup>, Ooi Hong Yeong<sup>2</sup>, Nurwani Nadiyah Binti Abdul Aziz<sup>2</sup>

<sup>1</sup>Hospital Tuanku Ja'afar, Seremban

<sup>2</sup>Hospital Tuanku Ampuan Najihah, Kuala Pilah

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### FACTORS ASSOCIATED WITH TREATMENT SATISFACTION AMONG PATIENTS WITH TYPE 2 DIABETES AT A PRIMARY HEALTH CLINIC

Iyyaneswary Nyanasegar<sup>1</sup>, Nor Ameerza binti Md Amin<sup>1</sup>, Tai Chia Woon<sup>1</sup>, Chong Hui Jing<sup>1</sup>

<sup>1</sup>Mahmoodiah Health Clinic, Johor Bahru

## P010

### IMPROVING DIABETES CARE WITH CONTINUOUS GLUCOSE MONITORING SYSTEM: A TERTIARY HOSPITAL DIABETES RESOURCE CENTRE EXPERIENCE

Muhammad Fadhlullah Samat<sup>1</sup>, Noor Aini Mat Din<sup>1</sup>, Chong Lan Leong<sup>1</sup>, Norazwaniah Salehun<sup>1</sup>, Nur Azimah Jamil<sup>2</sup>, Nur Hamiza Ruzaini Hashim<sup>2</sup>, Shu Teng Chai<sup>3</sup>, Jamie Hong Im Teoh<sup>3</sup>, Norhaliza Mohd Ali<sup>3</sup>

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## P011

### AN ANALYSIS OF DIABETES MOBILE APPLICATION FEATURES: A SYSTEMATIC REVIEW OF SYSTEMATIC REVIEW

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## P012

### CONTINUOUS GLUCOSE MONITORING IN TYPE 1 DIABETES PATIENTS IN CENTRAL PAHANG

Mimi Syafiqah binti Mohd Samsudin<sup>1</sup>, Norhaslinda binti Shamsudin<sup>1</sup>, Nur Azwani binti Ramli<sup>1</sup>, Saiful Shahrizal bin Shudim<sup>1</sup>, See Chee Keong<sup>1</sup>

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## P013

### THE ACCEPTABILITY AND IMPACT OF A 'DIABETES CONVERSATION MAP FOR OLDER ADULTS' IN MALAYSIANS WITH TYPE 2 DIABETES ATTENDING A PRIMARY CARE CLINIC

Ruubini Ravichandran<sup>1</sup>, Sofiyya Hassan<sup>1</sup>, Ching Li Lee<sup>1</sup>, Saheera Abdul Rahman<sup>2</sup>, Jamilah Abdul Jamil<sup>1</sup>, Ming Yeong Tan<sup>1,3</sup>, Hariyati Shahrina Abdul Majid<sup>4</sup>, Rathi Devi Muthukrishnan<sup>2</sup>, Sharifah Nora Syed Ahmad Dahalan<sup>2</sup>

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## Poster Presentation Abstracts

MDES2024-PP001

### IMPACT OF PHARMACIST LED DIABETES EDUCATION ACCORDING TO INDIVIDUALIZED DIABETES TARGET BASED ON PATIENT CHARACTERISTIC

**Tan Wen Hui<sup>1</sup>**, Nabilla Husna binti Azman<sup>2</sup>, Noorhidayah binti Zaharuddin<sup>3</sup>, Muhammad Ashraf bin Abd Nasir<sup>1</sup>, Norlizah binti Paid<sup>3</sup>

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#### Introduction

Patient-centred care is essential in diabetes management as glycaemic goals should be tailored to the patient's specific characteristics. Latest evidence showed setting a general HbA1c target for all patients is outdated.

#### Methodology

A retrospective cross-sectional study involving 306 patients that completed Diabetes Medication Therapy Adherence Clinic (DMTAC) in 2020 across 13 health clinics in Kota Tinggi district. Gestational diabetes mellitus patients, those who were receiving iron replacement therapy and people taking medications that may affect the HbA1c level were excluded. The target HbA1c level was stratified specifically according to the patient's characteristics. The data were obtained from electronic database and medical reports before analysed using SPSS version 28.0.0.

#### Results

78 patients (25.5%) were able to achieve individualized HbA1c target compared to general HbA1c target, 40 patients (13.1%) using descriptive analysis. A chi-square test of independence showed significant association between HbA1c target group and target achievement ( $p = <.001$ ) with the most achievable individualized HbA1c target group was 7.1-8%, 43 (43.9%), followed by 6.6-7%, 23 (18%) and  $<6.5\%$ , 12 (15%). Chi-square test of independence also showed significant association between age group and target achievement when using individualized HbA1c targets ( $p = <.001$ ) but not when using general HbA1c target ( $p = 0.189$ ).

#### Discussion

An individualized HbA1c target (25.5%) gives better achievement compared to the general HbA1c target (13.1%) across all non-pregnant diabetic patients. Pharmacist involvement in diabetes care through DMTAC helps in reduction of patient's HbA1c level. Different approaches are crucial to counter the problems faced by different target groups to gain better outcomes in the future.



## MDES2024-PP002

### DIABETES CARE IN MANJUNG, PERAK: A DESCRIPTIVE ANALYSIS FROM THE DIABETES CONTROL AND MANAGEMENT REGISTRY (2020-2023)

**Buveneswari Morgan<sup>1</sup>**, Suzana Binti Burdarto<sup>2</sup>, Nursazila Asikin Mohd Azmi<sup>2</sup>, Liliwati Binti Ismail<sup>1</sup>, Izzaty Dalawi<sup>2</sup>, Yuarrani Gunasekaran<sup>1</sup>

<sup>1</sup>*Pantai Remis Health Clinic Manjung*

<sup>2</sup>*Manjung Health District*

#### Introduction

Diabetes is a prevalent condition in Malaysia, with 3.9 million individuals diagnosed in 2019. The number is expected to rise, underscoring the critical need for efficient diabetes management and vigilant monitoring. This study aimed to evaluate the management of type-2 diabetes mellitus (T2DM) in primary healthcare facilities in Manjung District from 2020 to 2023.

#### Methodology

This retrospective cross-sectional study utilized data from the 2020-2023 Audit of Diabetes Control and Management (ADCM) registry. Data was collected from seven primary health clinics in Manjung District. Descriptive statistics were employed, and the data was analysed using SPSS version 26.0.

#### Results

A total of 1816 patients with T2DM were included in the study. Majority were female (59.5%). The ethnicity distribution was 50.5% Malay, 28.0% Chinese, 21.4% Indian, and 0.2% other. From 2020 to 2023, the mean age of T2DM patients and the duration of diabetes has decreased from 62 to 59 years and from 6.4 to 6.2 years, respectively. The average glycosylated hemoglobin (HbA1c) level ranged between 7.7% and 7.5%. There was a decline in the percentage of patients achieving the targeted HbA1c levels, from 42.4% to 38.7%. However, the study noted positive trends in insulin therapy adoption and a decrease in reported diabetic complications, such as nephropathy and retinopathy, among participants.

#### Discussion

To align with the Malaysian glycemic goal of HbA1c  $\leq 6.5\%$ , enhancing T2DM control in primary healthcare facilities in the Manjung District is imperative. This includes implementing more comprehensive health education programs focused on diabetes control.





## MDES2024-PP003

### ASSOCIATIONS BETWEEN INSULIN PEN NEEDLE DESIGN AND THE RISK OF NEEDLE STICK INJURIES

**Yong Lai Mee<sup>1</sup>**, Hew Fen Lee<sup>1</sup>, Harpreet Kaur<sup>1</sup>, Jason Lee Choon Woi<sup>1</sup>, Ng Ching See<sup>1</sup>, Choong Chooi Ling<sup>1</sup>, Nurul Omar<sup>1</sup>, Shamala Anandan<sup>1</sup>, Jamaliah Hamuddin<sup>1</sup>, Mohd Firdaus Idris<sup>1</sup>

<sup>1</sup>Subang Jaya Medical Centre (SJMC)

#### Introduction

Insulin Pen Needle(IPN) design affects needle stick injuries(NSI) prevention. A retrospective study conducted from 2017-2023 at Subang Jaya Medical Centre revealed that 8.1% of NSIs(10 incidents) were attributed to IPNs, with a noticeable upward trend. This project aimed to identify strategies to minimise NSIs caused by IPN.

#### Methodology

A multidisciplinary NSI Prevention Taskforce was established to address the issue. Root cause analysis performed identified that the incidents primarily resulted from IPN without safety features. Literature review emphasized World Health Organisation(WHO)'s recommended 'Engineering Control' and some studies suggested conducting NSI Risk Assessment(NSI-RA). The task force developed a Needle Risk Assessment(NRA) format consisting of three components: Ease of Use, Quality, and Safety. 25 Registered Nurses constituted the NRA panel assessed the CPN(Conventional Pen Needle), Integrated Pen Needle(InPN) and Auto-locking Engineered Safety Pen Needle(AL-ESPN) for the respective NSI risks. Following the assessment, the safest needle was chosen for a trial implementation and users(nurses) assessed its NSI risk via a questionnaire.

#### Results

The NRA panel found that NSI Risk in AL-ESPN was (6%), InPN(48%), whereas CPN(50%). Upon scrutinizing the past incidents from 2017- 2023, the panel observed that the replacement of CPN with AL-ESPN, 80%(n=8) IPN-NSI would have been avoided due to the auto-locking feature. During AL-ESPN implementation across 4 adult wards, 51 nurses administered 404 insulin injections. All the nurses rated AL-ESPN as 'Satisfactory to Excellent' in both 'NSI-Prevention' and 'Ease-to-Use'.

#### Discussion

The findings showed AL-ESPN is a safer option compared to CPN and InPN. Implementing AL-ESPN has the potential to minimise NSI incidents.

## MDES2024-PP004



## THROUGH RURAL WINDOWS: HOME-BASED DIABETES CARE IN THE HOME-D STUDY

**Karen Christelle<sup>1</sup>**, Feisul Idzwan Mustapha<sup>2</sup>, Baharom bin Mohamed<sup>1</sup>, Syahrizzaman bin Hassin<sup>1</sup>

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### Introduction

Home assessment is crucial for understanding the contextual factors influencing diabetes management and outcomes. Despite its significance, there is limited research exploring the lived experiences of individuals with Type II Diabetes Mellitus (T2D) in a rural community. This Home Diabetes Assessment and Support (HOME-D) study explores the lived experiences among individuals with T2D in a rural setting, specifically in Felda Bersia.

### Methodology

Employing a qualitative approach, purposive sampling was used to recruit participants, followed by semi-structured interviews during home visits to delve into various aspects of diabetes management. Thematic analysis was employed to identify patterns, themes, and meanings from the interview data.

### Results

Thematic analysis uncovered seven primary themes. Participants detailed their daily routines, spanning household chores, religious observances, and work obligations. They commonly cited challenges related to medication adherence, dietary habits, and mobility limitations. Socio-economic factors, notably financial constraints and family support, prominently impacted diabetes management. Participants exhibited varying perceptions of glycemic control, with some expressing frustration despite their management efforts. Most participants reported limited formal support or educational resources for managing diabetes at home.

### Discussion

The HOME-D study illuminates the complex challenges of managing T2D in rural homes, highlighting obstacles from daily routines to socio-economic factors. It emphasizes the necessity for personalized interventions beyond traditional clinic care, empowering individuals to effectively address their condition and enhance outcomes in rural communities.



**MDES2024-PP005****PATIENT EMPOWERMENT AND DIABETES: IMPROVING HbA1C OUTCOMES WITH DIABETES EDUCATION.**

Kavitha Kuppanan<sup>1</sup>, **Nur Marlyna Aminah bt Dato Mokhtar Annua<sup>1</sup>**

*1KPJ Pahang Specialist Hospital*

**Introduction**

This study explores "Patient empowerment through diabetes education: Its influence on HbA1c outcomes". Through a retrospective analysis, we investigate the correlation between diabetes education and patient empowerment, specifically its impact on HbA1c levels. Our findings revealed a significant association between diabetes education that emphasizes self-management skills and patient empowerment, leading to notable improvements in HbA1c outcomes. Patients who actively engage in their care and make informed decisions through education showcase better glycemic control over time.

**Methodology**

Utilizing a retrospective analysis methodology, the research examined both newly diagnosed and established type 2 diabetes cases. Convenience sampling was employed to select participants and analyze their HbA1C results before and after the intervention. The intervention comprised personalized diabetes counseling sessions tailored to address the specific underlying issue of each patient. Data was collected from January 2023 to June 2023, with HbA1C measurements repeated after three months to evaluate the progress.

**Results**

The study's result were promising, showing that out of one hundred eighteen patients studied, eighty one patients experienced a significant reduction in their HbA1C levels following the education sessions. However, twenty nine percent of participants showed no change in their HbA1C levels.

**Discussion**

Patient empowerment plays a crucial role in achieving positive HbA1c outcomes within diabetes education. Expanding access to education and support through community-based initiatives can enhance patient outcomes. This integrated approach contributes to the broader success of diabetes education programs, emphasizing patient empowerment in managing chronic conditions.



## MDES2024-PP006

## CHRONOTYPE AND GLYCAEMIC STATUS IN THE MALAYSIAN PREDIABETIC POPULATION: INSIGHTS FROM CHRONO-DMTM STUDY.

**Chong Guey Yong**<sup>1</sup>, Satvinder Kaur<sup>2</sup>, Ruzita Abd Talib<sup>3</sup>, Loy See Ling<sup>4</sup>, Tan Hui Yin<sup>1</sup>, Rosmiza Binti Abdullah<sup>5</sup>, Hanisah Binti Mahmud<sup>5</sup>, Siah Woan Yie<sup>5</sup>, Tan Lay Kim<sup>6</sup>, Kee Chee Cheong<sup>6</sup>, Koo Hui Chin<sup>1</sup>

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### Introduction

Chronotype, indicative of individual's morningness or eveningness preference, has been recognized in influencing one's metabolic outcomes. However, research relevant to its association with glycaemic outcomes remains ambiguous. Hence, this prospective longitudinal study aimed to examine the association between chronotype and glycaemic outcomes in Malaysian adults with prediabetes.

### Methodology

We have enrolled 120 individuals with prediabetes in the study, aged  $54 \pm 18$  years, from healthcare clinics in Malacca. Sociodemographic data, anthropometric measurements, body composition, 3-day dietary record, physical activity (the International Physical Activity Questionnaire Malay version), chronotype (Malay-translated Munich Chronotype Questionnaire) and light exposure (Harvard light exposure questionnaire) were collected. Fasting plasma glucose, 2-hour postprandial glucose, glycated haemoglobin and continuous glucose monitoring were assessed.

### Results

Majority of participants were intermediate types (61%), followed by evening types (21%) and morning types (18%). Morning types were also associated with a lower percentage of target in range (3.9-7.8 mmol/L) ( $\beta$ : -3.76, 95% CI: -7.28, -0.24) compared to intermediate types. After adjusted for socio-demographic, lifestyle factors and dietary intakes, evening chronotype was significantly associated with lower fasting glucose (mmol/L) ( $\beta$ : -0.40, 95% CI: -0.64, -0.16), elevated HbA1c (%) ( $\beta$ : 1.30, 95% CI: 1.18, 1.42), and higher 24-hour mean interstitial glucose levels over 7 consecutive days (mmol/L) ( $\beta$ : 0.68, 95% CI: 0.17, 1.18).

### Discussion

Our outcomes show that chronotype is associated with glycaemic outcomes in individuals with prediabetes. These results contribute to the consideration of circadian rhythms in prevention of metabolic disorders and reinforce existing policies concerning lifestyle intervention in Malaysia.

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## MDES2024-PP007

### A SURVEY ON DIABETES TREATMENT SATISFACTION AT A PRIMARY HEALTH CLINIC IN MALAYSIA

**Nor Ameerza binti Md Amin<sup>1</sup>**, Iyyaneswary Nyanasegar<sup>1</sup>, Tai Chia Woon<sup>1</sup>, Chong Hui Jing<sup>1</sup>

<sup>1</sup>Mahmoodiah Health Clinic, Johor Bahru

#### Introduction

Diabetes treatment satisfaction (DTS) is important as it may enhance patients' self-efficacy and adherence to therapy. Good DTS helps to achieve long-term stable glycaemic control and reduce the risk of diabetic complications. Objective: To determine the DTS in patients with Type 2 Diabetes Mellitus (T2DM) at Mahmoodiah Health Clinic Johor Bahru (KPLJB)

#### Methodology

This is a prospective cross-sectional study that involved patients with T2DM and follow-up at KPLJB from January to March 2024. DTS was assessed by the validated Diabetes Treatment Satisfaction Questionnaire (DTSQ, score 0-36; higher scores reflecting higher satisfaction)

#### Results

Among the 280 recruited patients, 136 patients (48.6%) were treated with oral glucose-lowering drugs (OGLDs), 23 patients (8.2%) were treated with insulin only while the rest of the 121 patients (43.2%) were treated with OGLDs plus insulin. Overall the mean DTS score is  $28.67 \pm 4.44$  (Mean $\pm$ SD). The mean DTS score differs slightly between each treatment regimen, with the highest DTS score seen in patients treated with OGLDs plus insulin (28.78) while the lowest was seen in patients treated with insulin only (27.95). Of all the specific DTSQ items, 88.9% of the patients were satisfied with their current treatment and found their treatment convenient. There is 92.5% of the patients found their treatment flexible. However, only 75% of the patients are satisfied to continue with their current treatment and willing to recommend their treatment to others

#### Discussion

Most patients with T2DM at KPLJB had a good DTS with their current treatment, its convenience and flexibility.





## MDES2024-PP008

**ASSESSMENT OF GLYCAEMIC PATTERNS IN TYPE 2 DIABETES MELLITUS PATIENTS ON MAINTENANCE HAEMODIALYSIS: AN OBSERVATIONAL STUDY****Lee Wai Han**<sup>1</sup>, Ooi Hong Yeong<sup>2</sup>, Nurwani Nadiah Binti Abdul Aziz<sup>2</sup><sup>1</sup>*Hospital Tuanku Ja'afar, Seremban*<sup>2</sup>*Hospital Tuanku Ampuan Najihah, Kuala Pilah***Introduction**

Glycaemic management in diabetic patients on dialysis is challenging due to various factors. The degree of glycaemic variability is controversial. Some studies reported significant fluctuations during dialysis days, while others did not. This study aimed to assess the variations in blood glucose level and hypoglycaemia on dialysis days, along with non-dialysis days in Type 2 Diabetes Mellitus (T2DM) patients.

**Methodology**

All T2DM patients with insulin on maintenance haemodialysis thrice weekly at Haemodialysis Unit, Hospital Tuanku Ampuan Najihah were included. Six sets of blood glucose levels were collected from each patient using glucometer, comprising three sets on dialysis days and three sets on non-dialysis days. Blood glucose levels of pre-dialysis, 2-hour after starting dialysis and the end of dialysis, were checked and compared with 2-hour and 6-hour postprandial glucose levels on non-dialysis days. Hypoglycaemia referred to any blood glucose levels below 4mmol/l.

**Results**

Eleven patients were recruited. All patients either reduced or omitted their insulins on dialysis days. The mean blood glucose level on dialysis days was not significantly different than that on non-dialysis days ( $8.87 \pm 1.15$  mmol/l versus  $9.60 \pm 1.41$  mmol/l,  $p=0.178$ ). Similarly, there were no significant changes in the mean reduction of blood glucose level on dialysis days versus non-dialysis days ( $1.21 \pm 2.38$  mmol/l versus  $1.30 \pm 2.37$  mmol/l,  $p=0.999$ ). No hypoglycaemias were observed in any patients.

**Discussion**

The study findings revealed that glycaemic patterns were similar on both dialysis and non-dialysis days when insulins were adjusted on dialysis days. Close monitoring of blood glucose is important and insulin adjustment may be needed to avoid complications.



## MDES2024-PP009

### FACTORS ASSOCIATED WITH TREATMENT SATISFACTION AMONG PATIENTS WITH TYPE 2 DIABETES AT A PRIMARY HEALTH CLINIC

**Iyyaneswary Nyanasegar<sup>1</sup>**, Nor Ameeza binti Md Amin<sup>1</sup>, Tai Chia Woon<sup>1</sup>, Chong Hui Jing<sup>1</sup>

<sup>1</sup>Mahmoodiah Health Clinic, Johor Bahru

#### Introduction

Many factors can influence diabetes treatment satisfaction (DTS) and end up in good or poor DTS. Identifying these factors may help in improving patients' clinical outcomes. The purpose of this study is to determine the association of DTS with socio-demographic and clinical characteristics of patients with Type 2 Diabetes Mellitus (T2DM) at Mahmoodiah Health Clinic Johor Bahru (KPLJB).

#### Methodology

This prospective cross-sectional study involved patients with T2DM and follow-up at KPLJB from January to March 2024. Eligible patients were interviewed about their socio-demographic background, medication compliance and DTS while the clinical data and current diabetes treatment given were extracted from the patient's electronic medical records. DTS was assessed by the validated DTS Questionnaire (DTSQ, score 0-36; higher scores reflecting higher satisfaction) while medication compliance was determined through MyMAAT (score 0-60; score  $\geq 54$  indicates good medication compliance).

#### Results

In total 280 patients were interviewed and nearly 80% have a secondary or higher education level. The DTS score is  $28.67 \pm 4.44$  (Mean $\pm$ SD) while the mean glycated haemoglobin (HbA1c, %) is  $8.06 \pm 2.11$ . The mean MyMAAT score is  $52.34 \pm 4.60$  which indicates poor medication compliance. Through the linear regression analysis, a higher DTSQ score was associated with a higher MyMAAT score ( $\beta$  0.166, 95% CI 0.048 to 0.272) and those who did not have treatment regimen adjustment during the interview ( $\beta$  -0.124, 95% CI -2.481 to -0.071). No association was found between the DTS with HbA1c level and education level.

#### Discussion

MyMAAT compliance score and treatment regimen adjustment are associated with DTS among patients with T2DM at KPLJB.



## MDES2024-PP010

### IMPROVING DIABETES CARE WITH CONTINUOUS GLUCOSE MONITORING SYSTEM: A TERTIARY HOSPITAL DIABETES RESOURCE CENTRE EXPERIENCE

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<sup>3</sup>*Endocrine Unit Department of Medicine Hospital Sultanah Aminah Johor Bahru*

#### Introduction

Continuous glucose monitoring system (CGMS) is beneficial in reducing glycated haemoglobin (HbA1c) and/or hypoglycaemia in type 1 and type 2 diabetes patients. We offer CGMS service since October 2021.

#### Methodology

Suitable diabetic patients are provided details on CGMS and basic carbohydrate counting revision by doctors, diabetic educators (DEs) and dietitians. New users apply their first self-purchased sensor at diabetes resource centre (DRC), whereby further advices on precautions and strategies to react on the glucose data are given. They can contact the DEs for any queries. By the end of each sensor, patients are guided to download their ambulatory glucose profiles (AGP). The reports are discussed during monthly meetings. Feedbacks on the CGMS data are conveyed to the patients, either in person or virtually. We describe the changes in important metrics among patients who adopted CGMS at least monthly.

#### Results

As of March 2024, 36 patients [mean age 30.83 years (SD = 13.99); 72.2% female; 63.9% Chinese; 80.6% type 1 diabetes mellitus] have used CGMS at various frequencies, out of which 14 (38.8%) were using it at least once a month until their most recent AGP. The latter experienced significant reductions in time below range (TBR) [mean change -5.29%, 95% CI (-9.49, -1.10),  $p=0.017$ ] and glycaemic variability (GV) [mean change -5.71%, 95% CI (-10.20, -1.22),  $p=0.018$ ]. There was also a non-significant increase in time in range (TIR) [mean change 5.01%, 95% CI (-2.57, 12.59),  $p=0.177$ ].

#### Discussion

Use of CGMS at least monthly improves hypoglycaemia and glycaemic variability among selected diabetic patients.



**MDES2024-PP011****AN ANALYSIS OF DIABETES MOBILE APPLICATION FEATURES: A SYSTEMATIC REVIEW OF SYSTEMATIC REVIEW**

**Nur Shahirah Mohamed Yasin<sup>1</sup>**, Ernieda Hatah<sup>1</sup>, Mazlelaa Tuan Mahmood<sup>1</sup>

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**Introduction**

T2DM-management mobile apps are on the rise worldwide. Studies have shown that diabetes apps improve health results by up to 25% and enhance patient adherence. The study aims to identify specific app features or content that enhance T2DM self-management and knowledge. This study analyzed systematic reviews to determine important mobile app content patterns. Our study aimed to identify content gaps between mobile apps and Malaysian Clinical Practice T2DM guidelines.

**Methodology**

We limited our search to three main scientific databases (PubMed, Scopus, Web of Science) by publication date, language, technique, and content filters. We used AMSTAR to assess the quality of the methodology.

**Results**

A review of over 900 mobile diabetes apps published between 2010 and 2020 found significant advantages such as improved features, optimized data monitoring processes, and increased instructional content availability. The most common functions include tracking blood pressure, glucose levels, weight, and dietary habits. Less-used features include diabetes education, medication management, and personalized goal setting. Apps should include reminders, secure data sharing, emotional support, and personalized health goal setting.

**Discussion**

Most diabetic mobile applications track and report disease management and patient adherence. To improve diabetic self-efficacy, healthcare providers and app developers should integrate additional behavioral change techniques. Sending medical device information, like sharing patient data with healthcare professionals, requires FDA oversight to protect data security, and patient privacy, and ensure compliance with regulatory standards.



## MDES2024-PP012

### CONTINUOUS GLUCOSE MONITORING IN TYPE 1 DIABETES PATIENTS IN CENTRAL PAHANG

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#### Introduction

Burden of Type 1 diabetes (T1D) care in adulthood has often been under-represented due to the ever increasing prevalence of Type 2 diabetes. Optimal glycemic control and home blood glucose monitoring and mitigating hypoglycaemia risk are common issues in T1D management. Prioritising continuous glucose monitoring (CGM) use in T1D patients have positive impact in diabetes care management. Availability and cost of CGM remained the limitation for widespread utilisation.

#### Methodology

All CGM data performed for T1D patient in 2023 was collected and analysed. CGM conducted in T1D patient during pregnancy were excluded.

#### Results

A total of 16 CGM were performed in HoSHAS in 2023. 10 T1D patients (mean age 23.9 years old) were included in the study and data analysed. Majority of patients had poor glycemic control with mean HbA1c prior to CGM was 11.8 (SD3.4)%. Main reasons for CGM was discrepancy between serial blood glucose monitoring (SMBG) and HbA1c, unrecognised hypoglycaemia and poorly controlled diabetes without SMBG. All the indication for CGM use was effectively proven during the period of CGM. Patient who agreed for CGM were compliant with 80% achieving above 90% active sensor activity. Only 1 patient achieved time in range percentage above 70% while 90% (n=9) had time above range percentage above 50%. 40% (n=4) had time below range percentage above 5%. All patients had lower estimated A1c during CGM compared to measured HbA1c prior to CGM.

#### Discussion

Continuous glucose monitoring is effective in demonstrating issues in T1D patient monitoring. Coupled with comprehensive education and active intervention during CGM, patients can be empowered to manage their diabetes effectively.





## MDES2024-PP013

**THE ACCEPTABILITY AND IMPACT OF A 'DIABETES CONVERSATION MAP FOR OLDER ADULTS' IN MALAYSIANS WITH TYPE 2 DIABETES ATTENDING A PRIMARY CARE CLINIC**

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<sup>4</sup>IJN College

**Introduction**

Conversation maps are utilized for group education, yet limited evidence exists regarding their impact on patient outcomes. This single-group pilot study determined the acceptability and impact of a diabetes conversation map designed for group nutrition education amongst older Malaysian adults living with Type 2 Diabetes.

**Methodology**

This single-group pilot study in Klinik Kesihatan Seremban 2 involved a total of 27 participants who attended a 90-minute group nutrition education session (4 to 6 participants/session) using a tailored diabetes conversation map. Acceptability was evaluated using the Theoretical Framework of Acceptability (TFA) questionnaire at the end of the session. Impact was evaluated as pre- and post-test measures using the Simplified Diabetes Knowledge Test (SDKT) and Diabetes Empowerment Scale Short Form (DES-SF).

**Results**

The participants (Male: 55.6%, Malay: 51.9%, Median (IQR) age: 65 (3) years) reported high acceptability of the conversation map (TFA mean  $\pm$  SD score:  $4.18 \pm 0.48$  out of a maximum score of 5). After the use of the conversation map, there was significant improvement in diabetes knowledge (SDKT scores) and self-efficacy (DES-SF scores) as shown by the mean  $\pm$  SD SDKT scores (Pre-test:  $4.58 \pm 1.24$ , Post-test:  $5.23 \pm 0.99$ ,  $p < 0.05$ ) and median (IQR) DES-SF scores (Pre-test: 34 (4), Post-test: 36 (5),  $p < 0.001$ ).

**Discussion**

The diabetes conversation map was highly accepted and improved diabetes knowledge and self-efficacy among the participants. These findings underscore the utility of the conversation map for larger scale implementation.

