

Western Sydney
Diabetes

**BEATING
DIABETES
TOGETHER**

Western Sydney Diabetes Year-In-Review 2019

Purpose of this document

In December each year, Western Sydney Diabetes (WSD) undertakes an audit to document our progress against the WSD Framework for Action and achievements in meeting our goals as outlined in the WSD annual plan.

The WSD Year-in-Review 2019 document outlines the efforts, challenges and achievements of the WSD leadership team, core team and partners. It also signals the beginning of our annual planning and reporting cycle for 2020.

At the beginning of each section, we highlight the key achievements of WSD in 2019.



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Foreword

At the end of 2019, Australia was burning as a consequence of drought and higher than average temperatures. Climate activists around the world were coming together to demand action on limiting man-made climate change.

Diabetes is our burning issue. It is our leading burden of disease in Australia and a result of our high-consuming 'modern' lifestyle. Consumption of high density, highly-processed unhealthy food and beverages, coupled with a lack of physical activity are key drivers of obesity and diabetes. These habits infuse the social determinants of ill health influenced by economic opportunity, level of education, degree of social inequity and cultural heritage.

The healthcare sector consumes 30 per cent of the NSW state annual budget. We are spending billions of dollars to build new hospitals just to keep up with growing populations and increased healthcare complexity and demands. Budgets are being stretched in an attempt to keep up with the additional costs needed to run these larger facilities.

Diabetes has been recognised as a major priority for Western Sydney, hence the establishment of the very active consortium we call Western Sydney Diabetes (WSD). WSD is a broad-based initiative covering primary and secondary prevention and management.

Some of our many highlights in 2019 included:

- Hosting a WSD Leaders Alliance forum to discuss the need for more trees and greening in Western Sydney to help combat warming and have a positive impact on diabetes, health, wellbeing, lifestyle and the economic prosperity of our region.
- Being selected by the American Diabetes Association to showcase our model of care to an international audience of diabetes experts and specialists.
- Recognition as a comprehensive exemplar of diabetes management by the National Association of Diabetes Centres (NADC) in their Models of Care toolkit.
- Receiving the Game Plan Award from Qlik Healthcare Analytics (David Pryce) the Highly Commended award from Emerald publishing (WSD), and a student award to travel to Seoul, Korea for the International Diabetes Epidemiology Group conference (Gideon Myerowitz-Katz).
- Publication of our research in 18 peer-reviewed journals.
- Hosting an inaugural Masterclass for 300 General Practitioners (GPs) and healthcare professionals.
- Growing the number of WSD Alliance members and launching an online Alliance Hub.
- The establishment of a proactive group of local advocates for diabetes awareness and prevention in Toongabbie.

The goal of Western Sydney Diabetes is to increase the proportion of the healthy population, slow the progression towards being at risk of diabetes, and reduce the size of the at-risk population. We aim to prevent and slow health deterioration that can escalate from obesity to pre-diabetes to uncomplicated diabetes to diabetes with devastating co-morbidities.

"I am deeply impressed by the commitment of our 130 WSD Alliance partners to one of the greatest challenges facing the world today - tackling diabetes. Turning the tide requires collective action across agencies and across sectors to make meaningful generational change and that is exactly what WSD is doing. I am honoured to have joined the WSD leadership team this past year and see the impact we are making. I look forward to working with everyone in the year ahead - there is so much more to do!"

– CEO, Western Sydney Primary Health Network, Ray Messom

"In representing the interests of people in New South Wales at risk of or living with diabetes, it is heartening to be part of such a comprehensive, increasingly system-wide approach to this growing challenge in Western Sydney. This whole-of-community approach is critical to reducing the growing burden of diabetes in Western Sydney and Diabetes NSW & ACT remains a committed partner and contributor to the efforts of WSD."

– CEO, Diabetes NSW & ACT, Sturt Eastwood

"Being a founding Alliance member for this critical movement is an honor and a privilege. It is amazing to see the progress we have all made and it goes to show how important it is to work across our various silos and directly with communities, including at a place-based level. Bring on another year of further success!"

– Partner, PWC Australia, Nathan Schlesinger

The Diabetes Epidemic in Western Sydney

Diabetes is Australia's largest disease burden, yet 80 per cent is preventable. This has been driven by an average weight gain of 4kg in adults over the past 20 years.

WSLHD Community (600K people over 24 years)		
Type 2 diabetes	12%	72,000
High risk of diabetes and overweight	38%	228,000
Healthy and normal weight	50%	300,000

We don't know the precise prevalence of diabetes in Western Sydney but we can now triangulate data from a range of sources, including HbA1C testing in hospital Emergency Departments (ED) and General Practice (GP).

Health economists from PwC, working with WSD in 2018, calculated the average annual cost of a patient with type 2 diabetes in Western Sydney is \$16,124. **This translates to a collective total of \$1.16 billion per year to treat 72,000 people with diabetes in the Western Sydney Local Health District (WSLHD).**

In 2019, we passed the milestone of conducting 100,000 HbA1C tests in the ED of Blacktown and Mount Druitt Hospitals (BMDH). These tests revealed that 17.4% of people had results consistent with diabetes (HbA1C >6.4%) and 30.6% had results consistent with pre-diabetes (HbA1C 5.7-6.4%).

Since the HbA1C initiative began in June 2016, the proportion of people testing positive for diabetes has increased from 16.8% to just under 18%, a worrying trend that looks to continue.

In 2019, through a collaboration with the University of Sydney (USYD) School of Public Health, WSD looked at the risk of having diabetes and undiagnosed diabetes based on demographic factors. This revealed very significant associations between diabetes and income, with those in the highest income areas having 40% lower odds of diabetes compared to those in the lowest. Ethnicity was also key, with Pacific Island peoples having more than three times the odds of diabetes, and two times the odds of undiagnosed diabetes, compared to people from Australian, European, or North American backgrounds.

To keep track of the scale of the problem and the associated issues, the Department of Diabetes and Endocrinology (DDE) at BMDH, the Business Analytics Services (BAS) and Integrated and Community Health (ICH) facilities at WSLHD, Western Sydney Primary Health Network (WSPHN) and PwC collaborated to develop data dashboards.

A snapshot from the dashboard in September 2019 revealed:

- People with diabetes stayed in hospital, on average, 1.4x longer than patients without diabetes.

- They also had a 1.4x higher cost, calculated using Nationally Weighted Activity Units (NWAU).

Each year, the results of new large diabetes medicine trials are reported. Diabetes medications enter the market and become available and this is driving rapid change in international and national guidelines. It is hard for the clinical community to keep pace. These results show a high ongoing use of older medications like sulfonylureas and a low uptake of SGLT2 inhibitors and no use of GLP-1 in September in BMDH patients.

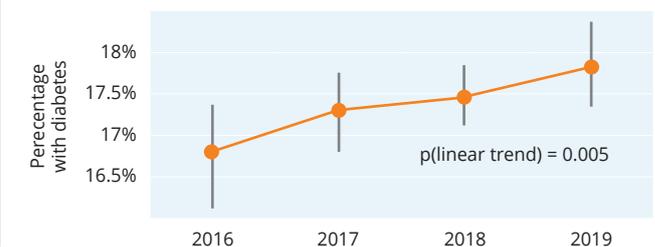
Keeping up-to-date with the evidence related to medications was a theme covered in the plenary session at the Masterclass (see page 10 for more details). We will be able to track over time the gap between the evidence we have and its application through these dashboards.

The increase in diabetes is also prompting a new trend in diabetes complications. Hospital data reveals that, as the years go by, a higher proportion of people admitted to hospital in WSLHD have complications related to diabetes.

If these trends continue, by 2030 nearly one in 200 admissions to WSLHD will have a hypoglycaemic event, and more than one in 1,000 admissions will be for a diabetic amputation.

The growing trend of diabetes in hospital has some consistent worrying parallel data from GP clinical systems collecting patient BMI in 2019. This is data from 181 practices, including the records of over 680,000 patients.

Age and sex corrected proportion of people with diabetes tested at BMDH ED 2016-2019

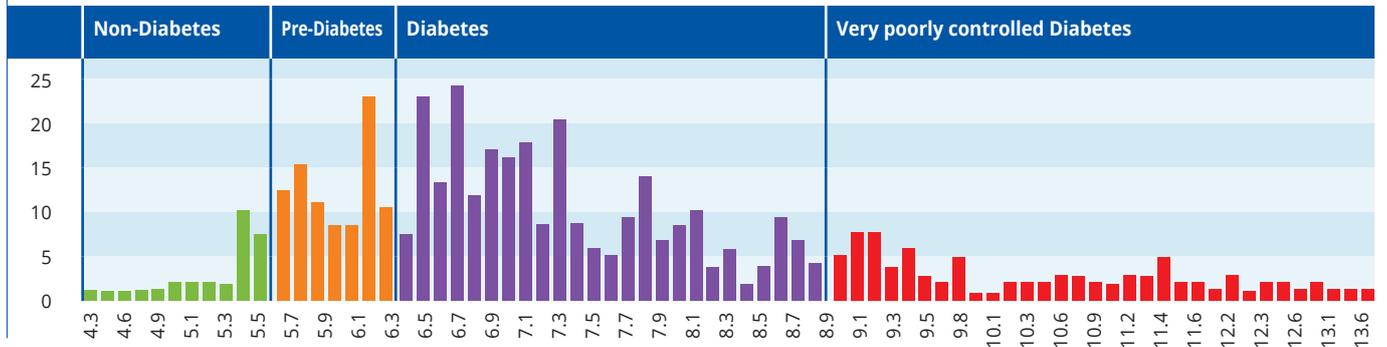


WSLHD Community (600K people over 24 years)

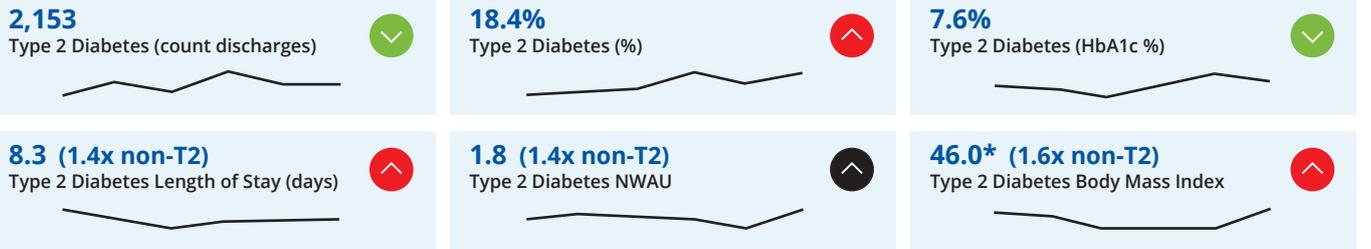
Country of Birth	Odds Ratio		95% confidence interval	
	(1=baseline)	P-value	Lower bound	Upper bound
Australian/ European/N				
American	1			
Pacific Island	3.471807	0	3.140341	3.838261
Asian	1.662834	0	1.526241	1.811651
Arabic	1.592907	0	1.410425	1.798999
African	1.604234	0	1.400766	1.837256
South American	0.783756	0.048	0.615597	0.997849
India/ Subcontinent	1.751165	0	1.60598	1.909475

The Diabetes Epidemic in Western Sydney (cont.)

HbA1c% – recorded at Blacktown and Mt Druitt ED (498/903)

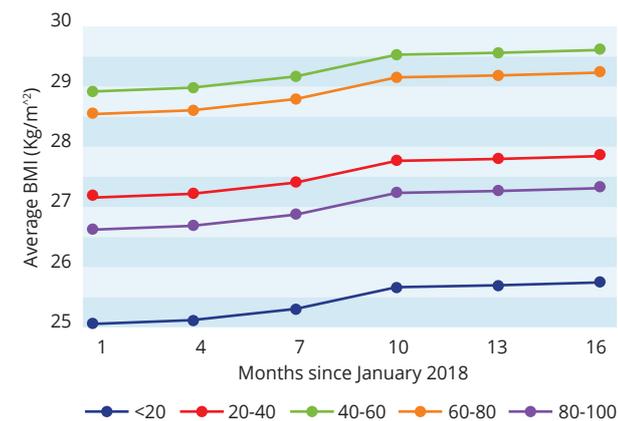


Trends, demographics and country of birth

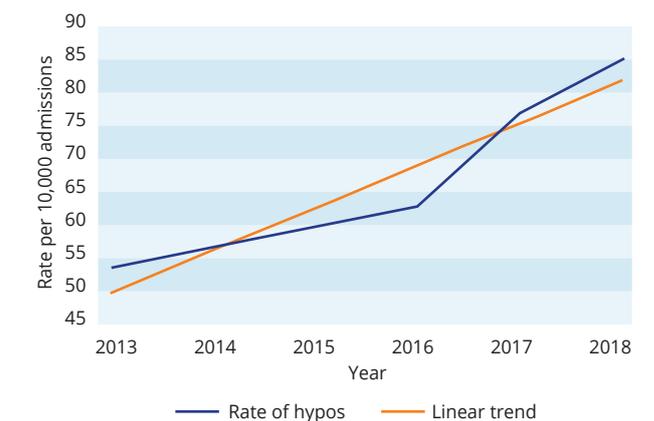


* Based on 268 out of a possible 2,153 measurements where weight and height were both recorded.

Average BMI in the last 16 months by age group

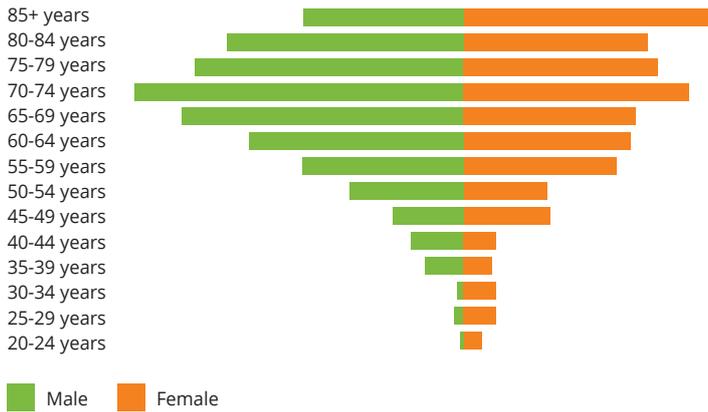


Rate of hypoglycemic events per 10,000 admissions to WSLHD

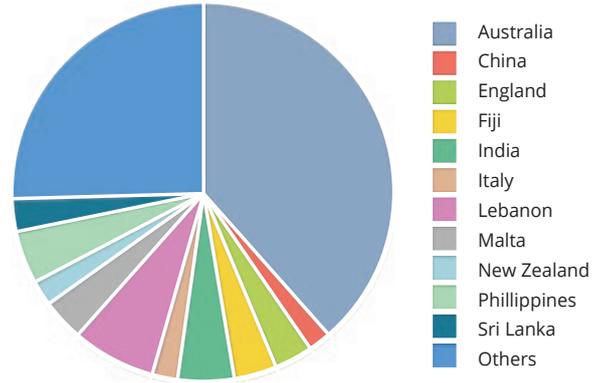


Discharge-specific information for type 2 diabetes

Age Pyramid

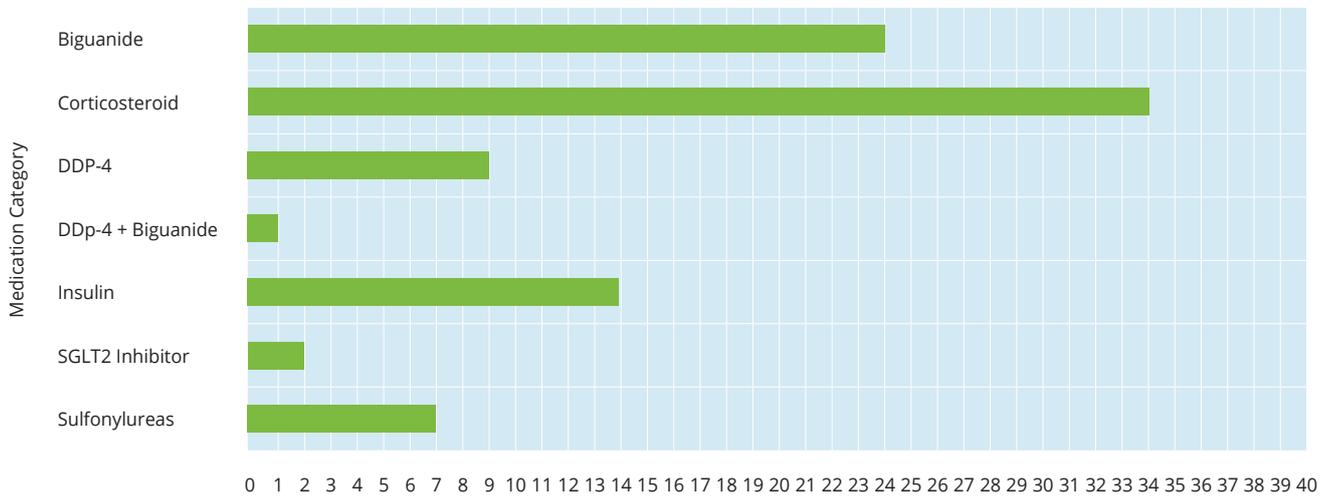


Country of Birth



Global distribution of medication use to date (cumulative)

The dashboards also give an insight into the medical management of diabetes. In patients admitted to BMDH in September, the following medications were used:



2019 Plan: Framework for Action

The WSD Framework for Action underpinned the WSD 2019 Plan and guided all work by the core team and Alliance partners in 2019. The Framework comprised two major sections, Primary Prevention and Secondary Prevention and Management, with key indicators under each. This page outlines key actions identified to progress these goals in 2019.

1. Building an Alliance and testing the strategy.

Under the leadership of four key partners, WSD aimed to grow an alliance of more than 120 active partners, across government, business and the community, who understand the problem and are committed to engaging decision-makers and developing and implementing solutions to tackle the epidemic of diabetes in our region.

2. Primary Prevention.

WSD's primary prevention programs and initiatives aimed to reduce the development of type 2 diabetes in the community and limit the progression of people at 'high risk' or with pre-diabetes to a formal diagnosis of type 2 diabetes. Focus areas included supporting the Premier's Priorities to restore urban tree canopy and improve green space quality, improving healthy food consumption, increasing physical activity and enhancing the healthy built environment with government leading the way.

3. Secondary Prevention and Management.

Secondary prevention initiatives aimed to slow or stop the development of diabetes complications. They focussed on early detection of diabetes and better management through the life cycle of diabetes and closing the gap between evidence-based guidelines and the real-world management of diabetes. This component was dependent upon leveraging a more

connected healthcare neighbourhood to deliver the right care at the right time and place. A strong guiding principle was healthcare delivered in a way to support the quadruple healthcare aims of servicing patient needs (1) to get quality health outcomes (2) in a cost-effective manner (3) with high provider-satisfaction (4).

4. Place-based Mobilisation.

Where people live contributes significantly to the social determinants of diabetes. As we do not have the resources to deliver all WSD interventions at appropriate scale to beat diabetes throughout Western Sydney, in 2019 we adopted Toongabbie, Mt Druitt and Blacktown as our place-based effort to demonstrate the power of local community engagement in rolling back diabetes, one geographical area at a time.

5. Data for Decision Making.

Our aim was to build a population health surveillance and monitoring system to leverage data and intelligence to continuously evaluate problems and impacts.

6. Public Awareness.

Our community has low awareness and health literacy in relation to the consequences of diabetes, how best to prevent and manage the disease and the impact it has on their lives. We aimed to start a public awareness campaign to inform and engage the community about the risks of diabetes and engage Western Sydney residents to take positive steps for better health.

7. Research and Publication.

WSD encourages the adoption of interventions that have been evaluated overseas or locally and aims to bring these to larger scale in our district. Research, publications and forums were identified as enablers to assist with this goal in 2019.

FRAMEWORK FOR ACTION

AN ALLIANCE OF 113 PARTNERS • ALL TIERS AND SECTORS OF GOVT • PRIVATE SECTOR • NGO • UNI & EDU

➔ PRIMARY PREVENTION

IMPROVING FOOD CONSUMPTION

INCREASING PHYSICAL ACTIVITY

BUILDING HEALTHY ENVIRONMENT

GOVERNMENT LEADING THE WAY

➔ SECONDARY PREVENTION AND MANAGEMENT

HbA1c TESTING

LIFESTYLE COACHING

JOINT CASE CONFERRING

HEALTH PATHWAYS

GP SUPPORT LINE

WSD APP

COMMUNITY PHARMACY

PRACTICE NURSE TRAINING

SHARED HEALTH SUMMARY

SAVE A LEG

COMMUNITY EYE PROGRAM

RAPID ACCESS CLINIC

CGM FOR DIAGNOSTICS

INTEGRATED CARE

HEALTH CARE HOME

IN-HOSPITAL CARE

EDUCATION CENTRES

BIARIATRIC OBESITY CLINIC

PLACE-BASED MOBILISATION

PUBLIC AWARENESS

DATA FOR DECISION MAKING

RESEARCH AND PUBLICATIONS

About our Team

- ✓ **Engaged leadership during changing times at WSLHD and WSPHN.**
- ✓ **Gradual sustainable growth of WSD teams and programs.**
- ✓ **Strong engagement and support by partners.**

Leadership Team

WSD is a consortium led by WSLHD, WSPHN, Diabetes NSW & ACT and PwC.

Both the new chief executive of WSLHD and chief executive officer of WSPHN continue to co-chair an Executive Management Team (EMT). This is supported by a secretariat led by the Director and the Program Manager of WSD, the ICH facility at WSLHD and the Director, Primary Care Transformation and Integration at WSPHN. The EMT provides leadership, strategic direction and the structure to support the implementation of the WSD initiative. EMT meetings were held quarterly in 2019 and the adjusted WSD Framework of Action and Work Plan were endorsed.

Core Teams

The WSD WSLHD core team is also a department of the ICH facility at WSLHD. In 2019, WSD WSLHD grew its profile to 14.6 Full-Time Equivalent (FTE) with the addition of 1.9 FTE for the establishment of a Joint Specialist General Practice Community Diabetes Clinic (JSGP-CDC) in Mt Druitt Community Health Centre (MDCHC). WSD WSLHD has a budget of approximately \$2.4M annually.

The WSD WSPHN core team includes the Director of Primary Care Transformation and Integration, Primary Care Transformation Manager, Joint GP Specialist Case Conferencing Expansion Coordinator, the broader Practice Development team and the Health Intelligence Unit.

Engaged Partners

Other lead organisations in WSD assign staff to WSD work on a project-by-project basis. In 2019, this included a significant contribution by PwC to the WSD Data Hub – Test Bed Project, supported by the Australian Digital Health Agency (ADHA).

Several WSLHD departments also contributed significantly to WSD goals in 2019.

WSD WSLHD collaborated and worked seamlessly with the Endocrine and Diabetes Departments at Westmead Hospital (WH) and BMDH to share staff and work together

in the hospitals, outpatient clinics and the community. A notable example of this is WSD's contribution to HbA1C testing programs at BMDH and WH. The Joint GP Specialist Case Conferencing (JGPSCC) program from BMDH and WH was also supported by WSD. This strong collaboration was exemplified by the Masterclass that drew 50 faculty from WSLHD hospitals, WSPHN and other partners.

In addition, WSLHD's BAS assisted in developing the Dashboards and Digital Health Solutions (DHS) to advance the development and rollout of the 'Diabetes Together' patient self-management app. Diabetes prevention work was integrated and supported by the Centre for Population Health (CPH).

WSD's goal of establishing a Mobilising Public Support Communications Group (MPSCG) was supported by engagement of staff from WSLHD Corporate Communications and communications specialists from lead and key partners including WSPHN, PwC, Diabetes NSW and ACT, Western Sydney Regional Organisation of Councils (WSROC) and Western Sydney Leadership Dialogue (WSLD).

The National Association of Diabetes Centres (NADC) collaborated with WSD to offer an eLearning Diabetes course at a 95 per cent discount rate for all healthcare providers in our district.

Engaged Leaders Alliance

In 2019, the WSD Leaders Alliance grew to 130 member organisations and successfully met twice to focus on new opportunities and explore ways to collaborate and progress work on beating diabetes in western Sydney.

Toongabbie community leaders stepped up to form a community-based organisation, Healthy Living Toongabbie Inc, which has become the most advanced, independent Place-Based Mobilisation program supported by WSD and its partners such as AstraZeneca.

Alliance partners supported the development of the 'Two Towns at a Time' project, which will be evaluated in collaboration with the Agency Clinical Innovation (ACI).

Academic Alliance partners, PowerLab at University of Wollongong (UOW) and the University of NSW (UNSW) supported the research success of WSD. Graduate students from the USYD School of Public Health, assisted with in-depth diabetes dashboard data analysis that is being prepared for publication. Partners from the Sydney Health Literacy Lab at USYD collaborated to co-design ideal patient-centric digital tools for diabetes self-management.

Key WSD Events in 2019

- ✓ **Four large, action-oriented WSD forums for healthcare professionals.**
- ✓ **Large-scale Masterclass for community providers managing diabetes in Western Sydney.**
- ✓ **Two engaging WSD Leaders Alliance Meetings with key partners from across the corporate, government, education and NGO sectors.**

Keeping an Eye on Diabetes' – 7 May

This forum announced and encouraged the expansion of the Diabetes Community Eye Care (C-EYE-C) program in Western Sydney.

Speakers: A/Prof Andrew White, Head of Ophthalmology Department Westmead Hospital, Director C-Eye-C; Joseph Nazarian, Optometrist, Nazarian Optometrist and C-EYE-C; Peter Rushton, CEO, Kildare Road Medical Centre Blacktown; Belinda Ford, Service Co-ordinator, C-EYE-C.

Panel: Prof Paul Mitchell, Ophthalmologist, Westmead Hospital; Dr Rajeez Chalasani, Ophthalmologist, Strathfield and Minchinbury; Dr Tony Wong, General Practitioner, Alpha Medical Centre.

Attendees: 59 in total. Half of the participants were based in the community including nurses, podiatrists, optometrists, consumers and 10 GPs.



Dr Katharine Gupta fielding audience questions to the panel of presenters.

'Obesity – It's a Weighty Matter' – 21 May

This symposium, hosted by the Blacktown Metabolic and Weight Loss Clinic (BMWLC) team, aimed to build capacity to manage people living with obesity using practical, case-based discussion regarding the use of pharmacotherapies and Very Low Calorie Diets (VLCD).

Chair: Prof Mark McLean, Divisional Director Medicine and Ambulatory Care BMDH.

Speakers: Jane Assange, WSPHN; Sarah Driscoll, dietitian WSLHD; Dr Ramy Bishay, Clinical Lead, BMWLC; Prof Golo Ahlenstiel, Chair of Medicine at BH; A/Prof Lukas Kairaitis, Head of Renal Medicine, BH; Dr Michael Devadas, Upper GI Surgeon, BMWLC and Norwest Surgery.

Attendees: 90 in total, including dietitians, nurses and GPs.

Aboriginal Health Meeting – 31 May

"How is Western Sydney Diabetes helping address the needs of Aboriginal people to prevent and manage diabetes?" This was the question asked by Graeme Loy, WSLHD CE at the WSD EMT meeting on 27 March 2019. As a result, a Diabetes and Aboriginal Health meeting was held in May.

The purpose of the meeting was to establish a working party to identify the scale of diabetes among Aboriginal and Torres Strait Island people and to determine appropriate interventions.

Following the meeting, attendees shared summaries of programs and services for Aboriginal people, formed a working group to address some of the ideas raised, and prepared a document using data sources currently available to determine the prevalence of diabetes in this community.

An education event has been planned for Close the Gap Day at the Aboriginal Health Hub in Mount Druitt in 2020. A strategic planning session will also be held early in 2020 to discuss the work required to cover prevention and management of diabetes among the Aboriginal community. Greater Western Aboriginal Health Service (GWAHS), WSPHN and Diabetes NSW & ACT will join this session.

Chair: Prof Glen Maberly, Director WSD and Braiden Abala, Director Aboriginal Health Strategy.

Attendees: 28 in total, including representatives from WSLHD, WSPHN and Kildare Road Medical Centre.



'Getting Your Head Around Diabetes and Mental Health' forum presenters from left to right: Dr Ahmed Hussein, Kim Matthews, Prof Vlasios Brakoulias, Dr Katharine Gupta, Prof Glen Maberly, A/Prof Beth Kotze, Janine Dawson, Sian Bramwell, Dr Ramy Bishay.

'Eating to Beat Diabetes' – 24 July

This forum provided an update on the latest research, diets and products related to diabetes prevention and treatment for a variety of health professionals involved in the provision of dietary advice.

Chair: Janine Dawson, Diabetes Prevention Manager, Western Sydney Diabetes

Speakers: See photo below.

Attendees: 92 in total, including dietitians, nutritionists, GPs and nurses.



Nutrition forum presenters from left to right: Prof Grant Brinkworth, Kathy Usic, Jennie Brand-Miller, Chloe Horne and Alan Barclay.

'Getting Your Head Around Diabetes and Mental Health' – 22 October

This forum provided colleagues working in mental health with the most up-to-date information on screening and management of pre-diabetes, lifestyle modification, use of newer diabetes medications, management guidelines and complication screening.

Chair: Professor Vlasios Brakoulias, Senior Staff Specialist Psychiatrist, Blacktown Mental Health Services.

Speakers: See photo above.

Attendees: 60-plus, with an additional two centres joining remotely from regional and rural centres.

Key WSD Events in 2019 (cont.)

'Diabetes is Changing Fast: Masterclass 2019' – 9 November

This inaugural event was designed for GPs and multi-disciplinary General Practice and community healthcare teams working in Western Sydney. The aim was to design a one-stop shop for health professionals to interact with each other and keep abreast of the ever-changing aspects of diabetes management.

Such was the demand for the free Masterclass that the venue was changed and the program expanded to increase capacity from an anticipated 150 participants to the 300+ who registered and attended on the day.

"An excellent program. Practical superb speakers. Good overview of evidence and updates therein, and especially relevant discussions relating to our population and demographic."

– Sourced from Masterclass feedback form

A faculty of more than 50 people and 30 volunteers designed and delivered the program. GPs strongly contributed to the design of the program, chaired most sessions, facilitated discussions and presented throughout the day.

Plenary sessions provided an update of diabetes medication, data and dashboards, management of obesity, latest approaches to weight loss, diabetes in pregnancy, fatty liver and an outline of key health organisations and resources in the WSLHD. Breaks provided opportunities to interact with colleagues and faculty and visit supporting pharmaceutical industry stands.



Dr Ahmed Hussein, Dr Tien-Ming Hng, Prof Glen Maberly and Dr Thava Seelan engaging in a panel discussion at Masterclass.

MASTERCLASS APP CONNECTS WITH AUDIENCE

In another first for WSD, Masterclass 2019 was facilitated through registration on the MyINTERACT App. This platform allowed participants to view and individualise the program, view speaker profiles and presentations and access other supporting material, including videos of plenary sessions recorded and edited by Healthily, for post-event viewing. MyINTERACT remains an ongoing platform for WSD to exchange information among providers in the future.

Interactive session topics included kidney disease, high risk foot care, eye screening, mental health, injection techniques and using a Continuous Glucose Monitor.

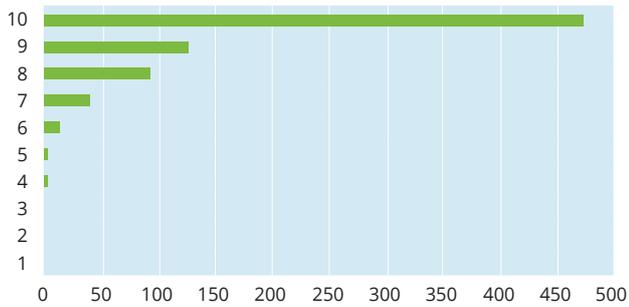
The Masterclass was also accredited by the Royal Australian College of General Practitioners (RACGP) for 40 Category 1 points as part of their Quality Improvement and Continuing Professional Development (QI&CPD) program. To meet RACGP requirements, two-thirds of the day's program was interactive and included hands-on activities. 53 GPs completed the pre- and post-event activities to enhance their learning from the day and to receive 40 Category 1 points.

This event was a collaboration between WSD partners including WSLHD, WSPHN, BMWLC, NADC, and Diabetes NSW & ACT. It was sponsored by AstraZeneca, BD, Lilly, MSD, NovoNordisk and Sanofi.

292 people attended Masterclass, including:

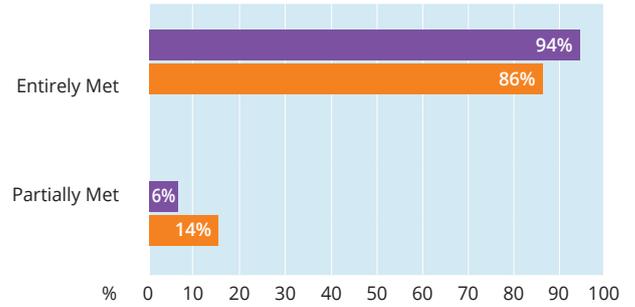
143 General Practitioners	8 Health Managers
46 Practice Nurses	6 CEO, CE, COO, V/Presidents
18 Pharmacists	5 Podiatrists
17 Diabetes Educators	3 Optometrists
16 Pharmaceutical Representatives	3 Psychologists
11 Dietitians	2 Dentists
13 Specialists	1 Epidemiologist

Plenary Feedback from 1 'Poor' to 10 'Excellent' (n=741)
 98% Rated at 'Good' (7/10) or above



When asked to rate the Masterclass plenary session out of 10, most attendees rated the plenary at 7 ('good') or above, with 63% of all people feeling that the session was 'excellent' (10/10).

Evaluation of Masterclass as an RACGP-accredited Active Learning Model



■ Rate the degree to which the activity is relevant to your practice
■ Rate the degree to which your learning needs were met



Keen Masterclass delegates filled the ballroom at the Park Royal Hotel in Parramatta.

Key WSD Events in 2019 (cont.)



Master of Ceremonies, Ian Corless from Diabetes NSW & ACT.

Leaders Alliance Meeting: 'Strengthening Partnerships to Meet the Challenge' – 3 April, Park Royal Hotel Parramatta

The first Alliance meeting for 2019 attracted 102 attendees, including leaders from the Nepean Blue Mountains Local Health District (NBMLHD) and South Western Sydney Local Health District (SWSLHD), who were presented with an overview of the WSD 2019 Plan and invited to contribute to WSD initiatives and interventions proposed for the year.

Groups at the meeting brainstormed collaborative opportunities, including the distribution of the WSD Healthy Living Options book of exercise programs and facilities in Western Sydney (see page 16 for more information).

Several members also provided short presentations on 'What we do' and concluded with a request for partners to assist in a variety of ways including program evaluation, funding or further information. In all cases, requests for assistance were met by other Alliance members.

"I had the power to change my own destiny and I needed to do it for my kids, so I embarked on a lifestyle makeover. It wasn't easy, but after twelve months, I lost 20 kilograms. I'm now diabetes free."

– Mayor of The Hills Shire Council, Dr Michelle Byrne in her closing remarks to the April Leaders Alliance meeting



WSLHD CE, Graeme Loy, opening the April Leaders Alliance meeting.



Mayor Michelle Byrne sharing her personal story about beating diabetes.

Leaders Alliance Meeting: 'Seeing the Forest & The Trees' – 7 November, Rydges Norwest

The second Leaders Alliance meeting for 2019 highlighted the impact of urban greening and canopy cover on the incidence of diabetes and general health, reflecting the WSD goal of 'Building Healthy Environment' and two of the NSW Premier's Priorities.

The meeting was attended by 110 Alliance members and provided an opportunity for WSD to engage new members from sectors including research, Department of Premier and Cabinet (DPC), Department of Planning, Industry and Environment (DPIE), councils, Premier's Implementation Unit and horticulture from across Greater Western Sydney and the Sydney Basin. Attendees heard new research in relation to tree canopy and diabetes (see right), along with the challenges of planting shade trees within the urban environment. The Deputy Secretary for DPIE, Alex O'Mara, closed the meeting with a presentation on the Premier's Priorities around urban greening.

Following the meeting, the DPIE agreed to join WSD as a lead organisation on the EMT to help beat diabetes in Western Sydney. Representatives from DPIE will also participate in WSD prevention working groups in 2020, starting with the 'Building Healthy Environment' group, to discuss and support the implementation of the NSW Premier's urban greening goals.

NEW RESEARCH: MORE TREES, LESS DIABETES

New research launched at the November Leaders Alliance meeting and published in the *International Journal of Epidemiology* by Professor Thomas Astell-Burt (PowerLab UOW) and Associate Professor Xiaoqi Feng (UNSW) provided evidence to support the NSW Premier's Priority 12, "Greening Our City", and major investments in urban tree canopy to help prevent diabetes, cardiovascular diseases and hypertension.



Tracking 46,786 people living in Sydney, Newcastle and Wollongong over an average of six years, Professors Astell-Burt and Feng found those with $\geq 30\%$ tree canopy had 31.3% lower odds of incident type 2 diabetes, 21.8% lower odds of incident cardiovascular diseases, and 17.2% lower odds of incident hypertension, compared to people with $< 10\%$ tree canopy within 1.6km of their homes.



Presenters at the November meeting included Prof Thomas Astell-Burt, A/Prof Xiaoqi Feng, Matthew O'Connor, Prof Glen Maberly, Alex O'Mara, Janine Dawson, Dr Sebastian Pfautsh and Ian Corless.

Primary Prevention

- ✓ **Grew Alliance to 130 active members.**
- ✓ **Launched new online Alliance Hub for members.**
- ✓ **Raised \$85,000 from Pharmaceutical sector to sponsor WSD initiatives.**

Growing the Alliance

During 2019, major efforts were made to increase the size and scope of the WSD Alliance to enhance and extend the work of WSD into new areas. We extended our focus to include Greater Western Sydney and concentrated on building relationships with councils and neighbouring Local Health Districts (LHD).

A new online Alliance Hub was also developed and launched at the November meeting to further facilitate collaboration and the sharing of information and opportunities among members between meetings. Members are now able to login to the Hub to post and view relevant events, news, questions, tenders and grants to the closed online group.

Corporate Relationships

WSD continued to develop and strengthen relationships within the corporate sector. Highlights included:

- **Pharmaceutical companies** became active members of the Alliance, contributing a total of \$85,000 in sponsorship of several WSD activities outlined in the 2019 Plan.
- **Sydney Business Chambers** played a key role in opening up the Alliance to new members, notably from the property development sector.
- **Sydney Hills Business Chamber** engaged with the Alliance and it is anticipated that this new relationship will provide various opportunities to collaborate in 2020.
- **PwC** provided much-appreciated support in terms of promotion, data collection and collation.
- **Western Sydney Leadership Dialogue** joined the Alliance and co-promoted the November Alliance meeting.

Improving Food Consumption

Several initiatives were undertaken with Alliance partners in 2019 to improve access to fresh food, increase community knowledge of healthy food and provide healthy food preparation skills to families (see page 26 for more information).

Increasing Physical Activity

A range of initiatives were undertaken with Alliance partners in 2019 to increase physical activity in the Western Sydney community (see page 26 for more information).

New Alliance members in 2019

- **SWSLHD • Weight Watchers • OLOC • Total Earth Care • Penrith City Council • NSW Dept of Planning, Industry and Environment • parkrun**
- **WS Leadership Dialogue • NSW National Parks and Wildlife • Hawkesbury City Council • Sydney Hills Business Chamber • Farmwall • Turf Australia • People and Parks • Royal Botanic Gardens • Australian Institute of Landscape Architects • Blacktown West Public School • Walters Road Public School • Rooty Hill Public School • Shalvey Public School • Lalor Park Public School • AstraZeneca • Becton Dickinson • Sanofi • Eli Lilly • NovoNordisk • Merck Sharp & Dohme**

Building Healthy Environment

This goal became the focus of the second WSD Leaders Alliance meeting of 2019 (see page 13 for more information.)

Government Leading the Way

In 2019, the WSLHD Centre for Population Health continued to change the workplace food environment to make healthy choices easier for staff and visitors.

State audits showed that WSLHD performed better than average, with food outlet staff engaging with the 'Healthy Food and Drink Framework' and committing to making healthy food and drinks available to staff and visitors. Interviews with WSLHD food outlet staff revealed that significant longer term changes took place.

These included:

- Restructuring their business to support healthy choices, including their workforce
- Shifting resource allocation towards healthier suppliers
- Reorganising internal systems to orientate new staff to healthy choices
- Establishing small teams to work on healthy choices.



Framework Ambassadors Rhea Balmaceda, Jillian Reade, Vishnugar Arunasalam, Kelly Hardy and Janice Lowe with Fresh+ Café staff at Blacktown Hospital.

A WSLHD staff survey (December 2019) also revealed staff support for healthy food and drinks at work has grown. Growing numbers of staff believe:

- Health should lead the way and role model health choices
- Healthy food and drink should be available
- We don't have enough healthy choices (at the moment).

To help drive this work, almost two hundred staff members jumped on board this initiative over the past two years, becoming Health Food and Drink Ambassadors for WSLHD.

WSLHD staff perceptions about the availability of healthy foods and drinks in WSLHD health facilities

Dec 2019 (n=1,566)

- 77%** 77% of respondents believe that is important to have healthy food and drink available for purchase
- 45%** 45% of respondents do not believe that WSLHD provides enough healthy options, 28% believed they do and 27% had no opinion
- 80%** 80% agreed that the health facility should be a role model in the provision of healthy food and drink product choices. 47% of respondents strongly agreed with this statement

Secondary Prevention & Management

- ✓ **Reached more than 100,000 HbA1C tests in Blacktown and Mount Druitt EDs.**
- ✓ **Distributed 5,000 copies of the revised Healthy Living Options book.**
- ✓ **Improved Joint GP Specialist Case Conferencing capacity with the addition of a new staff specialist, work with the Aboriginal Service and new learning approaches.**

HbA1c Testing



Diabetes Detection and Management Strategy (DDMS) at BMDH

In December 2019, the number of patients routinely tested for diabetes upon presentation at EDs at BMDH reached 110,000. The proportion of tests consistent with diabetes and pre-diabetes grew to 18% and 33% respectively, highlighting that more patients had abnormal results than normal results for the first year since testing began in 2016.

Several pilot scale projects were undertaken to document and improve the responsiveness of people informed about their results. These included:

DDMS – Multicultural Health Service (MCHS) joint pilot project

This project linked the Bilingual Community Education (BCE) program 'Diabetes awareness in your community' to the Arabic and Filipino DDMS cohort with pre-diabetes.

Inpatient pre-diabetes engagement pilot project

The DDMS team conducted a small pilot looking at educating patients who had tests consistent with pre-diabetes in-hospital, based on their HbA1c results. This education focused on promoting healthier lifestyles and reducing the long term risk of diabetes in this high-risk patient group.

PREDICT research promotion

From September 2019, DDMS letters to patients with pre-diabetes began including information on recruitment of patients for PREDICT. This research led by the Garvan Institute of Medical Research aims to investigate whether changing the gut microbiota through a personalised diet will increase the effectiveness of a common diabetes drug, Metformin.

WSLHD CPH 'Get Healthy' Chinese coaching promotion

Since October 2019, DDMS sent letters to the Chinese cohort with pre-diabetes and diabetes, inviting them to

sign up for the 'Get Healthy' coaching program with a customized DDMS registration form in simplified Chinese for tracking.

Audit of DDMS letters

An audit of the number of notification letters related to abnormal tests picked up by the DDMS revealed that, for the time interval from January 2017 to December 2019, less than 2% of letters were returned.

HbA1c testing initiative at Westmead Hospital

Routine HbA1C testing of all patients who presented at WH ED with a random blood glucose level of ≥ 10 mmol/L commenced in November 2017. In 2019, 2,685 patients were screened, with 286 (11%) having new diagnoses of diabetes.

All inpatients with HbA1c of $\geq 9.0\%$ were reviewed by the Clinical Nurse Consultant (CNC) within two working days from the time of admission. Newly diagnosed patients were also routinely reviewed and treatment was initiated if clinically indicated.

GPs with the highest number of patients with a HbA1c of $\geq 9.0\%$ were also identified and targeted in JGPSCC.

HbA1c testing in General Practice

Following on from the research project in 2018, the earlier use of HbA1C testing to detect diabetes was promoted in General Practice. This occurred during conversations in Joint GP Specialist Case Conferences (JGPSCC) and at the Masterclass.



Lifestyle Coaching

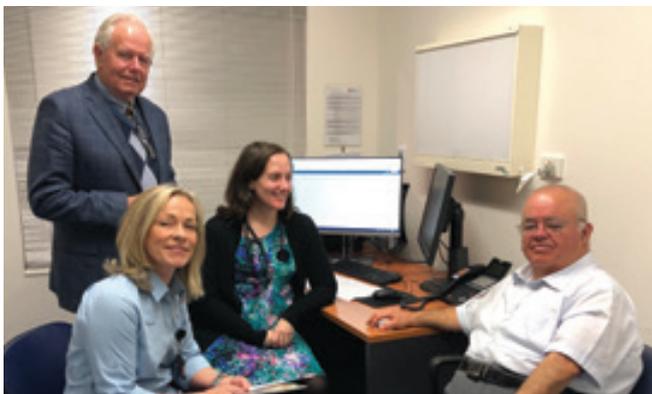
Integration of Primary Prevention work with Secondary Prevention and Management to promote lifestyle options

Collaboration between Alliance members, including the WSPHN and AstraZeneca, in conjunction with promotion through JGPSCC, facilitated the distribution of a copy of Healthy Living Options (HLO) book to every GP in Western Sydney. Further circulation of the book to a large number of health professionals was achieved through presentations and discussions at relevant WSD forums, Community Health meetings, Aboriginal Health venues, through Obesity clinics at Westmead and Blacktown hospitals, and talks to consumers at selected forums, meetings and community events. Presentations about HLO were also made to UTS Master of Public Health students, mental health clinics and councils to encourage distribution through community programs. 5,000 copies were distributed in total.

Joint GP Specialist Case Conferencing



The Joint GP Specialist Case Conferencing (JGPSCC) model of care was implemented in 2014 and aims to build capacity in primary care to manage patients with type 2 diabetes. The JGPSCC benefits to practices include opportunities to stay up-to-date with diabetes management guidelines and medications, and demonstrated improvement in patient outcomes.



Case Conferencing at Blacktown Hospital with Sian Bramwell, Prof Glen Maberly, Dr Katharine Gupta and patient.

From February to December 2019, the combined BMDH and WH teams conducted over 110 JGPSCC. These involved:

- 30 new practices
- 85 GPs new to case conferencing
- 520 patients reviewed.

Since JGPSCC commenced in March 2014, approximately 120 practices, 350 GPs and 2600 patients have been involved.

Since the introduction of the program, JGPSCC has expanded due to strong working relationship between the WSPHN and WSD.

Monthly meetings between the WSPHN and WSD fostered open communication to improve work processes and maximise booking opportunities. Additionally, twice yearly meetings between the WSD clinical team and WSPHN Practice Development team offered opportunities to strengthen teamwork, share ideas and update new staff. Information brochures about JGPSCC were developed for GPs and WSPHN staff and processes for JGPSCC were standardised within the WH team.

WSD prioritises Aboriginal health and the team also attended the Greater Western Aboriginal Health Service on a quarterly basis for case conferences during 2019.

Outreach service provision

Recognising the need to support regional and rural General Practices to build their capacity to better manage type 2 diabetes, WSD extended service beyond Western Sydney to initiate JGPSCC in rural and regional areas of NSW.

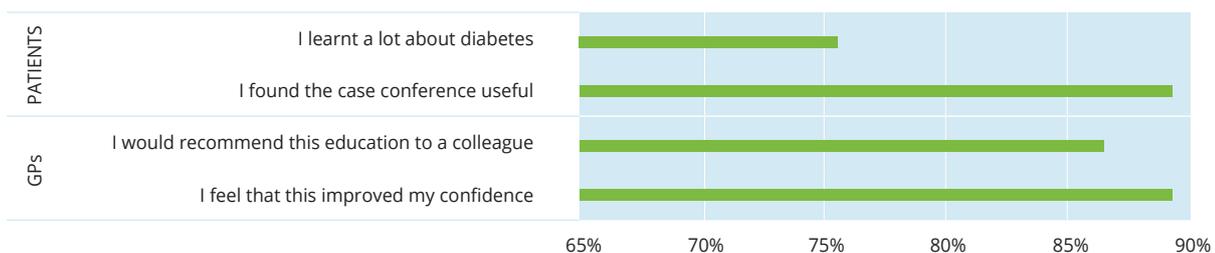
A two-year pilot program of Rural JGPSCC is being developed in collaboration between WSLHD and NSW ACI. This program will be offered to two rural towns in NSW to test the feasibility of the project, complemented by future tele-health, masterclasses and e-learning.

The initial inertia barrier to GP engagement in Goulburn, our first test site, was overcome and JGPSCCs were conducted on 6 September at two Goulburn General Practices with four GPs and one Practice Nurse (PN). An additional 13 healthcare professionals also attended a lunchtime education session, 'Let's beat type 2 diabetes together – Goulburn', and 91 per cent of participants reported that their learning needs were met from the session.

The Goulburn visit was supported by Coordinare, the local Primary Health Network, and sponsorship from NovoNordisk.

Feedback from GPs and patients on JGPSCC

This table shows evaluation of JGPSCC from 39 participating GPs and Practice Nurses surveyed by WSD and 100 patients surveyed by WH.



Secondary Prevention & Management (cont.)

Mental Health engagement

In 2019, WSD continued to collaborate with our colleagues in Mental Health to help build capacity to manage diabetes and the metabolic health of mental health patients. This included undertaking monthly JGPSCC with the Mental Health team, where the aim was to review four patients per session. During the year, 10 JGPSCC sessions were conducted involving 34 new patients and nine follow-up patients.

Support for selected nurses in the Mental Health unit was provided to complete the online 'My Health Learning' diabetes modules and NADC education program.

Biannual orientation was given to psychiatry registrars regarding our collaboration, the diabetes referral process and a new referral pathway. WSD also presented the JGPSCC model of care at the NSW Annual Clozapine Coordinator Conference in November 2019. In addition, a collaborative research proposal was submitted and is awaiting ethics review.

WSD also hosted a Diabetes and Mental Health forum (see page 9 for more information).



The WSD Clinical team and WSPHN Practice Development team meeting to strengthen teamwork and share updates.

HealthPathways



Diabetes pathways were the first to be completed when HealthPathways was initiated more than five years ago. In 2019, 23 diabetes pathways were reviewed by BMDH and WH clinical staff.

C-Eye-C, High Risk Foot Service and the BMWLC were all updated, as were the referral pathways to Diabetes Outpatient Clinics.

Diabetes was the third most popular clinical area on the Western Sydney HealthPathways website, with:

- 3,362 pageviews by 892 individual users.

The top 5 diabetes clinical pathways by Pageview were:

- Diabetes Education and Support
- Screening and Diagnosis of Diabetes
- Chronic Kidney Disease Screening and Management
- Managing Newly Diagnosed Type 2 Diabetes
- Ongoing Management of Type 2 Diabetes.

GP Support Line 1300 972 915



The GP Support Line was established in the ICH Demonstrator project in June 2015. During 2019 (Jan – Oct) the Diabetes Support Line received 107 calls, compared to Cardiology (57) and

Respiratory (57). For every call through this line, WSD clinical staff received 2-3 more calls directly as a result of their work in the community.

The GP Support Line provided GPs with easy access to the clinical team, including the Advanced Trainees and on-call consultants. This ability to discuss management queries and options often negated the need for a clinic visit or facilitated a review with the clinical team in the Complex Type 2 Diabetes Clinic (CT2DC). It also represented an opportunity to discuss and promote WSD's JGPSCC program. The service continued to be greatly appreciated by GPs and was promoted at the Masterclass.

WSD Diabetes Together app



There is a growing need for diabetes self-management solutions to empower patients to better understand and manage their diabetes.

WSD has been working on a solution for several years and in late 2019 we rolled-out our WSD 'Diabetes Together' app into a trial of concept phase with the recruitment of patients from our CT2DC.

The WSD Diabetes Together app partners



The WSD app is based on a platform called Gevity that is already available to the public. The Gevity platform is focused on lifestyle coaching for better health.

Built in 2019, the app can record Blood Glucose Levels (BGL), track exercise and healthy eating goals and use a patient's individual HbA1c goal to deliver personalised health education and information. It features 73 educational diabetes videos, produced by the WSD team with the assistance of GoShare Healthcare, which are bundled with educational web pages and fact sheets. The app also integrates with several secondary apps (Apple Health, Google Fit, Apple Watch, MapMyFitness, RunKeeper, Strava, IHealth and Nokia Withings) and fitness devices (Garmin, Fitbit and Xiaomi).

Discussions commenced to combine the 'DiabetesTogether' app and CareMonitor. CareMonitor, being developed in Western Sydney by local GPs, is a fast-growing cloud-based population health management software that provides a comprehensive and secure end-to-end real-time health monitoring platform

Community Pharmacy



Communication with the two main pharmacy bodies, Pharmaceutical Society of Australia (PSA) and the Pharmacy Guild of Australia NSW (PGA NSW) continued in 2019. There was also strong engagement with the General Practice Pharmacist team at WSPHN.

The annual 'Diabetes and General Practice Pharmacists Update' session was held at WSPHN in August, attended by six GP Pharmacists. The latest Diabetes Management Guidelines, including injection technique, were presented and generated good discussion and improved communication and collaborations between the teams.

GP Pharmacists were involved in over 20 practices in Western Sydney, reinforcing education around diabetes management to patients, the practice team and to community pharmacists.

The WSPHN GP Pharmacist team conducted a workshop on the 'Benefits of a Pharmacist Review' at Masterclass. They also presented at the national Health Care Homes forum, and were involved in community forums at Toongabbie and Kings Langley. Practices were also reminded that community pharmacy was eligible to receive funding to assist with managing Health Care Homes patients. This represents an opportunity to further involve community pharmacy, an often underutilized resource, to assist with diabetes management, monitoring and awareness in Western Sydney.

Practice Nurse and Allied Health Professionals Training



Building the workforce capacity of General Practice is key to optimum diabetes management and this includes not only GPs but Practice Nurse (PNs). It also extends to the Allied Health Professionals (AHP) team including Dietitians, Exercise Physiologists, Physiotherapists, Podiatrists, Pharmacists, Optometrists and others who work in the community setting.



GP Pharmacist Michael Wong presenting the 'Benefits of a Pharmacist Review' workshop at Masterclass.

Months of hard work culminated in 2019 with an agreement to share diabetes educational and learning resources between the WSLHD and the NADC for a two-year period. This agreement will enable local staff involved with diabetes care within General Practice and community to subscribe to the online NADC 'National Diabetes Care Course' at a heavily subsidised rate. Promotion of this course within the Western Sydney region will be scaled up at the beginning of 2020.

A solid collaboration between WSPHN and WSD continued to support PNs to build their skills and knowledge within their own practice at JGPSCC. One PN reported that JGPSCC gave her "more confidence in advising patients with diabetes on diet, checking BGLs and suitable medication for patients".

Secondary Prevention & Management (cont.)

Correct injection technique, hypoglycaemia management, lifestyle education and foot checks were common topics provided to the 35 PNs who engaged with JGPSCC during 2019.

PNs and AHPs were also warmly welcomed at the Masterclass.



NADC CEO Natalie Wischer informing Masterclass delegates about the heavily-subsidised NADC courses.

Shared-care Planning & Linked Data



Electronic shared-care planning between General Practice and hospital teams did not eventuate as planned. However, considerable progress was made around data sharing with advances on data linkage in certain projects (see page 31 for more information). Under the Data for Decision Making Taskforce (DDMT) in ICH, a data sharing agreement between WSLHD and WSPHN was adopted. Innovative planning commenced between WSD, WSPHN, WSLHD and PwC to join 'Diabetes Together' and CareMonitor platforms where patients can consent to share their data with GPs and the hospital. This will be a very active area for development in 2020.

Save A Leg



The High Risk Foot Service (HRFS) at BH expanded in 2019, with the appointment of a second senior podiatrist. Within six months of the appointment, occasions of service increased by 25 per cent, compared to the previous year. Podiatry referral processes became more streamlined, with hospital-based patients referred by e-consult. Occasions of inpatient podiatry services doubled.

Hospital staff received education regarding referral processes to reduce inappropriate referrals to clinic and clinic waiting times. Further changes to referrals included a new GP referral document added to HealthPathways, and a dedicated HRFS mobile contact number.

Vascular surgery operating theatre time increased from July 2019. We anticipate this milestone to be key to improved HRFS at Blacktown, as admitted patients can be surgically managed at BH. This will reduce transfers to WH and the length of hospital stay and strengthen the Blacktown HRFS's capacity to narrow the patient's journey to one locale.

Several initiatives to collect data for research, practice auditing and workflow purposes began in 2019. This included an audit to review the characteristics of patients requiring amputation or debridement at BH in the last decade to improve our understanding of our service base. We hope to complete the audit by mid-2020.

Dashboards to review inpatient and outpatient encounters were also built (see page 31 for more information).

The team continued to discuss goals at monthly Multidisciplinary Team meetings attended by all HRFS members (vascular surgery, ID, endocrinology, podiatry and wound nursing) and made plans to add an orthopaedic surgeon to the team in 2020.

Community Eye Program



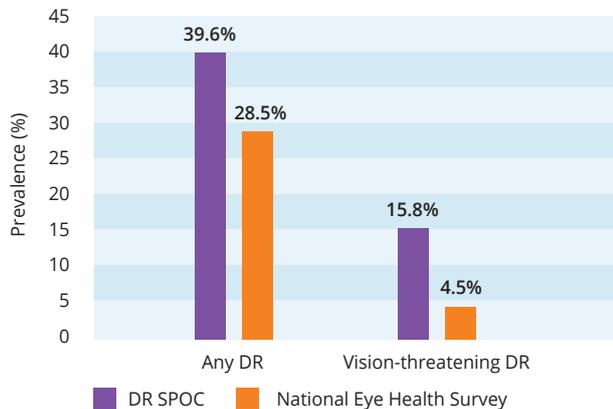
C-EYE-C

WSD continued to work with the Westmead Ophthalmology team, led by Professor Andrew White and community optometrist Joe Nazarian, to promote community eye screening through their secondary referral centre in Blacktown. The aim was to improve waiting time and to prioritise diabetic retinopathy and glaucoma. The C-EYE-C referral pathway was finalised and promoted at two WSD events, the Eye forum and Masterclass.

Outpatient Eye Screening

Together with an ophthalmology research group from Westmead, a retinal screening project was completed in August 2019 at Blacktown and Westmead diabetes clinics to opportunistically detect and highlight diabetic retinopathy. The DR SPOC research facilitated the attendance of medical student Lakni Weerasinghe at the twice weekly CT2DC at BH. The study recruited 273 patients, of which 34% were from our clinics. Results showed that 39.6% had some degree of diabetic retinopathy and 15.8% had vision-threatening retinopathy, of which 62.8% were undiagnosed. The results also highlighted that the prevalence of any diabetic retinopathy, especially vision threatening retinopathy, was higher in our hospital clinics compared to the National Eye Health Survey. The DR SPOC study confirmed that outreach screening enhances diabetic retinopathy detection at tertiary point-of-care settings.

DR SPOC vs 2014-2015 National Eye Health Survey



Rapid Access Clinics



Redesign of Diabetes Clinics, Blacktown Hospital

The diabetes clinics are among the largest of BH's outpatient clinics. In order to improve patient and staff experience of these growing clinics, an ongoing redesign has commenced.

All BH Diabetes Clinic referrals were triaged twice per week and then allocated appointments according to type of diabetes and urgency. At the time of triage, referrals that may not have needed a clinic appointment were identified and the Community Advanced Trainee discussed these referrals with the referring GP. The advice offered in these discussions often resulted in a change in management without the need for the patient to be seen in the hospital clinics. During these discussions, JGPSCC was also offered.

For the CT2DC and the HRFS, the Resident Medical Officer prepared a pre-clinic work-up that included essential clinic information with updates of progress since the last appointment and the most recent pathology. This allowed for a more efficient use of time in clinic. During the clinic, patients that had been optimised were discharged with a handover phone call to the GP, at which time JGPSCC was again promoted.

These processes improved waiting times for the CT2DC and reduced non-urgent new appointments to approximately two weeks. The restructure of clinics is a dynamic process and changes will be ongoing.

Health2sync and GoShare Health

The Health2sync app continued to be used by the Credentialed Diabetes Educator (CDE) for Insulin Dose Adjustment for patients between hospital outpatient visits. Although not suitable for all clients, the app proved to be a very efficient form of communication for those who work, especially shift workers, as up to 10 patients can be stabilised between three CDE at any one time. We will continue to use Health2Sync, while we continue to explore Australian options.

The use of GoShare Healthcare to deliver educational resources did not progress, however we aim to improve the utilisation of this valuable resource, which several GP practices are using effectively.

A paper on 'The effect of an mHealth intervention for titration of insulin for Type 2 diabetes: A pilot study' was published (see page 33 for more information).

Continuous Glucose Monitoring For Diagnostics



The use of Continuous Glucose Monitoring (CGM), in particular the Freestyle Libre Flash (FLF), continued in patients with complex type 2 diabetes. The appointment of an Enrolled Nurse (EN) to the Diabetes Education Centre (DEC) team provided increased efficiency and capacity to continue this service, which has become invaluable for detecting hypo unawareness and educating patients on the effects of lifestyle on glycaemic control.

Evaluation of patient experience with the FLF revealed that 83% found the CGM 'Very useful' and 67% felt they had "learned a lot". Wearing the sensor also resulted in a reduction in HbA1c for many patients, however a notable drawback for patients was the expense of the CGM.

The team collected data to demonstrate that CGM improved the detection of high and low glucose levels, and led to useful changes in clinical management. The data is being prepared for publication in a peer-reviewed journal. Our use of CGM in the clinic was also presented at the Masterclass.

Secondary Prevention & Management (cont.)

Integrated Care



New Joint Specialist GP Community Diabetes Clinic at Mt Druitt Community Health Centre

Approval to hire staff for the new Joint Specialist GP Community Diabetes Clinic (JSGP-CDC) at the Mount Druitt Community Health Centre (MDCHC) arrived in December 2019, following the completion of building work in September. The JSGP-CDC has four clinical consultation rooms, including one bariatric specific clinical consultation room, and an additional consultation room. Clinical consultation rooms will be shared with other staff at MDCHC on the days the diabetes clinic is not operational.

The clinic will open in the first half of 2020, operating one morning a week and staffed by four GPs as Visiting Medical Officers supervised by a Visiting Staff Specialist and supported by 0.5 administration staff. The GPs will receive advanced diabetes education and rotate through the CDC every six months. A 1.0 FTE Transition to Nurse Practitioner Diabetes Educator will oversee day-to-day management. Operational and business models are in the formative stage.

Data collection and evaluation will be an integral part of forthcoming work at the clinic to enhance opportunities for shared learning, education and collaboration between the JGPS-CDC and ICH staff at Mt Druitt.

Building capacity to better manage diabetes in ICH staff

Group education was offered to ICH staff at their workplace across the directorate. This included eight individual group education sessions. 103 ICH staff attended these sessions, which delivered a range of diabetes learnings. ICH staff who attended included CAC Nurses, Care Facilitators, Allied Health Professionals and Aged Care day staff. Sites included Westmead, Parramatta, Auburn, Blacktown, Mt Druitt, The Hills and Doonside. Future work includes promotion and roll-out of subsidised online diabetes education.

Health Care Homes



Health Care Homes (HCH) supports patients and their carers to be active partners by giving patients the knowledge, skills and support they need to make decisions about their health.

There are 17 practices in Western Sydney participating in this national trial.

Western Sydney was well represented as presenters and participants at the HCH forum in Melbourne in 2019. A large percentage of HCH practices were represented and heard about relevant initiatives in Western Sydney, including the JGPS-CC program led by WSD. Attendees included doctors, nurses, GP pharmacists and practice managers. Several practices shared their experiences and informed others of innovative ways they have increased patient involvement in management of chronic conditions, including diabetes.

In-Hospital Care



A fully-integrated diabetes service includes enhancing in-patient management of diabetes and better linking that to the management in the community. The Ministry of Health (MoH) and the ACI worked with LHDs to roll out a 'Leading Better Value Care' initiative related to in-hospital management of Diabetes. WSLHD has been an exemplar in this program. Activities in 2019 included the following:

1. The Diabetes Surveillance Dashboard at BMDH was implemented in ALADDIN for use by clinical teams on a daily basis. This novel tool continues to evolve, and work commenced to deploy this dashboard at WH.



2. Educational meetings were undertaken with a variety of departments including pharmacy, dietetics, respiratory, anaesthetics and surgery. Department-specific information around diabetes was presented and avenues to improve inpatient management were discussed.
3. Earlier discharges continued to be facilitated by the rapid identification of patients through the Surveillance Dashboard and the capacity for earlier follow up in the Stabilisation/Discharge clinics.
4. Inpatient audits:
 - a. The cardiology and diabetes follow-up audit is currently in the process of data collection.
 - b. The respiratory audit was completed and a poster was presented at the Australian Diabetes Congress (ADC) in August 2019. A respiratory forum will be held early- to mid-2020.
 - c. An audit of medication-related (SGLT2 inhibitor) admissions of diabetic ketoacidosis was undertaken and the data presented at the ADC in August 2019.
 - d. A hypoglycaemia audit is work currently underway.
5. Staff education continued to be an important aspect of capacity building and included:
 - a. Regular teaching sessions every 10 weeks to orientate new Junior Medical Officers (JMO) towards inpatient diabetes management.
 - b. An intern education program was developed, with the support of the Medical Workforce unit, to provide interns with exposure to diabetes management.
 - c. An educational program designed for nurses is being developed and we anticipate this will be rolled out in 2020. The program will upskill hospital nurses in diabetes management and provide updates on new therapies. It will also identify ward-based 'diabetes champions' and foster the development of a network of staff interested in diabetes which will allow the promotion of information and potentially identify individuals who may be interested in pursuing a career in diabetes education.

DIABETES EDUCATION CENTRES



The Diabetes Education Centres (DEC) at WSLHD hospitals continued to provide education to people with diabetes in individual or group sessions, using the Health Care Interpreter Service as required. This occurred for patients in hospital and outpatients. At BH, the insulin pump education service for people with type 1 diabetes continued to develop.

BLACKTOWN METABOLIC & WEIGHT LOSS CLINIC



Service enhancement

The BMWLC enjoyed a year of rapid expansion. This included an enhanced dietetics team (additional 0.6 FTE), a psychologist (0.5 FTE) and a physiotherapist (0.2 FTE) as well as a full-time, senior Diabetes Educator (DE) and Clinical Nurse Consultant (CNC) (1.0 FTE). We were also fortunate to have received a community grant enhancement from NovoNordisk for an additional 0.2 FTE in psychology to assist with reviewing and treating individuals with obesity and Mental Health disease, given the high prevalence of trauma, eating disorders and mood disorders in our patient population.

The team also enhanced data collection efforts, with the establishment of a digital platform (RedCap) to collate over 2,600 variables related to obesity management in our patients. The team also secured two Kickstarter grants to study the effect of fitness trackers and testing a new model of diabetes education in those with obesity and diabetes.

Models of Care

BMWLC's dietetic streams include a stepped food reintroduction module – the six-week 'Wellness Program' – to help patients navigate from the 24-week low-calorie diet program to shopping for, preparing and eating healthy meals. It also covers exercise and mindful eating. To support the program, a new eight-week group program was established by the psychologists to assist patients with mindful eating, combating emotional impulses and other self-enhancement techniques.

The program's Metabolic CNC/DE acquired new diabetes technology (FreeStyle Libre) to run monthly sessions to assist individuals with implanting sensors that non-invasively measure their blood sugars.

Secondary Prevention & Management (cont.)



The BMWLC team: Jesmine Yap, Joseph Tjung, Dr Ramy Bishay, Sarah Driscoll, Caroline Cusack and Annette Macdonald.

A monthly weight-loss surgical session was created to help inform patients who completed the required six-month intensive lifestyle phase about the expectations and requirements of surgery. Close collaboration with BH administrative, nursing and allied health staff helped to tackle obesity stigma in the hospital and cater for patients who presented for bariatric surgery.

A newly-appointed physiotherapist began conducting a 12-week exercise program at BH.

Current State and future needs

More than 500 patients have been seen in the BMWLC, with eight new and 12 follow-ups each week. Staff performed over 50 bariatric-metabolic surgeries in the last two years and results include weight loss in excess of 50-75kg and significant improvement (and remission) of diabetes, fatty liver disease and sleep apnoea. In many cases, patients ceased medications. Post-bariatric surgery support groups and individual consultations commenced to help with further weight loss, weight maintenance and enforcing a healthy lifestyle.

Enhancement of existing staff, determining optimal and expanding models of care, reducing wait lists, and producing top-line research present our next goals for 2020.

Place-based Mobilisation

- ✓ **Established a local community group in Toongabbie to promote awareness of diabetes and healthy living among residents.**
- ✓ **Maintained 13 active GP Walking Groups in Blacktown and Mount Druitt.**
- ✓ **Supported five local schools to implement a healthy food education program.**

TOONGABBIE

WSD launched a Place-based Mobilisation initiative in 2017, to enlist trusted local businesses and identities in high-risk suburbs, including Toongabbie, Blacktown and Mount Druitt, to help improve the health of their communities. Business and community leaders in Toongabbie responded with enthusiasm and formed the Healthy Living Toongabbie (HLT) Inc group in 2019.

The HLT group includes local GPs, pharmacists, residents and business owners. In 2019, HLT hosted three shopping centre visits as well as a community forum at Toongabbie Sports and Bowling Club to raise awareness of type 2 diabetes and promote healthy lifestyles in their community. The forum attracted more than 100 people, a significant achievement for this group that organised the event independently. The event was supported by a donation of \$5,000 from WSD Alliance partner, AstraZeneca.

Another series of community forums was delivered by a HLT group member, Lions Club of Sydney Indian, again, independently organised with the encouragement and support of WSD.

The HLT group also secured the support of the Australian Tamil Chamber of Commerce (ATCC), which held a Walk-a-Thon event on January 26 that raised \$1100 for the group. ATCC plans to host the Walk-a-Thon again in 2020 and to donate proceeds to support the HLT group.

HLT created a website to use as a platform to encourage the public to join the group and attend their community events. www.healthylivingtoongabbie.org

Founding members of Healthy Living Toongabbie

• Dr Sundar Medical Practice • Bridgeview Medical Practice • Toongabbie Discount Drug Store • Lions Club of Sydney Indian • Australian Tamil Chamber of Commerce • AASHA Australian Foundation • Hills Business Accountants • Consumers • Diabetes NSW & ACT • Western Sydney Diabetes



Healthy Living Toongabbie Group members Prasad Mallesh and Padmanabhan Karamil proudly promoting the group at the HLT community diabetes forum.



WSD Prevention Officer Aruni Ratanyake educating the Blacktown community about healthy food and portion sizes.

Place-based Mobilisation (cont.)



Teachers from Western Sydney schools training to implement the Stephanie Alexander Kitchen Garden Foundation's food education program.

BLACKTOWN AND MOUNT DRUITT

Placed-based initiatives to improve healthy food consumption and increase physical activity in Blacktown and Mount Druitt included:

- Teachers at Blacktown West, Walters Road, Lalor Park, Shalvey and Rooty Hill Public Schools completed Stephanie Alexander Kitchen Garden Foundation (SAKGF) food education training, and several of the schools commenced construction of gardens and/or kitchens required to implement the SAKGF program in 2020.
- 13 active GP Walking Groups for patients were maintained – 11 in Blacktown, two in Mount Druitt.
- WSD staff presented healthy food displays at health expos at Blacktown TAFE, Blacktown Library, Max Webber Library and the Library @ The Mount Druitt Hub.
- Cooking classes or demonstrations for Culturally and Linguistically Diverse (CALD) groups were delivered by Red Cross (FoodREDI), OzHarvest (Nutrition Education & Sustenance Training – NEST) and Seventh Day Adventist Church (Foodbank).
- Presentations on diabetes and healthy living options were given to Seventh Day Adventist Church parishioners at the inaugural Health Expo Day.
- Work commenced in partnership with the Seventh Day Adventist Church and Macquarie Community College to provide a course on food budgeting and preparation to commence in 2020.
- Mapping of young mothers continued to support an upcoming focus on raising public awareness of gestational diabetes and the link to future prevalence of diabetes.

Public Awareness

- ✓ **Created a diverse range of media articles to raise public awareness of diabetes.**
- ✓ **Supported major WSD initiatives with promotion and event collateral.**
- ✓ **Commenced review and revamp of WSD website, including a social media campaign and strategy.**

In 2019, the Western Sydney Diabetes Communications Strategy continued to focus campaigns on the 'at risk' community (including our CALD residents), overlapping with other groups including those already living with diabetes and the healthy community.

Building on the key goal of promoting messages of hope – that it is possible to beat type 2 diabetes – the WSD communications team introduced messages including:

- Successful case studies of people who have beaten type 2 diabetes
- 'How to' information on preventing diabetes
- 'How to' information and resources for improving food consumption and increasing physical activity, to address the generational cycle of the obesity and diabetes in families
- 'How to' information on getting tested for type 2 diabetes.

2019 also saw a new focus on promoting the collaborative work of the WSD Alliance, through media coverage about initiatives driven by members of the Alliance (see page 28 for more information).

Coverage was enhanced by the MPSCG. Members include communications specialists from WSPHN, PwC, Diabetes NSW & ACT, WSROC, USYD and others. The group met twice during the year to collaborate on major campaigns including National Diabetes Week, and to establish a process for sharing communications across partner channels including newsletters and social media.

In May, a dedicated Community Engagement and Marketing manager joined the WSD team, working closely with the WSLHD Corporate Communications WSD conduit and the MPSC group to amplify public awareness of diabetes.

In 2019, a total of 51 articles and posts were generated including the following:

- 14 media stories
- 10 social media posts
- 18 The Pulse articles
- 9 WSD website articles

The following outlines the major coverage generated across 2019.

PLACE-BASED MOBILISATION

WSD communications team supported the pre and/or post-event promotion of place-based events to raise awareness of diabetes in local communities. These included:

- The Lions Club Sydney Indian, The Pulse, 28 May
- Healthy Living Toongabbie, The Pulse, 15 July and WSLHD social media.

The team also assisted the Healthy Living Toongabbie group to create a brand identity, via branded t-shirts and banners for their events.

WSD PROMOTED ON WORLD STAGE

The work of WSD and Alliance members was showcased in a purpose-produced video displayed at the American Diabetes Association (ADA) 79th Scientific Sessions, in San Francisco, California from June 7 – 11. The conference was attended by 15,000 diabetes specialists, educators and scientists from over 115 countries. The video featured on ADA TV, a dedicated conference channel, on conference screens, in partner hotels and on buses to and from the conference. Following the event, the video continued to be distributed in Australia via the WSD website and WSLHD's the Pulse, at WSD events and functions, and by members of the MPSCG.

NATIONAL DIABETES WEEK (NDW) 13-20 JULY

For NDW 2019, WSD focussed on motivating the public to 'get active, get healthy and get tested for diabetes' and encouraging the public to download a free copy of the HLO book. Three media releases were issued, including a patient case study who told the story of how their life changed for the better as a result of the JGPSCC program (Secondary Prevention and Management); the establishment of the Toongabbie Healthy Living Group that is tackling type 2 diabetes in their suburb (Place-based Mobilisation); and



WSD's Dr Katharine Gupta, Prof Glen Maberly, Gideon Myerowitz-Katz and Sian Bramwell with WSLHD's Amber Evans and Abulla Agwa promoting National Diabetes Week at Blacktown Hospital.

Public Awareness (cont.)

HLO promotion (Prevention). Other activity included a social media video encouraging healthy eating; a social media competition encouraging the community to download the HLO book; and a BH activation to raise awareness of type 2 diabetes and distribute 240 copies of the HLO book to hospital visitors.

NDW coverage included:

- ABC Radio 'Focus' program interview with WSD director Glen Maberly, 17 July.
- Five articles in WSLHD The Pulse, 8 July, 15 July, 16 July, 17 July, 2 Aug
- Three social media posts in WSLHD social media, 8 July, 15 July, 23 July
- Western News, 19 July

BMDH HBA1C TESTING MILESTONE

In September, BMDH reached a medical milestone, having routinely tested 100,000 Emergency Department patients for diabetes via HbA1c screening. The story was pitched exclusively to Channel Nine News and featured on:

- Channel Nine News, 21 October
- WSLHD The Pulse, 24 October
- WSLHD social media, October
- Article on WSD website
- MPSCG communications channels

An article titled 'High rates of undiagnosed diabetes and prediabetes identified by ED screening', by Michael Woodhead, was published in The Limbic on 29 August.

WSD ALLIANCE INITIATIVES

PwC launched 'The Together Effect' advertising campaign in July to raise awareness of the growing type 2 diabetes epidemic and the need to tackle this through a partnership approach. The campaign told the story of the PwC/WSD partnership via the following channels:

- Full page advertisement in the Sydney Morning Herald, June 20
- Online content on the PwC website, July
- An Out of Home (Ooh) campaign in PwC office towers, comprising a seven second animation that ran in select Sydney and Canberra locations, as well as editorial style creative that ran nationally in July
- Article in WSLHD The Pulse, 22 August
- Post on WSLHD social media, August.

Other WSD Alliance collaborative initiatives were promoted by WSD and the MPSCG across their stakeholder newsletters and social media channels. These included:

- Diabetes Australia's 'Keep Sight' campaign, WSLHD social media, 24 March
- GI Foundation launch of world-first profit-for-purpose low GI food range with a portion of profits going to the prevention of type 2 diabetes, WSLHD The Pulse, 9 September



Channel Nine News visiting to film an exclusive story on BMDH's HbA1c testing program. From left to right: cameraman Bowie, patient Mahmood Elashwal, health reporter Gaby Rogers and Blacktown Hospital Diabetes and Endocrinology Department Head, Dr Tien-Ming Hng



The Great West Walk launch – one of many Alliance partner initiatives promoted in 2019.

- Live Life Get Active free exercise classes, WSLHD The Pulse, The Western News Auburn Review and WSLHD social media, 18 September
- Stephanie Alexander Kitchen Garden Foundation program in Western Sydney schools, WSLHD The Pulse, The Western News and Auburn Review, October
- Great West Walk , WSLHD The Pulse, 17 October

The collaborative work of WSD Alliance members was also showcased at the April and November meetings to progress work on beating the type 2 diabetes epidemic together.

Following the April Leaders Alliance Meeting, the Mayor of Hills Shire Council shared her story about overcoming type 2 diabetes and her commitment to beating type 2 diabetes in:

- WSLHD's The Pulse, 12 April
- The Hills Shire Times, 30 April.

The November meeting was supported by the launch of the WSD Alliance Hub – an online portal enabling increased engagement among Alliance members and accessible via the WSD website. The following coverage promoted the Hub and the November Alliance meeting:

- The Pulse, 14 November (coinciding with World Diabetes Day)
- The Western News, 22 November
- WSLHD social media, 17 November
- WSD website, 18 November
- MPSCG channels.

WSD PROFESSIONAL LEARNING EVENTS

Five WSD professional learning events for healthcare professionals were promoted through WSD communications channels and by members of the MPSC group. The following pre- or post-event coverage was generated:

Public Awareness (cont.)

- Obesity forum (May): Regular Dose, The Pulse 3 May & 23 May, WSLHD social media, Western News 5 May, Diabetic Living magazine Jan/Feb issue (available Dec 12).
- Eye forum (May): Regular Dose
- Nutrition forum (July): Regular Dose
- Mental health forum (Oct): Regular Dose
- Diabetes Masterclass 2019 (Nov): Regular Dose, WSD website 20 November.

The WSD Community Engagement and Marketing Manager produced marketing collateral to promote and support the WSD clinical team at professional learning events. This included:

- 11 information flyers
- 7 abstract posters
- 7 event invitations
- 4 event programs
- 3 branding banners
- 2 event certificates
- 1 event app.

SOCIAL MEDIA CAMPAIGN

A social media strategy was created (and approved by the WSD Corporate Communications acting director) with the aim of increasing the reach of WSD messages to target



Live Life Get Active's Katrina Paragalli and WSD Program Manager Sumathy Ravi working the camera for a photo shoot to promote free exercise classes in Western Sydney.

audiences. This includes the establishment of a dedicated WSD Facebook page targeting more members of the public, as well as a dedicated WSD LinkedIn page to reach a healthcare professional audience. The aim is to have these sites complement content via existing WSLHD channels including The Pulse, Regular Dose, WSLHD social media channels, the WSD website, and by the MPSCG. The sites will be made public in 2020. Plans were made for the existing but dormant WSD twitter account to be reactivated in 2020.

WSD WEBSITE REVAMP

2019 saw the start of a reinvigoration of the WSD website to update content and broaden the audience to include the public as well as the existing audience of healthcare professionals and WSD Alliance members. Priority was given to completing and launching the Alliance Hub, ahead of the November Leaders Alliance meeting (see page 14 for more information). A step-by-step video guide to using the Hub was also created to support the launch and as a resource for existing and new Alliance members.

The existing WSD website was reviewed by the communications team, with support from Edge, an external contractor. The review led to a recommendation to improve content and navigation to cater for three distinct audience groups: Professionals in health; Partners in the WSD Alliance; and People with type 2 diabetes.

In addition, the following website sections/pages were updated:

- Homepage news carousel
- Media and events sections
- Resources
- Partner logos
- Staff profiles.

Work will continue in 2020 to finalise this project.

Data for Decision Making

- ✓ **Developed dashboards for data-informed decision making.**
- ✓ **Solidified estimates of diabetes through key partnerships.**
- ✓ **Developed innovative uses of data, including data linkage.**

Data underlies everything that WSD does and is a key component of the broader strategic plan, supporting WSD's work across all areas of prevention and management. At the beginning of the year, WSD set a number of objectives for our data work that aligned with the key aims and goals of our strategy overall. With impressive efforts from the WSD team, we worked towards our goals of refining estimates of diabetes prevalence, expanding monitoring and surveillance, and creating an active research hub for diabetes work.

Some of the successful projects in 2019 included data work with new partners from the MoH, developing a range of dashboards for the capture and display of information, evaluation of clinical interventions, diabetes surveillance in hospital, big data analysis with students from the University of Sydney, mapping diabetes rates from hospital data, and building partnerships for data work across the board. This led to the publication of a record number of papers, and the presentation of a record number of abstracts at national and international conferences in 2019.

While some of our research work was completed, other work is ongoing and will progress into 2020 and beyond. This includes our app work, which progressed meaningfully in 2019, as well as our work on sentinel sites and ongoing surveillance. This will feed in to the WSD plan for 2020.

IMPROVING BENCHMARK ESTIMATES

WSD has long held a goal of providing strong estimates of weight and diabetes across WSLHD, as we know that traditional sources often underestimate the issue. In 2019, we settled on the robust estimate of 12% of our population over the age of 18 in WSLHD suffering from diabetes. Together with the WSPHN, MoH, and others, we estimated that the proportion of people at risk of diabetes in our area is likely to be 30%, with 65-70% overweight or obese. This was based on a number of pieces of work conducted throughout the year:

- Data linkage and diabetes project with the MoH
- Dashboard work with WSPHN Health Intelligence Unit, PwC, and a range of other partners
- Analyses of existing datasets in WSLHD.

With a strong estimate for the rate of diabetes and people at risk, work is moving towards tracking these figures over the long term. Partly this will be done using linked data between the WSLHD and WSPHN, but there are a range of datasets that will be used to further this ambition moving forward, including our ongoing work with the MoH.

SENTINEL SITES

WSD has been working for some time towards developing true sentinel sites to measure and track the rates of diabetes in the region. These are geographical areas of focus that can be used to gauge the efficacy and reach of programs, as well as monitor the rates of disease across the district. WSD made significant progress into our place-based interventions in 2019, bringing in a number of providers that are also providing data through our dashboards. While these are not yet fully-functional sentinel sites in epidemiological terms, we have nonetheless laid the groundwork to begin collecting key data.

LINKING DATA TO DECISION MAKING

Data is important, but in and of itself does not effect change. In 2019, we planned on adopting a more focused approach to data collection and analysis in order to ensure that all data collections are made in support of WSD aims and goals. We largely achieved this goal, with a wide range of decision-making aids developed and published over the course of the year:

In particular, WSD worked in partnership with PwC to co-design and establish a range of dashboards, using grant funding from the ADHA. These include the population analytics dashboard as well as the WSD intervention monitoring dashboard, which track population diabetes statistics and WSD intervention respectively. Measuring the impact of the programs in this way is a critical enabler to other important mechanisms in the system such as Outcomes Based Funding Models, and ultimately, more strategic, effective and efficient commissioning of services by LHDs and PHNs.

The development of these dashboards led to the collation and validation of a large number of datasets that include data from partners such as the Heart Foundation and WSPHN, as well as datasets from within-LHD partners and WSD itself. The data model produced is complex and multi-faceted, and may be used for other purposes as well as for these dashboards.

WSD was also involved in the development of inpatient surveillance dashboards for diabetes activity, enhancing hospital care through better information on people with diabetes admitted to the LHD. These are already being

Data for Decision Making (cont.)

used for routine clinical audits of patients with diabetes for identifying medication use and hypoglycaemic events.

We were also involved with the development of the Integrated Care Dashboards, which allow us to track and report ABF statistics such as occasions of service as well as other key metrics as planned.

This work resulted in several research projects, which were accepted for publication as posters to the annual Australian Diabetes Congress and other scientific meetings in 2019. The work will also form the basis of a range of research publications.

INNOVATIVE USES OF DATA

In 2019, we began looking into ways that we could innovate in our use of data across the WSD portfolio. This included our connection to big data and utilisation of these large datasets, exploring the opportunities of data linkage, and identifying other areas where we could improve our use of information through novel methods.

We made some big strides into these areas, progressing with data linkage work, setting up a server with the WSPHN to link data, as well as sharing access to de-identified datasets with the WSPHN. This was also a large part of our dashboard work and represents a cutting-edge use of information for Australia.

With the MoH, our work used de-identified linked data to conduct unique analyses. This resulted in important findings for undiagnosed diabetes and hospitalisation, which were recognised at the International Diabetes Epidemiology Group conference in Korea.



DDMT group members (back row, L to R) Christopher Reece, Stephen Corbett, Pankaj Gaur, Wah Cheung, Jasmine Glennan, Yalchin Oytam and Gideon Meyerowitz-Katz with (front row L to R) Soojin Park, Luke Felicetti and Clara Chow.

In 2019, we made great progress on our diabetes self-management application. We developed a patient consent structure that allows people to connect with their GP and hospital healthcare providers and share a wide range of data-driven healthcare for app patients. We also began the process of looking into using machine learning/AI to improve the application offering as well, with a grant application to the BioMedTech Horizons scheme.

We also focussed on developing research capacity within the WSD team. This resulted in a number of research presentations and efforts by all members of WSD, as well as some specific development opportunities. In particular, the Research and Evaluation Coordinator continued his PhD into diabetes self-management applications, and together with the Program Manager, continued a systematic review into diabetes apps in 2019.



DDMT group members (back row, L to R) Adam Cruickshank, Gideon Meyerowitz-Katz, Glen Maberly, Gillian Harper, Jeeyoun Jun, Luke Felicetti and Stephen Corbett with (front row L to R) Pankaj Gaur, Jasmine Glennan, Mariam Sarah Mohamed and Tracey Woods.

Research and Publications

- ✓ **Initiated a large number of research projects, including multiple grants.**
- ✓ **Presented at a record number of both national and international academic conferences, with dozens of presentations in total.**
- ✓ **Published eight peer-reviewed papers, with partners contributing a further 10.**

RESEARCH INVOLVING WSD CORE TEAM

Research and Publications

2019 saw WSD core team members achieve and surpass research goals. The core team published eight academic works in peer-reviewed journals (listed below) and a further four specifically on diabetes prevention via other core members. These findings were communicated widely via more than 10 presentations delivered nationally and internationally.

WSD also progressed our research work, developing collaborations with schools in the area to evaluate kitchen gardens, re-connecting with Douglass Hanly Moir to look at blood tests across Sydney, and developing our app evaluation protocol and funding to begin in 2020. We were also involved in the design and implementation of the TWO-BIRDS study, a randomized controlled trial which looks at Very Low Calorie Diets and GLP1-RAs in type 2 diabetes. This work is supported by two grants from Research and Education Network and the University of Western Sydney.

The full list of publications is below, and includes a range of papers in leading publications in the field. WSD also submitted several more papers to academic journals, which will be published in 2020.

Peer-Reviewed Papers

1. Meyerowitz-Katz G, Seelan S, Gaur P, Francisco R, Ferdousi S, Astell-Burt T, Feng X, Colagiuri S, Maberly G, Hng T. *Detecting the hidden burden of pre-diabetes and diabetes in Western Sydney*. Diabetes Research and Clinical Practice. 2019.
2. Bishay RH, Sanjeev D, Meyerowitz-Katz G, Ahlenstiel G. *Estimating fibrosis from non-alcoholic fatty liver disease and its associations using the non-alcoholic fatty liver disease (NAFLD) fibrosis and FIB-4 scores in hospitalised inpatients: A retrospective, matched cohort study*. Obesity Research & Clinical Practice. 2019;13(3):312.
3. Maberly G. *Type 2 diabetes: A collaborative approach to care*. Endocrinology Today. 2019;8(3).

4. Ayre J, Bonner C, Bramwell S, McClelland S, Jayaballa R, Maberly G, McCaffery K. *Factors for supporting primary care physician engagement with patient apps for type 2 diabetes self-management that link to primary care: interview study*. JMIR Mhealth Uhealth. 2019;7(1):e11885.
5. Ayre J, Bonner C, Bramwell S, McClelland S, Jayaballa R, Maberly G, McCaffery K. *Implications for GP endorsement of a diabetes app with patients from culturally diverse backgrounds: a qualitative study*. Australian Journal of Primary Health. 2019:-.
6. Lakni Weerasinghe HD, Wah Cheung, Glen Maberly, Christian Girgis, Gerald Liew, Helen Do, Tien-Ming Hng, Rajini Jayaballa, Alison Pryke, Belinda Ford, Seema Gurung, Sian Bramwell, Manyu Shi, Ramy Bishay, Sumathy Ravi, Gideon Meyerowitz-Katz, Lisa Keay, Andrew White. *The DR SPOC study: Diabetic retinopathy screening in an outreach model*. Clinical and Experimental Ophthalmology. 2019;47:107-8.
7. Julie Ayre CB, Sian Bramwell, Sharon McClelland, Rajini Jayaballa, Glen Maberly, Kirsten McCaffery. *Primary care physician perspectives on patient apps for type 2 diabetes self-management that link to primary care: An interview study to identify factors to support physician engagement*. JMIR mHealth and uHealth. 2018.
8. Bramwell SE, Meyerowitz-Katz G, Ferguson C, Jayaballa R, McLean M, Maberly G. *The effect of an mHealth intervention for titration of insulin for type 2 diabetes: a pilot study*. European Journal of Cardiovascular Nursing.0(0):1474515119889764. 2019.

Published Abstracts and posters

Gideon Meyerowitz-Katz JD, Emily Prior, Emma McKeown, Jenna McGrath, James Richardson, Tien-Ming Hng, David Pryce, Glen Maberly. *Data for diabetes decision-making: the development of integrated dashboards for monitoring and evaluating diabetes care in western Sydney*. Australasian Diabetes Congress; Sydney: Australasian Diabetes Society; 2019.

Katharine Gupta GM-K, Yi Wei Chen, Minh Phuong (Theresa) Nguyen, Ruchira Harith Perera, Labdhi Niket Mehta, Daniel David, Albert Vien, Glen Maberly, Tien-ming Hng. *Do we be-lung together?: Prevalence, glycaemic control and management of diabetes among patients admitted to the respiratory ward at a tertiary Sydney hospital*. Australasian Diabetes Congress; Sydney: Australian Diabetes Society; 2019.

Research and Publications (cont.)

Aruni Ratnayake, Janine Dawson, Gideon Meyerowitz-Katz, Jane Assange, Wanda Rose, Kay Richards, Glen Maberly. *General Practices in western Sydney are now starting patient led Walking Groups for the prevention and management of type-2 diabetes*. Australasian Diabetes Congress; Sydney: Australian Diabetes Society; 2019.

Gideon Meyerowitz-Katz GM, Patricia Correll, Shahana Ferdousi, Yalchin Oytam. *A silent scourge: long-term health impacts of undiagnosed diabetes in a large linked dataset in Sydney, Australia*. International Diabetes Epidemiology Group meeting; Seoul, South Korea: International Diabetes Epidemiology Group; 2019.

Janine Dawson, Aruni Ratnayake, Glen Maberly. *The creation of the Western Sydney Diabetes Prevention Alliance*. Australasian Diabetes Congress; Sydney: Australian Diabetes Society; 2019.

Presentations

Janine Dawson. *Healthy Living Options*. Healthy Living Toongabbie Australia Day Event, January 2019.

Janine Dawson. *Healthy Living Options*. Kings Langley Consumer Diabetes forum, February 2019.

Aruni Ratnayake. *Let's talk about preventing diabetes*. Parramatta City Council Seniors Week, February 2019.

Janine Dawson. *Healthy Living Options*. Mental Health community talk, April 2019.

Janine Dawson. *WSD Diabetes Prevention*. Diabetes Tech Talk Liverpool, May 2019.

Glen Maberly. *Western Sydney Diabetes*. Endocrinology and Grand Rounds, Western Health Sunshine Hospital Melbourne, May 2019.

Aruni Ratnayake, Theresa Kang. *Diabetes, its management and prevention*. Anglicare Dementia community support group, May 2019.

Katharine Gupta. *Diabetes awareness talk and seminar: Let's talk about diabetes*. Lions Club Forum, May 2019.

Katharine Gupta. *A big surprise – Bariatric surgery and Type 1 Diabetes Mellitus*. Westmead Hospital Grand Rounds, May 2019.

Glen Maberly. *Current approaches to integrated diabetes care programs in NSW*. ACI Diabetes forum, July 2019.

Janine Dawson. *WSD Diabetes Prevention*. Diabetes Educator Forum, UTS, July 2019.

Glen Maberly. *A model of type 2 diabetes care in Sydney's west*. Novo Nordisk Endocrine Dinner, August 2019.

Katharine Gupta. *Building General Practice capacity: two towns at a time*. Goulburn diabetes forum, August 2019.

Gideon Meyerowitz-Katz. *Diabetes and population health in Western Sydney*. Population Health Forum, August 2019.

Glen Maberly. *Is prevention of type 2 diabetes possible?* Blacktown Medical Practitioners Association, August 2019.

Aruni Ratnayake, Theresa Kang, Sharon McClelland. *ICH care facilitators meeting talk*. August, 2019.

Katharine Gupta. *Applying the latest pharmacologic guidelines*. Diabetes and Mental Health Update forum, August 2019.

Glen Maberly, Janine Dawson. *Better environment and Western Sydney Diabetes*. Department of Premier and Cabinet forum, September 2019.

Dr Ahmed Hussein. *Western Sydney Diabetes*. Toongabbie Community Diabetes forum, September 2019.

Aruni Ratnayake. *Let's talk about preventing diabetes*. Rooty Hill Public School community afternoon tea, September 2019.

Glen Maberly. *Patients and clinicians beating diabetes together*. National PHN Conference, September 2019.

Glen Maberly. *Is prevention of type 2 diabetes possible?* Diabetes and Mental Health forum, October 2019.

Dr Ahmed Hussein. *Diabetes distress*. Diabetes and Mental Health forum, October 2019.

Katharine Gupta. *Corticosteroid induced hyperglycaemia and the Respiratory Service at Blacktown and Mount Druitt Hospitals*. Blacktown Hospital Grand Rounds, October 2019.

Janine Dawson. *Healthy Living Options*. Diabetes and Mental health forum, October 2019.

Sian Bramwell. *Key points on Injection technique. 'Getting Your Head Around Diabetes and Mental Health'* forum, October 2019.

Sian Bramwell. *Joint Specialist Diabetes and Psychiatry Case Conference*. NSW Clozapine Coordinators Meeting, November 2019.

Sian Bramwell. *How to use injectables*. Diabetes is Changing Fast: Masterclass 2019, November 2019.

Dr Ahmed Hussein. *MC and opening speech*. Diabetes is Changing Fast: Masterclass 2019, November 2019.

Cecilia Chi. *Joint GP and Specialist Case Conferencing*. Endocrinologists, Westmead Hospital, November 2019.

Glen Maberly. *Western Sydney Diabetes progress 2019*. Leaders Alliance Meeting, November 2019.

Janine Dawson. *Healthy Living Options*. SALSA Youth Voices, Westmead, November 2019.

RESEARCH INVOLVING BLACKTOWN METABOLIC & WEIGHT LOSS CLINIC TEAM

RH Bishay, S Bontempo, A Macdonald. 'The role of the credentialled diabetes educator in a tertiary hospital weight loss program – the Blacktown Hospital experience.' *The Australian Diabetes Educator*; 22(3); Sept 2019.

Annual Scientific Congress of the Royal Australian and New Zealand College of Ophthalmologists (RANZCO), Sydney, NSW, November 2019. *The DR SPOC study: diabetes retinopathy screening in an outreach model*. LS Weerasinghe, HP Dunn, NW Cheung, GF Maberly, CM Cirgis, G Liew, H Do, TM Hng, R Jayaballa, A Pryke, B Ford, S Gurung, S Bramwell, M Shi, RH Bishay, S Ravi, G Meyerowitz-Katz, L Keay, AJ White.

Australia and New Zealand Obesity Society (ANZOS), Sydney, NSW, October 2019. *Does preoperative weight loss predict early weight loss post-bariatric surgery?* RH Bishay, S Driscoll, G Meyerowitz-Katz, M Edey, M Devadas, B Ryan, GF Maberly, M McLean, TM Hng, A McDonald, G Ahlenstiel.

Australian Gastroenterology Week (AGW), Adelaide, SA, September 2019. *The utility of FibroScan and non-invasive scores in assessing hepatic fibrosis in a bariatric cohort*. P Suo, K Williams, M Devadas, RH Bishay, S Driscoll, S Holdaway, V Birzniece, J Marks, M McLean, B Ryan, M Edey, G Ahlenstiel.

Australian Diabetes Congress (ADS), Sydney, NSW, August 2019. *Efficacy and safety of liraglutide 3.0 mg in individuals with overweight or obesity and type 2 diabetes treated with basal insulin: the SCALE insulin trial*. RH Bishay, WT Garvey, AL Birkenfeld, D Dicker, G Mingrone, SD Pedersen, A Satyrganova, D Skovgaard, D Sugimoto, N Zeuthen, O Mosenzon.

RESEARCH FROM THE DEPARTMENT OF DIABETES AND ENDOCRINOLOGY, BMDH

Bontempo, S, Duke A, Hng TM. *Diabetic Ketoacidosis precipitated by SGLT2 inhibitor use: an inpatient case series*. Australian Diabetes Congress, Sydney, NSW, August 2019.

Duke A, Gardiner B, Hng TM. *Short but sweet: the inpatient diabetes service intern attachment study*. Australian Diabetes Congress, Sydney, NSW, August 2019.

Weir T, Evans A, Hng TM. *Carbohydrate knowledge amongst nursing staff and consultants at Blacktown Mt Druitt Hospital*. Australian Diabetes Congress, Sydney, NSW, August 2019.

Jiang J, Myerowitz-Katz G, Hng TM. *Evaluation of a young prediabetes cohort presenting to the Emergency Department (ED)*. Australasian Diabetes Congress, Sydney August 2019.

Hng TM. *Identification of diabetes through the Emergency Department and the implementation of an inpatient surveillance system to improve diabetes care in hospital*. Inpatient Diabetes Symposium, Australasian Diabetes Congress; Sydney, August 2019.

Hng TM, Kolambkar R, Luo C, Earl M, Maberly G, Pryce G. *Developing a Diabetes Dashboard as a surveillance tool for improving the care of patients in hospital*. NSW Value Based Healthcare Forum; Aug 2019.

Mitchell R, Cameron CM, Lystad RP, Nielssen O, McMaugh A, Herkes G, Schniering C, Hng TM. *Impact of chronic health conditions and injury on school performance and health outcomes in New South Wales, Australia: a retrospective record linkage study protocol*. *BMJ paediatrics open*. 2019;3(1).

Hng TM. *Do-It-Yourself (DIY) Closed-loop systems: perspectives of an Endocrinologist*. *Journal of Diabetes Science and Technology* 26/11/2019 <https://doi.org/10.1177/1932296819890855>.

RESEARCH FROM THE DEPARTMENT OF DIABETES AND ENDOCRINOLOGY, WESTMEAD

Bernadette Sadsad. Oral presentation on the *Impact of intervention programme targeting inpatient with diabetes with an elevated HbA1c of $\geq 9.0\%$ identified through the HbA1c screening initiative*. Poster presentation, Australasian Diabetes Congress in Sydney. August 2019.

Bernadette Sadsad. Storyboard presentation on *Westmead Hospital HbA1c screening initiative*. Agency for Clinical Innovation Inpatient Management Workshop 2019

Bernadette Sadsad. Oral presentation on *The Introduction of HbA1c screening in ED*. Westmead Nursing Research Symposium, August 2019.

Cheung NW, Redfern J, Thiagalingam A, Hng T-M, Islam SMS, Haider R, Faruque S, Chow C. *Text messaging support for patients with diabetes or coronary artery disease (SupportMe): protocol for a pragmatic randomised controlled trial*. *BMJ open*. 2019;9(6):e025923.

Cheung NW, Crampton M, Nesire V, Hng T-M, Chow CK, Investigators WSICP. *Corrigendum to: Model for integrated care for chronic disease in the Australian context: Western Sydney Integrated Care Program*. *Australian Health Review*. 2019;43(5):600

RESEARCH INVOLVING ACADEMIC ALLIANCE PARTNERS

Astell-Burt, T. and Feng, X., 2019. *Urban green space, tree canopy and prevention of cardiometabolic diseases: a multilevel longitudinal study of 46 786 Australians*. *International journal of epidemiology*.

Research and Publications (cont.)

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Dendup, T., Astell-Burt, T. and Feng, X., 2019. *Residential self-selection, perceived built environment and type 2 diabetes incidence: A longitudinal analysis of 36,224 middle to older age adults*. Health & place, 58, p.102154.

Li, H., Duan, D., Xu, J., Feng, X., Astell-Burt, T., He, T., Xu, G., Zhao, J., Zhang, L., You, D. and Han, L., 2019. *Ambient air pollution and risk of type 2 diabetes in the Chinese*. Environmental Science and Pollution Research, 26(16), pp.16261-16273.

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Sturt Eastwood, Chief Executive Officer Diabetes NSW & ACT

Luke Elias, General Manager, Integrated and Community Health WSLHD

Dr Tien-Ming Hng, Head of Diabetes & Endocrinology BMDH WSLHD

Ned Katrib, General Manager Blacktown & Mt Druitt Hospitals WSLHD

Prof Glen Maberly, Director WSD WSLHD

Prof Mark McLean, Divisional Director – Ambulatory Care & Medicine BMDH WSLHD

Emily Prior, Partner PwC

Sumathy Ravi, WSD Program Manager WSLHD

Nathan Schlesinger, Partner PwC

Brett Thompson, General Manager Westmead & Auburn Hospitals WSLHD

Core Teams

WSD – WSLHD

Nazila Aghaie, Administration Officer, Diabetes & Endocrinology, Westmead Hospital

Sian Bramwell, Community Diabetes Educator

Dr Wenlin (Cecilia) Chi, Endocrinologist Westmead Hospital

Dr Julian Craig, Resident Medical Officer

John Cruz, Administration Officer

Janine Dawson, Prevention Program Manager

Dr Kate Gupta, Endocrine Registrar

Dr Ahmed Hussein, Endocrinologist

Dr Rajini Jayaballa, Endocrinologist

Theresa Kang, DDMS Support Nurse

Mara Lee, Community Engagement & Marketing Manager

Sharon McClelland, Community Diabetes Educator

Gideon Meyerowitz-Katz, Research Monitoring and Evaluation Coordinator

Aruni Ratnayake, Diabetes Prevention Officer

Dr Jennifer Snaith, Endocrinologist

Bernadette Sadsad, Clinical Nurse Consultant HbA1c Testing Westmead Hospital

Nikki Woloszuk, Corporate Communications, Policy and Strategic Planning Manager

WSD – WSPHN

Rosy Baghdassarian, Joint GP Specialist Case Conferencing Expansion Coordinator

Kieren Morgan, Primary Care Transformation Manager

Partners

Dr Thomas Astell-Burt, Professor of Population Health and Environmental Data Science UOW

Dr Ramy Bishay, BMDH Endocrinologist WSLHD

Dr Xiaoqi Feng, Associate Professor of Urban Health and Environment UNSW

Ashlee Gardner, Population Health Project Officer WSLHD

Seema Gurung, Diabetes Educator, Westmead Hospital WSLHD

Annette Macdonald, Metabolic health Clinical Nurse Consultant WSLHD

Anandhi Murugesan, Diabetes Educator, BMDH Diabetes Education Centre WSLHD

Soojin Park, Clinical Data and Quality Manager – Integration & Enablers ICH WSLHD

List of Partners

For more information on WSD Alliance partners, visit www.westernsydneydiabetes.com.au

Glossary

ACI Agency for Clinical Innovation	HLO Healthy Living Options
ADHA Australian Digital Health Agency	HRFS High Risk Foot Service
AHP Allied Health Professional	ICH Integrated and Community Health
BAS Business Analytics Service	JGPSCC Joint GP Specialist Case Conferencing
BCE Bilingual Community Education	JSGP-CDC Joint Specialist General Practice Community Diabetes Clinic
BMDH Blacktown and Mount Druitt Hospitals	LHD Local Health District
BMWLC Blacktown Metabolic and Weight Loss Clinic	MDCHC Mount Druitt Community Health Centre
CALD Culturally and Linguistically Diverse	MOH Ministry of Health
CDE Credentialed Diabetes Educator	MPSCG Mobilising Public Support Communications Group
CGM Continuous Glucose Monitoring	NADC National Association of Diabetes Centres
CNC Clinical Nurse Consultant	PHN Primary Health Network
CPH Centre for Population Health	PN Practice Nurse
CT2DC Complex Type 2 Diabetes Clinic	RACGP Royal Australian College of General Practitioners
DDE Department of Diabetes and Endocrinology	SAKGF Stephanie Alexander Kitchen Garden Foundation
DDMS Diabetes Detection and Management Strategy	UNSW University of NSW
DDMT Data for Decision Making Taskforce	UOW University of Wollongong
DEC Diabetes Education Centre	USYD University of Sydney
DHS Digital Health Solutions	WH Westmead Hospital
DPC Department of Premier and Cabinet	WSD Western Sydney Diabetes
DPIE Department of Planning, Industry and Environment	WSLD Western Sydney Leadership Dialogue
EMT Executive Management Team	WSLHD Western Sydney Local Health District
EN Enrolled Nurse	WSPHN Western Sydney Primary Health Network
FTE Full-Time Equivalent	WSROC Western Sydney Regional Organisation of Councils
GP General Practitioner	
GWAHS Greater Western Sydney Aboriginal Health Services	

ABBREVIATION OF KEY WSD EVENTS

EYE FORUM

'Keeping an Eye on Diabetes'

MASTERCLASS

'Diabetes is Changing Fast: Masterclass 2019'

MENTAL HEALTH FORUM

'Getting Your Head Around Diabetes and Mental Health'

NUTRITION FORUM

'Eating to Beat Diabetes'

OBESITY FORUM

'Obesity – It's a Weighty Matter'



PRIMARY PREVENTION

5,000 Healthy Living Options books distributed
45 healthy living programs promoted
22 GP Walking Groups established



PLACE-BASED MOBILISATION

4 community awareness events



DATA FOR DECISION MAKING

4 WSD data dashboards developed



PUBLIC AWARENESS

51 media articles
35 marketing documents produced



RESEARCH & PUBLICATION

18 peer-reviewed papers published
14 published abstracts and posters
35 scientific and educational presentations



PARTNERS

130 WSD Alliance partners



SECONDARY PREVENTION & MANAGEMENT

112,685 HbA1c tests completed
721 HCPs upskilled at **14** educational events
110 Joint GP Specialist Case Conferences
76 videos produced



For more information about WSD please visit the website below. To speak with us, or to make an enquiry, please contact WSD program manager, Sumathy Ravi via email at Sumathy.Ravi@health.nsw.gov.au

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