



ON
DIABETES

SUMMARY REPORT • 2016 – 2019

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FOREWORD

Diabetes, among the non-communicable diseases (NCDs), poses a major challenge to Singapore. From 2010 to 2017, the prevalence of diabetes among Singapore residents increased by 4%. If nothing is done, the number of Singaporeans living with diabetes is projected to reach one million by 2050. To curb this rising trend, Singapore declared a “War on Diabetes” (WoD) in 2016 to rally the entire nation to tackle diabetes.

Our journey over the past three years has seen a range of initiatives and programmes being implemented. This report will summarise the key pillars that are part of our strategy in beating diabetes –

(i) Healthy Living and Prevention

(ii) Early Detection and Intervention

(iii) Better Disease Management

These three pillars are underpinned by cross-cutting enablers such as raising awareness through public education and leveraging data and analytics. We hope to provide the public with a holistic overview of the key initiatives laid out by the various stakeholders and, more importantly, help guide us towards achieving the long term goal of making Singapore a supportive place for people to lead lives free from diabetes, and for those with diabetes to manage their condition well.

While the campaign has taken crucial steps in encouraging Singaporeans to take responsibility for their own health by eating more healthily, exercising more regularly and going for regular medical check-ups, we must continue to push on as many of our initiatives will only achieve the desired health outcomes in the long term. We believe that everyone has a role to play in beating diabetes and a whole-of-society involvement holds the key in sustaining our national efforts and progress in this war.

We would like to thank Singaporeans, government agencies, healthcare providers, community-based organisations, industry partners, and academics who have stepped forward and supported the WoD.

Together, we can continue to fight diabetes as a nation.



A handwritten signature in black ink.

Gan Kim Yong

Minister for Health

Co-chair of the Diabetes
Prevention and Care Taskforce



A handwritten signature in black ink.

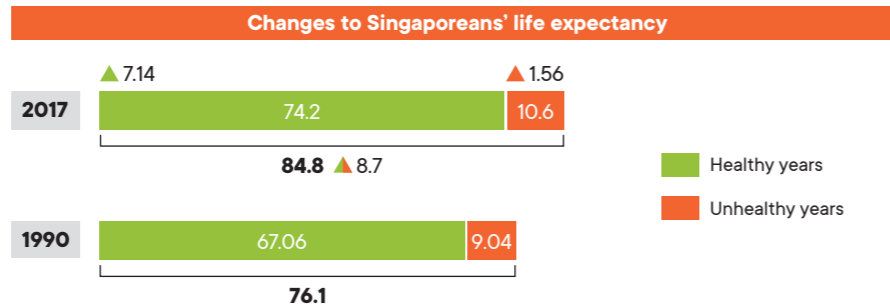
Ong Ye Kung

Minister for Education

Co-chair of the Diabetes
Prevention and Care Taskforce

Challenges we face

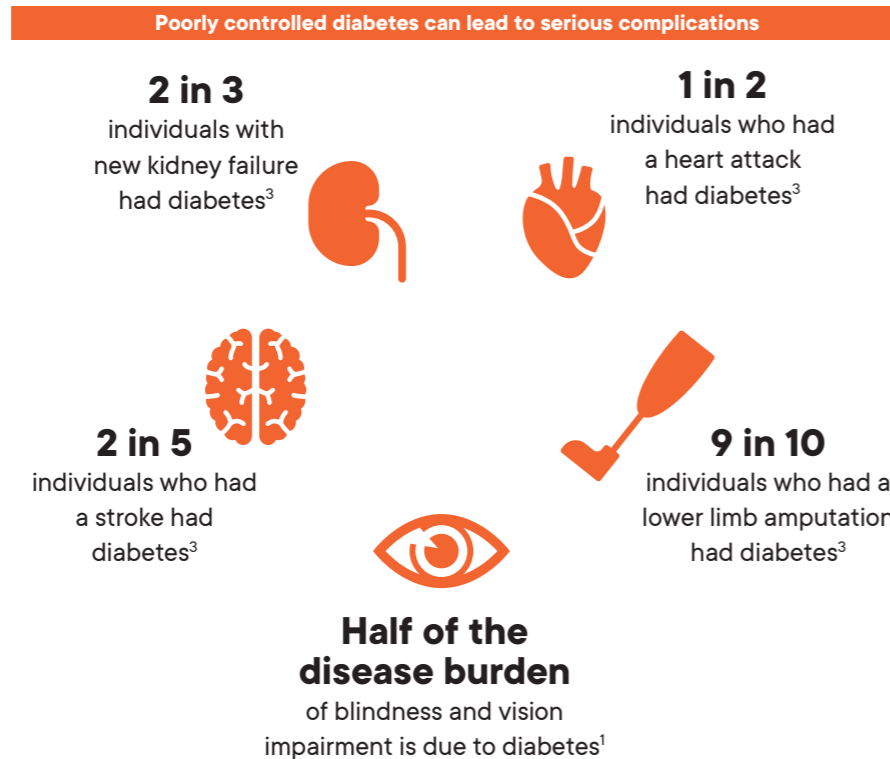
Singaporeans are living longer but spending more years in ill health. According to the Global Burden of Disease Study 2017 findings, in Singapore, life expectancy at birth has risen to 84.8 years in 2017 as compared to 76.1 years in 1990. However, people in Singapore are spending 10.6 years in ill health (measured in years lived with disability, or YLDs) in 2017, which is about 1.5 years longer in 1990.



In 2017, NCDs including diabetes were the largest contributors for overall disease burden in Singapore. Diabetes and its complications account for 7% of our total disease burden in Singapore¹.

Singapore has one of the highest rates of diabetes prevalence worldwide. One in three Singaporeans is at risk of developing diabetes in their lifetime. In 2016, the number of Singapore residents living with diabetes is projected to increase to close to one million by 2050 if nothing is done².

One in three individuals with diabetes does not know they have the condition. Among those diagnosed with diabetes, one in three has poor control of their condition which increases the risk for serious complications.



1 Global Burden of Disease Study 2017.

2 Based on a 2014 study by Saw Swee Hock School of Public Health, National University of Singapore.

3 MOH administrative data 2017.

Strategic framework for War on Diabetes

The Diabetes Prevention and Care Taskforce was established in June 2016 to spearhead a whole-of-nation initiative to tackle diabetes. Our vision is to create a supportive environment for people in Singapore to lead lives free from diabetes, and for those with diabetes to manage the condition well.

The key thrusts are:



02 HEALTHY LIVING AND PREVENTION

Tackling diabetes requires strategic interventions at the ecosystem level that supports health promoting decisions particularly in eating healthy and being physically active. It requires a life-course approach.

Cultivating healthy lifestyle habits from an early age

The Health Promotion Board (HPB) works closely with the Ministry of Education (MOE) and the Early Childhood Development Agency to increase the availability of healthier meals in schools. Healthy eating habits are best cultivated early as lifelong dietary preferences and habits are formed at a young age. In view of this, HPB partners pre-school operators to serve healthier food under the **Healthy Meals in Pre-Schools Programme**. A preliminary survey has shown that it has changed behaviours positively by increasing the uptake of healthier food among pre-schoolers in school and at home.



Healthy lifestyle habits begin from young: (left) Minister for Education, Mr Ong Ye Kung engaging with students of Northland Secondary in the school canteen; (right) students consuming healthier meals under the "Healthy Meals in Schools Programme"



As of March 2019, **1,230 pre-schools** in Singapore have come on board the Healthy Meals in Pre-Schools Programme.



All MOE mainstream school canteens provide healthier food and drink options under the Healthy Meals in Schools Programme.



91 food outlets within Institute of Higher Learning are under the Healthier Dining Programme.

Increasing accessibility to healthier food options

Since 2016, HPB has intensified its food strategy to target both the demand and supply of healthier choices, by increasing the availability and accessibility to healthier food and beverages. This was done both in and out of homes and in many settings including schools, workplaces and the community.

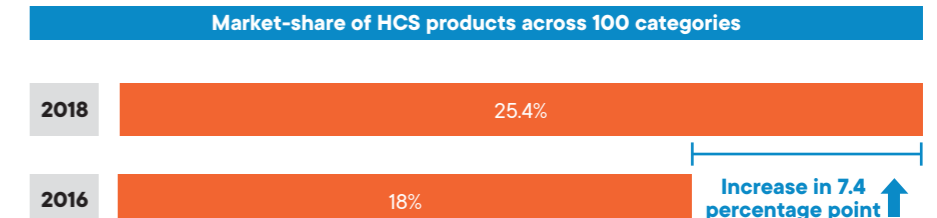


Examples of some of the HCS products sold in major supermarket chains, such as brown or red rice vermicelli, wholegrains rice, lower-sugar drinks and oil

Healthier Choice Symbol

The **Healthier Choice Symbol (HCS)**, a positive labelling scheme since 2001, empowers individuals to make informed food choices. To support the WoD, the HCS programme expanded the category of food under "Low Glycaemic Index" claim in 2016, to include convenience meals, legumes, nuts and seeds categories, in addition to cereals. Guidelines for selected HCS product categories, e.g. wholegrain noodles, desserts and sauces, were also reviewed and aligned to the overall WoD food thrust. To ensure affordability of healthier products, HPB worked with major supermarket chains (e.g. Fairprice, Cold Storage, Giant, Sheng Siong), to increase variety by introducing more house brand HCS products such as brown rice and wholemeal bread.

Through this voluntary labelling programme, the market-share of HCS products has increased steadily from 18% in 2016 to 25.4% in 2018 across 100 categories including lower-sugar packaged beverage and sauces, and wholegrain versions of rice, noodles, bread.



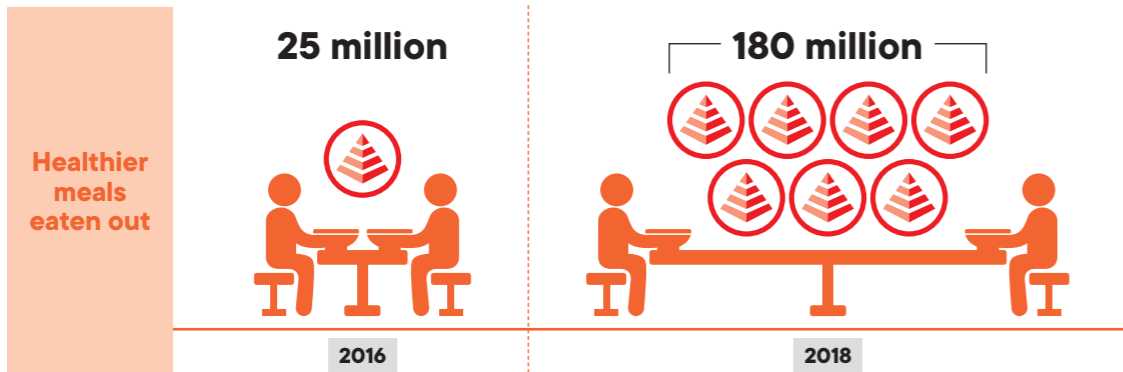
Healthier Dining Programme

Combating diabetes also means shaping the settings where many Singaporeans consume their meals, which is out of homes⁴. The **Healthier Dining Programme** (HDP) aims to make healthier dining options more pervasive and accessible by partnering with F&B operators to offer low calorie meals or to prepare meals using healthier ingredients such as wholegrains rice and noodles. To further increase availability, HDP expanded into hawker centres and coffee shops in December 2016.

As of 2018, one in two stalls across all hawker centres and coffee shop supplied at least one healthier option on their menus and healthier options are visually tagged to affect citizens' point-of-decision, when ordering their food. We have shifted the population to demand healthier meals, as there was a seven-fold increase (from 25 million in 2016 to 180 million meals in 2018) of healthier meals eaten out in 2018.



1 in 2 stalls across all hawker centres and coffee shops supplied **at least one healthier option** on their menus



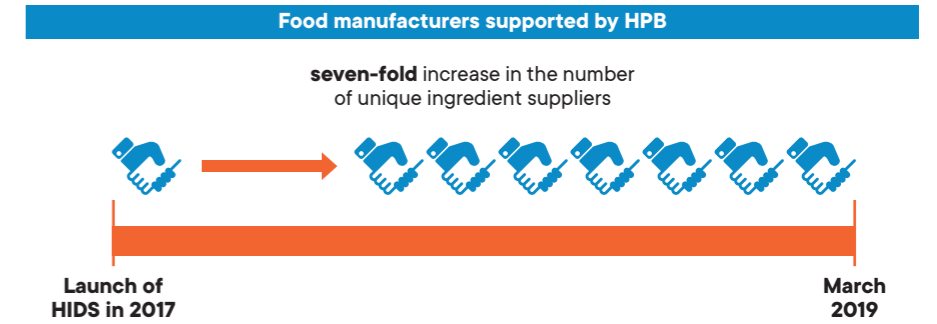
Healthier Ingredient Development Scheme

The **Healthier Ingredient Development Scheme** (HIDS) was introduced in July 2017 to encourage local food manufacturers to innovate and develop novel healthier ingredients tailored to local tastes. HIDS also supports the industry to market the use of the new ingredients in the food service sector. In 2018, HPB expanded the existing scheme to support innovation to lower sugar content in three new categories – beverages, desserts and sauces, in addition to healthier cooking oils and wholegrain staples.

As of March 2019, HPB supported 67 grant applications across 42 partners. This represents a seven-fold increase in the number of unique ingredient suppliers since the launch of the scheme in 2017.



A collaboration between a HDP and HIDS partner, to jointly develop and sell HCS lower-sugar soy ice-cream



Promoting physical activity programmes for all ages across settings

To prevent diabetes in healthy adults and to help control diabetes and diabetes-related complications in patients living with diabetes, we have scaled up the promotion of physical activities. Initiatives are being introduced to normalise physical activity and to create an enabling environment, by increasing the accessibility to physical activity programmes nation-wide through large scale programmes, and riding on collaborations with public agencies like Sport Singapore (SportSG), People's Association (PA), and National Parks Board (NParks).



Examples of HPB's physical activity programmes catered to the different age groups: (left) soccer for children (right) Zumba for adults

⁴ Based on GlobalData Foodservice Intelligence Database (May 2019), Singaporeans consume their meals out of homes on an average of six times a week.

Encouraging Singaporeans to increase their physical activity

We have increased the number of free leisure time physical activity sessions by four-fold, from 240 weekly sessions in 2016 to more than 1,000 weekly physical activity sessions with a total of 189,000 participants. Examples of these programmes include:


Sundays @ The Park (SATP) is a community physical activity programme by HPB, in collaboration with SportSG. These instructor-led classes, such as Zumba, are held near residential parks island-wide on Sundays, and free to participants.

Sunrise in the City (SITC), a physical activity programme launched by HPB in 2013, offers working adults the opportunity to participate in moderate-intensity workout sessions before they head to work. The programme encourages working adults to incorporate physical activity into their daily lives.

Physical Activities at Business and Industrial Workplace Clusters are organised under the **Healthy Workplace Ecosystems (HWE)** initiative, where HPB collaborates with strategic private partners such as office space landlords to encourage active lifestyle among the working population in these clusters. This initiative provides workers with convenient access to the health-related programmes within a supportive environment.

As of June 2019, SATP has **90 weekly sessions at 84 sites** across Singapore,  a 10% increase in the number of sites from 2014.



As of March 2019, more than **9,000 participants attended 450 SITC sessions** per month,  a 45-fold increase in participants since 2013.



Workers under the HWE reported **improvements in BMI and more physical activity.**



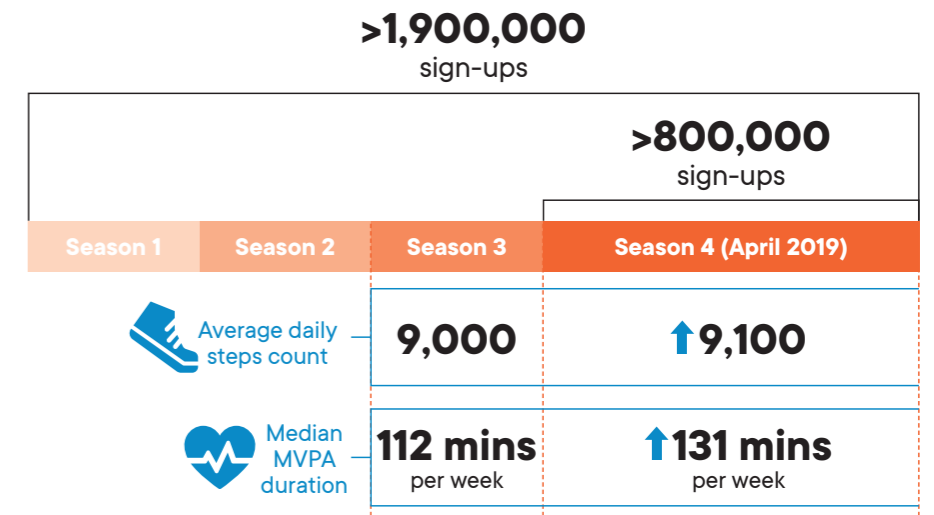
Moving the population

The National Steps Challenge™ was launched in 2015 to mobilise the population towards a more active lifestyle. Building on the success and unprecedented scale of the first three seasons, the fourth season was launched in October 2018 with a new category, the Moderate-to-Vigorous Intensity Physical Activity (MVPA), to help those physically fit to improve the quality of their physical activity and reap greater health benefits⁵.

As of April 2019, there were more than 800,000 sign-ups for Season 4 and 1.9 million sign-ups over all four runs of the Challenge. Overall physical activity level among the participants was found to have increased, which was contributed by both greater volume and participation in higher-intensity physical activities. The average daily steps count increased from 9,000 in Season 3 to 9,100 in Season 4. Median MVPA duration was also found to have increased 17%, from 112 minutes per week in Season 3's pilot run of MVPA mechanics to 131 minutes per week in Season 4.

Whole-of-Government collaborations to promote physical activity

Efforts are being put into infrastructural enhancements to support healthy living. As part of the National Cycling Plan, the Land Transport Authority is developing off-road cycling paths in all HDB towns that would link up through NParks' Park Connector Networks.



ActiveSG is a national movement for exercise and sports, initiated by SportSG. Strategic collaborative efforts between HPB and SportSG have been ongoing since 2016, to enhance uptake of physical activity in the population. This partnership

has also been extended to include Singapore Armed Forces (SAF) to reach NSmen and their families to increase their physical activity levels. Joint programmes between HPB, SportSG and SAF will be piloted and evaluated for further scale-up.

03 EARLY DETECTION AND INTERVENTION

Early detection of diabetes and pre-diabetes is important so that patients can begin to manage the disease early and potentially prevent or delay serious disease complications that can decrease the quality of life.

Promoting regular and age-appropriate screening

Many diseases like diabetes are “silent” in the early stages. In Singapore, one in three individuals with diabetes does not know they have the condition. Regular screening can help detect medical conditions early before they progress and reduce the chances of complications.

Screen for Life Programme

The **Screen For Life (SFL)** programme is the national screening programme by HPB that encourages Singapore Citizens and Permanent Residents aged 40 years and above to go for regular screening and follow-up once every three years. Eligible Singaporeans are invited to undergo recommended cardiovascular risk (e.g. diabetes, high blood cholesterol and high blood pressure) screening tests at the appropriate time intervals.

With effect from 1 September 2017, **enhanced SFL subsidies** have been extended to Singaporeans who visit Community Health Assist Scheme (CHAS) General Practitioner

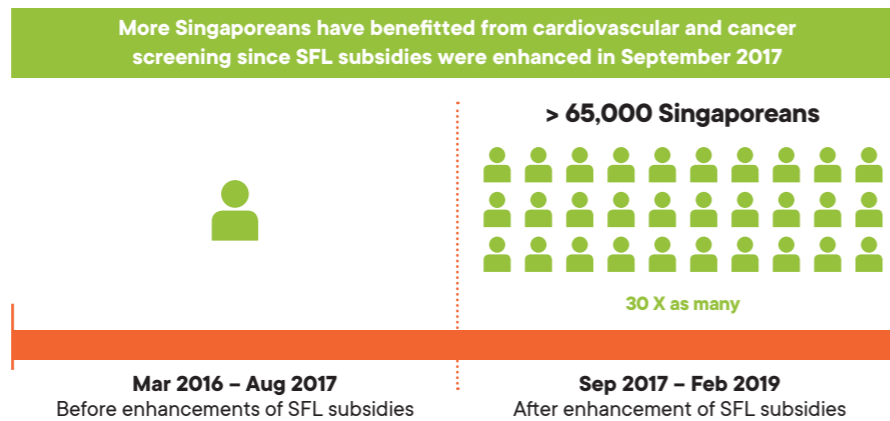
(GP) clinics to encourage more Singaporeans to go for recommended screenings and follow-up.

- Eligible Singaporeans will pay \$5 for screening and follow-up consultation at CHAS GP clinics.
- CHAS Blue, CHAS Orange and Merdeka Generation cardholders pay \$2.
- Pioneer Generation need not pay.

More than 65,000 Singaporeans have benefitted from cardiovascular and cancer screening in the 18 months following the enhancement of SFL subsidies in September 2017. This

is almost 30 times higher than the number of Singaporeans who have come forward for screening under SFL over the preceding 18 months.

Previously, screening for diabetes required fasting which poses inconvenience to groups such as the elderly, who are susceptible to low blood sugar levels. To allow for more opportunistic screening and greater convenience to individuals who should be screened but have yet to do so, a **non-fasting screening test for diabetes**, called glycated haemoglobin (HbA1c), was introduced and made available through the national SFL Programme since May 2019.



Diabetes Risk Assessment

The current recommendation is for those above 40 years old to go for diabetes screening once every three years. However, age is not the only risk factor for diabetes. Those below 40 years old may also be at risk of developing the disease due to other factors. MOH rolled out the **Diabetes Risk Assessment (DRA)** tool on 1 September 2017, as part of its efforts to go upstream to facilitate early detection and intervention. This risk assessment tool⁶ helps younger adults aged 18 to 39 years assess their current risk for undiagnosed diabetes, and whether they should go for diabetes screening.

Routine screening for gestational diabetes

Pregnant women who have never been diagnosed with diabetes but developed high blood glucose levels during pregnancy are considered to have gestational diabetes (GDM). They are at an increased risk of complications during pregnancy and



A pregnant lady checking on her blood glucose level, as part of regular monitoring

could develop Type 2 Diabetes later in life. Since 2017, all public hospitals with maternity services have been conducting routine GDM screening for all pregnant women.

In addition, since June 2019, women with a history of GDM will no longer need to perform the DRA

to qualify for screening subsidies under SFL. Based on their medical records, they will be automatically eligible for these subsidies. This will encourage these women, who are known to be at a higher risk of developing diabetes later in life, to go for regular screening.

⁶ The tool incorporates several risk factors, such as family history, age, gender, body mass index (BMI), physical activity and nutrition, known hypertension and history of gestational diabetes.

Introducing early intervention for individuals with pre-diabetes in the community

Individuals with pre-diabetes are at a higher risk of developing Type 2 Diabetes. Progression from pre-diabetes to diabetes is preventable through early diagnosis, appropriate management and follow-up. Lifestyle interventions such as proper nutrition, physical activity and weight management can effectively slow down, and in some cases, reverse the progression of pre-diabetes to diabetes.

In view of the potential benefits of early interventions to reduce higher-cost interventions (e.g. diabetes treatment and hospitalisation) downstream, HPB worked with the Public Healthcare Institutions (PHIs) to strengthen post-DRA follow-up pathways to direct at-risk individuals to appropriate lifestyle programmes. The PHIs have also been ramping up their efforts on the pre-diabetes prevention programmes. Some of these pilot programmes include:

- **Pre-diabetes Interventions and Continued Tracking to Ease-Out Diabetes** (Pre-DICTED) by SingHealth,
- **Diabetes Lifestyle Intervention using Technology Empowerment** (D'Lite) by National University Health System (NUHS), and
- **Pre-diabetes Management** (PDM) by National Healthcare Group (NHG).

Stepping up on community and workplace screening outreach efforts

Community and workplace health screenings complement SFL, and provide alternative platforms and avenues for further screening outreach.

- The PHIs have partnered grassroots, GPs, and polyclinics to organise health screenings for residents above the age of 40, at a subsidised rate of \$5 or less. They also recommend appropriate follow-ups (e.g. GP consults, lifestyle programmes, health coaching, etc.) for those who are deemed at-risk or have abnormal screening results.
- **Workplace health screenings** and follow-up through health coaching were introduced as part of the HWE initiative, to enable workers to have convenient access to health-related programmes within a supportive environment.



A taxi driver doing a stretching exercise at the "Check Car, Check Body" programme

To reach out to mature workers in less structured workplaces, such as those without fixed work locations and/or those doing shift work, HPB has expanded its outreach in seven key sectors such as transport and logistics, security, and cleaning. For example, the **"Check Car,**

Check Body" Health Screening and Intervention Programme by HPB and ComfortDelGro, provides taxi drivers with health screening and follow-up coaching sessions over seven months at different service centres, during the driver's monthly car maintenance services.

04 BETTER DISEASE MANAGEMENT

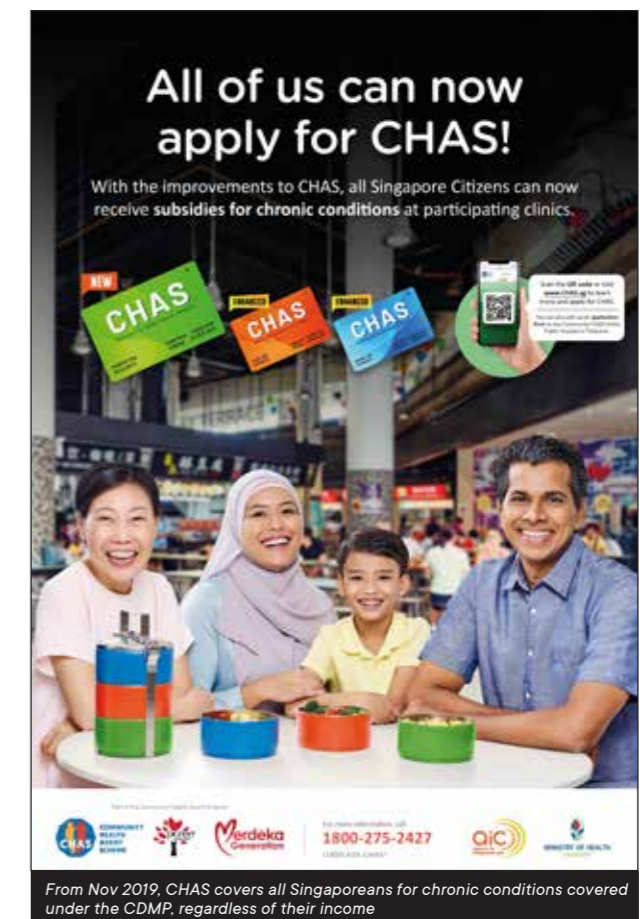
Individuals can live well with diabetes and prevent diabetes-related complications by taking charge of their health and managing their condition well, with the support of their families, friends, healthcare professionals and the community.

Providing better support for appropriate diabetes care

MOH has introduced the following measures since June 2018 to better support individuals living with diabetes:

- Expanded coverage of Chronic Disease Management Programme (CDMP)⁷ and CHAS to include pre-diabetes.
- Expanded CDMP coverage for individuals with diabetes who require insulin injections and regular self-monitoring of their blood glucose levels to tap on their MediSave to pay for the test strips and lancets.
- Increased the MediSave withdrawal limit for CDMP from \$400 to \$500.

From November 2019, all Singaporeans, regardless of income, can tap on CHAS for chronic subsidies of up to \$540 per year for the treatment of chronic diseases under the CDMP, including diabetes, at CHAS GP clinics.



From Nov 2019, CHAS covers all Singaporeans for chronic conditions covered under the CDMP, regardless of their income

⁷ The CDMP covers selected chronic diseases where patients can tap on theirs/their family members' MediSave to pay for out-patient treatments at participating GPs, subject to specified MediSave withdrawal limit per account per year.

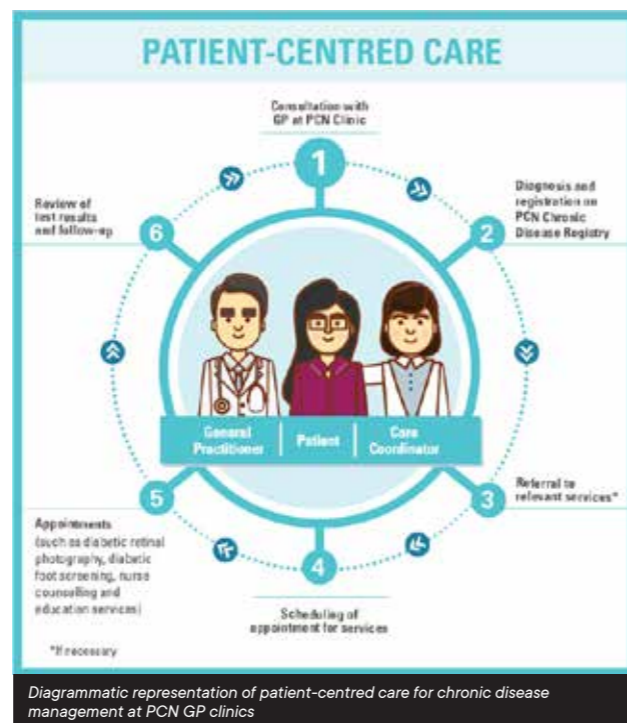
Anchoring chronic disease management in primary care

The long-term goal is for diabetes care to be managed and anchored by a regular family doctor in the community closer to Singaporeans' homes. MOH is increasing our primary care's capacity and capabilities in chronic disease management, by working with GPs to bring partner clinics together to form **Primary Care Networks (PCNs)** to achieve economies of scale, optimise resource utilisation and provide more holistic and team-based care.

- Patients visiting GP clinics that are part of a PCN will receive comprehensive care through a multi-disciplinary team (comprising doctors, nurses and primary care coordinators) for more effective care management. These patients will also have access to support services such as diabetic foot and eye screening, and nurse counselling closer to home.
- PCNs also serve as a platform for GPs to cross-share best practices. As of December 2018, 10 PCNs comprising over 450 GP clinics have been established.

We also introduced **subsidies for Family Medicine training** and enhanced the Graduate Diploma in Family Medicine, and are ramping up the capacity of various training programmes to develop more Family Physicians to helm more complex chronic care, including diabetes, in primary care.

To promote appropriate diabetes care and support healthcare professionals in diabetes management, particularly those in primary care, we have issued five diabetes-related guides known as **Appropriate Care Guides (ACGs)**.



Diabetes-related ACGs published

Delaying progression of diabetes complications

Chronic kidney disease and kidney failure are common complications of diabetes. To prevent and slow down the deterioration of chronic kidney disease to kidney failure, we have introduced and implemented the **Holistic Approach in Lowering and Tracking Chronic Kidney Disease (HALT-CKD)** programme across all 20 polyclinics in Singapore. This programme optimises kidney-protective medication for suitable patients and controls risk factors that contribute to chronic kidney deterioration, such as high blood pressure and diabetes.

Singapore has one of the highest diabetes-related lower extremity amputation (LEA) rates in the world. To curb this trend, we established the **National Diabetic Foot Workgroup** in April 2018 to develop a national strategy to reduce diabetes-related LEAs.

- The initial recommendations of the Workgroup have been developed and are being implemented, such as the progressive roll-out of a risk-stratified framework for diabetic foot screening, management and escalation across the polyclinics and public hospitals, to streamline diabetic foot services across primary and tertiary care.
- Moving forward, the Workgroup will develop strategies for improving up-take of and longer-term manpower development for diabetic foot services.

Diabetic Retinopathy is among the leading causes of blindness. The **Singapore Integrated Diabetic Retinopathy Programme (SiDRP)** provides a centralised screening programme at all polyclinics to help detect eye complications in patients with diabetes.

- About 25% of the patients screened under this programme had abnormal findings and were referred to the specialist outpatient clinics for follow-up.
- The annual number of SiDRP attendances has increased since its commencement, from about 14,000 attendances in 2012 to 92,000 attendances in 2018.



HALT-CKD coordinator advises a patient on chronic kidney disease management.

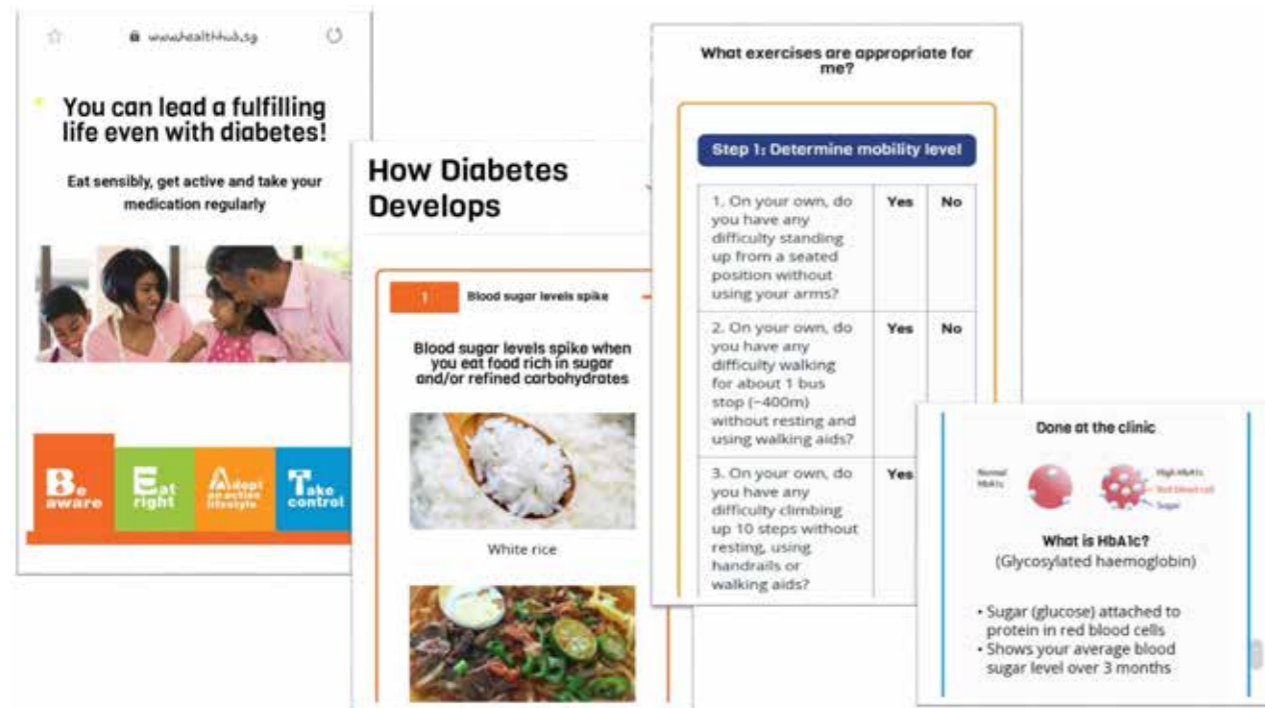


Patient undergoes diabetic foot screening at Tampines Community Health Centre



Workflow for diabetic retinal photography assessment under the SiDRP programme

Empowering patients to co-own their care journeys for better outcomes



The NDRMs on HealthHub have a responsive web design and are optimised for mobile use

While the government and other organisations do their best to promote diabetes prevention, screening and management, health is ultimately a personal responsibility.

We have developed a **Patient Empowerment for Self-care Framework** for individuals to co-own their care journeys for better care outcomes.

- This framework aims to help patients initiate and sustain lifestyle changes for better disease management, prioritising what is of greatest importance to them.

- This is done with the support of healthcare professionals, community-based providers and other forms of social support as everyone can play an important role in creating a supportive environment for patients.

As part of this framework, we are developing the **National Diabetes Reference Materials (NDRMs)** for patients, caregivers and the public.

- A beta version that is targeted for newly diagnosed patients, was made available on HealthHub since December 2018.

- The full set of materials will be published on HealthHub in four languages by end 2019.

MOH is also developing a **Care Team Education Framework** to equip healthcare professionals and lay volunteers with skills to allow them to more effectively support the patients. This will be developed in consultation with various stakeholders, and rolled out progressively from end 2019.

Cross cutting enablers support the three thrusts in shaping a Whole-of-Society effort to tackle diabetes, and create a supportive environment for individuals with diabetes, the family and the community.

Raising public awareness

MOH and HPB adopted a multi-pronged, whole-of-government public education approach, including tapping on mainstream media and social media, to raise public awareness of diabetes, emphasise individual responsibility for one's health, and underscore the urgency for action towards healthier lifestyle changes to prevent or better manage diabetes. Attention was also given to reach out to vulnerable sub-segments through more targeted engagement.

Some of our key WoD publicity campaigns included:

- Public education efforts are anchored by the **“Let’s Beat Diabetes”** campaign, which included a public call-to-action for individuals to fight diabetes. As encapsulated in the acronym **‘BEAT’**, all individuals are encouraged to **Be** Aware, **Eat** Right, **A**dopt an Active Lifestyle, and **T**ake Control, to fight diabetes together as a nation. This was widely publicised through digital and out-of-home media platforms (e.g. bus stop shelters, taxis, MRT screen doors) from September 2016 to February 2017.



Example of an Out-of-home publicity of the “Let’s Beat Diabetes” Campaign

- Public education efforts also raised the awareness of the need to go for early screening. The DRA campaign was launched in September 2017 to encourage younger Singaporeans aged 18 to 39 years old to complete

the online DRA tool. An integrated marketing communications plan utilising out-of-home media, cinema ads and digital media served to generate awareness among and action by this target audience.



Launch of the DRA tool at One Raffles Place to better capture target audience who are younger Singaporeans

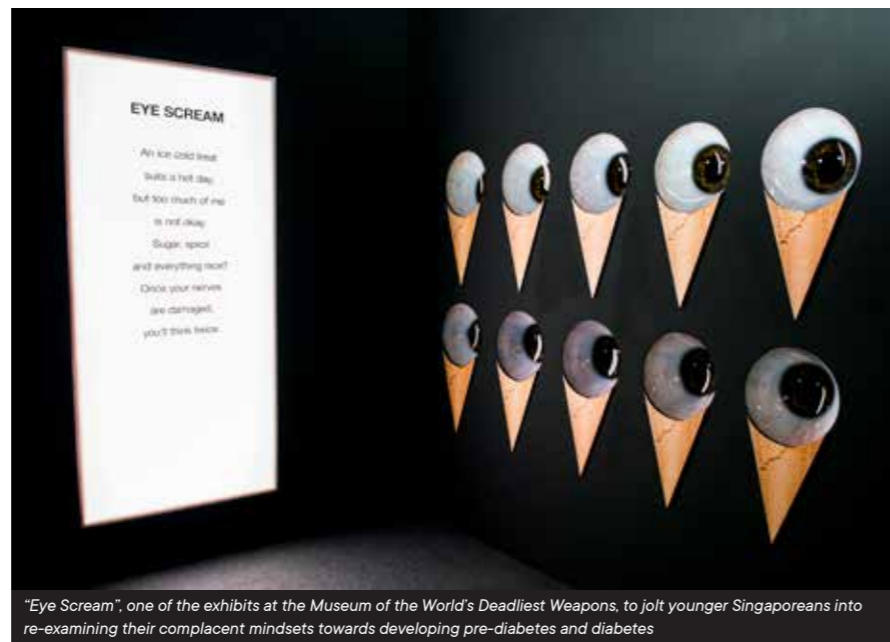
05 ENABLERS

- As pre-diabetes is a warning sign for diabetes, the **“REVERSE Pre-diabetes”** campaign was launched in 2018 to create awareness of pre-diabetes and the possibility of reversing it. Multiple media touchpoints and extensive outreach events were deployed to share the information to the target group aged 18 to 39, further nudging them to complete the DRA online tool.
- In 2019, the **Museum of the World’s Deadliest Weapons** exhibition was designed by HPB to jolt the target audience, aged 18 to 39, into re-examining their complacent mindsets towards developing pre-diabetes and diabetes. The exhibits were designed to present a unique and grim twist to highlight the unexpected dangers in our everyday habits and lifestyles that may predispose us to developing pre-diabetes or diabetes. Through the interactive hands-on activities, the public was reminded that pre-diabetes can be reversed with lifestyle changes in diet, and through exercising and maintaining a healthy weight. The participants were also encouraged to complete the DRA at the end of the exhibition tour, as a first step to taking charge of their own health.

We also leveraged mainstream and social media channels to raise awareness of diabetes, using a strategy of festive marketing and vernacular engagement. These were meant to elicit emotional and relatable responses to the fight against diabetes.



A REVERSE Pre-Diabetes Campaign poster



“Eye Scream”, one of the exhibits at the Museum of the World’s Deadliest Weapons, to jolt younger Singaporeans into re-examining their complacent mindsets towards developing pre-diabetes and diabetes



Kungfu Fighter



Happy Healthy Deepavali 2018



Malay telemovie Guntung



Choose Water – Drink Up!



Kurang OK?



Ethnic specific messages for the different festivals

Examples of some of the marketing efforts done over the years, to raise awareness of diabetes

Reaching out to the community

Pilot programmes initiated by our public healthcare institutions

Launched by NHG in April 2018, the **Diabetes Community Intervention Programme (CIP)** aims to engage, empower and motivate residents in the Central and Northern regions of Singapore to take ownership of their health and well-being. It includes a series of health intervention programmes conducted in the community setting easily accessible to participants, to create activated communities that adopt and sustain healthier lifestyle habits together.

The **Health Peers Programme** was first launched by Changi General Hospital in partnership with PA and South East Community Development Council (CDC) in January 2017.

- Grassroots leaders and volunteers trained by healthcare professionals, play the role of Health Peers who reach out to and support at-risk or diabetic individuals in the community, with dietary and physical activity counselling.
- In 2018, the programme was extended to the western region of Singapore by NUHS, in partnership with South West CDC.

The **Patient Activation through Community Empowerment / Engagement for Diabetes Management (PACE-D) Programme**, led by the National University Polyclinics, aims to empower patients with diabetes towards greater involvement in their own care planning and disease management.

- Patients from Jurong and Pioneer



NHG CIP participants taking part in an exercise session to increase level of physical activity



CGH and NUHS Health Peers engaging their fellow residents to motivate them to have healthier diet and nutrition



A PACE-D coordinator handing a copy of the Care Support Planning Letter to a patient, which helps the patient with her own goal setting and care management

Polyclinics are assigned to dedicated care teams consisting of care coordinators, care managers and doctors.

- These care teams guide patients with goal setting, refer them to resources and activities, and conduct regular follow-ups to ensure patients adhere to their care plan.

Working closely with our community partners

HPB has also worked with grassroots organisations to roll out the Diabetes Support Package to all 89 constituencies as well as to Voluntary Welfare Organisations (VWOs) and places of worship to engage residents during their events or activities.

- The package comprises three components: diabetes-related roadshow with educational panels, health talks on diabetes prevention and management, and health screening and follow-ups.

PA's Malay Activity Executive Committees Council (MESRA) launched a six-month campaign called **"Let's Be Healthy, Say No to Diabetes"** in September 2016.

- More than 50 health carnivals and events were held across Singapore to raise awareness of diabetes and the importance of adopting healthy lifestyles, amongst the Malay-Muslim community.

The **Women's Health Carnival** was organised by the PA Women's Integration Network Council and Women's Executive Committees in April 2017, in support of the WoD, to urge women to be role models in leading a healthy lifestyle, and in turn inspire family members and friends to do likewise.

- A collection of 50 healthy recipes titled **"Healthy Kitchen, Healthy Women"** was launched during the event to mobilise women to get their families to eat healthier.

VWOs have been equally supportive of our efforts in the WoD.

- Diabetes Singapore is working on courses focused on diabetes care as part of the National Silver Academy Course. They also plan to reach out to the Malay community through partnerships with Muslim Kidney Action Association, Exercise is Medicine and Shatec.



World Diabetes Day Singapore 2018 was organised by Diabetes Singapore at Suntec Singapore Convention and Exhibition Centre with the theme "The Family and Diabetes"



Women's Health Carnival at Tampines Hub in collaboration with PA



Exercise lesson at Ang Mo Kio TOUCHpoint during a Peer Support Group session. Keeping physically active helps to keep diabetes in control

- Touch Diabetes Support piloted a peer-support model at Senior Activity Centres to empower seniors to better manage diabetes. Touch Diabetes Support organised the Y-Diabetes training programme to reach out to young people in secondary schools and tertiary institutions to raise awareness of diabetes and empower

them to be champions to share the information with their peers.

- WINGS has also incorporated diabetes prevention messages into their health activities and website to further amplify the messages among their members and target audience.

Co-creating solutions with the public

To have a better grasp of general public sentiment, HPB organised 17 public engagement sessions from September to December 2016. The purpose was to gather views on the awareness level and attitudes towards diabetes, and on the importance placed on healthy eating, physical activity, and health screening and follow-up.

- Listening Points were set up across the island to gather views on how to encourage healthy living to combat diabetes.
- About 2,000 responses were gathered through these public engagement efforts, which gave HPB a better understanding of on-ground sentiments towards diabetes and the barriers to healthy living, and provided insights for the campaign messaging.

WoD Designathon 2017 was organised to engage the community in co-creating and designing programmes or tools to motivate Singaporeans to take charge of their health and fight Type 2 Diabetes. Participants tackled the challenges of increasing physical activity level among working adults and devising solutions that will empower pre-diabetics to take charge of their condition and halt the progression to Type 2 Diabetes.

- 23 submissions were received, of which six teams were selected by HPB and partner organisations for a deeper discussion on the implementation of the proposed solutions.

MOH, in collaboration with the Institute of Policy Studies, conducted a new form of engagement called the **Citizens' Jury (CJ)** in December 2017,



One of the public engagement sessions held for the Indian community



Results of the WoD Designathon 2017 announced, where selected teams went for further discussion for the solution implementation



Participants and organisers of the Citizen's Jury and the visualisations of their recommendations to win the WoD

which is a form of deliberative engagement that involves the community in the decision-making process.

- A total of 76 participants were recruited for the CJ. Participants discussed ideas with subject matter experts and developed recommendations. MOH and partner agencies worked closely

with the CJ participants to support and co-deliver most of the recommendations.

- As of April 2019, 12 recommendations have been implemented, eight recommendations are being implemented, and the remaining seven recommendations are being explored further.

Enhancing global and regional collaborations among government and leading organisations

To propel diabetes to the forefront of the discussions at the global level, Singapore hosted the **Ministerial Conference on Diabetes** on 26 and 27 November 2018, where over 300 international and local delegates comprising Health Ministers, senior government officials, officials from World Health Organization and World Bank, and content experts from 19 countries and regions came together to share insights and strategies in fighting diabetes.

At the end of the conference, Health Ministers and senior government representatives agreed that more could be done and reaffirmed their commitment to step up on global and national efforts in diabetes prevention and management. The delegates concurred that efforts by the government alone are insufficient to tackle diabetes, and hence a holistic approach aimed at shifting mindsets, nudging people to change their behaviours, and implementing innovative solutions will be required.



“

Tackling diabetes, and other NCDs, will not be a simple task. It will not achieve success quickly but it is a critical task and what we have to do is to sustain in a multi-year effort, targeted at shifting mindsets, nudging people to change behaviour and to feel good about it, and spreading innovative solutions. It is a worthwhile and necessary endeavour, for the well-being of our people.”

- Mr Tharman Shanmugaratnam, Then-Deputy Prime Minister and Coordinating Minister for Economic and Social Policies, Singapore

“

As policymakers, the onus is on us to identify and seize these opportunities. We have to remain nimble and flexible in adopting such technologies to create supportive environments for individuals and their families, to introduce more effective and efficient interventions, and to shape better healthcare delivery.

Changes we implement today will make an immense difference in enhancing our population health outcomes in the long term, and brings us another step closer to realising our pledge.”

- Mr Gan Kim Yong, Minister for Health, Singapore



Then-Deputy Prime Minister and Coordinating Minister for Economic and Social Policies, Mr Tharman Shanmugaratnam and Minister for Health, Mr Gan Kim Yong, speaking at the Ministerial Conference on Diabetes

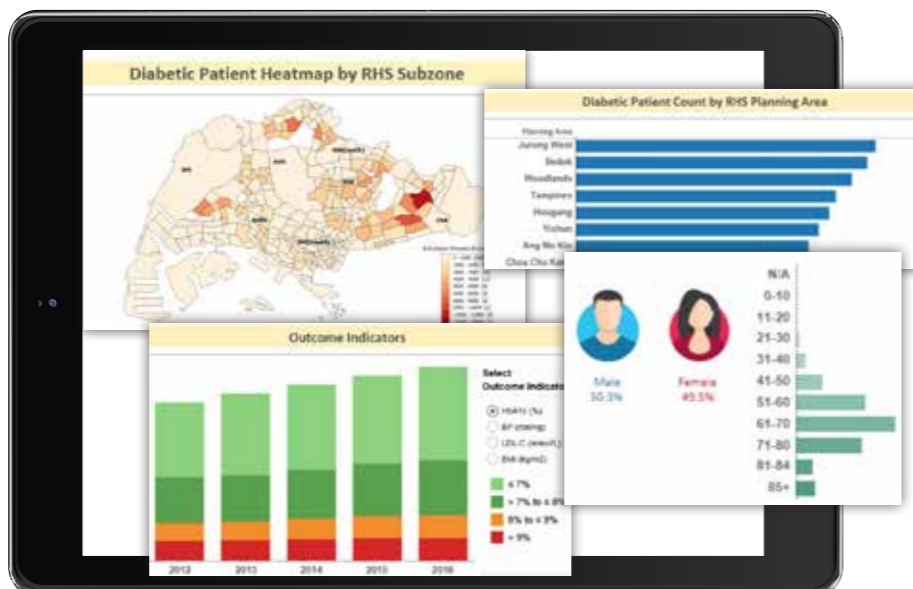
Leveraging IT, data, technology and research

The **National Diabetes Database (NDD)** is being jointly developed by MOH and the Integrated Health Information Systems to consolidate data across multiple repositories onto a single and integrated IT platform.

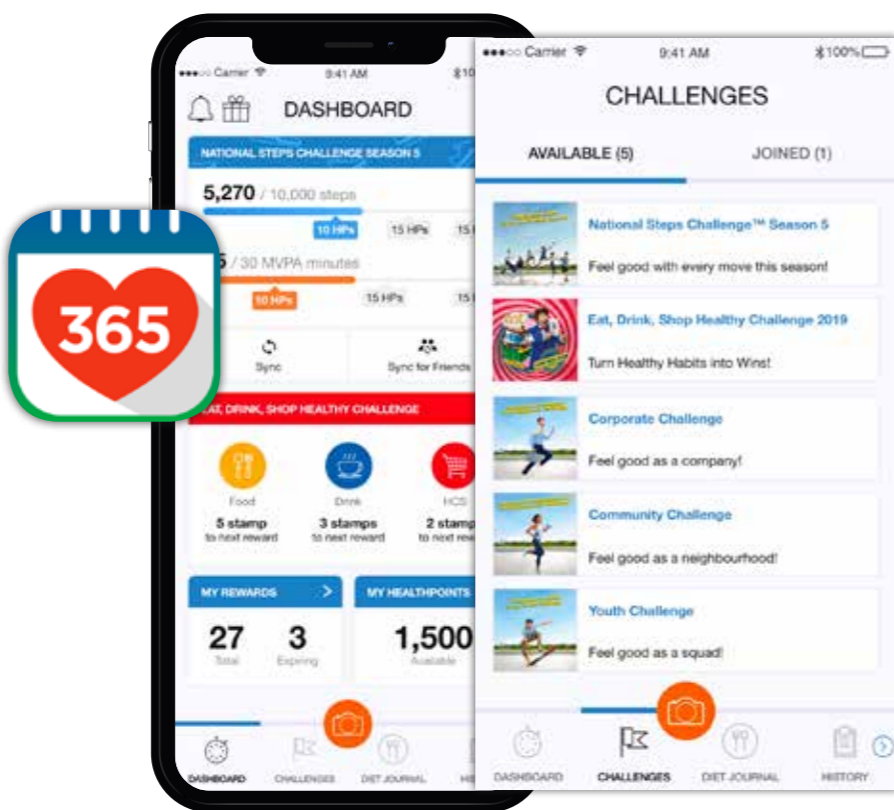
- NDD supports policy development, more targeted outreach and intervention, and better clinical management of individuals with diabetes.
- Information is visualised on dashboards to provide policy makers and service providers with a snapshot of the diabetic profile in Singapore and identify current trends and patterns.

Healthy 365 is a free healthy lifestyle and fitness app created by HPB to encourage individuals to take charge of their health.

- Individuals could use the steps tracker function, or book exercise classes, to help them lead an active lifestyle.
- To encourage users to make a healthier choice, the app allows tracking of calorie intake and incentivises individuals with Healthpoints when shopping at supermarket or when they dine out.



Dashboards displaying key information on the diabetic cohort in Singapore to support policy planning and decision-making



A screen grab of Healthy 365's features, to encourage individuals to take charge of their health

Diabetes remains one of the prioritised R&D focus areas. We have a variety of grant schemes to encourage and support diabetes research activities, ranging from improving health outcomes to enhancing the efficiency of health services delivery.

For example, the **Diabetes Study of Nephropathy and other Microvascular Complications (DYNAMO)** led by Duke-NUS aims to determine genes and processes involved in the development of kidney disease due to diabetes, so that diabetic patients at-risk can be identified and treated earlier.

The **Pre-Diabetes Interventions & Continued Tracking to Ease out Diabetes (Pre-DICTED)** is a study by SingHealth to evaluate the effectiveness of community-based intervention programme in reducing conversion rate from pre-diabetes to diabetes. Data from this study can potentially help us develop evidence-based, scalable and effective interventions for better clinical management and policies.



Brochure of Pre-DICTED programme to invite individuals to participate in their study to decrease conversion from pre-diabetes to diabetes through lifestyle interventions

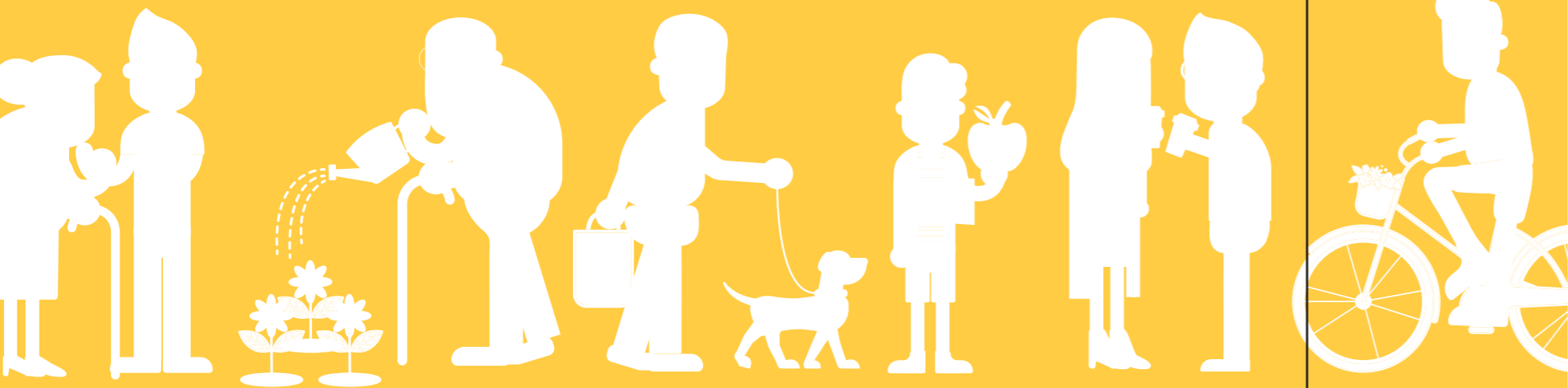
A SUPPORTIVE ENVIRONMENT FOR ALL

The WoD was launched in 2016 to mobilise a whole of nation effort so that we can create a supportive environment for Singaporeans to lead lives free from diabetes, and for those with diabetes to manage the condition well.

We have made good progress but more remains to be done. With your support, we are confident that we can sustain our efforts in this war and in turn, achieve better health outcomes together as a nation.

Acknowledgements

We would like to thank our many partners who have contributed significantly to the WoD. Their valuable time and effort have helped pave the way in our efforts to beat diabetes.



Most of all, we want to say a big “thank you” to all Singaporeans who have pledged your support to the WoD. We hope you will continue to lead the charge among your family, friends and the community.

Partners

- Professor Paul Zimmet
- Association of Diabetes Educators
- College of Family Physicians Singapore
- Diabetes Singapore
- Duke-NUS Medical School
- GP Partners
- Healthcare Services Employees' Union
- Institute of Policy Studies
- Lee Kong Chian School of Medicine
- Nanyang Technological University
- National Healthcare Group
- National University Hospital System
- Pharmaceutical Society of Singapore
- Podiatry Association Singapore
- Restaurant Association of Singapore
- Saw Swee Hock School of Public Health, National University of Singapore
- Singapore Dental Association
- Singapore Food Manufacturers' Association
- Singapore Health Services
- Singapore Human Resources Institute
- Singapore Institute of Technology
- Singapore Management University
- Singapore Manufacturing Federation
- Singapore Medical Association
- Singapore National Employers Federation
- Singapore Nutrition and Dietetics Association
- Singapore Physiotherapy Association
- Singapore Press Holdings
- TOUCH Community Services
- University of Southern California
- Women's Initiative for Aging Successfully

Agencies/Ministries

- Early Childhood Development Agency
- Health Promotion Board
- Integrated Health Information Systems
- Ministry of Communications and Information
- Ministry of Education
- Ministry of Social and Family Development
- National Environment Agency
- People's Association
- Public Service Division
- Singapore Armed Forces
- Sport Singapore

Photo Credits

- Diabetes Singapore
- Health Promotion Board
- Ministry of Education
- National Healthcare Group
- National University Health System
- National University Hospital
- National University Polyclinics
- People's Association
- Singapore Health Services
- Singapore National Eye Centre
- Tampines Community Health Centre
- TOUCH Diabetes Support



MINISTRY OF HEALTH
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LET'S
BEAT
DIABETES