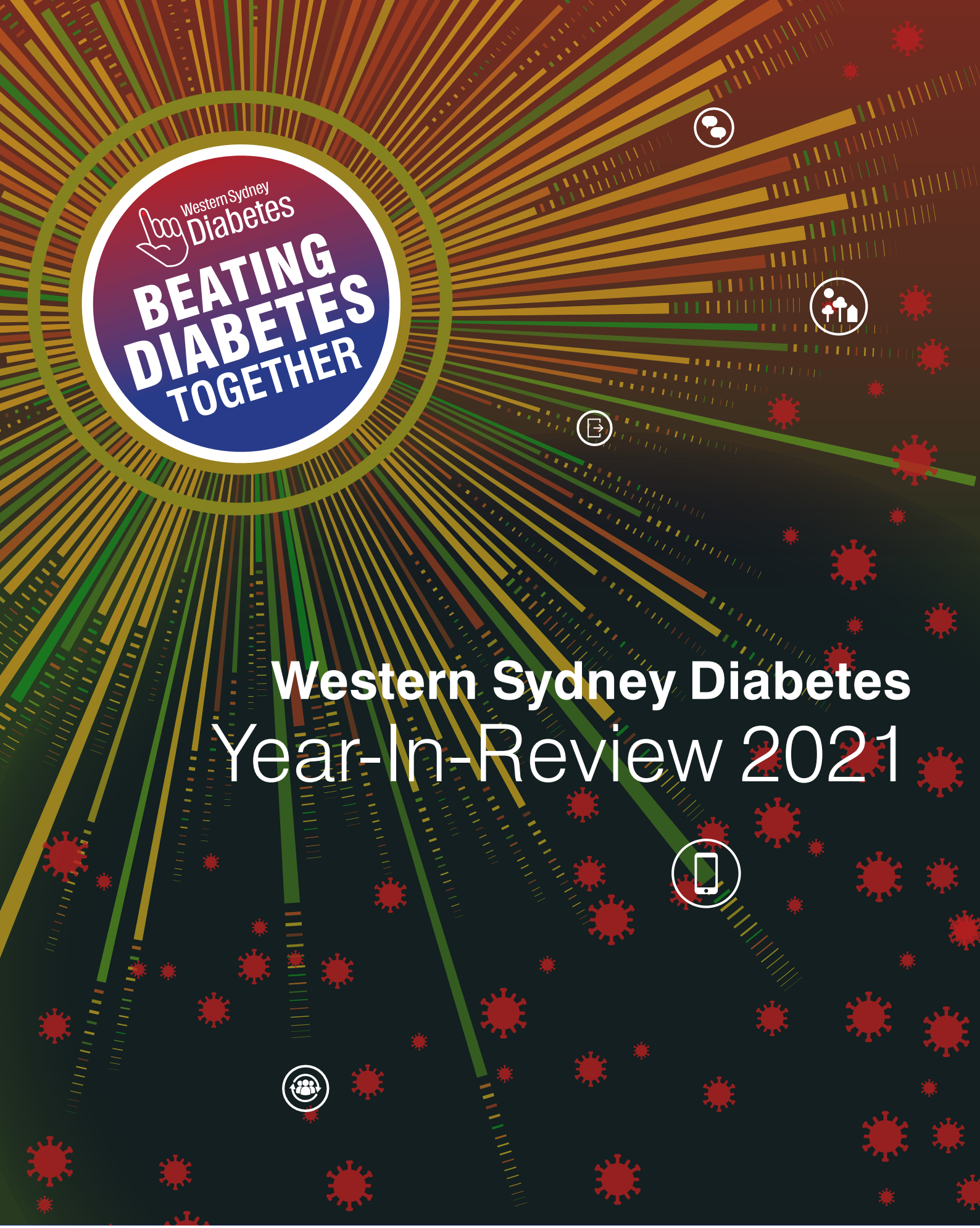


Western Sydney Diabetes

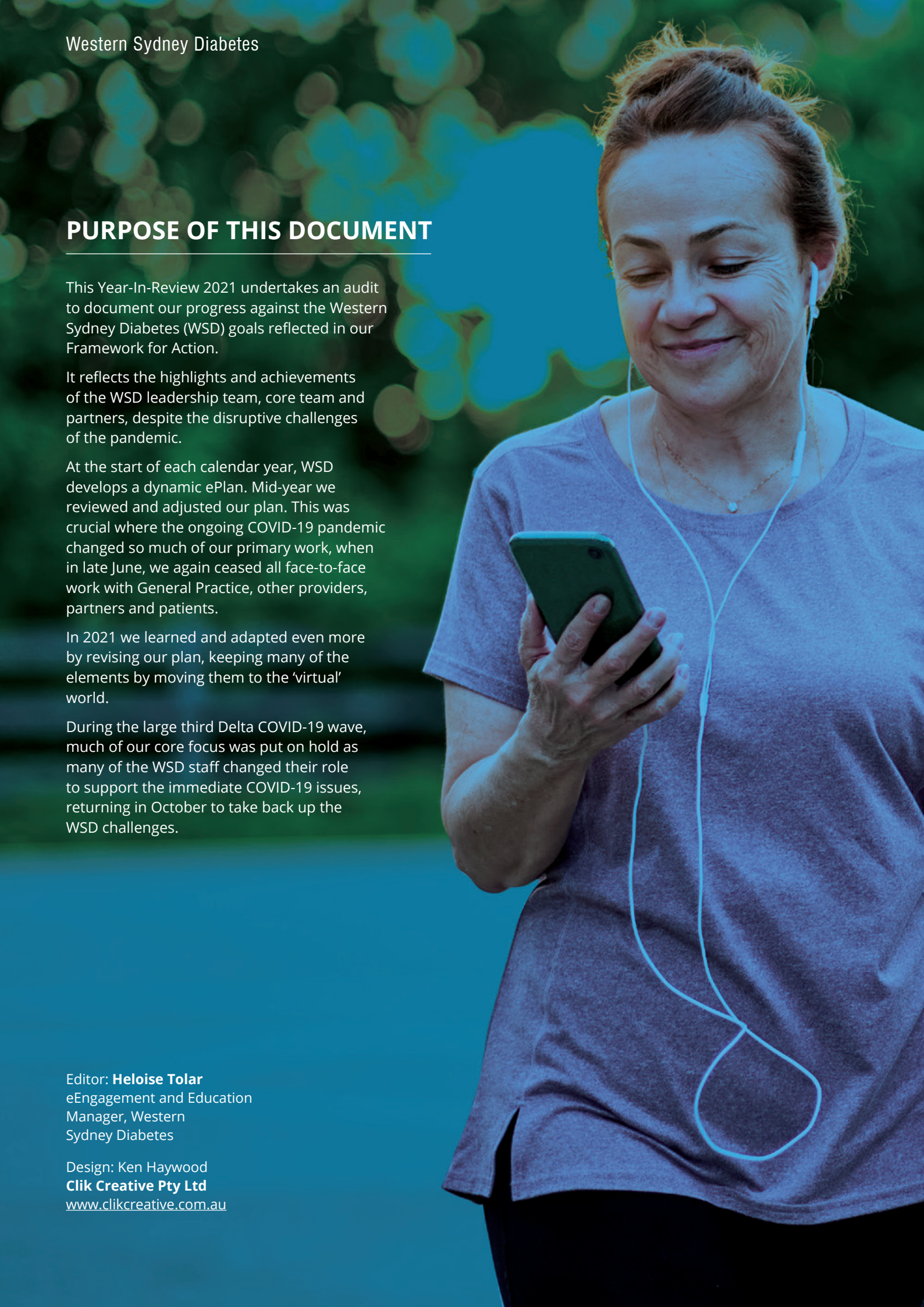
Year-In-Review 2021

phn WESTERN SYDNEY
An Australian Government Initiative

pwc

diabetes nsw & act

NSW GOVERNMENT



PURPOSE OF THIS DOCUMENT

This Year-In-Review 2021 undertakes an audit to document our progress against the Western Sydney Diabetes (WSD) goals reflected in our Framework for Action.

It reflects the highlights and achievements of the WSD leadership team, core team and partners, despite the disruptive challenges of the pandemic.

At the start of each calendar year, WSD develops a dynamic ePlan. Mid-year we reviewed and adjusted our plan. This was crucial where the ongoing COVID-19 pandemic changed so much of our primary work, when in late June, we again ceased all face-to-face work with General Practice, other providers, partners and patients.

In 2021 we learned and adapted even more by revising our plan, keeping many of the elements by moving them to the 'virtual' world.

During the large third Delta COVID-19 wave, much of our core focus was put on hold as many of the WSD staff changed their role to support the immediate COVID-19 issues, returning in October to take back up the WSD challenges.

Editor: **Heloise Tolar**
eEngagement and Education Manager, Western Sydney Diabetes

Design: Ken Haywood
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FOREWORD

None of us anticipated 2021 would be another year so dominated by responding to COVID-19. With optimism, in January we elaborated on the WSD 2021 Plan following Sydney's small third pandemic wave in the northern beaches and western suburbs. We even opened our clinics to include many face-to-face consultations in March.

The fourth wave in June was by far the largest, with the more contagious Delta strain not responding to lockdowns as well as early strains.

The daily positive cases in NSW climbed to nearly 2000 and western Sydney bore the brunt of this wave.

The healthcare system responded with a red alert. Test, trace, isolation, and quarantine were all scaled-up. Community and hospital management systems for COVID-19 cases were expanded. General Practice was highly disrupted and positive cases visiting practices had a paralysing effect as they scrambled to ensure COVID-19-safe practices were strong enough not to disrupt services.

The WSD Clinical team again stopped all face-to-face work and successfully boosted its virtual care.

The rapid high uptake of vaccination rates, especially in western Sydney, means the state-wide lockdowns may be a thing of the past. Challenges remain not to let down the public health measures, including vaccination of vulnerable unvaccinated populations, children and boosters.

Despite the challenges, WSD has had a very strong year, delivering many outcomes that were included in the 2021 plan.

This is the story of what was achieved and a 'taste' of what we may aspire to in the future.

- WSD Director Professor **GLEN MABERLY**

Achievements in 2021 included:

✓ SUPPORT THE COVID-19 RESPONSE

- WSD staff supported the Public Health Unit (PHU), Centre for Population Health with General Practice and large venue management during the fourth COVID-19 wave;
- Supported InTouch: Patients with diabetes and COVID-19 cared for in the community including e-referral pathways and digital forms for stratification and management of patients; and
- Supported management of patients with COVID-19 in-hospital.

✓ PRIMARY PREVENTION

- Convened two Leaders Alliance meetings and established the monthly Lunchtime Info Hours;
- Enhanced our WSD Information Hub and found new ways to work with prevention partners virtually; and
- Produced Healthy Living Options 2021, targeting people during lockdown.

✓ SECONDARY PREVENTION AND MANAGEMENT

- Evolved the Diabetes Case Conferencing (DCC) Virtual Care (VC) model for COVID-19, which beyond that includes GPs, hospital based specialists and patients on the video platform together after each GP referral;
- Convened the Diabesity Masterclass Series 2021, with WSD, SWSLHD, HNELHD, NBMLHD with over 1300 registrants;
- Signed more than 450 nurses, doctors and healthcare professionals in our National Association of Diabetes Centres' (NADC) national diabetes on-line course;
- Conducted five educational evening Flash CGM workshops with Abbott for GPs, Practice and Community Nurses, Pharmacists and Dietitians;
- Shared patient education videos with our community and to each NSW LHD with support from ACI and across Australia through the NADC PERL library;
- Developed 30 short educational videos on managing diabetes for GPs and community healthcare providers to be delivered through CareMonitor Diabetes in 2022; and
- Combined the Diabetes Together App functions into CareMonitor Diabetes and rolled this out for patients and providers.

✓ ENABLERS

- Healthy Living Toongabbie grew in strength with online fora, focused on COVID-19 and Diabetes;
- Produced three educational videos in Tamil for women with Gestational Diabetes;
- Established an active working group for the Filipino community to address diabetes
- Produced diabetes prevention and management videos in Mandarin to distribute over the WeChat platform;
- Convened a working group for Aboriginal people facing diabetes;
- Informed the population of the need to get tested and the value of healthy lifestyles through national television, radio, print and social media;
- Supported an ACI evaluation of the Mount Druitt Diabetes Clinic in the Community Health Centre;
- Presented in international and national integrated care and diabetes meetings;
- Started the Flash CGM randomised controlled trial, including the hiring of our new research nurse;
- Delivered a large research output, including 15 academic presentations, 12 accepted peer-reviewed papers, and 30 presentations.

"WSD's contribution to keeping people healthy and safe during what has been the most challenging time in western Sydney is quite remarkable. It is without doubt the previously established and trusted links into communities, confidence amongst General Practice, and stakeholder partnerships which allowed WSD to quickly respond during the COVID-19 Delta wave. Pivoting further on already entrenched telehealth models to ensure continued access, supporting general practice to manage patients, and keeping a high risk and vulnerable group of people out of hospital played a large part in supporting our diabetic patients. This work, on top of progress on all the other plans throughout the year demonstrates the strength of this high performing team."

JASMIN ELLIS, General Manager, Integrated and Community Health, Co-Chair Executive Management Team, Western Sydney Diabetes, Western Sydney Local Health District

"Despite 2021 being arguably the most challenging year in recent history, the strength of the WSD Alliance has seen partners step-up to tackle diabetes alongside the COVID-19 pandemic. When the Delta wave hit western Sydney in July 2021, WSD staff worked closely with the PHU, WentWest and General Practices to support primary care professionals and their patients to treat their clinical needs but also to link them into broader health and social care supports in the midst of some of the toughest public health restrictions in Australia. Our relationships across the health system and utilisation of innovative technologies ensured that the most vulnerable members of our community continued to receive quality care. The ability of WSD to adapt and reimagine the way we beat diabetes together in a rapidly changing environment demonstrates the resilience of our partnership and our robust vision of a healthier western Sydney."

RAY MESSOM, Chief Executive Officer, WentWest Limited, (WSPHN), Co-Chair Executive Management Team, Western Sydney Diabetes

THE DIABETES EPIDEMIC IN A 2021 PANDEMIC

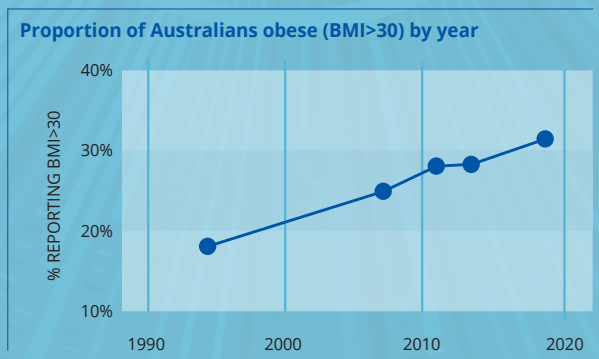
Western Sydney is not just a diabetes hotspot – it has been a COVID-19 hotspot as well.

NSW was gripped by a series of COVID-19 waves during 2021, during which WSD also went into lockdown. This had a large impact on our diabetes services and a long-lasting impact on people with diabetes in western Sydney as a whole.

Here we review the size of the diabetes epidemic in Australia, NSW and western Sydney and provide a synopsis of the challenges we face in people living in WSLHD and discuss the interesting relationship between COVID-19 and diabetes – a big focus this year.

DIABETES IN AUSTRALIA

Diabetes is a large and growing problem that has gone from being a relatively uncommon disease in the early 90s to a problem that more than 1 in 10 Australian adults face, driven primarily by an increase in Type 2 Diabetes. Rates of diabetes have skyrocketed in Australia over the last 30 years and are set to continue increasing in the future.



This is being driven primarily by weight gain in the population. As the Australian Institute for Health and Welfare (AIWH) has shown[1], the proportion of Australians with an obese BMI has increased dramatically since 1995 and is above 30% of the population using the most current estimates. While the pandemic has delayed the AIHW update for obesity estimates, it is likely that this trend has continued in 2020/21.

We know that diabetes is Australia's largest disease burden, even though 80% of it is preventable. The increased morbidity and mortality are clearly expressed in heart attacks, heart failure, strokes, kidney failure, foot amputations, liver disease and blindness[2]. The actual prevalence of diabetes is not known because it is not measured directly.

DIABETES IN NSW

In 2018 NSW Health undertook a review of diabetes to understand a case for change and prepare for a state-wide initiative for diabetes management. This was presented by Dr Liz Hay in a poster at the *Value Based Health Care Conference* 2021, May 27-28 in Perth, WA.

A summary of the findings is shown in the diagram below.

DIABETES IN WESTERN SYDNEY

Most people go to the *Diabetes Australia Map* from the National Diabetes Service Scheme (NDSS) to report the size of the problem. This diabetes map reports Blacktown Local Government Area with a 7% NDSS prevalence compared to the national NDSS prevalence of 5.9%[3]. This is based on the percentage of people registered in the scheme and does not include people with diabetes who

A Case for Change: Preparing for a State-wide Initiative for Diabetes Management

Diabetes continues to be a significant public health priority for NSW, its prevalence is rising, and there is variation across the state.

NSW GOVERNMENT Health

In 2018

11%
Adults with diabetes

25
25 people go undiagnosed for every **100** people diagnosed with type 2 diabetes

3x
Aboriginal people are **three times** more likely to have diabetes than non-indigenous Australians, and type 2 diabetes is a direct or indirect cause of 20% of Aboriginal people's deaths

1.2m
Episodes of hospital care 2013-19 with diagnosis of diabetes

95%
In NSW hospitals most patients are treated for complications of diabetes, rather than diabetes itself

$$$
Some patients with diabetes use **more acute services** than similar patients without diabetes, particularly those with cardiovascular issues. These patients have **longer stays** and **more readmissions**

[1] Overweight and obesity: an interactive insight, 2020. *Australian Institute of Health and Welfare, Australian Government,* Canberra.

[2] Diabetes: the silent pandemic and its impact on Australia, 2016. *Diabetes Australia and the Baker Institute,* Edited by Prof Jonathan Shaw and Prof Stephanie Tanamas.

are not registered, let alone people who have diabetes and not yet diagnosed.

We have been making the point for some time that the NDDS prevalence may be as much as a 50% underestimate of the real size of the problem. We have 1 million people living in the WSLHD catchment area.

The table shows our estimates of the diabetes burden in adults.

Diabetes Classification	% of Adults	No. of People
Type 2 diabetes	12%	91,500
High risk of diabetes	38%	290,000
Low risk of diabetes	50%	381,000

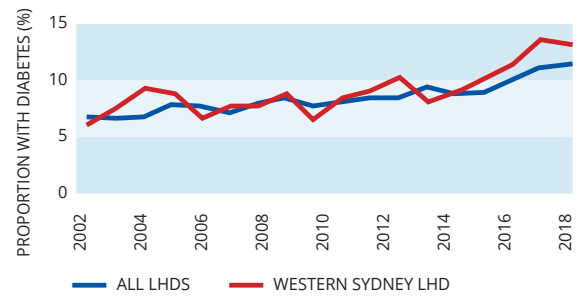
While it's hard to know the exact number of people with diabetes in western Sydney, we have triangulated data from a range of sources including HbA1c testing in hospital Emergency Departments (ED) and General Practices (GP). These data sources include more than 500,000 patient records and allow us to estimate with some confidence the rate of diabetes as at least 12% in adults in our patch.

In western Sydney, with our diverse population and areas of significant disadvantage, diabetes rates are substantially higher than national and state averages. Recent statewide data, prominently displayed in the NSW Health publication 'Diabetes: A Case For Change' indicates that NSW rates of diabetes have increased to 11% and western Sydney rates are above even this, as shown by the graph to the right.

This has culminated in a diabetes rate of 13% estimated by NSW Health for western Sydney in 2019, which is the latest year for which there is data available .

This is in agreement with long-running testing data from the emergency departments in Blacktown and Mount Druitt hospitals, which has demonstrated very high rates of diabetes in people presenting to ED since the program was initially started in 2016. This has also been confirmed in GP practices across western Sydney, where rates of diabetes were similarly high when the same protocol was run.

Rates of diabetes in NSW and WSLHD over time (NSW Healthstats)



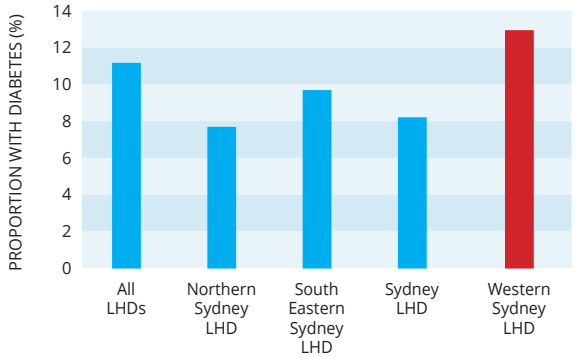
As we have previously shown, the diabetes rate in western Sydney is substantially higher than the state's average and nearly double that of the wealthier areas of Sydney.

There is a corridor of disadvantage stretching through western Sydney, including much of WSLHD, SWSLHD, and some areas of NBMLHD. This is what we have called a diabetes 'hotspot', and evidence indicates that it is only getting worse over time due to entrenched social disadvantage in the city's west.

In 2016, PwC, one of our WSD lead organisations, estimated the average annual cost of a patient with type 2 diabetes in western Sydney was **$16,124**.

These costs include those paid by the state and federal government, out of pocket costs, loss of productivity and societal costs.

Diabetes rates reported by NSW Healthstats by LHD in 2019



With our estimate of 91,500 people in WSLHD community with type 2 diabetes this multiplies out to total estimated costs of $1.48 billion/year. This gives a clear view of the size of the problem and a strong rationale for investments in prevention and management of diabetes.

The figure on the next page summarises the key data for WSD.

DIABETES AND COVID-19

Early in the pandemic, we knew people with diabetes are at a substantially increased risk of death if they do catch COVID-19. One study using the entire population of Scotland showed that someone with diabetes has up to 2.5 times the odds of being admitted to ICU or dying from COVID-19 when compared to someone who has not been diagnosed with diabetes[6]. Another study from the United States showed that people with diabetes were at increased risks of ICU admission, mechanical ventilation, and death compared to those without diabetes[7].This has been supported in numerous studies of people with diabetes who caught COVID-19, as shown in the diagram on the next page from the United States.

[3] Australian Diabetes Map, 2021. *National Diabetes Services Scheme*. Available at: https://www.ndss.com.au/about-the-ndss/diabetes-facts-and-figures/australian-diabetes-map/

[4] Diabetes: A Case For Change, 2020. *NSW Health*.

[5] Healthstats NSW. *NSW Health*. Available at: http://www.healthstats.nsw.gov.au/

Diabetes in western Sydney

12% of adults in WSLHD community with diabetes

30% of adults attending Emergency Departments or General Practice have pre-diabetes

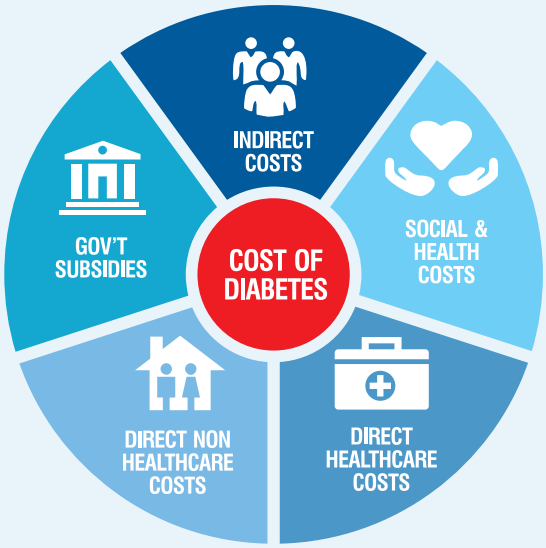
18% of adults attending Emergency Departments or General Practice have diabetes

21% of adults in Blacktown Hospital have diabetes

Average annual cost of a patient with Type 2 diabetes in western Sydney is **$16,124**

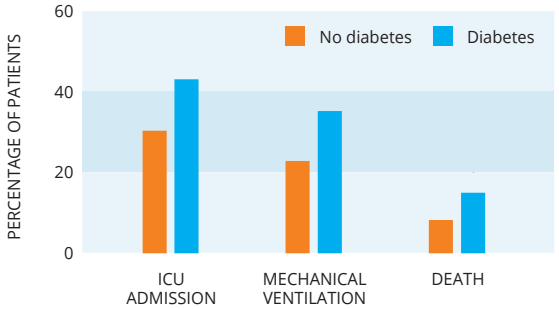
91,500 people with diabetes in WSLHD community

Estimated costs **$1.48 Billion/year**



The increased risk has been successfully communicated to people with diabetes throughout the last two years, which has had the effect of reducing their interactions with society.

Fourteen-day outcomes among 450 hospitalised patients with COVID-19, according to diabetes status

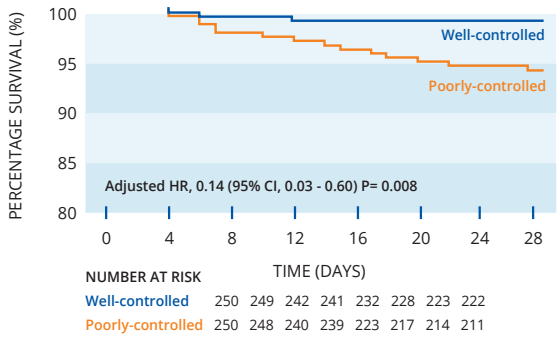


14-DAY OUTCOMES	No diabetes		Diabetes	
	n (%)	95% CI	n (%)	95%CI
ICU Admission	81 (29.8)	24.4-35.6	75 (42.1)	34.8-49.7
Mechanical Ventilation	63 (23.2)	18.3-28.6	66 (37.1)	30.0-44.6
Death	22 (8.2)	5.2-12.2	28 (15.9)	10.8-22.2

Source: *Diabetes as a Risk Factor for Poor Early Outcomes in Patients Hospitalized with COVID-19*, Diabetes Care 2020

It is also clear from the international data that patients with well-controlled diabetes had much better survival rates than those whose diabetes was not well-controlled[8], shown in the graph below.

Survival curve of patients with diabetes who had well vs poorly controlled blood glucose



Source: Association of Blood Glucose Control and Outcomes in Patients with COVID-19 and Pre-existing Type 2 Diabetes, Cell Metabolism, 2020

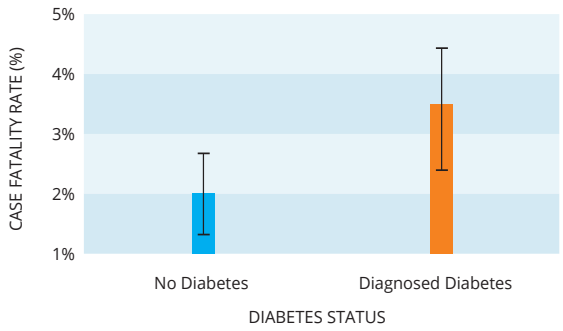
Indeed, using data from the 2133 people who have caught COVID-19 and been admitted to WSLHD hospitals in 2020/21 shows that people with diabetes have 91% increased odds of dying from the disease when compared to people not diagnosed with diabetes.

[6] McGurnaghan SJ, Weir A, Bishop J, Kennedy S, Blackbourn LAK, McAllister DA, et al. Risks of and risk factors for COVID-19 disease in people with diabetes: a cohort study of the total population of Scotland. *The Lancet Diabetes & Endocrinology*. 2021;9(2):82-93.

[7] Seiglie J, Platt J, Cromer SJ, Bunda B, Foulkes AS, Bassett IV, et al. Diabetes as a Risk Factor for Poor Early Outcomes in Patients Hospitalized With COVID-19. *Diabetes Care*. 2020;43(12):2938-44.

[8] Zhu L, She ZG, Cheng X, Qin JJ, Zhang XJ, Cai J et al. Association of Blood Glucose Control and Outcomes in Patients with COVID-19 and Pre-existing Type 2 Diabetes. *Cell Metabolism*. 2020 Jun 2;31(6):1068-1077.e3. doi: 10.1016/j.cmet.2020.04.021. Epub 2020 May 1. PMID: 32369736; PMCID: PMC7252168

Risk of death in patients hospitalised with COVID-19 in WSLHD by diabetes status controlling for age and sex



WSD has responded to that challenge as COVID-19 has come and gone throughout the pandemic in NSW. The figure below describes the case numbers of COVID-19 throughout the last two years, and WSD's response, switching from purely face-to-face to only virtual care, and finally incorporating both into a hybrid model.

The justified caution of people with diabetes towards COVID-19 has necessitated changes to the way we work, and we have adapted throughout the pandemic to move with these changes.

HEALTHCARE USE DURING THE PANDEMIC

The fact that people with diabetes have been cautious over the pandemic has both positive and negative consequences – while it has reduced the proportion of people with diabetes in Sydney who have caught COVID-19, it also meant that people with diabetes have not accessed care to their usual extent during the pandemic.

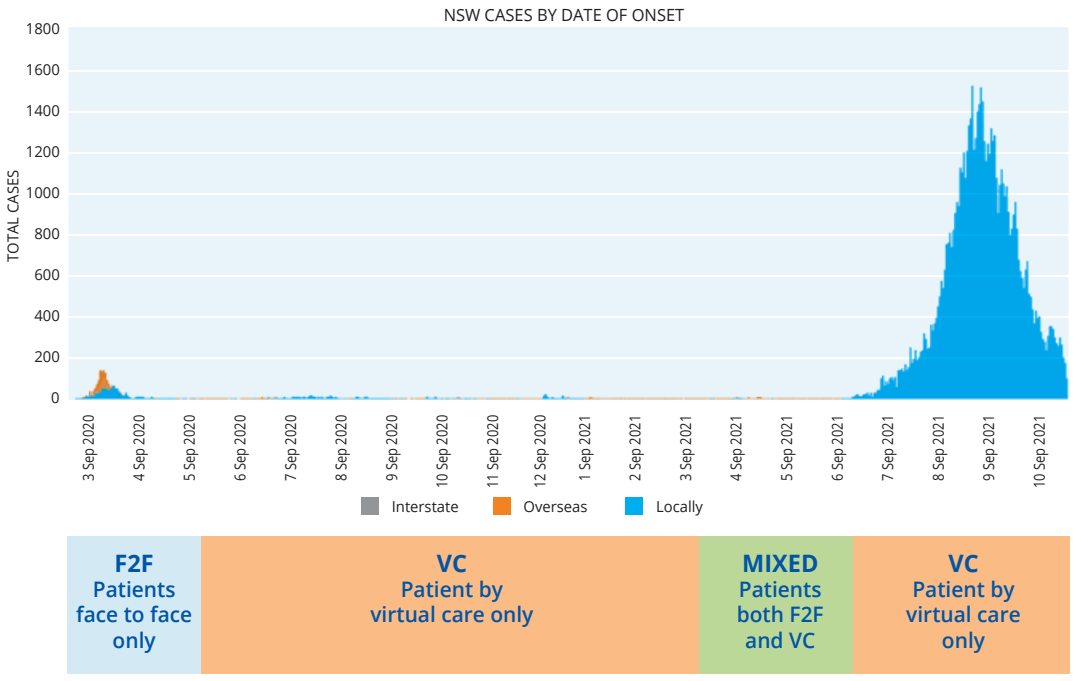
This is perhaps most obvious when looking at the attendance to EDs by people with diabetes over the last two years. WSD has a long-running program testing people in ED using an HbA1c test, which measures average blood glucose and is used to diagnose and monitor diabetes.

During the pandemic, the proportion of people with test results consistent with diabetes dropped substantially from 18% down to just 12% on average. Moreover, every time there has been a major outbreak of cases in NSW, the proportion of people testing positive for diabetes has dropped, with the end result that a huge number of positive tests for diabetes have likely been missed during the pandemic as a whole.

This is shown in the graph on the following page – notably, the proportion of people began to climb during the spring of 2020 but dropped sharply again during the Christmas outbreak at the end of the year.

COVID-19 cases in NSW reported since the beginning of the pandemic

1ST WAVE	25 Jan 2020 – 3 cases reported in people who acquired their infection in China. First LA case 2/3, daily cases peaked 27/3/20 at 213 cases, continued till end of May
2ND WAVE	Early July 2020 – Seeding of COVID-19 into SWS from outbreak in Melbourne. Transmission interrupted by end of November 2020
3RD WAVE	Dec 2020 – Two new introductions caused outbreaks in Northern Beaches and Berala. Transmission interrupted by end of Jan 2021
4TH WAVE	June 2021 – Current outbreak began mid-June 2021 from Sydney's East and spread to West and South-West Sydney, and to regional NSW

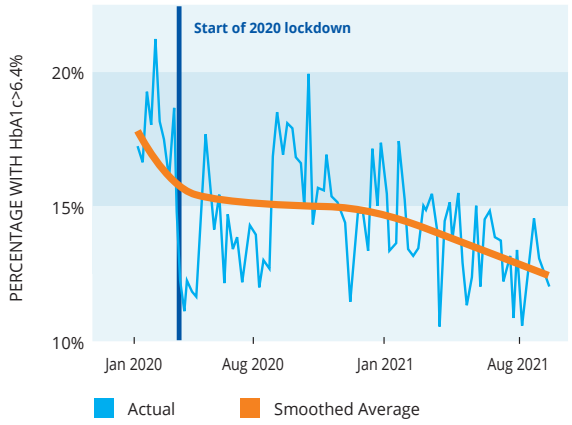


Source: NSW Health[9]

[9] COVID-19 cases by notification date and likely source of infection, 2021. *NSW Health*. Available at: https://data.nsw.gov.au/data/dataset/nsw-covid-19-cases-by-likely-source-of-infection/resource/2f1ba0f3-8c21-4a86-acaf-444be4401a6d

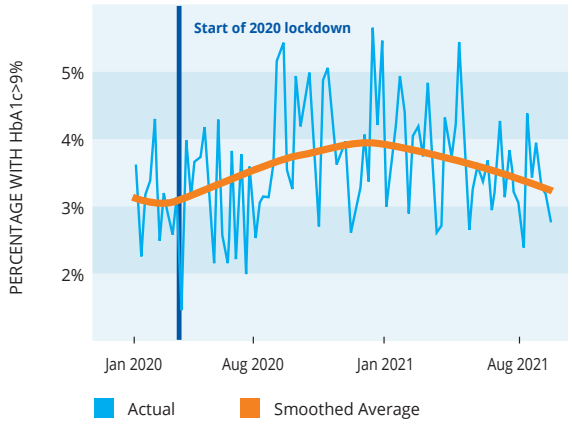
However, we can see that this is not true for people with very high HbA1c>9% in the graph below. These people, who have very severe diabetes and acute issues, have not stayed away.

Smoothed rate of diabetes in people attending ED at Blacktown/Mount Druitt hospitals. N=40,000



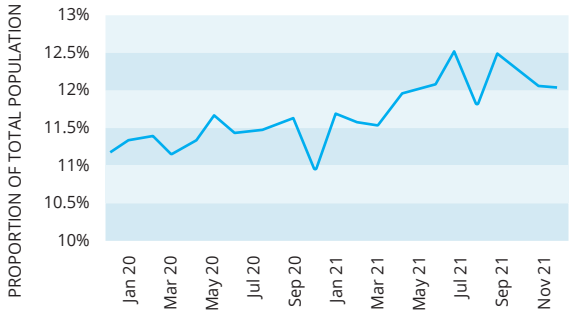
This represents a significant missed opportunity for early intervention and may result in increased issues from people whose diabetes was missed in future years.

Smoothed rate of severe diabetes (HbA1c>9%) in people attending ED at Blacktown/Mount Druitt hospitals. N=40,000

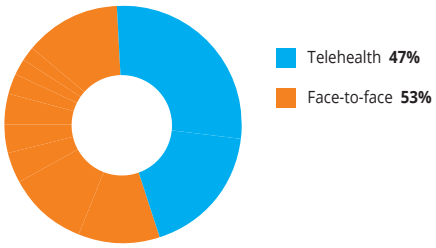


Conversely, however, there is data from GP clinics in western Sydney that people with diabetes have attended practices more since the start of the pandemic. This may indicate that there is replacement behaviour occurring, where people present more to GP because they are unable to access ED. While these figures are not perfectly comparable, it is potentially reassuring that people with diabetes are going to see their GP more as shown in the graph below. As shown below, many of these consultations were provided by telehealth, as people with diabetes accessed the new services offered on the MBS schedule during the pandemic.

Proportion of adults attending GP clinics with diagnosed diabetes (n=615k per month)



Proportion of services provided by GPs in WSLHD by MBS assignment. N=1,000,000 consultations

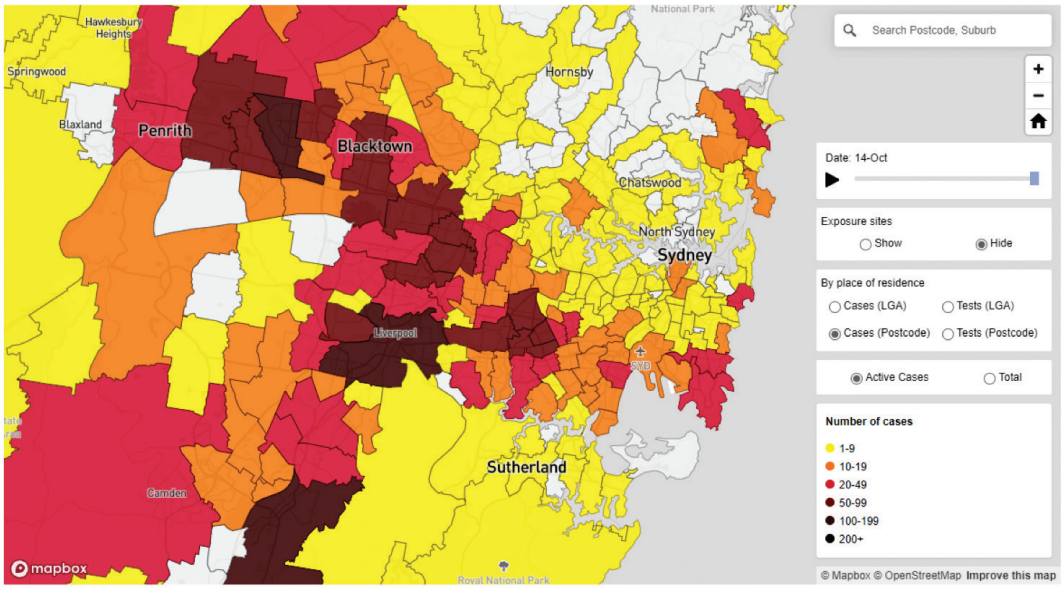


DISADVANTAGE IN WESTERN SYDNEY

Comparing the maps below, we can see quite clearly that the disadvantage that caused diabetes has also been a significant factor in the spread of the coronavirus infections.

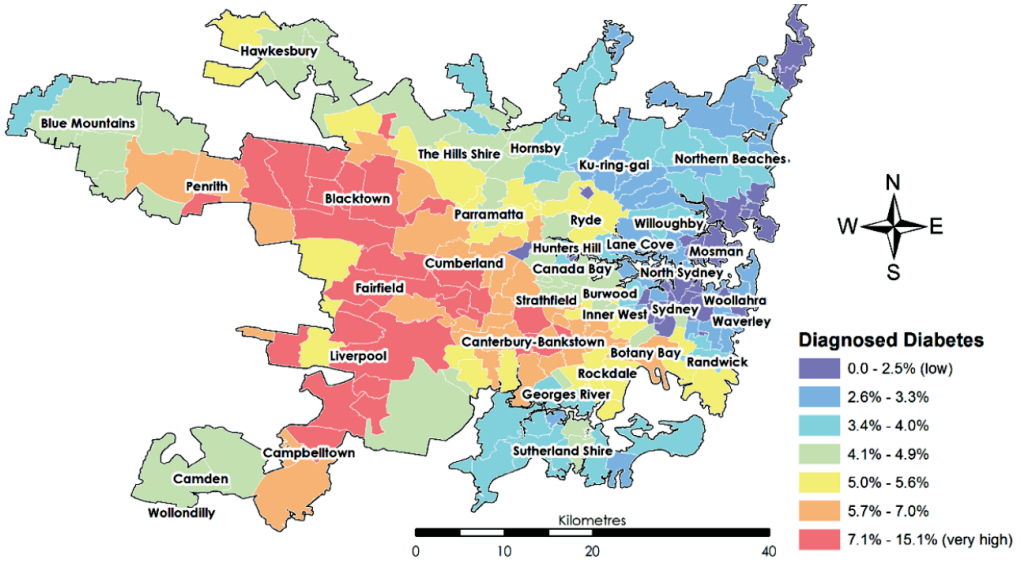
Disadvantage is an issue for more than a single disease, and it is very important to recognise that the community has been harmed by more than just the ongoing diabetes epidemic during this pandemic period.

Map of NSW COVID-19 case locations, cases and tests



Source: NSW Govt[10]

Spacial inequality in diabetes prevalence in Sydney (Data sourced from the National Diabetes Services Scheme)



Map created by A/Prof Astell-Burt and Dr Feng | Population Wellbeing and Environment Research Lab (PowerLab)
School of Health and Society, Faculty of Social Sciences, University of Wollongong (27/07/2017)

[10] COVID-19 Data and statistics, 2021. *NSW Government*. Available at: https://www.nsw.gov.au/covid-19/stay-safe/data-and-statistics
[11] Map created by Prof Astell-Burt and Prof Feng as part of a presentation in 2017 using NDSS statistics

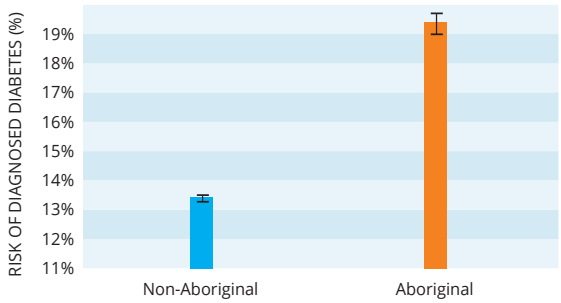
DIABETES IN HIGH-RISK COMMUNITIES

The risks of diabetes are severe, but these are compounded in communities that experience disadvantage across WSLHD. Some of these issues are highlighted below and relate to social and economic disparities that plague many people in our region. As we showed in our 2020 Year in Review, people who come from countries other than Australia, and those who experience socio-economic disadvantage, are at higher risk of both diabetes and its consequences.

One example of this disparity is people who identify as Aboriginal. While members of the Aboriginal community are on average younger than people who do not identify as Aboriginal, they are 50% more likely to be diagnosed with diabetes, as well as having a significantly increased risk of the complications that diabetes causes.

This graph shows that people who are admitted to any WSLHD hospital and identify as Aboriginal and Torres Strait Islander have an average rate of diagnosed diabetes of nearly 20%, compared to just 14% in non-Aboriginal people.

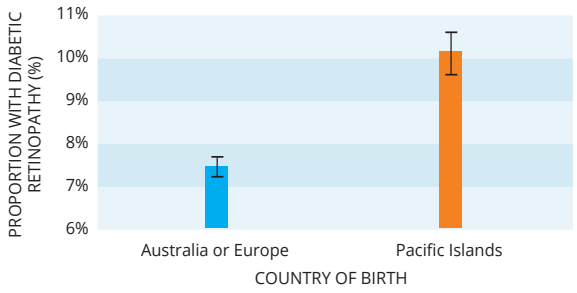
Risk of diabetes in Aboriginal people admitted to WSLHD, corrected for age and sex, from 2016 onwards



N=1.4 million admissions

These issues are repeated across other vulnerable populations in our region. For example, in people diagnosed with diabetes, those from the Pacific Islands have a 40% increased risk of developing diabetic retinopathy when compared to those born in Australia or Western Europe. This speaks to the far greater burden of disease that these groups of people face, not just in terms of their risk of diabetes, but in terms of best management and control of their disease once they are diagnosed.

Diabetic retinopathy in people with diabetes admitted to WSLHD by country of birth, corrected for age and sex, from 2016 onwards



N=1.4 million admissions

There is also evidence that people from the Middle East have higher rates of COVID-19 and diabetes, showing the compounding risk that disadvantage can have. People from the Middle East made up a disproportionate number of admissions to hospitals for COVID-19, meaning they have a higher risk of both COVID-19 and diabetes as shown in the graph on the next page.

COVID-19 AND LIFESTYLE CHANGES

This complexity is also underscored by the relationship between COVID-19 and lifestyle changes. During the first wave of the COVID-19 pandemic the Dutch Government implemented its so-called 'intelligent lockdown' in which people were urged to leave their homes as little as possible and work from home. This life-changing event may have caused changes in lifestyle behaviour, an important factor in the onset and course of diseases like diabetes[12].

A randomised representative sample of 1004 of the adult population was surveyed. Healthier lifestyle changes were observed in 19.3% of the population, mainly due to a change of diet habits, physical activity and relaxation, of whom 56.2% reported to be motivated to maintain this behaviour change in a post-COVID-19 era[12].

Fewer respondents (12.3%) changed into an unhealthier lifestyle. Multivariable logistic regression analyses revealed that changing into a healthier lifestyle was positively associated with the variables 'Worried/Anxious getting COVID-19' (OR: 1.56, 95% C.I. 1.26–1.93), 'stress in relation to financial situation' (OR: 1.89, 95% C.I. 1.30–2.74), 'stress in relation to health' (OR: 2.52, 95% C.I. 1.64–3.86) and 'stress in relation to the balance work and home' (OR: 1.69, 95% C.I. 1.11–2.57) were found predicting the change into an unhealthier direction[12].

[12] van der Werf, E.T., Busch, M., Jong, M.C. et al. Lifestyle changes during the first wave of the COVID-19 pandemic: a cross-sectional survey in the Netherlands. BMC Public Health 21, 1226 (2021). https://doi.org/10.1186/s12889-021-11264-z

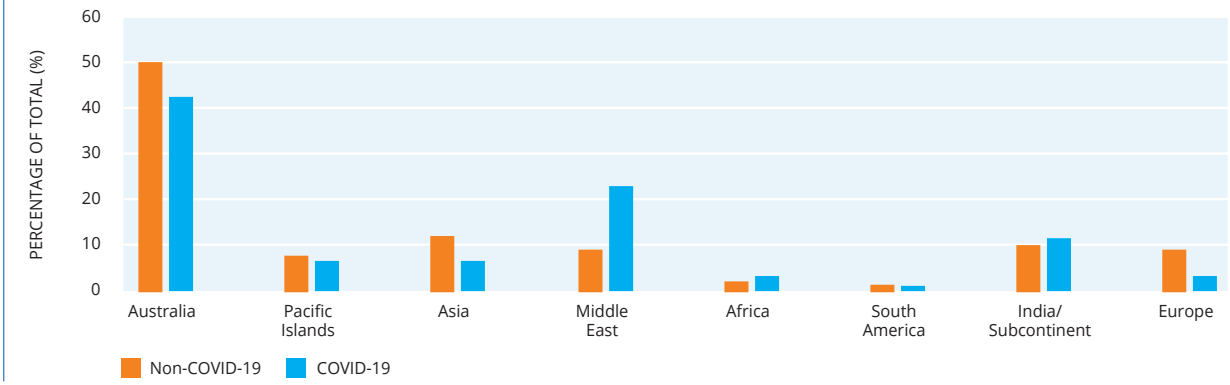
[13] The first year of COVID-19 in Australia: direct and indirect health effects, 2021. *Australian Institute of Health and Welfare.*

[14] Coronavirus (COVID-19) case numbers and statistics, 2021. *Department of Health, Australian Government.* Available at: https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-case-numbers-and-statistics

[15] Securing Australia's recovery, 2021. *Australian Government.* Available at: https://budget.gov.au/2021-22/content/overview.htm#three

[16] Diabetes impact, 2020. *Australian Institute of Health and Welfare.* Available at: https://www.aihw.gov.au/reports/diabetes/diabetes/contents/impact

Country of birth of patients hospitalised for COVID-19 in WSLHD compared to non-COVID-19 patients admitted since 2020 (n=2,051 COVID-19 patients)



Data from around the world gave a mixed picture for health behaviours and the same pattern was reported by the AIHW[3].

From data for the period April to June 2020:

- 25% of people had increased consumption of snack foods and 36% decreased consumption of take-away or delivered meals compared with before the pandemic.
- 58% had increased their personal screen time compared with before the COVID-19 pandemic, and 41% had increased household chores and projects. These had decreased to 44% and 25% two months later.
- Similar proportions of people had increased as had decreased exercise and other physical activity.
- Of those adults who usually drank alcohol, 20% had increased their consumption compared with before COVID-19 restrictions. Data sources showed that between 13% and 27% had decreased it.
- Of those who usually smoked, 18% smoked more than before COVID-19 restrictions and 9.7% smoked less.
- Of those who used illicit drugs, 26% had decreased their consumption and 18% had increased it.
- The initial impacts of the pandemic in Australia appeared to have increased levels of psychological distress, particularly for adults aged 18–45. By April 2021, the average level of psychological distress had returned to pre-pandemic levels, however continued to be higher for young people. The data on the large Sydney and Melbourne third COVID-19 pandemic waves are not yet available.

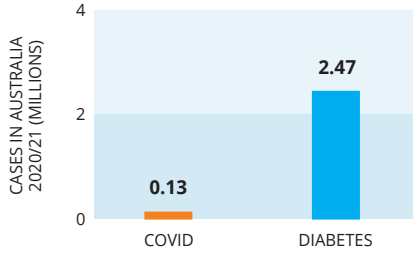
COSTS AND SIZE OF PROBLEM

The COVID-19 pandemic has brought a great emphasis on public health in general. This highlighted the very modest expenditure that we currently use on diabetes compared to other diseases, and how much more we have spent preventing COVID-19 than we do on diabetes each year.

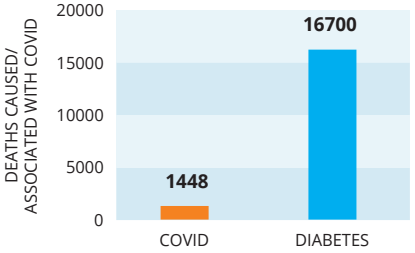
This is not to say that our spend on COVID-19 has been unnecessary – indeed, modelling suggests that we have saved in the order of $300 billion by implementing various measures to prevent COVID-19 in Australia – but that if we were to spend the same amount on diabetes we might be able to achieve similar successes with diabetes as we have seen during the pandemic against COVID-19.

This divergence is shown in the following graphs:

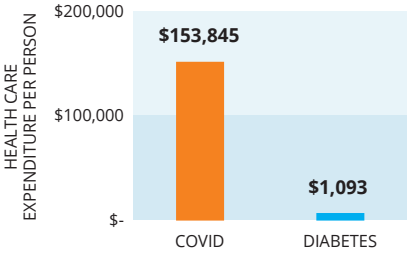
Diabetes vs COVID-19 cases 2020/21



Diabetes vs COVID-19 deaths 2020/21



Diabetes vs COVID-19 Expenditure 2020/21



COVID-19 compared to diabetes across different areas of expenditure and harm. COVID-19 cases taken from the Australian government[14], costs estimated by treasury[15], and Diabetes costs and figures estimated by the Australian Institute of Health and Welfare[16]

Based on national data from the AIHW, there are about 2.5 million people with diabetes, and 16,700 associated deaths each year. We also spend about $2.7 billion either treating or preventing diabetes specifically, for a direct spend of $1093 per person with diabetes per year.

Conversely, Australia has seen 130,000 COVID-19 cases since the pandemic began, with just under 1500 deaths. However, we have spent an estimated $20 billion on direct healthcare and prevention costs since the pandemic began, making this an expenditure of over $150,000 per case of COVID-19.

With this spend, we were able to take COVID-19 from a huge, unmanageable problem and make it something that we could handle reasonably easily. Imagine what we could do if we spent the same amount on our chronic problem of diabetes?

DIABETES AND THE FUTURE

The COVID-19 pandemic has brought devastation to millions around the world, disrupting many parts of the global economy. Governments, including our own, have stepped up to protect lives and livelihoods.

Infectious disease outbreaks from COVID-19, Influenza or Ebola viruses are but one of the global health threats facing humanity.

Climate change has continued, and it ultimately threatens life on earth. At COP26 in Glasgow, November 2021, world leaders committed action and solidarity to tackle climate change. Environmental disasters like rising oceans, devastating fires, hurricanes, storms, floods, mudslides and drought are being experienced with accelerated frequency and increased severity.

Humanitarian emergencies arising from internal national conflict or war or famine are taking their toll on humanity. Nations are investing enormous and increasing amounts of GDP in their fighting capacity.

There is however a silent scourge of chronic illness that has arisen all over the globe over the past decades causing immense suffering and premature death. It is driving up the costs of healthcare and filling our hospitals and healthcare services with diabetes, cancer, heart disease, kidney failure, strokes, dementia and amputations.

All these global health threats are largely preventable so investment in prevention and early mitigation is the best economic solution. Yet in the case of chronic disease and diabetes we are failing to acknowledge that a healthy food supply, increased physical activity and other well documented remedies addressing the social determinants of disease need an appropriate investment to turn them around.

Our communities, our state, our country and the global community need a fundamental change in the way we live our lives and adopt a more sustainable lifestyle. This includes moving away from greenhouse gas production and embracing healthier living.

WSD FRAMEWORK FOR ACTION

The *WSD Framework for Action* and the goals underpin the work of WSD and comprises three major sections including Primary Prevention, Secondary Prevention and Management and Enablers, with key indicators under each.

The following section of this document outlines in detail key actions identified to progress these goals in 2021.

This Framework is approved by the *Executive Management Team* comprising the Western Sydney Local Health District (WSLHD); Western Sydney Primary Health Network (WSPHN); Department of Planning, Industry and Environment (DPIE); Diabetes NSW & ACT; and PricewaterhouseCoopers (PwC).

An alliance of partner organisations from all tiers and sectors of government, the private sector, education and NGOs support the delivery of these goals.

Primary Prevention

WSD's primary prevention programs and initiatives aim 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. Specific emphasis is placed on high-risk priority populations. Working with multiple partners, focus areas included restoring urban tree canopy and improving green space quality, increasing health professional referral, promoting alternative forms of exercise, improving healthy food consumption, increasing physical activity and enhancing the healthy built environment.

This Alliance, made up of a group of organisations arising from government, non-government and the private sector who come together to improve the environment of western Sydney in terms of food accessibility, exercise and the urban build, continued to thrive against a disrupted year.

This was divided into Alliance Engagement; Alliance Events; Prevention Hub; Working Groups; and Alliance Projects.

The strategy of a 'whole of community' approach to beating diabetes is regarded as the only approach capable of enabling a consistent and effective way of addressing and solving the current epidemic.

Secondary Prevention and Management

Secondary prevention initiatives aim to slow or stop the development of diabetes complications. They focus 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 medical neighbourhood to deliver the best care at the right time and place. A strong guiding principle was healthcare delivered in a way to support the healthcare quadruple goals of servicing patient needs to get quality health outcomes in a cost-effective manner with high provider-satisfaction.

Initiatives were divided and delivered under: Detection; Clinical Engagement; Education; Digital Solutions; and Connect with Hospital Services.

Enablers

Priority and Place-Based Populations: 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 WSD adopted a place-based approach. Toongabbie, Mount Druitt and Blacktown were selected as the areas on which to focus our place-based effort to demonstrate the power of local community engagement in rolling back diabetes, one geographical area at a time.

Specific at-risk populations, such as Indian and Filipino, were targeted strongly in 2021 with the establishment of community-led initiatives conducted by advocates arising from within the health and community sectors. Work to co-ordinate the approach to improving the health of the Aboriginal and Torres Strait Islander population amongst multiple health agencies was enhanced.

Community and Provider Engagement: 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 community awareness campaign to inform and engage the community about the risks of diabetes and engage them to take positive steps for better health. In 2021 the COVID-19 pandemic meant we transformed the way we communicated to patients and the community, moving to a predominantly virtual delivery.

Data for Decision Making: Our aim is to build a population health surveillance and monitoring system to leverage data and intelligence to continuously monitor and evaluate the burden of diabetes and the impact our interventions may be having.

Research: WSD encourages the adoption of interventions that have been evaluated in other places in the world or locally and bring these to larger scale in our district. Research, publications and forums were identified as enablers to assist with this goal in 2021.

Resource Mobilisation: Over the past five years WSD has been building an alliance of partners in the public – private – civic sectors that acknowledge the problem of diabetes and are willing to take ownership of the problem and collaborate on 'taking the heat out of our diabetes hotspot'.

We established a 'Diabetes Prevention and Management' Trust Fund in ICH, WSLHD that has been contributed to by the pharmaceutical industry mostly to support WSD education programs like the Masterclasses and video production for better patient self-management.

We are increasingly applying for grants to support projects that support our goals in partnership with our Alliance members.

The Year-in-Review and other collateral we produce, our website and Facebook page, are used to continue to advocate for a larger investment by governments and other sectors to help bring to scale the models of care and programs we demonstrate are successful.

ABOUT OUR TEAM

LEADERSHIP TEAM

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

The general manager Integrated and Community Health of WSLHD and chief executive officer of WSPHN co-chair an Executive Management Team (EMT). The EMT is supported by a secretariat led by the Director and the Program Manager of WSD, and the Director Primary Care Transformation and Integration at WSPHN.

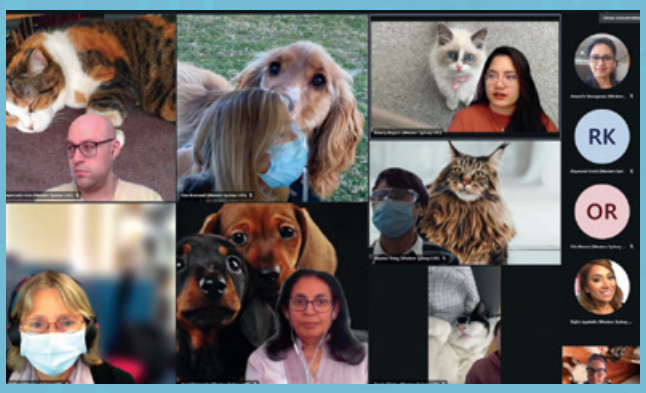
The EMT provides leadership, strategic direction, and the structure to support the implementation of the WSD plan. EMT meetings for 2021 were scheduled quarterly and three of those were held. The annual work plan, then mid-year plans amended to tackle the COVID-19 pandemic and this Year-in-Review were endorsed.

CORE TEAMS

In 2021, WSD WSLHD, Integrated and Community Health (ICH) has a FTE profile of 15.8. and an annual budget of about $2.4m.

WSD WSPHN core team includes the Director Primary Care Transformation and Integration, Primary Care Transformation Manager, Joint GP Specialist Case Conferencing Expansion Coordinator, PCMH Expansion Co-ordinator and the Practice Development Team, and the manager and staff of the Health Intelligence Unit.

WSD Core teams were engaged through regular meetings on a weekly basis and monthly meetings with WSPHN core team. During COVID-19 lockdown over the second half of this year, core team meetings were converted to daily morning and afternoon online huddles to keep our team well connected and productive.



The Core Team had regular daily Zoom meetings during COVID-19 to stay in touch

Upon completion of one-year mark of our new Mount Druitt Community Diabetes Clinic in May 2021, the evaluation of this model proved to be successful and established as an ongoing service. The service employs four GP Visiting Medical Officers on six monthly rotating terms for building capacity in diabetes management. These VMO positions have become permanent this year.

ENGAGED LEADERS ALLIANCE

During 2021, the WSD Leaders Alliance included active participation from the key partners PwC, DPIE, Diabetes NSW & ACT and the WSPHN. The Alliance was also actively supported by members of the Education sector, NGOs, Councils, Pharmaceutical industry, Food producers, adjoining LHDs, NSW Ministry of Health (MoH) Department of Premier and Cabinet (DPC) and the Greater Sydney Commission. The Alliance was pleased to welcome a number of new members and re-engage with some key partners.

Fortunate enough during this challenging year, the Alliance met twice formally, as face-to-face events, to monitor progress and explore additional ways to collaborate. Working parties originating from these meetings pursued new opportunities.

Farewell to Sharon McClelland RN CNC CDE

In October, WSD said goodbye to its long time Credentialed Diabetes Educator, Sharon McClelland.

Sharon joined WSD part-time in 2017 as a Credentialed Diabetes Educator before coming on board fulltime a year later.

This was after 15 years as a remote nurse in regional Victoria where she was inspired to help people with complex diabetes after her grandfather died of diabetes complications.

She relished being part of the WSD team: “You can’t work as a single clinician when you’re taking care of someone with diabetes. You need the whole team to offer that comprehensive care. Everybody contributes to the team... without that, we would not have the success we have had. We lead the way in a lot of things; working within western Sydney, with all its challenges, we really are making our mark.”

She commends the WSD team’s approach on working to build the capacity of the GPs and health professionals in western Sydney because of the “sheer numbers” of people with diabetes, and said the “public health system can’t do it alone”.

She looks back with fondness and pride on working with GPs at a grassroots level and being given the opportunity to educate practice nurses and other allied health staff. "The roll out of the online National Diabetes Care Course has been an absolute highlight because of the hours of education provided along the way that we would not have the capacity to do."

Sharon has moved to Geelong, Victoria to be closer to family and hopes to use her skills and knowledge in a general practice as well as introduce WSD's successful case conferencing model of care.

Sumathy Ravi – USYD PhD Student

In the last five years, WSD has slowly grown our research and data agenda from a team with largely disconnected research projects into a collaborative research hub with nationally-important data work. One fantastic example of this is Sumathy Ravi, WSDs program manager, who began pursuing a research pathway in 2017. After working on a systematic review with our research manager Gideon Meyerowitz-Katz, and participating in several other published studies, Sumathy began her PhD earlier in 2021 working part-time with the Health Literacy lab at the University of Sydney (USYD).

Now one year into her PhD, Sumathy has already had ethics approved and collected much of the data for a qualitative study of Virtual Care, and will soon begin submitting work for publication relating to her PhD.

She is also mentoring our new research nurse on interview technique, as well as collaborating with the clinical team to drive better value care. This exemplifies the work we have done to move forward with a research and data perspective in WSD.

Helen Dick, WSD Research Nurse

In August, WSD received grant funding to employ a new research nurse, Helen Dick, who is working on our evaluations and randomised trials. She assists in research projects run by WSD by recruiting participants to trials, conducting primary and secondary data collection, creating and updating databases and data interpretation, as well as identifying areas for potential research.

Anandhi Murugesan with Graeme Loy CE WSLHD and Professor Glen Maberly, was awarded Nurse of the Year 2021

Anandhi Murugesan, Nurse Practitioner and WSLHD Nurse of the Year

Ana joined the WSD team as a transitional nurse practitioner in 2019 to coordinate and lead the set up and running of the Mount Druitt Community Health Diabetes Clinic, involving WSD's new model of care upskilling GP VMOs together with endocrinologists. She helped coordinate the data collection required for the formal evaluation of the service, which was integral to the ACI led evaluation completed this year. She has not only supported the ongoing running of the service, she achieved her accreditation as a nurse practitioner.

Her perseverance and hard work was recognised when she was awarded Nurse of the Year at the WSLHD Best of the West Quality Awards 2021 on December 8.

WSD staff Sharon McClelland, Aruni Ratnayake, Sian Bramwell and Ana Murugesan at the Leaders Alliance meeting in May 2021

INDUSTRY PARTNERS

This year our public-private-civic partnerships strengthened as WSD proposed a suite of partnership sponsorship opportunities to the industry partners. Amongst the 10 pharmaceutical companies, there was huge interest and support received for many of our projects to collaborate with in-kind and funding contribution.

All 10 pharma partners sponsored the Diabesity Masterclass and in addition, half provided funding support for other key initiatives such as Rural Towns-Diabetes Case Conferencing and the production of educational videos. Pharma partners provided enormous support in promoting all our forums and Masterclass events.

Sponsors held a virtual display space on the myINTERACT app and were recognised at every sponsored session of Masterclass, highlighting those which had relevant resources.

HOW WSD CONTRIBUTED DURING THE COVID-19 PANDEMIC

The WSD core team continued to provide virtual care through General Practice Case Conferences throughout the year. Capacity building for GPs and community to better manage diabetes was delivered by the expanded Masterclass. Support for Primary Prevention, priority Populations, Communications, Monitoring and Evaluation was maintained via virtual interactions.

During the fourth COVID-19 wave WSD staff picked up extra responsibilities and made specific contributions to meet the demands of COVID-19 as outlined here.

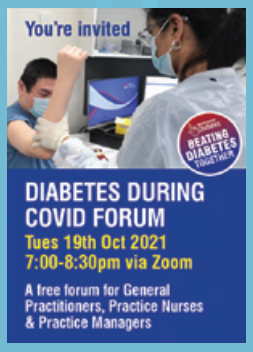
SUPPORT TO THE PUBLIC HEALTH UNIT

During Sydney's fourth wave of the COVID-19 lockdown, WSD staff supported the PHU, Centre for Population Health, WSLHD between August 30 and October 16.

The PHU needed to rapidly expand to meet the demands of this wave. This included case interviews leading to risk assessments when infected patients visited high priority locations such as healthcare, age care, disability, apartment block, large venues (such as food production and distribution centres), General Practice, Allied Health rooms, etc. There was also a need to respond to public enquiries including through the call centre.

WSD provided support through allocating staff to work with the PHU in the following areas:

- Medical advice to GPs on dealing with the pandemic in terms of clinical information in treating patients. This was conducted through one-on-one advice, fora and the introduction of short instructional videos.
- Working with GPs and practice staff on procedures required within the practice in order to maximise safety for staff, GPs and patients, minimise down time and comply with Public Health orders.
- Providing up to date individual advice and monitoring of venues regarding required practices once positive workers had been identified.
- Working on the Call Centre to field questions, help and escalate issues from the general public, medical profession, venues, workers and positive patients.
- The collection, analysis and interpretation of data collected from a multitude of sources regarding the epidemiology of the pandemic both within the WSLHD and throughout NSW.



DIABETES AND COVID-19 FORUM

To provide additional support to our local GPs and health professionals during the pandemic, WSD ran a *Diabetes and COVID-19* forum in October 2021 in partnership with WentWest and the PHU.

It targeted local GPs and health professionals and featured three health expert presenters and a panel of health experts to discuss changes to the risk assessment matrix; contact tracing moving forward; and how to best manage your patients with diabetes and COVID-19.

Presenters included WSD's **Dr Cecilia Chi; Prof Tim Usherwood**, Temporary Medical Advisor, PHU, Centre for Population Health, WSLHD; and **Dr Shopna Bag**, Director of Public Health, Centre for Population Health, WSLHD.

The WSD endocrinology team highlighted the increased risks of COVID-19 to patients with diabetes and discussed how to manage these risks. The PHU discussed how general practice can best protect against COVID-19 transmission, what to do when a case visits a General Practice and the changing approaches forward in the pandemic.

Prof Glen F Maberly was a temporary Medical Advisor to the Large Venues and Medical Centres PHU Group, managed by Helen Noonan. Specific contributions included understanding these risks and developing presentation videos to educate these venues to better prepare and manage when a positive person visited these places.

The PHU team and WSPHN developed a team approach to support, investigate and educate Medical Centres. This resulted in a dramatic reduction in the number of receptionists, nursing and medical staff being classified as close or casual contacts and allowing these centres to remain open.

Sumathy Ravi assisted with setting up the workflow and as the person to communicate with practices when an investigation was needed. The PHU staff were involved with supporting practices with the evaluation. Two fora were conducted with General Practices to educate and respond to their questions.

A short qualitative study was undertaken to obtain feedback and insights from medical practices about the communication and interaction with PHU and support provided by PHU and PHN.

Gideon Meyerowitz-Katz also joined the PHU team and was helpful with epidemiological reviews of venues where transmission had occurred and how to reduce this. He looked at the way data was collected and worked with the PHU to think about ways to improve those tools.

Janine Dawson joined the call centre team to answer questions from the public about their situation. This was a very challenging role.

Heloise Tolar supported Prof Maberly's work with the PHU in supporting communication collateral, including editing and being a conduit on producing videos, as well as coordinating the Diabetes and COVID forum in partnership with WentWest and the PHU.

Beverly Bugarin worked alongside the Residential Aged Care Facility (RACF) Outbreak management team and was assigned to assist with one or two facilities during their outbreak. Two meetings (a daily catch-up in the morning and Outbreak Management Team (OMT) in the afternoon) were held every day for 14 days until the outbreak for the facility was over. During this time, Beverly assisted with the minutes and the creation and distribution of agendas.

SUPPORT TO COVID-19 PATIENTS IN THE COMMUNITY

During the COVID-19 Delta wave a COVID-19 inTouch team was set up via ICH at WSLHD to manage patients with COVID-19 in the community, to help reduce morbidity and escalate hospitalisations promptly.

WSD was involved after the inTouch program was established to better manage those with diabetes and COVID-19 in the community. A system was quickly erected to help stratify and manage referrals efficiently.

In October, 35 patients were referred to the Diabetes and COVID-19 Community team; 15 were male and 20 women. The age ranged from 25 to 81 years.

To the end of October there were 124 consultations, the average number of contacts with each patient was 3.57, the most contacts was 8.

37% (13) required interpreter assistance or assistance of a family member.

The main languages were Samoan (4); Arabic (3); Tongan (3); Dari (1); Laos (1) and Serbian (1).

In addition to advice on diabetes management, patients were sent educational bundles via SMS or e-mail on various topics but mainly on Sick day management.

54% of patient were sent a glucose monitor or Flash CGM through the Logistics team which enabled close monitoring of glucose levels for patients isolating at home or in a hotel.

Following management by the WSD's COVID-19 team, patients were discharged back to their usual GP care, and the GPs were offered a Diabetes Case Conference.

Patient Case Study: Coping with COVID-19 and Diabetes and using DCC

Prior to her first appointment in September 2021, Susanne, 72 and married, was having difficulty with labile blood glucose levels. She was waking up at least twice a week with extremely low blood sugar levels and sometimes extremely high blood glucose levels, despite taking her insulin and medications as instructed by her GP. Over myVirtualCare, after arranging delivery of a Freestyle Libre CGM, the WSD team coached Susanne and her husband Leon through inserting the sensor on Susanne's arm and obtaining readings through the Librelink app on Leon's phone. Using these readings, we were able to identify that Suzanne was on too high an insulin dose which was causing her blood sugar levels to decrease to dangerous levels overnight. After decreasing her insulin dose, she had no further low readings and was still able to achieve excellent control of her diabetes.

Dr Rajini Jayaballa was seconded into the role of Acting-Director for WSD for 8 weeks. Her workload was temporarily increased from 0.7 to 0.9FTE.

Dr Jayaballa established a system to triage and manage patients with COVID-19 and diabetes in the community InTouch team. She coordinated the set-up of an eReferral system for internal referrals for patients with COVID-19 and diabetes. She worked with CareMonitor to set up a patient questionnaire and assessment template to help facilitate triaging and get consistent clinical information when patients were seen by the team.

inTouch and hospital COVID-19 diabetes management

- inTouch patients identified as having diabetes with key data collected during the first interview.
- All patients with diabetes sent GoShare education bundles.
- Diabetes discussed by inTouch clinical teams when they follow up with patients.

↓

inTouch team refers patients requiring the WSD inTouch team according to criteria via e-Referral or email.

↓

Patient management steps include:

- Send and receive diabetes surveys via CareMonitor Diabetes.
- Certified Diabetes Educators, Nurse Practitioner, RMO or AT call patients and establish a WSD inTouch management plan documented into Cerner and/or CareMonitor Diabetes.
- Enrolling selected patients in CareMonitor Diabetes, including setting up BGL monitoring in the cloud.
- Arranging for Flash Continuous Glucose Monitoring where appropriate.
- Undertaking WSD VC Diabetes Case Conference with Endocrinologist, CDE, Patient ± GP using MyVirtualCare.

↓

Escalated to inTouch hospital admission team if clinical deterioration.

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Westmead and Blacktown Hospitals COVID-19 and Diabetes Post-discharge teams.

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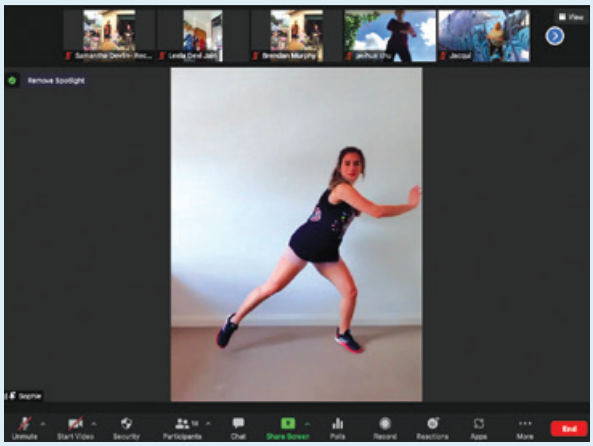
Discharge to GPs and usual care.

How partners responded: **Reclink Australia**



Reclink Connect teacher Sophie Bejok

Reclink establishes sport, recreation and arts programs for the most vulnerable, disadvantaged and isolated in our community. Engaging participants in activities to assist with, not just mental and physical health but also a sense of social inclusion, became a challenge that Reclink had to address during the first COVID-19 lockdowns in 2020.

With online meetings and gatherings becoming the new norm, Reclink identified that moving sessions to a Zoom setting and throwing access open to not just our most vulnerable communities, but also to the wider population, was going to play a key role in keeping people active and connected.

Initial sessions were our 'regular' programs – Yoga, Zumba, fitness. But as Reclink Connect (as the program became to be known) reached more and more people, requests came in for a broader range of sessions to cater to participants on all levels.

Diversity has been a key to addressing online fatigue and Reclink Connect became a five-day-a-week, 9am-5pm online presence expanding to Tai Chi, Pilates, Bollywood Dance, Afro-Dance, meditation, jump rope, music, creative writing and photography lessons and more. Additionally, Connect developed discussion forums including health/nutrition, renaturing and several sport-based sessions including guests from professional sport teams and some very 'enthusiastic' open forums around AFL and Rugby League - especially at finals time!

At it's peak, Reclink Connect was engaging well over 1200 participants a week nationally.

As COVID-19 restrictions end, Reclink will be focussing on re-establishing our 'regular real world' programming but recognise that the uptake of Connect was not just for those in lockdown, but also those in isolated communities or unable to access our usual sessions. We are pleased to reveal that Reclink Connect will be an ongoing and developmental program for all to access.

In addition, she worked with various executives to maintain the staffing in the team to not only provide care for COVID-19 patients with diabetes but also coordinate and continue WSD's Virtual Care and other essential work.

Sian Bramwell completed the DETECT training and assisting with the daily calls to people with COVID-19 in the community. As the numbers of people with diabetes and COVID-19 grew, so did the needs for diabetes specific advice and monitoring. This involved working on weekends and public holidays in addition to WSD work.

The team also organised four packs for diabetes monitoring, namely for type 1, type 2, Libre Flash CGM and Flash CGM requiring a reader. These were delivered directly to patient's homes or hotel quarantine by the logistics team. This was followed up with a telehealth appointment and by sending educational videos via GoShare.

Sharon McClelland and **Anandhi Murugesan** worked additional and weekend shifts to assist with COVID-19 in the community.

Also, given WSD had temporarily ceased face-to-face outpatients' clinics, it meant switching **Theresa Kang's** (DDMS Support Nurse) role to assist WSD telehealth (myVirtual Care) and later, supporting WSD's COVID-19 response team.

SUPPORT TO COVID-19 PATIENTS IN HOSPITAL

Because western Sydney was one of the most affected areas, Westmead Hospital had one of the highest number of COVID-19 patients needing hospitalisation. As part of the hospital response, there was a transition to ward-based care and consultants were deployed to cover COVID-19 wards.

Dr Cecilia Chi WSD's Westmead endocrinologist was deployed during this time to COVID-19 ward cover and assisted in the follow-up of COVID-19 patients in the integrated care discharge clinic at Westmead.

Bernadette Sadsad WSD's diabetes educator was also involved in the care of admitted COVID-19 patients with diabetes via telehealth.

PRIMARY PREVENTION

THE ALLIANCE

The Alliance is a group of organisations arising from government, non-government and the private sector who come together to improve the environment of western Sydney in terms of food accessibility, exercise and urban build.

Much of WSD Primary Prevention activities and intervention were face-to-face prior to February 2020. Since then all activities were moved to online interactions.

Many of our Alliance partners went through this transition and for some the transition brought new opportunities as well as challenges. Most non-government and private organisations were challenged operationally as well as successfully keeping staff and clients engaged.

Activities in schools such as kitchen gardens, walking groups from general practice and exercise in gyms and swimming pools, all stopped. Yet despite this disruption we are pleased to report on the considerable number of activities that continued and emerged.

ALLIANCE ENGAGEMENT

The objective of the Alliance is to bring organisations together to address the diabetogenic environment of western Sydney. The WSD Leaders Alliance has been growing since its inception in 2015 and now has more than 130 member organisations. Engagement up until 2020 has been focussed on identifying and creating opportunities for member organisations to work together. Many of the traditional methods of networking and community engagement were not possible or required significant modification during the pandemic.

- **Engage and connect with Cumberland Council:**
  - Introductory meeting held with council senior management in collaboration with Population Health;
  - Follow up meeting conducted with Council Greening Management/WSD management and a commitment to further collaboration was confirmed; and
  - Cumberland Council now to contribute to the Greening Working Group.
- **Work with Pharma companies:**
  - Regular engagement with pharma staff in prevention fora and Alliance meetings; and
  - Proposals for funding of prevention initiatives under consideration.
- **Work with food manufacturers, growers and distributors:**
  - New Alliance members include Sanitarium, Cultivate NSW and Foodbank re-engagement.
- **Approach organisations in greening, planning, property development:**
  - Work began with AECOM on industry presentation, ongoing work with WS Business Chambers to promote Alliance and WSD to members, working with Macquarie University in climate change and greening arena, and Gallagher Studios on community greening initiatives.

ALLIANCE EVENTS

The Alliance holds regular events for its members to allow monitoring of progress, identification of opportunities, showcasing of member work and networking amongst member organisations. These events are always well attended and having been the springboard for a number of ongoing collaborative projects.

Alliance Partner: Hawkesbury Harvest

"If you've ever wondered why Hawkesbury Harvest is in the Alliance, then our experience of Farm Gate Trails during COVID-19 highlights our relevance to the health and diabetes response in western Sydney.

Our mission is to support the viability and sustainability of local food production. Making on-farm experiences possible via our trails allows the farmer to directly tap consumer markets for their products. It allows consumers who visit the farm to get outdoors, participate in gentle exercise, learn about where their food originates, and access the best, freshest and nutritionally rich produce. It's a win-win scenario.

Because producers are part of the food system, they're treated as essential service under COVID-19 orders. So, when we were all locked down, people could still visit a farm to source food, and in the process, gain the benefits noted above, and a rare boon to mental health outcomes. Lots of people took the opportunity, and during the apple and citrus seasons last year, at the height of the first wave, our local farms were really pumping. So go to harvestrailsandmarkets.com.au and look for 'Farm Trail and Food Regions'. See you out on the trail!"

Dr Ian Knowd, Hawkesbury Harvest Inc

Members networking

Dr Leigh Stass, from Macquarie University

In May 2021 we hosted the Alliance meeting "Connecting, Greening and Growing" (see pictures this page). This was a face-to-face event at Rydges Norwest with 70 attendees. The topic was 'Connecting, Greening and Growing' with an emphasis on tracking the progress of DPIE's greening initiatives along with identifying resources and opportunities for collaboration. Contributors included DPIE, Blacktown Council, WSROC, Gallagher Studios and Macquarie University.

Other events:

- On December 9, 2021, we hosted the second Alliance meeting face-to-face at Rydges Norwest. The MC was Steve Hartley, Director DPIE and was held in conjunction with the EMT meeting to promote our YIR.

  The Alliance meeting focused on the resources and facilities available for outdoor activity in western Sydney, and the multiple benefits of spending time outdoors. Speakers from Greater Sydney Parklands, Royal Botanic Gardens, Outdoors NSW & ACT, National Parks & Wildlife and The Walking Volunteers described the resources, but also reinforced the importance of community engagement in ensuring the preservation of these often threatened environments. The decision was made to produce a community directory to promote these resources and their usage to the community.
- The **Lunchtime Info Hours** event was launched in August and will be held regularly to showcase the work of individual Alliance members and identify collaborative opportunities.
  - A library of these talks has been set up on the Info Hub to allow other organisations to reference the work of their fellow members.
  - The first event in August had a focus on *Learning to Cook* with presentations from TAFE, OzHarvest and Jamie's Ministry of Food Australia.
  - The second event was in October with the topic *Engaging Children*. Speakers included Stephanie Alexander Kitchen Garden Foundation, Playgroup NSW and Royal Botanic Gardens Greater Sydney.
  - The last event in November was called *All About Nutrition* and featured speakers from Nutrition Australia; Diabetes NSW & ACT and the GI Foundation.

PREVENTION HUB

The Alliance members requested a resource that would facilitate the sharing of information in between the regular Alliance meetings. In response, the Alliance Info Hub was developed. Hosted within the WSD website, this member-only Hub allows members to post events, share news and progress and request help from other Alliance members. A new addition has been the creation of a library of member presentations given at the Lunchtime Info Hours which can be referenced and updated by members on an ongoing basis.

The **Alliance Info Hub** was relaunched at the May meeting with a new look and content. Members are actively encouraged to contribute and post their own events and engagement is increasing gradually. This, combined with the population of the site with local news and opportunities, has ensured an appealing and useful site for all Alliance members.

A newsletter is being produced monthly to connect the Alliance members and alert them to the activity on the Info Hub and drive up engagement.

Once this is well established it will be used to ascertain which Alliance members wish to remain connected with the Alliance.

WORKING GROUPS

A variety of projects were identified during the Alliance meetings which have then progressed to working parties with representation from member organisations who have an interest in the topic. Leadership of the group varies with some being organised by WSD, however the majority are organised by an Alliance member with a direct involvement in the subject.

Greening

The Greening working group has met regularly to firstly submit a greening grant and then to arrange for the fulfilment of the grant outcomes. Participation to date included WSU, University of Wollongong, UNSW, Blacktown Council and WSD. Further involvement with additional Alliance members is required for input into the grant.

Health Professional Referral Group

This group of engaged Alliance members, led by USYD, is working on a project to increase the referral of health professionals to accredited local exercise professionals. A detailed proposal has been produced to enable this project to engage a sponsor organisation to progress the work.

Dancing

This group has produced a proposal to run a large community dancing event at Parramatta Park in 2022 with the aim of engaging large numbers of CALD residents to take up regular dancing classes and evening dancing in the park. Partners include, Greater Sydney Parklands, Western Sydney Parklands Trust, Sydney Olympic Park Trust.

Self-sustaining dancing classes have been set up by Parramatta and Blacktown councils. Teaching a variety of classes including line dancing, ballroom dancing and Zumba, these have been extremely well patronised and now have waiting lists for new attendees.

Nature Play

This program is run by the Royal Botanic Gardens. Several Alliance member organisations having been collaborating with the RBG to introduce this activity to western Sydney. As well as addressing a local need, this group has also contributed to the preparation of a proposal to enable the establishment of a single body who would be responsible for this program's coordination and expansion throughout all of NSW.

ALLIANCE PROJECTS

The Alliance has identified a series of interventions that are anticipated to have a major impact on preventing our population from developing diabetes. Where possible, these interventions are being implemented in specific areas to determine and measure their efficacy, engage multiple partners and demonstrate the ability of Alliance partners to work together and make things happen. It is hoped that this will provide potential funders with the confidence that investing in prevention is a very good investment indeed. The following projects provide a summary of work that is taking place in the prevention space.

Healthy Living Options 2021 – Affordable Food Edition

This addition to the Healthy Living Option booklets was developed in response to the community's need to obtain, prepare and eat healthy food while on a budget. It includes ways to source budget recipes, cooking lessons, food suppliers and classes all of which are free or very inexpensive. The aim of the booklet is to give all residents the knowledge and skills to provide healthy meals for themselves and their families.

Janine Dawson with a copy of HLO – Affordable Food Edition

Forum

The Childhood and Obesity Forum was held on May 24, 2021 to assist the audience of health professionals better understand this sensitive issue and gain an awareness of some of the treatment and referral options that are available for their patients.

About 120 health professionals tuned in to hear from Professor Louise Baur, an internationally renowned paediatrician and researcher into childhood obesity, well known dietitian Hiba Jebeile and Li Ming Wen, a researcher and program expert.

Walking/Cycling

Work with the Heart Foundation has continued throughout 2021. The focus has been directed away from walking groups to Personalised Walking Plans. These plans allow the individual to receive specific advice, goals and support. They have proven to be more popular than anticipated and plans are underway to extend their availability once COVID-19 restrictions are eased.

We have supported the start of two walking groups: Rooty Hill Multicultural Walking Group and Let's Walk in Glenorie (pictured next page).

In October, work restarted on group walking. WSD has adopted the role of Local Coordinator for western Sydney and as such will play an active role in supporting the establishment of new groups.

Members of the Let's Walk in Glenorie group

A Walters Road Public School student enjoying the Gardening Club

Schools

Stephanie Alexander Kitchen Garden Program

Final reports were completed by grant recipient schools Blacktown West and Walters Road public schools as part of the program.

Blacktown West Public School

Benefits for students have included:

- They are enjoying eating the food they grow and often compare it to the food being grown in the home vegetable gardens;
- The number of children discussing home vegetables and fruit garden has increased;
- Students discuss their food likes and dislikes and are improving use of correct names;
- Students are more willing to discuss the names of food in their family language and share the different ways they prepare food at home;
- Lunch boxes have a greater variety of fruits and vegetables in them ensuring the students are not relying on fruit only as the healthy snack; and

Students enjoy watching food grow and are more aware of the changes in seasons and how this affects the plants/ food supply of the local area.

Walters Road Public School

Benefits for students who participated in the Gardening Club include:

- Improved knowledge of how vegetables are grown and that certain vegetables are grown in different seasons;
- Becoming more adventurous in trying different vegetables;
- Pride from watching their seeds from home grow and be harvested; and
- Bringing in more healthy choices for their recess and more students are having Crunch 'n Sip.
- A plan to start a program with Food Bank at **Rooty Hill Public School** has been postponed until 2022.
- **Lalor Park Public School** postponed commencement as they could not purchase the oven needed. They are now relocating their garden and have a new food education plan to achieve in the next 12 months.

Blacktown Sustainable Schools Network

As a member of the Blacktown Sustainable Schools Network, introduced Caddies Creek Public School to our Alliance through their interest in the environment specially greening.

Penrith Lakes Environmental Education Centre

The educational, wellbeing and ecological sustainability value their program brings to school communities over four years is remarkable. They were introduced to our Alliance.

Food

'Culinary Medicine' is the concept of providing medical students with cooking skills and a knowledge of nutrition which can passed onto their patients. Discussions have begun with TAFE on becoming the education provider. These will recommence in 2022 when face to face interactions are once again feasible.

A group of Alliance members have been working on a Public Policy document addressing food insecurity in western Sydney. The loss of peri-urban agriculture and its' impact on the food supply, economy and environment are detailed in the document. Led by UTS, this project has had input from WSLHD, WSD, Blacktown Council, and the Right to Food Coalition.

SECONDARY PREVENTION AND MANAGEMENT

DETECTION

Diabetes Detection and Management Strategy (DDMS)

Routine diabetes detection (HbA1c) in BMDH Emergency Departments has reached 177,000 tests (October 2021) since the start of this initiative in June 2016. Out of these tests 28% were consistent with pre-diabetes (HbA1c 5.7-6.4%), and 16% were consistent with diabetes (HbA1c ≥6.5%). This equates to about 650 tests a week, more than 2800 tests a month, or about 33,700 tests a year. The changes in results during COVID-19 have been discussed in the epidemiological section of this report.

The posting of HbA1c result notification letters had an interim disruption due to COVID-19 lockdown in June 2021, however the letters (& SMS) were sent to patients and their GPs if HbA1c >9.0% from July 2021.

BMDH ED HbA1c notification via SMS

In April 2021, DDMS rolled out HbA1c result notification via SMS. The SMS has a link to DDMS landing page directing patients to NDSS fact sheets on pre-diabetes and diabetes as well as links to Get Healthy and Diabetes NSW/ACT websites.

Review of DDMS landing site analytics data (in May 2021) showed:

- Pre-diabetes landing page – 175 page views out of 272 SMS sent with average time spent on viewing was 9min 36 sec.
- Diabetes landing page – 107 page views out of 387 SMS sent with average time spent on viewing was 3min 41sec.
- In total 659 SMS were sent covering April and May HbA1c test period.

Due to the fourth lockdown orders, this process (sending SMS) also had to be put on hold to avoid overwhelming our GP practices with patients as a result of SMS notification.

DDMS plans to resume full SMS HbA1c result notification from March 2022.

HbA1c testing initiative at Westmead Hospital

Routine HbA1c Testing Initiative was commenced in November 2017. As part of the routine clinical assessment, measurement of HbA1c (glycosylated haemoglobin) will be automatically performed for all patients with a random blood glucose level of ≥10 mmol/L, who present to the Emergency Department.

The aim of this initiative is to opportunistically diagnose patients who are unaware that they have diabetes, as well as to improve care and treatment for those whose glycaemic control is above the desired target.

From 1/10/2020 to date:

- 2364 HbA1c tests were performed
- 667 had a HbA1c over 9%
- 155 patients had a new diagnosis of diabetes

All inpatients with HbA1c of ≥ 9.0% were reviewed by the CNC within 1-2 working days from the time of admission. Newly diagnosed patients were also routinely reviewed and treatment initiated. 296 patients were consulted by the CNC during their admission.

Inpatient pre-diabetes GoShare bundle project

In the beginning of 2021, a pilot study, utilising digital educational information to improve the lifestyle factors of individuals with pre-diabetes, was planned. The purpose of the study is to assess if the short-term provision of electronic educational resources promoting a healthy lifestyle in individuals at risk of developing type 2 diabetes (pre-diabetes) will result in improved Body Mass Index (BMI), blood pressure and SLIQ (Simple Lifestyle Indicator Questionnaire) score.

It is widely known that the duration of hyperglycaemia is a predictor of adverse outcomes. The prevalence of pre-diabetes is increasing worldwide and by 2030, there could be more than 470 million people with pre-diabetes. This highlights the importance of diabetes prevention as a public health priority and why it is crucial to reduce the diabetes burden.

In western Sydney, more than half the adult population is overweight and at risk of developing type 2 diabetes. At least a third of people with diabetes are undiagnosed. If individuals with pre-diabetes were to lose 2kg of weight, on average 30% fewer of them will progress to type 2 diabetes.

Due to the fourth wave of COVID-19 lockdown in late June and the need to limit staff movement within the hospital to reduce the risk of spreading COVID-19, the pilot study had to be put on hold until further notice.

In 2022, DDMS plans to resume working on this study, ready for re-submission to the Ethics committee.

Ofa Rimoni, Administration officer, coordinated the concierge service for the DCC

Blacktown GP Dr Abu Kabir with patient Sham Kumar and WSD Credentialed Diabetes Consultant Sharon McClelland talk to the WSD team over VC

CLINICAL ENGAGEMENT

WSD evolved and adapted its clinical engagement to cater for the various COVID-19 waves, adopting a strong VC approach so that support to general practice to manage patients with diabetes was not disrupted.

WSD Virtual Care (VC) Diabetes Case Conferences (DCC) – Model of Care redefined and ready to scale

WSD has always been about building the capacity of primary care to better manage type 2 diabetes. The COVID-19 pandemic has accelerated VC and created an opportunity to manage all clinical referrals differently.

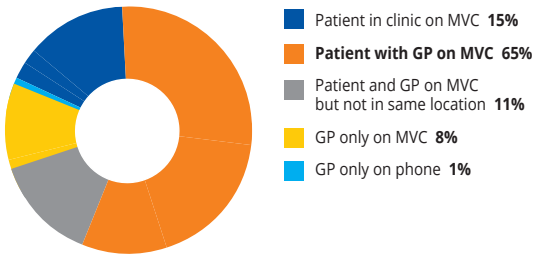
WSD is now inviting GPs to join the VC platform when they refer a patient for a Specialist consultation for better management of type 2 diabetes. With 12% of adults in our catchment with diabetes the bulk of management needs to remain with general practice.

At the start of 2021 during the third COVID-19 wave care was only being offered virtually. From March to June there was an opportunity to see some patients again in the clinics so we evolved a hybrid face to face and virtual approach. We sometimes saw patients in the clinic and invited the GP to join us on the myVirtual Care platform or we continued a full video conference approach. We were just sorting out the right combinations when the fourth large Delta COVID-19 wave forced us all into just the virtual world. In November, at the time of writing this report opportunities to return to a hybrid model are opening and we will work out optimum ways to do this. What is clear is many of the advantages of VC are here to stay.

The whole of the clinical, administration and onboarding staff worked as a team to keep GPs engaged, and provide the support required by patients and GP practices to join the MyVirtual Care platform.

Between March and mid-July, when patients were able to attend the Complex Type 2 Diabetes outpatient clinic face-to-face, 78% (118) of new referrals included the GP on myVirtual Care platform and 55% (132) of follow-up consultations.

WSD Hybrid Clinics at Blacktown Mar-July 2021
Patient/GP locations during consultations



Mount Druitt Community Diabetes Clinic (MDCDC) Evaluation

MDCDC is an evolved model of care and was evaluated by Roof Top Social and resourced by the NSW Agency for Clinical Innovation (ACI).

Evaluation objectives:

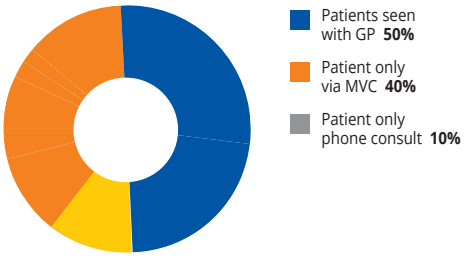
- To explore the experiences of patients and health providers involved with the MDCDC model, including, but not limited to, its virtual care components;
- Confirm that clinical outcomes for patients accessing the MDCDC model are equivalent to usual care or better;
- Describe the MDCDC model's impact on general practice capacity and confidence for patients with diabetes;
- Quantify the costs associated with rollout of the MDCDC, assess value for money and identify any potential efficiencies;
- Identify potential improvements to the design and implementation of the WSD model; and
- Identify any lessons for comparable existing services, or future scaled-up services, across NSW, including services for people with diabetes and other health services delivered virtually.

Key findings from this evaluation

MDCDC has demonstrated its value on a number of fronts, including:

- Strong acceptance of the clinical model among clinic staff, referring GPs and patients;
- Capacity-building outcomes for clinic staff and referring GPs;
- The timely and seamless service experience for clients;
- Clinical outcomes for patients, as observed by clinicians and indicated by pre-post data;
- The efficiency of the practice model, operating at a similar (slightly smaller) cost per occasion of service than comparable clinic models while delivering a range of compelling additional benefits; and
- The success of the clinic is notable given the challenging conditions in which it was launched, i.e. during the COVID-19 pandemic. The virtual care model has shone brightly in this context, enabling the clinic to adapt its operations as the public health restrictions have tightened, loosened and tightened again over time.

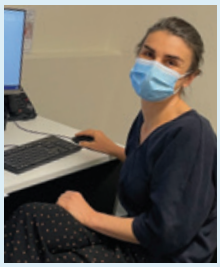
Total new patients – 96



The hybrid model of care adopted by the WSD team was effectively used in the community diabetes clinic. A total of 182 patients were reviewed in the clinic from January to October 2021, of which 48% (96) were new referrals. Referring GPs joined the review via myVirtual care or by telephone. During increased COVID-19 cases there was a decline in GP involvement due to their availability, or changes in their working conditions.

MDCDC – What GP VMOs learned with us

Dr Nada Andric



"The structure of the clinic and case discussions have greatly improved my confidence in managing diabetes in the community. In particular, my understanding of working up patients and initiating injectable treatments has improved, and my capacity to implement this in other clinical settings has greatly assisted my patients. The cases discussed weekly encompass a broad range of patient issues and has allowed all the GP VMOs to be exposed to unique patient scenarios, assisting us as clinicians as well as in managing diabetes. It has been enjoyable, supportive and the WSD team makes a real difference to patient wellbeing."

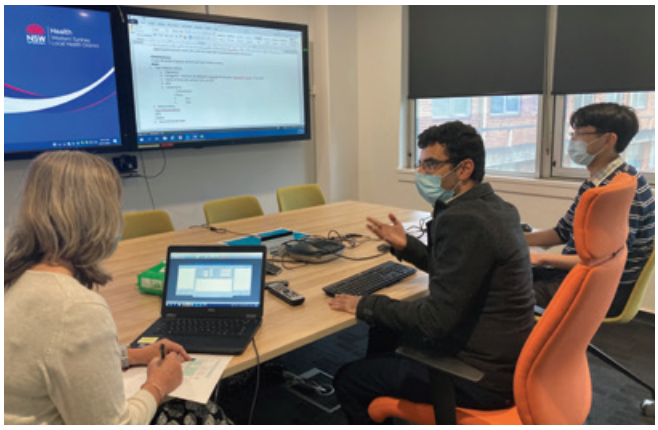
Dr Easmin Haque

"MDCDC has been a great placement for me. The whole team has been very helpful and supportive. I have been involved in different responsibilities, including complex diabetes patients, who are under the direct guidance of an Endocrinologist, in collaboration with a dietitian, transitional nurse practitioner and diabetes educators. I believe this placement has greatly helped build my confidence and my potential in being a better GP for my patients."

MDCHC Dietitian group sessions

Nutrition and medication management are key to optimising the diabetic outcomes of the clients. In response to the clinical demand, our WSD dietitian developed a monthly group education session. The 75-minute session focuses on nutrition and diabetes management through face-to-face and virtual platforms monthly to empower positive lifestyle changes. In total, 36 participants from eight WSD sessions attended the group session (Oct-Dec data).
Post group session, all participants are provided with an individual dietetic appointment to support their nutritional management.

WSD Dietitian Victoria Silvestro



A pre-clinic work up with CDE Sian Bramwell, Endocrine Registrar Dr Raymond Kodsi and RMO Dr Stephen Trang

DIGITAL SOLUTIONS

At BMDH patient's care and education was supported by numerous digital solutions including the use of Flash CGM, GoShare Educational bundles, use of Care Monitor App for insulin stabilisation with the CDE.

About 85% of the 159 patients who responded to a survey rating the care they received on myVirtual Care reported the care was 'good' or 'very good'.

When the virulent Delta strain of COVID-19 struck in mid-July all face-to-face outpatient services were closed for the remainder of 2021. Despite this, WSD was well-equipped to cope with reverting to 100% virtual care, and GPs continued to be involved in DCC, anchoring diabetes care in primary care and facilitating the timely discharge of patients back to their GP.

In August, in addition to individual 30 minute DCC bookings, batch DCC sessions resumed with practices booking 4-6 patients in a 2 to 3 hour session.

The patient again could be with the GP in the practice or join the myVirtual Care platform from home. 48% of DCC consults were new referrals, and 52% were follow-up.

Workflow including going digital with referral management

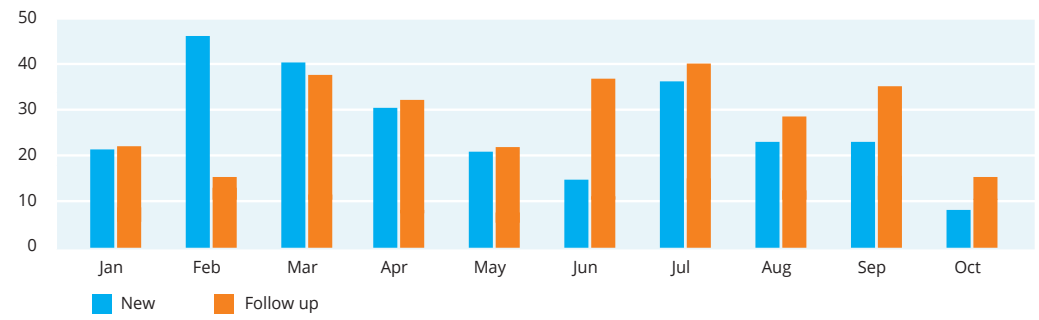
WSD continues to embrace technology and reduce its carbon footprint with the adoption of digital referral management. As of August 2021, referrals are received as digital documents and triaged electronically by senior medical staff within a week of receipt. Most referred patients are reviewed within 2-6 weeks after a referral has been received.

We continue to encourage case conferencing with GP participation, especially with our initial patient review, to work together and improve patient outcomes.

Pre-clinic workup

Pre-clinic workup, introduced last year as a way of upskilling junior doctors as well as facilitating planning and multidisciplinary management of complex patients, continues to be a major aspect of the WSD Clinical Service. Patients are discussed amongst the team and a preliminary plan is agreed upon prior to the first case conference appointment with the patient and referring GP.

BMDH WSD Diabetes Case Conference (DCC) Jan-Oct 2021 n = 547



Nurse-led clinics

One of the planned additional services for 2021 was a weekly CDE nurse-led clinic. The aim of this was to improve efficiency in the Complex Type 2 clinic. Patients with complex medication regimes or diabetes complications attended the CDE-led clinic prior to their consultation with the WSD team.

Between 2-5 patients were reviewed each week. An accurate diabetes history was obtained, and diabetes education provided where required. Flash CGM was frequently used.

Due to COVID-19, these clinics only ran from February to June, and 46 patients were reviewed.

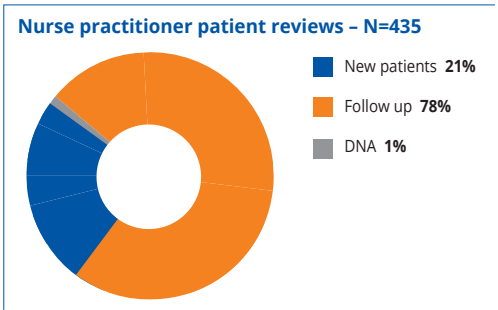
Nurse Practitioner-led clinics

The Nurse Practitioner-led clinic aims at providing a multidisciplinary approach to complex diabetes management through focused assessment, education, behavioural modification, plan for treatment modification, manage dose titration of insulin/oral medications and follow up for monitoring and treatment adherence.

The Nurse Practitioner in the community diabetes clinic in MDCDC provides:

- Preclinical assessment which includes, obtaining clinical history, assessment of self-management skills such as insulin administration technique, hypoglycaemia management and sick day management;
- Review of medication knowledge and adherence;
- Use of FreeStyle Libre monitoring system to obtain comprehensive data on daily glycaemic control and variability;
- Provide education about self-management skills;
- Weekly titration of insulin and oral medications (in consultation with the Endocrinologists) between clinic appointments; and
- Refer to allied health and other services when required.

During COVID-19 lockdown most patients were reviewed via telehealth or telephone consults.



Use of Continuous Glucose Monitoring (CGM)

Flash CGM has become part of routine care for the WSD team. Although CGM and Flash CGM is only subsidised by NDSS primarily for patients with type 1 diabetes, the learnings that both patients and clinicians gain from Flash CGM is invaluable.

Despite not being able to see patients face-to-face for Libre insertion, we managed to continue the service by working collaboratively with several community pharmacists across the Western Sydney LHD.

Several of these community pharmacists have a keen interest in diabetes management and are working towards becoming Credentialed. Diabetes Educators, from November 2021, CDE pharmacists can be included in chronic disease case conferences and bill under a new MBS item number, further enhancing the Multi-Disciplinary Team (MDT) approach.

WSD provided the sensors and some readers while Abbott Diabetes Care assisted with readers and training for pharmacists.

When the COVID-19 situation became too unsafe for patients to attend community pharmacy for Libre insertion, the WSD team worked with the Healthily team and developed two videos on how to insert a Libre sensor and use either a reader or mobile app to scan. This allowed sensors to be posted directly to patients' home.

From January to mid November 2021 **389 Flash CGM** sensors were applied through all the WSD clinical services:

- 169 applied by partner pharmacist
- 208 through the WSD team, with
- 12 posted out and patient applying the sensor themselves

Communication material

To communicate the changes made to the WSD's clinical services, a 12 page brochure was developed and sent electronically to our GP partners.

The brochure highlights a few key points including:

- Why we need to work together;
- The availability of two teams – Blacktown and Westmead;
- A clinic timetable;
- Vital information to be included in a referral to the team;
- MBS billing for GPs;
- The benefits of working with the WSD team providing Flash CGM, Insulin stabilisation, patient education bundles; and
- GP support line.

DCC Cover

Overall Service Encounters

During 2021 across all BMDH clinics – which includes Complex Type 2, High Risk Foot service; Post discharge clinic; Mental health and Diabetes monthly clinic; weekly nurse-led insulin stabilisations – the WSD clinical team has delivered the following:

3056 total encounters (DIABC1,2,3 and DCC) of which:

- 969 were new referrals
- 2087 were follow-up
- 2343 were using telehealth which includes e-mail and phone consults

WSD continued to meet clinical activity targets in 2021. Due in part to the opening of our new MCDC, WSD met and exceeded targets for occasions of service (OOS) and nationally-weighted activity units (NWAU) both overall and for almost every month of the year. WSD's average waiting time was 9 days for a total of 1,451 referrals to the service this year.

GP Recruitment into Virtual Case Conferencing

In 2021, WSD has expanded its collaboration with primary care. Our DCC service is now offered as **either single case conferences** or batch case conferences, where a single GP practice books 4-6 consecutive patient appointments for joint review.

Upon receiving a referral from a GP new to our DCC service, the Advanced Trainee calls the GP directly to discuss the concept and logistics of DCC through our virtual service, as well as gather any additional information on the patient. Most GPs are interested in joining our service and happy to collaborate.

Once a GP agrees to case conferencing, **our onboarding concierge service** guides the **practice and patient in scheduling** an appointment and joining on the virtual teleconferencing service in addition to **co-ordinating the hospital billing of Medicare**.

Patients are able to join either from their own home or with the GP in their practice. The concierge service is a unique innovation from WSD that ensures that all consultations take place online with minimal friction, and has worked impressively well in 2021 thanks to our admin team.

Although most patients and GPs who have participated have had extremely positive feedback, some GPs have not been willing to engage. Reasons for not engaging include lack or unwillingness to use teleconferencing equipment (webcam,

Reports presented at monthly Integrated and Community Health Finance and Performance Meeting

	Occasions of Service (OOS)	2020 OOS	Variance to Last Year OOS	NWAU	Target NWAU	Variance to Target NWAU	Referrals	Average Waiting Time (days)
Jan	492	273	+80%	9	9	+0%	103	15
Feb	762	372	+105%	15	13	+15%	187	7
Mar	820	413	+99%	16	14	+14%	163	9
Apr	740	278	+166%	15	10	+50%	138	8
May	703	304	+131%	15	9	+67%	118	5
Jun	797	484	+65%	15	12	+25%	111	8
Jul	908	650	+40%	18	14	+29%	165	9
Aug	636	531	+20%	14	13	+8%	107	10
Sep	813	642	+27%	16	15	+7%	162	12
Oct	776	411	+89%	11	12	-8%	197	9
Total/Average	7447	4358	+71%	144	121	19%	1451	9

microphone, smartphone, stable internet connection and/or computer), a clinic structure precluding booked appointments, frustration with the teleconferencing service when technical issues occur or an unwillingness/inability of the GP to set aside 30 minutes to discuss a patient.

GP Engagement

Between January and November of 2021, 223 GPs connected to us using MVC for a total of 819 consults. Since commencing our telehealth service, we have received referrals from 579 different GPs.

Of the GPs who have referred to our service in the past, 122 have connected to our 2021 Masterclass.

Westmead Diabetes Case Conferencing (DCC)

The DCC model of care to help build primary care capacity to better manage patients with type 2 diabetes was established in 2014 at WSD and at Westmead Hospital in July 2016.

From July 2019, the service has expanded to include an administrative officer and endocrinologist dedicated to case conferencing.

In 2020, the service transitioned to telehealth case conferences using either videoconferencing or teleconferencing due to the COVID-19 pandemic.

Again in 2021, we transitioned smoothly to the virtual platform using myVirtual Care during the COVID-19 pandemic and continued to offer this service to GPs in our local health district.

The numbers of GPs involved in JGPSCC have steadily increased:

- From July 2016 to July 2019, 28 GPs were involved in DCC;
- From July 2019 to March 2020, 22 new GPs and 9 existing GPs were involved in face to face DCC;
- From March 2020 to September 2020, 28 new GPs and 9 existing GPs were involved in DCC conducted via telehealth;
- From September 2020 to September 2021, 42 GPs have participated in DCC in 221 virtual case conferencing sessions;
- In 2021, we have also incorporated the use of new technology in DCC including the use of flash glucose monitoring for patients. A few GP practices have also been set up to independently utilise this new technology in the GPs' management of patients with diabetes. These GP practices remain supported by ongoing DCC.

Joint Specialist General Practice Community Diabetes Clinic (JSGP-CDC) at Mount Druitt Community Health Centre

The community diabetes clinic at Mount Druitt Community Health Centre opened in June 2020 and utilises a novel model of care to manage people with type 2 diabetes in the local community. The tertiary service is led by endocrinologists and a nurse practitioner and serviced by GP VMOs who then connect with referring GPs to manage the patients. The service is guided by quadruple aims, focusing on patient-centred care.

The clinical care was delivered face-to-face and pivoted to 100% virtual care during COVID-19 restrictions. Each clinic begins with a multidisciplinary team case conference and the purpose of this is to provide opportunities for the GP VMOs to learn complex diabetes management through case discussions. Since commencement of the clinic in June 2020, six GP VMO's have completed the program and have provided positive feedback about their experience in the clinic.

High Risk Foot Service at BMDH

The Blacktown High Risk Foot Service (HRFS) has continued to evolve and work through the challenges posed by COVID-19.

The Diabetes HRFS clinics were predominantly virtual clinics but combined in-person reviews where appropriate. All the digital solutions utilised in WSD Virtual Care were also incorporated here. Referring GPs were involved in new consultations where possible via telehealth.

- The Podiatry service continued to provide predominantly in-person service after telehealth risk assessments. Telehealth was used to triage and prioritise patients.
- The **multi-disciplinary reviews** continued through collaborations with various specialties including Endocrinology, Vascular, Infectious diseases teams as well as general ulcer clinic teams.
- Bi-monthly multidisciplinary team meetings continued to foster the multi-disciplinary collaborations to provide patient-centred care.
- An **Aboriginal Podiatrist** has been recruited to be part of the service to commence work in November, and will provide focused support for Aboriginal patients in WSLHD to implement prevention and seeking early care with high risk feet.
- **Jan-Oct 2021, a total of 2738 OOS were seen with 939 new patients and 1482 follow up reviews**. 30.2% were female with 69.8% male and 4.9% identified as Aboriginal.
- **One of the podiatrists has commenced a PhD**, whilst working part time with the service, with her time being backfilled by a community podiatrist. She is the first podiatrist in WSLHD to commence a PhD.

- Blacktown HRFS was one of the **early adopters of PREMs** (Patient-Reported Experience Measures) and **PROMs** (Patient-Reported Outcome Measures) in the WSLHD. In 2021, the new HOPE (Health Outcomes and Patient Experience) platform designed by ACI and partners was adopted.
- PREMS data have remained consistently impressive. Jan-Oct 21, a total of 1404 PREMS answers were collected

- 97.4% rating the service as the highest score of 'very good'
- 94.7% being able to get an appointmet that suited them
- 95.5% stating their views and concerns were 'always' listened to
- 96.1% agreed they were given information to manage their care at home
- 99.3% agreed to being treated with respect and dignity

Post Discharge Diabetes Clinic

The Post-Discharge Diabetes Clinic (PDC) is a weekly clinic that reviews patients who have been recently discharged after being acutely unwell and admitted at BMDH for various reasons, but required the hospital diabetes team to manage their glycaemia. This clinic remained predominantly a virtual service. GPs of patients were invited to be part of the virtual consultations to improve primary and tertiary care communications.

- There were 316 patients consulted in the post discharge clinic with a total of 403 appointments.
- This service successfully **secured a grant of $20,000 at the end of 2020 from ICH Research Virtual Launchpad 20/21** for a randomised trial using Flash CGM in patients with diabetes presenting to the PDC. **Ethics approval was finalised** this year, a research nurse was employed, and patients have been started to be recruited for the trial.

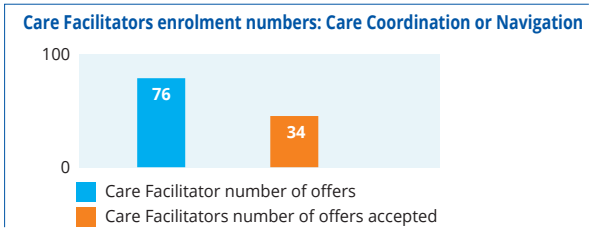
Partnership with Integrated and Chronic Health

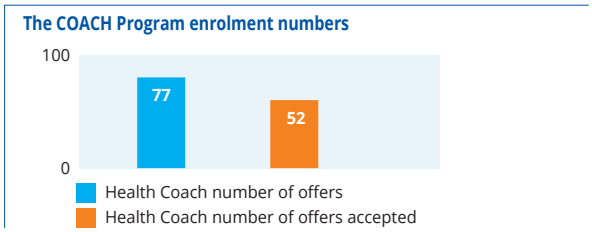
WSD has enhanced the virtual and face to face Case Conferences for patients with type 2 diabetes with additional Integrated and Community Health (ICH) programs.

Three ICH programs were made available including Care Navigation, Care Coordination and the COACH program which offers a structured six month telephone program delivered by allied health professionals that helps patients achieve their evidence based treatment targets.

Patients suitable for one or more of the programs were identified in a multidisciplinary pre-clinic case conference that included a supervising Care Facilitator. At the patient's consultation a Care Facilitator would attend the appointment and offer the additional services. During the second half of the year these additional services were reduced due to ICH staff redeployment for COVID-19 work.

During **January-August 2021, 126 patients were offered the services of Care Facilitators and/or the COACH program**, of whom 28 were offered both.





Planning will begin in early 2022 to re-establish to strong partnership between the ICH and WSD.

Partnership with Community Pharmacy

The WSD and Pharmacy working group met once in 2021 in May with Tim Perry the manager of the General Practice Pharmacy team at WSPHN as the chair. This work has been difficult to progress this year.

Mental Health Engagement

2021 was a difficult year for the Diabetes and Mental Health Joint case conferences. Due to staff changes and COVID-19, only four case conferences occurred with eight patients in total reviewed.

This is an area that will require a higher prominence in 2022 following the report by Yu Zheng who submitted an abstract to the Mental Health Research Day at WSLHD: *"Evaluating the Effectiveness of Joint Specialist Case Conferences in Improving Diabetes Control in Patients with Schizophrenia on Clozapine, a retrospective cohort study comparing measures of diabetic control in patients enrolled in clozapine clinics who had JSCC to those who did not have a JSCC. The study indicated that Joint Specialist Case Conference can improve diabetes outcomes in groups of patients with severe mental health illness."*

Community Eye Care and Outpatient Eye Screening

Due to COVID-19 restrictions, the routine eye screening in the community diabetes clinic was put on hold. In the new year, the referral process to C-Eye-C program will be reviewed to ensure all patients with deteriorating retinopathy are referred to a tertiary service for an urgent review.

Working with Towns/Outreach Service Provision

In 2021 WSD aimed to expand on the initial Two Towns project, which involved diabetes case conferencing with rural GPs to upskill their staff and improve the care of people with diabetes in rural areas.

Collaborating with the ACI and Ministry of Health, WSD has brought together a coalition of partners from Western and Southern NSW, including two LHDs and PHNs, to implement a rural virtual care project that will include:

- Diabetes case conferencing
- CareMonitor: Diabetes care platform
- Diabetes Masterclass education series
- A range of other services.

These projects provide proven assistance for rural GP practices to improve their diabetes services and improve the health outcomes of people with diabetes statewide.

To evaluate this program, WSD has applied for funding from the Translational Research Grant Scheme of NSW Health. WSD is also looking at alternate streams of funding for a stepped-wedge randomised trial which will allow WSD to both implement the program in multiple locations and provide a gold-standard scientific review of the efficacy of the intervention.

WSD has brought on GPs from the rural communities of Goulburn, Mudgee, and is exploring locations in Bathurst, Nowra, Broken Hill, and potentially other areas in rural NSW. With the assistance of ACI, WSD looks to scale this program up more fully in 2022.

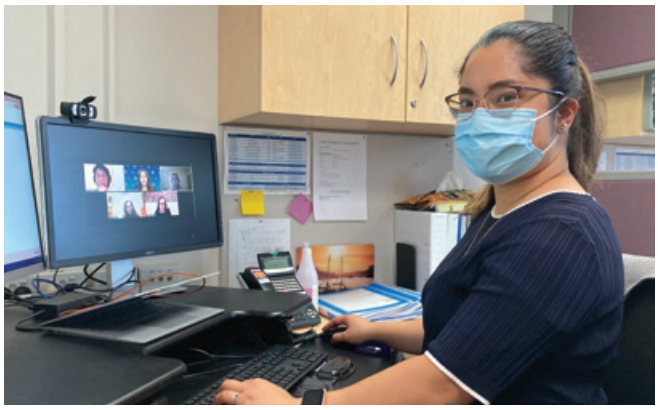
EDUCATION

Our key mission is to build up capacity in the community for everyone who is managing diabetes. During 2021 much of this was done virtually.

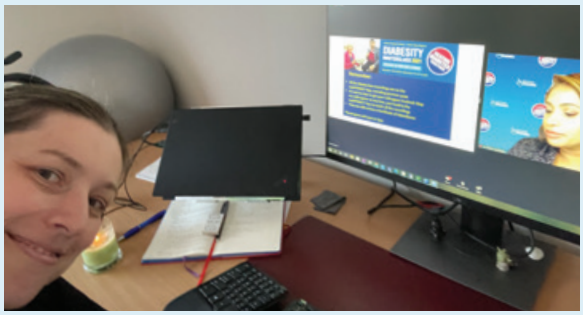
Greater Western Sydney and Hunter New England Diabesity Masterclass Series 2021

The Masterclass program was greatly expanded in scope and ambition in 2021. Retitled the Greater Western Sydney and Hunter New England Diabesity Masterclass, we provided 18 hours of content in total addressing different topics related to diabetes and obesity.

This year, **60 distinguished guest speakers** from **Western Sydney, South Western Sydney, Nepean Blue Mountains and Hunter New England LHDs and PHNs** participated in giving lectures and engaging in discussion over **12 consecutive Monday evenings** through Zoom. The series was recorded and remains accessible online through the myINTERACT website https://rego.interact.technology/wsd/.



Beverly Bugarin, Administration officer, provided technological support for the Diabesity Masterclass

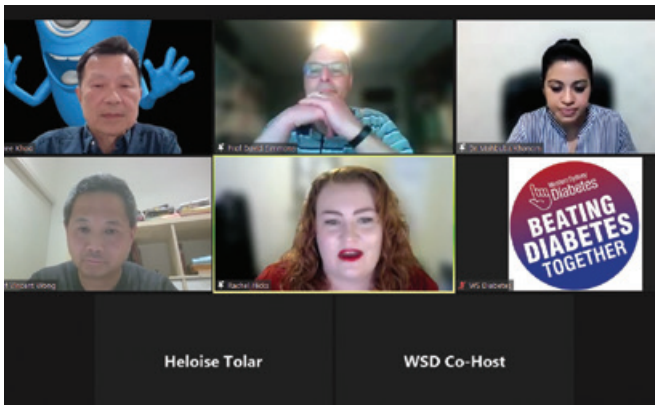


Ruzica Vidovic watching the Masterclass series from the comfort of her own home

Feedback

"This year was my first time attending the Masterclasses. I am a general practice pharmacist studying diabetes education, so it felt like an excellent opportunity to connect to important topics relevant to general practice. I particularly valued learning about diabetes in Indigenous and Pacific Islander people, obesity management in primary care, bariatric surgery, glucose lowering medicines and the PBS, the paradigm shift in diabetes management to organ protection rather than just glycaemic control, as well as practical tips on managing insulin in general practice and sick day management. It was exciting to learn about the research from Dr McBride and her team in western Sydney in the Pasifika community, as well as learning about what is available in western Sydney to leverage in people living with diabetes in our communities – from technology to lifestyle interventions – particular shout out to CareMonitor® and the Live Life Get Active! Program, which are practical things that we can use to support positive health outcomes for our community. I'm looking forward to next year's program!"

- Masterclass participant, Ruzica Vidovic, WSLHD



South Western Sydney LHD/PHN Masterclass night

Themes covered in 2021 included:

- What's new in management
- How to use technology
- How to prevent Diabetes
- Obesity Management in Primary Care
- Practical and Surgical Management of Obesity
- Diabetes in Pacific Islander and Aboriginal People
- Starting and adjusting insulin
- Diabetes during the child bearing years
- Diabetes GP audits to improve practice
- Diabetes Under Cover
- Management of Heart and Kidney Comorbidity
- Diabetes in Aged Care and Mental Health

Feedback

"I found the Diabesity Masterclass so informative! There was always something new learnt in every session and a great refresher for the various topics discussed. I appreciate the various specialists and allied health team involved during the presentations. I was also updated with the many community supports available to help manage my patients."

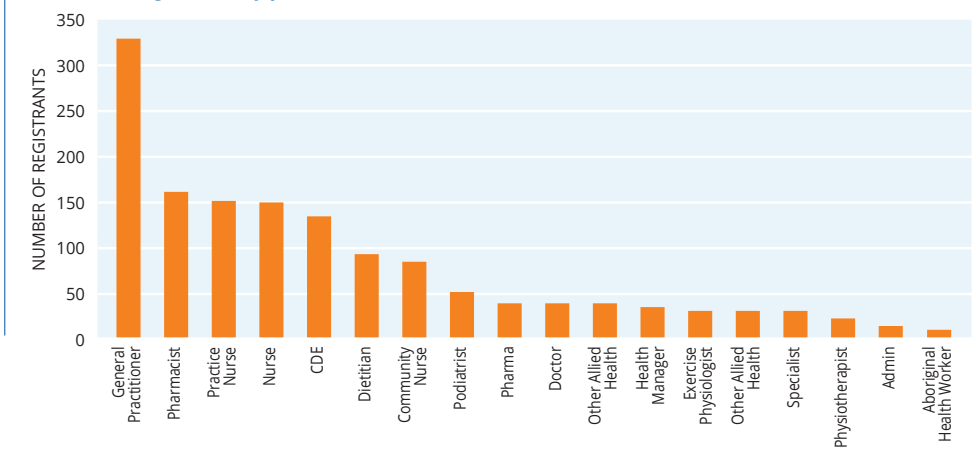
– Dr Priya Murugiah, Riverstone Family Medical Practice

Attendees

A total of **1398 healthcare professionals** registered for the series this year – **an increase of 80% compared to the Masterclass 2020 Series** which attracted 801 registrants. Healthcare professionals including GPs, endocrinologists, diabetes educators, dietitians, pharmacists, and podiatrists registered this year from every Australian state and territory.

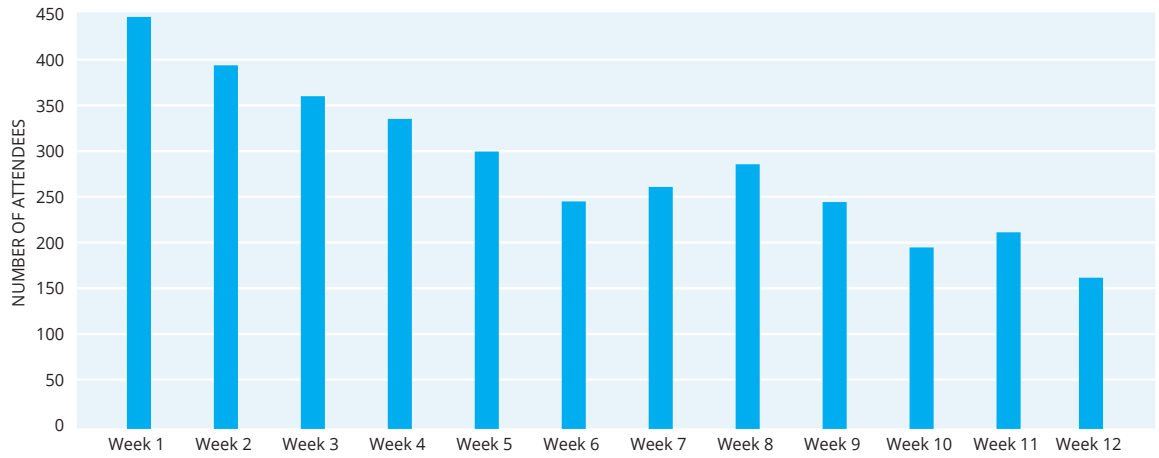
- Just over 75% of participants were from NSW
- Of participants from NSW, 39% were from WSLHD
- There were 862 participants who attended at least one live session or accessed the Masterclass content on demand from myINTERACT
- There were 3350 accesses of content and 640 hours of content was streamed outside of live sessions
- GPs who attended the Masterclass series were eligible for RACGP Category 2 CPD points
- The average live online attendance was 285 people each night.

Masterclass registrants by profession (n=1,398)

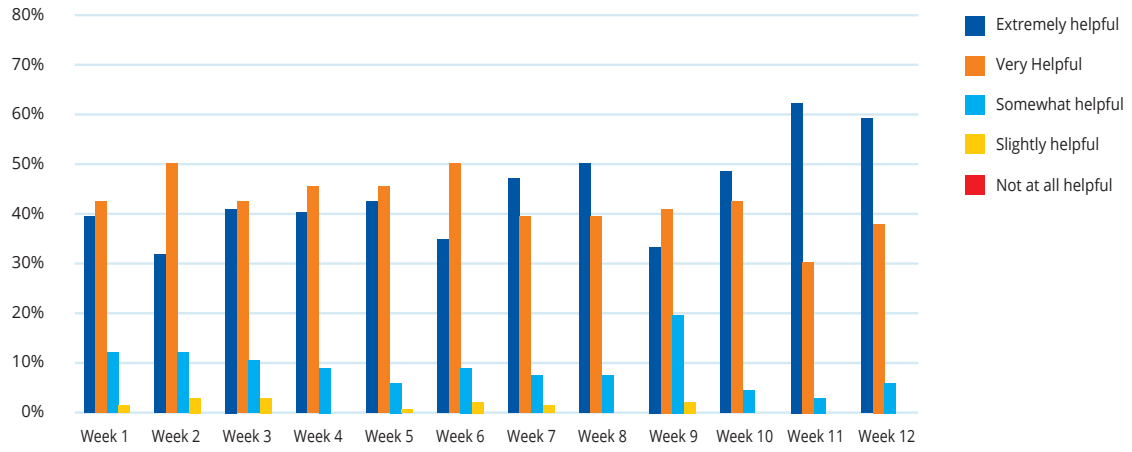


State	Number of attendees
NSW	1053
QLD	129
VIC	74
WA	38
SA	30
ACT	14
TAS	8
NT	7

Masterclass attendees on Zoom by week



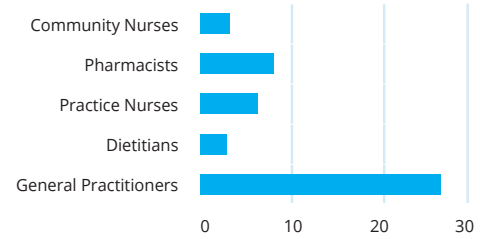
Survey responses for Masterclass 2021 to question: "Did you find the session helpful?" (by event per week)



Flash Continuous Glucose Monitoring (FCGM) workshops

There is building evidence that the use of CGM in those with type 2 diabetes, results in reduction in HbA1c and hypoglycaemia, and the potential to improve lifestyle changes. With support from Abbott Australasia™, the WSD team launched a FreeStyle Libre Flash CGM education program for primary care physicians, nurses and allied health workers.

Free Style Libre workshop attendance



Participant's feedback

"CGM provides a more complete picture on a patient's actual glycaemic control. Relying on HbA1c or a patient's own BGL recordings will not always provide the most accurate guide to treatment. Also very impressed with the dietitian input. Freestyle Libre program could be greatly enhanced if all dietitians attending the relevant practices could be trained in a similar manner!"

"Thank you, very practical and important."

"Great to have small group discussion and interaction with dietitian, endocrinologist, and GP who has experience in using CGM."

"Importance of CGM in management of diabetic on insulin. Detecting hypos which help us manage appropriately. Patient with high BGL despite on high doses of insulin does not always need us to increase insulin further."

Participant's feedback was very positive

"The course was very informative and more relevant for my clinical practice as a registered nurse in the chronic and complex setting."

"As a pharmacist it is important for me to maintain up to date medicine knowledge."

"As a nurse it will benefit me to have better understanding and wide knowledge in regards to caring with diabetes patient."

"The course was very informative, great slides, audio was great too...so much resources that can be used in everyday practice. I have even downloaded some of the resources and kept them in my work's desktop."

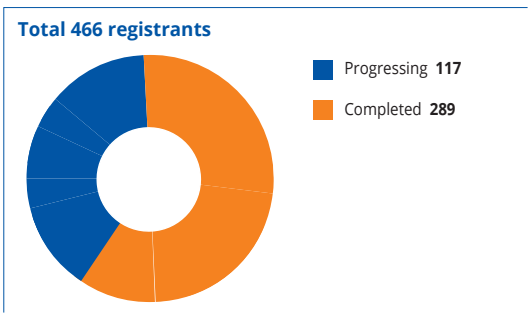
The aim was to upskill primary care providers to use Flash CGM technology as a diagnostic, education, and monitoring tool in patients with type 2 diabetes on insulin therapy. It was also to help GPs gain confidence in interpreting the results of FCGM and translate that to medication changes.

The program was initially launched via Zoom and when COVID-19 restrictions were briefly relaxed, a face-to-face session was held in June. A total of **48 primary care providers participated in the sessions**.

National Association Diabetes Centres (NADC) E-Training Course

An initial two year agreement between the WSLHD and NADC was extended to enable General Practice and Integrated and Community Health (ICH) staff across western Sydney to enrol in the three month online National Diabetes Care Course (NDCC) at a heavily discounted rate. The course includes 75 WSD patient education videos to enhance the appeal and impact of the course.

Total enrolment numbers of current and previous participants in western Sydney are shown in the following graph:



New enrolment numbers in the last 12 months has moderated as staff focused on other priorities.

During January – September 2021:

- 37 healthcare professionals had enrolled in the NDCC.

HealthPathways

Diabetes HealthPathways is an evidence-based information tool for GPs and other clinicians to utilise at the point of care. Of the 574 pathways that have been developed and localised to Western Sydney HealthPathways, **30 are localised Diabetes HealthPathways**.

These include:

- 22 Clinical Pathways
- 5 Referral pages
- 3 Resource pages

Diabetes HealthPathways page views from January-September 2021 showed:

- There were 3567 total page views, or an average of 396 page views per month
- The highest number of diabetes page views by month occurred in May 2021, with 651 page views.

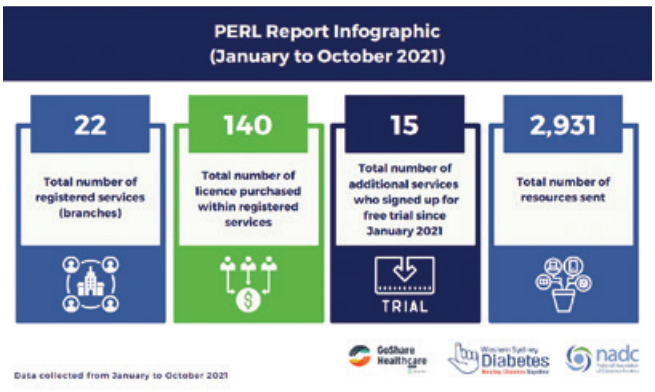
The top 3 most viewed Diabetes Pathways were:

- Urgent Diabetes Assessment and Advice, Referral page – 371 page views
- Screening and Detections of Diabetes, Clinical Pathways – 323 page views
- Chronic Kidney Disease Screening and Management, Clinical Pathways – 292 page views

Educational bundles and collaboration with NADC

Previously created patient educational resources were an integral and well utilised part of WSD Virtual Care during 2021. The videos included supportive fact sheets, links and other resources to form education bundles.

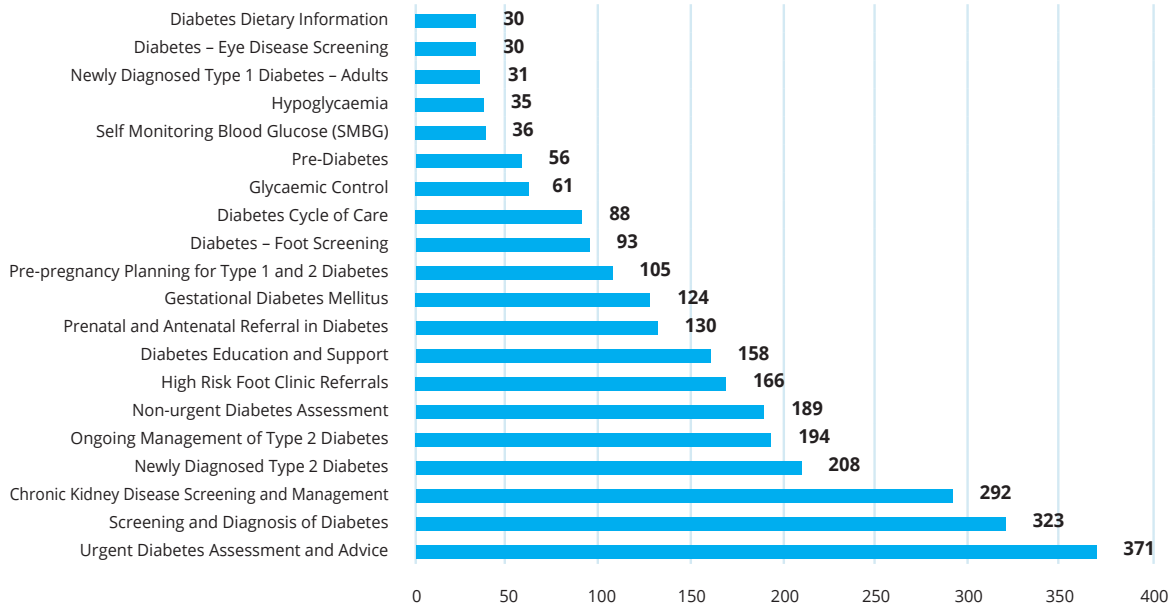
A partnership between ACI, NADC and GoShare health has enabled these education bundles be made available to healthcare providers at a national scale and at no cost to NSW LHDs through ACI sponsorship.



Health Care Provider videos

After a 100 patient education videos and bundles were created, WSD embarked on producing health care provider educational videos and bundles. These short topical bundles were chosen in response to GPs who attended Masterclass

Western Sydney HealthPathways
Top 20 Diabetes Pathways Pages Viewed (Jan-Sept 2021)



in 2020 and in diabetes case conference to be upskill GPs in a snap on various topics. They have been planned to be done in Dec 2021 and Jan 2022, to be available via myINTERACT.

Diabetes Together app with CareMonitor and eMR – laying the foundation

In 2021, we further progressed the WSD 'Diabetes Together' app in conjunction with CareMonitor. With weekly meetings held, the digital functionalities of the diabetes component of both the patient app and the provider platform were improved based on use. The following features were completed:

- Adoption of the HbA1c algorithm to drive targeted messaging
- Adoption & refinement of the one liner messages as per algorithm
- Refining display of diabetes metrics and data, both on clinician portal & patient app
- Integration of glucose monitors to sync seamlessly either directly or via Apple/android
- Integration of WSD content
- Ability to send targeted questionnaires
- WSD Education resource bundles – to be available as a library of resources
- Targeted Education bundles to be sent out in a periodic manner

Patients were recruited to utilise the platform and feedback was sought to improve the platform. The waves of COVID-19 disrupted the recruitment of more patients to be onboarded onto the platform. But a plan has been put in place to target PCMH as described below.

Integration of western Sydney health information systems

A vital working group was started in 2020 with Digital Health Services (DHS) and WSPHN on the integration with the CareMonitor platform with Cerner EMR. This work is ongoing pending stakeholder involvement, as COVID-19 disrupted the momentum of progress.

Collaboration with PCMH practices & PHN

A plan has been put in place to target Patient-centred Medical Homes (PCMH) Practices in conjunction with WentWest to provide a 'Diabetes package':

- Use of PENCAT data to audit practices at the start and periodically at 6 and 12 months
- Provide Diabetes Case Conferences to upskill GPs within the practices
- Utilise CareMonitor with patients that are referred
- Continue to test and improve CareMonitor platform as it's utilised based on feedback.

CONNECT WITH HOSPITAL SERVICES AND PHN

WSD works in parallel and in partnership with the BMDH and WH services. Our Endocrinologists are part of the Endocrinology on-call rosters for BMDH and Westmead hospitals.

BMDH

WSD holds its hybrid clinics at the Blacktown hospital outpatients twice weekly. Referrals from primary care for type two diabetes to the hospital services are mostly managed by WSD in these hybrid clinics of virtual and face-to-face appointments. The clinics are ongoingly redesigned to improve in the provision of better services to patients to address the quadruple aims and better value care.

Our Endocrinologist, Dr Rajini Jayaballa, leads the High Risk Foot Service, and brings in the integration of community and hospital care. As prevention is the key to feet complications, foot care education has been created in the form of videos and educational bundles to deliver to patients. Primary care is always prompted to involve community podiatry early as well as utilising the 60-sec foot check screening tool.

Dr Jayaballa also leads the Post-discharge diabetes clinics, managing hospital discharged patients requiring further follow up of their diabetes after an acute illness. Virtual care is utilised to link the patients and their GPs, and the patients are then linked to the appropriate clinics for longer term follow up.

Urgent reviews

A rapid access service or RAS was previously established as part of the ICH Demonstrator project. The learnings from this have now been incorporated as business as usual, whereby, patients who require urgent assessment are identified and rapidly triaged into our clinics, usually obtaining appointments within 1 week. This reduces the burden on hospital admissions and emergency department presentations.

PHN – WentWest

WentWest's Practice Development Team worked closely with practices to help support improvements that resulted in better standards of patient care, more effective practice management, and greater staff satisfaction.

Implementing the Practice Quality Improvement Plan, general practices documented QI activities such as:

- Tracking quality improvement efforts for patients with diabetes, recalling patients, coordinating care plans, team-based care and health assessments;
- Supporting practices with workflows and clinical re-design for patients with diabetes;
- Promoting and engaging practices to bookcase-conferences for their diabetic patients – the myVirtualCare platform;
- Go Share bundles sent to patients with diabetes;
- Development of nurse-led clinics with a focus on diabetes patients;
- PCMH Diabetes package: Use PENCAT data to audit practices at the start and periodically at 6 and 12 months; provide DCC to upskill GPS within the practices; and utilise CareMonitor with patients with diabetes that are referred;
- Promotion of healthy living options for diabetes patients.

Westmead Hospital

Rapid access diabetes clinic and Integrated care diabetes clinic

Westmead endocrinologist Dr Cecilia Chi is also involved in the running of the rapid access and integrated care diabetes clinics at Westmead hospital. The rapid access diabetes clinic provides urgent review of patients with diabetes within a week and helps to reduce the burden on hospital admissions and facilitates earlier and safer discharge from hospital.

GP Support Line

The Active GP Support Line was established in the ICH Demonstrator project in June 2015 and provided GPs with easy access to the on-call advanced trainees or consultants. WSD continued to promote and maintain the Diabetes, Respiratory and Cardiology Support Line for GPs as a valuable resource to help facilitate the management of diabetes in the community, reduce hospital admissions and escalate clinical management where necessary. We continue to encourage GPs to utilise this resource.

Hospital endocrinology roster

Our endocrinologists also provide support to the hospital's endocrinology on-call roster and are actively involved in teaching and education of junior medical staff and medical students.

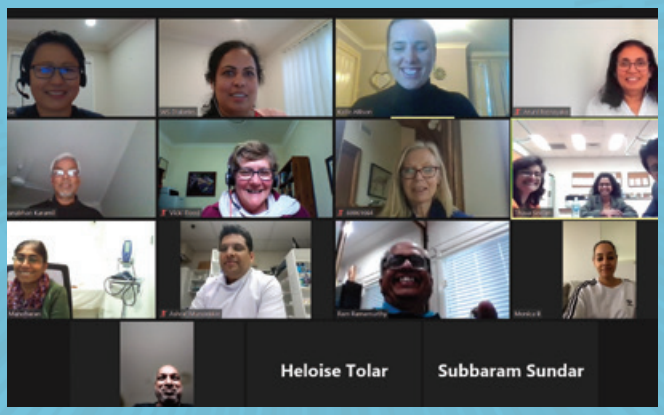
The WSD team

ENABLERS

PRIORITY AND PLACE-BASED POPULATIONS

With rates of type 2 diabetes increasing within specific at-risk populations in the western Sydney area, the Aboriginal and Torres Strait Islander, Chinese, Indian and Filipino communities were prioritised as an area of focus.

Healthy Living Toongabbie



Members of HLT met monthly on Zoom

HLT is a not-for-profit community organisation led by local leaders and community members and continued with its key activities by actively seeking collaboration and engagement with the wider community and NGOs to promote diabetes awareness and healthy living.

HLT monthly meetings

Monthly meetings were held regularly throughout the year, including three face-to-face meetings and nine via Zoom due to COVID-19 restrictions. These meetings enabled the planning and execution of various activities outlined below.

Annual General Meeting

HLT, as a registered Australian Charities and Not-for-profits Commission (ACNC) organisation, held its Annual General Meeting on October 13, 2021. At this AGM, the president's report and financial reports were presented to members. A new committee was also elected:

- **President**: Dr Shanthini Seelan, GP, Bridgeview Medical Practice Toongabbie;
- **Vice President**: Dr Manimegalai Manoharan, Endocrinologist;
- **Treasurer**: Ram Ramamurthy, Hills Business;
- **Secretary**: Sumathy Ravi, Program manager WSD;
- **Committee members**: Dr Sundaram Sundar, GP, Dr Sundar's Practice Toongabbie; Monica Boules, Pharmacist, Discount Drug Store, Toongabbie; and Katie Allison, Diabetes NSW & ACT; and
- **Public Officer**: Padmanabhan Karamil, former President of Lions Club of Sydney Indian.

This committee thanked the exiting committee members Monica Boules (President), Dr Sundar (Vice-president), Dr Thava Seelan (Treasurer) and Theresa Kang (Secretary) for their contribution over the last two years (2019/20).

HLT Community Forum

- A community forum on Gestational Diabetes Mellitus: *"What to expect when you are expecting"* was held live on March 25, 2021 via Zoom and Facebook live. The event was well received and has attracted more than 900 views.
- The Diabetes NSW & ACT and HLT collaboration led to a diabetes education seminar for the Indian and Indian Subcontinental Community on Saturday, May 15, 2021 at Toongabbie Community Centre. Fifty people attended this event, which provided information on connecting with diabetes services in the area.
- Community forum titled *"Ask the Experts: ask everything you want to know about COVID-19"* was held on September 16, 2021. About 50 people joined the live Zoom session on the night and it attracted almost 150 views via HLT Facebook page to date. Prof Julie Leask spoke on vaccination uptake followed by a panel of experts from the PHU, a finance guru and endocrinologists, who answered questions from the audience.

Australia Day Walkathon

Due to the evolving COVID-19 situation, in January the **HLT and Australian Tamil Chamber of Commerce (ATCC) Walk-A-Thon** was postponed and then held on March 28, 2021. Almost 100 participants attended, walking from Toongabbie Park to Civic Park Pendle Hill. The $1500 raised from this event was donated by ATCC to the HLT trust to be used for its diabetes initiatives.

HLT members at the walkathon

Dr Sundar takes a walker's blood pressure

Tamil Education Videos

HLT and Bridgeview Medical Practice, in collaboration with WSD, have been working on producing Tamil educational videos for young women of childbearing age. Three videos have been scripted and recorded in Tamil, with English subtitles on topics such as:

- 'Gestational Diabetes Mellitus (GDM) such as GDM risk factors and prevention' by GP Dr Lumina Titus;
- 'Physical activity and Gestational Diabetes' by physiotherapist, Nandhini Ravi Sumathy; and
- 'Healthy diet and Gestational Diabetes' by Accredited Dietitian, Priya Iyer.

These educational videos are available for GPs and health professionals to distribute to the Tamil speaking young women of childbearing age and pregnant women in the community.

Aboriginal and Torres Strait Islander Communities

Following the discussions at the quarterly meetings a 'Terms of Reference' for the steering committee was drafted. Due to COVID-19 the meeting in August was cancelled. A Microsoft group "Yarning About Diabetes" was set up for better communication between the group members. A Health Equity Funding submission for an Aboriginal Health Education Officer position was unsuccessful.

Community engagement activities continued with two visits to Baabayn Aboriginal Corporation, talks also at Greater Western Aboriginal Health Services, Western Sydney Koori Interagency and Primary Health Network Aboriginal Cultural Awareness training. Staff also participated in the Aboriginal Health Close the Gap Day cooking challenge.

Aboriginal Health Close the Gap Day cooking challenge

Koori Cooking and Koori Cook Off

The Koori Cooking program is a healthy cooking program developed and delivered in Aboriginal communities throughout the Illawarra and Shoalhaven regions of NSW by the Heart Foundation. The program aims to increase confidence, knowledge and skills about healthy cooking and eating in a fun and social way.

Heart Foundation offers a fully equipped Koori Cooking Trailer for hire to enable organisations to conduct Koori Cooking programs and Koori Cook Offs in their community.

The Heart Foundation came to Aboriginal Health Hub in Mount Druitt to train staff for the Koori cooking program

Organisers of the Punjabi forum, from Multicultural Health Services, Diabetes NSW & ACT, NDSS, Diabetes Blacktown Education Centre and WSD.

The Koori Cook Off is a one-day event, where four teams, of four, draw a health mystery meal. The members work together to cook the meal, which is then judged by Elders and sampled by community members. The Cook Off demonstrates cooking skills, enables community members to try ingredients and recipes they may not have tried previously and normalises healthy food.

Feltman® and Feltmum® training was completed with Diabetes NSW & ACT.

Filipino Community

Monthly meetings of the Western Sydney Diabetes Filipino Working Group continued on Zoom. A community event was held to raise awareness of diabetes and the importance of early detection and management to prevent complications. Speakers came from the working group led by Endocrinologist Dr Rona Francisco.

Almost 100 people attended a NDSS-funded forum, with participants indicating they had improved their knowledge about diabetes and were willing to engage in follow up activities.

Filipino leaders working group

The group is almost ready to launch its first resource: a poster with diabetes prevention messages under their new name the Filipino Australian Diabetes Support Network. Members will launch a Facebook page to communicate to the Filipino community.

Filipino Australian Diabetes Support Network members Josie Musa, Julie Nunez and WSD Diabetes Prevention Officer, Aruni Ratnayake

"It was a fantastic day with everyone coming together with the common desire to learn about diabetes and health. The presenters were experts in their field and passionate about helping their community, providing engaging and interesting sessions. Overall it was a great day that would not be possible without the help of the Western Sydney Filipino Working Group, the presenters and the community."

– Katie Allison, Culturally and Linguistically Diverse (CALD) Project Officer, Diabetes NSW & ACT.

Indian Community

In response to feedback last year about reaching the Indian community by targeting specific Indian communities, we targeted the Punjabi community. A partnership was created with the WSLHD's Multicultural Health Services, Diabetes Blacktown Education Centre and Diabetes NSW & ACT for a NDSS funded Punjabi diabetes education seminar. Finding a well-known GP who understands the community needs and the Blacktown Hospital's Diabetes Education Centre's diabetes educator was the key to the success in keeping an engaged audience of nearly a 100 people. Feedback from the participants indicated they had found the event informative and were planning to engage in further education and services. A relationship with Gurdwara Sahib Glenwood, commonly known as the Sikh temple, was key to engaging the large audience. This relationship led to an introduction to the district's COVID-19 vaccination team and three vaccination clinics were held at the temple.

Pacific Islander community

Continued to support the work of the Pacific Islands Mount Druitt Action Network and attended the Pasifika Preventing Diabetes Program (PPDP) stakeholder meetings.

Chinese prevention videos

Similar to the Filipino population, Chinese patients are at increased risk of developing diabetes. Chinese immigrants with diabetes have high health literacy in diabetes, but only a small fraction of patients have access to diabetes education and a dietitian.

WSD has made connections this year with several groups including NSW Multicultural Health Communication Service, and prominent local diabetes educator and dietitian.

We are in the process of producing videos to cover a number of topics related to diabetes and will be placing these videos on Chinese social media to facilitate the education of patients with diabetes.

Local GPs will be provided with the link to provide to their Chinese patients with diabetes.

Scarlet Huang, Credentialed Diabetes Educator, Diabetes Education Centre Blacktown, and Dr Cecilia Chi are creating Mandarin speaking videos

COMMUNITY AND PROVIDER ENGAGEMENT

When the COVID-19 pandemic hit in 2020, WSD's public awareness and communications strategy was overhauled to focus on the pivot to telehealth and virtual care. This approach escalated during the second lockdown in 2021.

Despite the attention on – and distraction of – COVID-19, we worked hard to maintain our messaging that diabetes will remain a costly chronic disease and the biggest burden on our society and health care system unless the general public and GPs across western Sydney understand the size and impact of the problem.

In 2021 we:

- Increased public awareness of type 2 diabetes (GDM, pre-diabetes, diabetes) among the western Sydney community;
- Optimised communication channels to extend our reach into the community and to healthcare professionals;
- Produced marketing material that supports and promotes the planning, work and initiatives of the WSD core team and Alliance partners;
- Supported educational forums, such as Diabesity Masterclass 2021;
- Targeted GPs and the community with an awareness campaign around the messaging 'Know Your Risk' and promoting the free annual HbA1c test via Medicare;
- Reactivated the Alliance Hub website; and
- Promoted the use of virtual care over face-to-face.

We continued to support both the broad and specific goals of the WSD 2021 ePlan and promote the work of the WSD core team and Alliance partners.

Like in 2020, it was illustrated again in 2021 with the second wave of COVID-19 that people will avoid hospitals and general practice if they are worried about infection. Even without COVID-19 we need them to understand how important it is to keep good diabetes control to avoid the very serious complications.

It highlighted to WSD the importance of raising public awareness and engagement for patients to remain informed on how they can continue to access these services and new options available, in particular virtual care, within the context of the pandemic.

A beneficial document created was the Diabetes Case Conference brochure – a 12 page booklet to encourage GPs to work in conjunction with the WSD team. The name of this model of care was changed from Joint GP Specialist Case Conferencing (JGPSCC) to Diabetes Case Conferencing (DCC).

In 2021, a total of 47 articles and 186 social media posts were generated, which featured the following:

- **25** media stories
- **186** social media posts
- **10** The Pulse articles
- **12** WSD website articles

Mobilising Public Awareness

In November, after COVID-19 restrictions had lifted, we created a flyer to promote a public awareness campaign 'Know Your Risk'.

This will be used in conjunction with the HbA1c flyer to target GPs and the general public as well as specific CALD and geographic communities identified as priorities in Primary Prevention and Secondary Prevention and Management interventions.

The campaign focused on promoting to GPs the message, 'Know Your Risk' by taking advantage of the NSW Government's free annual HbA1c testing via Medicare.

This will be accelerated in 2022 to be used in addition to our traditional messaging that focuses on:

- Motivating at-risk groups to get tested;
- Stopping pre-diabetes turning into diabetes;
- Reducing diabetes-related complications; and
- Preventing diabetes via promotion of healthy lifestyles.

To extend our reach into the community, we collaborated with external organisations and Alliance partners to co-promote relevant awareness weeks/days, such as **World Diabetes Day** on November 14, to promote the Know Your Risk flyer.

We also:

- Utilised existing WSD, WSLHD and partner communication channels;
- Enhanced and increased WSD's online/digital and social media channels and resources;
- Shared relevant diabetes-related content on our social media platforms and on the Alliance Hub for other awareness days; and
- Coordinated meetings on as-needs-only-basis with the Mobilising Public Support Communications Group to increase public awareness of diabetes and support the work of WSD and Alliance partners.

Healthy Living Toongabbie (HLT)

The HLT committee was extremely proactive in 2021, wanting to continue its momentum and took advantage of information sessions.

On behalf of HLT, WSD heavily promoted via social media and print media channels its three community forums, held both online via Zoom and Facebook Live, and face-to-face:

- *Gestational Diabetes Mellitus: What to Expect When You're Expecting* (March 25, 2021);
- A diabetes education seminar for the Indian and Indian Subcontinental Community (May 15, 2021); and
- *COVID-19 and Diabetes – Ask the Experts: Ask everything you want to know about COVID-19* (September 16, 2021).

HLT members: Diabetes NSW & ACT's Katie Allison, former president Monica Boules and president Dr Shanthini Seelan at photo shoot to promote the Gestational Diabetes forum


HEALTH & WELLBEING

GESTATIONAL DIABETES: WHAT TO EXPECT

Swetha Purba was in shock after learning she had gestational diabetes mellitus (GDM) in her first pregnancy.

"It was a bit of a blow," the mother of four said. "I've always had a very fast metabolism, and didn't really have to work very hard to be slim...and probably didn't eat very well prior to that.

"The most stressful thing was I really didn't want to become insulin dependent so I became very rigorous about managing it with diet and exercise."

Western Sydney has a large multicultural population with a high proportion of people with a South East Asian or Indian background of which gestational diabetes is highly prevalent in women of a child-bearing age.

Recent years have seen a dramatic growth of GDM in western Sydney, with the rate approaching 18 per cent of all pregnancies, predominantly in at risk ethnic groups.

About 30 per cent of the children of gestational

at the high number of residents in their community with Type 2 diabetes and pre-diabetes.

Ms Purba, who has an Indian background, will join guest speakers Dr Mani Manoharan, endocrinologist at

"Half of these mothers will develop type 2 diabetes within 10 years," Ms Boules said.

Dr Manoharan will discuss 'A Sweet Pregnancy: Myths, Dos and Don'ts', such as "you're eating for two", while Professor

Hills to Hawkesbury article

For each of these, promotional articles were written for WSLHD's The Pulse, WSD and HLT's social media pages, the WSD website, and local media, including Blacktown Advocate, Hills to Hawkesbury, Hawkesbury Post, Western News, Nepean News and Blacktown Independent.

The Facebook Live events are on both WSD's and HLT's Facebook pages and website as educational tools.

Tamil speaking videos: WSD supported the collaboration between HLT and Bridgeview Medical Clinic on the scripts and the production of three educational resources for Tamil women of child-bearing age.

Forums

Presenters from the Diabesity Masterclass Lifestyle and Prevention night

Glen Maberly, Sian Bramwell, Ana Muruegsan and patient Charlie Mamo filming the ABC News segment.

Supported the promotion, coordinated collateral and generated articles to promote health professional and community focused forums, including:

- **COVID-19 and Diabetes Forum** (October 19);
- **Childhood and Adolescent Obesity Forum** 2021 (May 24);
- **Healthy Living Toongabbie Community Forums** (March 25, May 15 and September 16);
- **Diabesity Masterclass Series 2021** (Aug 2-Oct 25).

Media

Television

- **ABC, 7pm News, Saturday, November 20, 2021**: News story with ABC journalist Mary Gearin on the increased rate of diabetes and its complications during the COVID-19 lockdown and accompanied by **an online article**: (see below).

Articles showcasing the work of WSD appeared in the following trade publications:

- Medical Republic – *Health Apps: What are they good for?* By Gideon Meyerowitz-Katz
- The Guardian – *Australia did a good job in the face of Covid. Let's apply that energy to other public health problems* By Gideon Meyerowitz-Katz
- Diabetic Living – Jan/Feb – *Stopping the Weight* by Dr Ramy Bishay

Gideon Meyerowtiz-Katz is interviewed on camera by ABC journalist Mary Gearin

Produce and Place Evergreen Multimedia Content

Distributing evergreen content multiple times, across multiple social and digital channels was key to increasing public awareness of diabetes via WSD and partner communications channels in 2021.

Video production was a big part of our plan for delivering the Masterclass Series this year, engaging the skills of Bower Films again to help us produce the presentations from the 60 faculty. However, COVID-19 prevented that and most were recorded by the individual speakers.

Video

- We used videos from forums to create short videos for social media posts;
- Created short educational videos to be sent to both consumers and health practitioners;
- Produced a 'mini' Data/Research forum as a short video;
- Uploaded Diabesity Masterclass videos on the myINTERACT app.

Media releases and web articles

- Continued to ensure media releases were shared with all distribution channels – media and the collective channels of WSD partners and WSLHD – to maximise the reach of messages;
- Called on the clinical team, as front-line workers with patients, to supply one positive case study for media and promotional purposes. Utilised patients who identified as having a positive experience with us, either with telehealth or their diabetes management.

Support Key Events with Promotion and Collateral

A significant amount of communications work revolved around the production of collateral required to promote and support key WSD professional events, including:

- Up to five community forums, including Place-and Culture-based community engagement events;
- Two Alliance Leaders meetings and three Lunchtime Info Hours; and
- Diabesity Masterclass Series 2021.

Photo shoot to promote the Punjabi Community Forum in The Pulse and local media. Left to right: Anoop Johar, Bilingual Community Education Program Officer), Katie Allison, Diabetes NSW and ACT CALD Project Officer, Aruni Ratnayake, WSD Prevention Officer, and Credentialed Diabetes Educator, Parvinder Kaur RN

Support Interventions with Promotion and Collateral

We produced a range of marketing communications and materials required to promote and support WSD and partner interventions, including Enablers (Place and Priority Populations- based Mobilisation), Primary Prevention and Secondary Prevention and Management programs.

This included, both pre- and/or post-event promotion for WSD, including forums on:

- Research;
- Mental Health;
- Obesity in Children and Adolescents;
- HLT;
- Indian and Filipino forums; and
- 10 educational sessions on Libre.
- COVID-19 and Diabetes
- Support the effort to target specific at-risk populations, including Aboriginal and Torres Strait Islanders, Filipino, Chinese and Indian communities;
- Media releases, web articles and social media posts;
- Support the script writing and production of both Chinese and Tamil speaking educational videos;
- Communications to be shared with partners; and
- Created documents, flyers and brochures targeting consumers and/or healthcare professionals:
  1. 'Know Your Risk' awareness campaign;
  2. DCC clinical services brochures; and
  3. The *Healthy Living Options 2021 – Affordable Food Edition 2021* booklet.
  4. Diabesity Masterclass registration flyer and program; and
  5. The annual WSD Year in Review (Dec-Jan) in both print and digital format.

Supporting the Alliance

Events

WSD communications team supported the pre and/or post-event promotion of several Alliance collaborative initiatives to raise awareness of diabetes in local communities by generating flyers to promote these events: These included:

- Alliance Forums: Connecting, Greening and Growing, (May 19, 2021); and Getting Out and About, (December 9, 2021), both held at Rydges Hotel, Norwest;
- Lunchtime Info Hours; and
- A monthly update newsletter to promote the activities, news and information on the Hub website to grow engagement.

Lunchtime Info Hours monthly invitation

Enhance and Manage WSD's Website, Social Media Channels, Alliance Hub and myINTERACT app

In 2021, we worked hard to enhance the WSD website and the social media channels launched in 2020 (Facebook, LinkedIn and Twitter) with engaging and informative content.

In May, in line with the first face-to-face Alliance Leaders meeting, we reactivated the Alliance Hub after a year.

We continued our successful partnership with myINTERACT, using it as a base for event registrations and to house educational resource material, including our Diabesity Masterclass Series 2021 and educational forums hosted by HLT, the Alliance and WSD.

These actions aim to extend our reach towards the three P's – Partners, healthcare Professionals and People with or at-risk-of diabetes:

1. Facebook, to raise awareness of diabetes within the community (People); and
2. Use LinkedIn and Twitter to raise awareness of WSD events, messages and initiatives among healthcare Professionals and Partners.

Social media

- There has been a concerted effort to post twice a day on the Facebook page, by sharing from both partners' Facebook pages in addition to original posts by WSD and the WSLHD. Both 'Likes' and 'Follower' numbers have doubled since January. Posts ranged from events and information that supports an active lifestyle and a healthy diet, as a way to prevent type 2 diabetes.
- Both WSD's Twitter account and LinkedIn site were valuable platforms to promote for WSD events, and used extensively to promote especially the Diabesity Masterclass Series to help reach a healthcare professional audience
- These pages complement content via existing WSLHD channels including The Pulse, Regular Dose, WSLHD social media channels and the WSD website.

WSD website

WSD's website was consistently updated in relation to WSD's plans, achievements and criteria. We successfully:

- Linked social media posts to web articles and resources;
- Replaced printed key documents with digital or video versions (eg: HLO 2020);
- Promoted positive stories of WSD patients; and
- Managed and promoted wider use of the Alliance Hub at Alliance meetings.

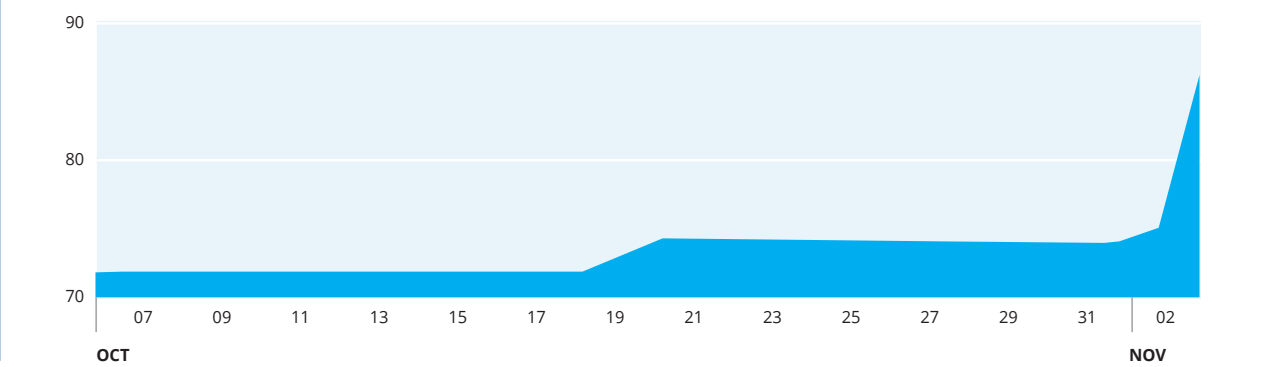
Alliance Hub

It was a busy year with the Alliance Hub website, refreshing and reactivating it in March with key members given directions for signing up and posting material prior to the Alliance Leaders' meeting in May.

This was where we successfully relaunched the website and our plans to introduce:

- A monthly Alliance newsletter to keep members informed of other member's activities. This was coupled with the goal of identifying the number of active members while also reinvigorating non-active members; and
- Promotion of Alliance projects and working groups, such as Greening and Dancing;
- Encourage the participation of further GP practices and growth of the Alliance; and
- Encourage members to share their communications collateral (related to diabetes and its' prevention, in addition to containing an educational component).

Total Page Followers – 86



myINTERACT app development

Following another successful collaboration with the myINTERACT app team in 2020 we extended our use of this app to:

- Update the app site in WSD's interest;
- Shared existing content and resources with existing users (healthcare professionals);
- Promoted registration for upcoming events (forums and Diabesity Masterclass 2021);
- Collaborated on the Masterclass series with certificates and feedback surveys;
- Uploaded key information and documents for upcoming events; and
- Used the app as a landing site for GPs and healthcare practitioners to access educational resources (Eg: Educational Bundles).

Support Advocacy and Resource Mobilisation

We successfully supported the Research, Monitoring and Surveillance Coordinator on the final element of our 2021 data plan, which will bring everything together to support advocacy and resource mobilisation with accurate visualisations, dashboards, and reports to drive decision making.

Alongside regular reporting, including the ePlan and our Year-in-Review for 2021, this included:

- Geo mapping diabetes/weight;
- Population analytics; and
- New reporting as required.

Support Presentations and Publications

Continued to provide writing, editing and design management services to produce documents to support and promote staff presentations, including:

- Diabesity Masterclass Series 2021: 12 weeks of collaboration with four Local Health Districts and Primary Health Networks in NSW; creating an invitation and a program brochure; providing logistical and technical support alongside admin; and providing content for and liaising with the myINTERACT team;
- Alliance Hub: Information flyers; monthly newsletter; updating website.
- Abstracts; and
- Healthy Living Toongabbie's three forums.

We also provided writing and editing services to staff who write for industry or consumer publications, including:

- Industry journals and publications (eg: Medical Republic)
- Consumer media (ie Diabetic Living magazine).

DATA FOR DECISION MAKING

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. As noted above, this year has seen a great deal of disruption due to the pandemic and associated lockdowns, however we have developed our research and data agenda regardless. Key achievements include:

- Developed estimates of the pandemic's impact on diabetes in WSLHD
- Evaluated success of Mount Druitt Community Clinic
- Increased the size of our research team
- Initiated a new Rural Research Collaboration with ACI and other partners
- Began the FLASH CGM clinical trial
- Evaluated the success of virtual care for diabetes
- Successfully applied for grant funding
- Ongoing large research output

Our data for decision-making has formed a large part of this document in the preceding sections, with every area touching on the gathering of data and how we have utilized it to inform decisions. Please see the above for a detailed evaluation of our projects, and how this has been used in terms of data linkage, benchmark estimates, and regular reporting.

In the last five years, WSD has slowly grown our research and data agenda from a team with largely disconnected research projects into a collaborative research hub with nationally-important data work.

RESEARCH AND PUBLICATIONS

In 2021, WSD continued our strong research agenda, achieving record numbers of research-related output.

This has included:

- Over 30 presentations at forums and events
- 12 published papers
- 14 presentations at national and international conferences
- 4 submitted grant applications
- 4 new ethics applications
- 2 randomized controlled trials
- 5 graduate student research projects
- New research nurse employed

Collaboration and forums

WSD has taken part in and run a number of forums and collaborative events in 2021 as with previous years. We held a successful research workshop with over 40 partners in early 2021, with planning for the year ahead and the development of a detailed research agenda for the year.

Unfortunately, due to the COVID-19 lockdown, we were unable to hold our planned in-person research workshop, but we are planning on doing this early in 2022.

We have also held a range of forums on research-related topics during the last year, many of which are detailed above in the document. For example, our Child and Adolescent obesity forum, which was held in April 2021.

Grant Applications

WSD set out at the beginning of 2021 to apply for and obtain grant funding. While we have been unsuccessful with federal funding thus far, we have had a grant approved for our randomised trial of Flash CGM, and received a collection of industry funding to pursue research projects more generally. We have also applied to the Translational Targeted Research Accelerator and Translational Research Grant Schemes this year, with results to be announced in 2022.

We have also managed to obtain grant funding to employ our new research nurse, Helen Dick, who is working on our evaluations and randomised trials.

Ethics Applications

This year WSD has pursued 4 new ethics applications. These are regarding:

- FLASH CGM randomized trial
- Eye screening in dialysis patients
- Evaluating Mount Druitt Community Clinic
- Qualitative evaluation of virtual care

CareMonitor: Diabetes

WSD has continued our research agenda to move forward with an evaluation of CareMonitor: Diabetes, our collaborative diabetes care platform that is described above in the document. This has involved several grant submissions, with planning underway to begin a randomised clinical trial testing the care platform in 2022.

Randomised Controlled Trials

In 2021, WSD funded, had approved, and started recruiting for our randomised trial of flash glucose monitoring, Flash CGM. This trial involves randomising patients when they are discharged from the hospital to either CGM or no CGM, and measuring their ability to manage their diabetes a month later.

Graduate Student Research

Despite some interruptions due to the pandemic, WSD continued our expansion of graduate student research. We have two PhD students working with us, Sumathy Ravi and Gideon Meyerowitz-Katz, a graduate medical student, and have had three masters of public health students working in our team in 2021.

Publications

1. Besançon L, **Meyerowitz-Katz G**, Zanetti Chini E, Fuchs H, Flahault A. Challenges in determining causality: An ongoing critique of Bendavid et al's 'Assessing mandatory stay-at-home and business closure effects on the spread of COVID-19'. European Journal of Clinical Investigation. 2021;51(8):e13599.

2. Bishay RH, **Meyerowitz-Katz G**, Hng TM, Colaco CMG, Khanna S, Klein R. A retrospective case-control cohort analysis of comorbidity and health expenditure in hospitalized adults diagnosed with obesity utilizing ICD-10 diagnostic coding. Clinical Obesity. 2021;11(5):e12469.

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9. Haber NA, Wieten SE, Rohrer JM, Arah OA, Tennant PWG, Stuart EA, **Meyerowitz-Katz G**, Fox, M. Causal and Associational Language in Observational Health Research: A systematic evaluation. medRxiv. 2021:2021.08.25.21262631.

10. Levin A, Owusu-Boaitey N, Pugh S, Fosdick BK, Zwi AB, Malani A, **Meyerowitz-Katz G**. Assessing the Burden of COVID-19 in Developing Countries: Systematic Review, Meta-Analysis, and Public Policy Implications. medRxiv. 2021:2021.09.29.21264325.

11. **Meyerowitz-Katz G**, Besançon, L., Wimmer, R., & Flahault, A. Absence of evidence or methodological issues? Commentary on "Stay-at-home policy is a case of exception fallacy: an internet-based ecological study". OSF Preprints. 2021.

12. Ahlenstiel GM, O. **Meyerowitz-Katz, G**. Common drivers of mortality in patients with advanced liver disease in western Sydney. Journal of Gastroenterology & Hepatology. 2021;36(10):2629-991.

Academic Presentations

1. **Maberly G**, Diabetes in Primary Care – Clear as Mud Communications. Australasian Diabetes Society Annual Congress; 2021: ADS.

2. **Bramwell S, Jayaballa, R. McClelland, S. Kodsi, R. Meyerowitz-Katz, G. Maberly, G**., Western Sydney Diabetes New Hybrid Model of Care. Australasian Diabetes Society Annual Congress; 2021: ADS.

3. **Mclelland S**, Upskilling Healthcare Professionals In Western Sydney Despite Time and Place: The National Diabetes Care Course Roll Out. Australasian Diabetes Society Annual Congress; 2021.

4. **Ravi S, Meyerowitz-Katz, G. Maberly, G**. Bonner, C., Effectiveness of Virtual Care for Diabetes Management: Thematic analysis of patients and provider's insights. Australasian Diabetes Society Annual Congress; 2021.

5. **Kodsi, R. Meyerowitz-Katz, G. Maberly, G. Bramwell, S. McClelland, S. Jayaballa, R**. Impact of Different GLP-1 Agonists on Insulin Requirements and Glycaemic Control in a Complex Type 2 Diabetes Clinic. Australasian Diabetes Society Annual Congress 2021.

6. Zheng, Y. **Meyerowitz-Katz, G. Bramwell, S. Jayaballa, R**. Asur, Y. Ganapathy, R. Maberly, G. Brakoulias, V. Better Management of Diabetes Through Collaboration: A Retrospective Cohort Study of Mental Health Patients on Clozapine. Australasian Diabetes Society Annual Congress 2021.

7. **Kang, T**. Healthy Living Toongabbie: How one suburb is owning diabetes and raising awareness to beat it Australasian Diabetes Society Annual Congress 2021.

8. **Meyerowitz-Katz, G. Maberly, G. Hng, T-M**. The impact of COVID-19 case rates on attendance to ED by people with diabetes: a retrospective cohort study. Australasian Diabetes Society Annual Congress 2021.

9. Nokes, J. **Maberly, G. Meyerowitz-Katz, G**. Retrospective analysis of pregnancy related complication rates in women diagnosed with Gestational Diabetes Mellitus (GDM) who birthed in Western Sydney public hospitals 2014-2020. Australasian Diabetes Society Annual Congress; 2021.

10. **McClelland, S. Jayaballa, R. Bramwell, S. Meyerowitz-Katz, G. Maberly**, G. Enhancing the Diabetes Care Model in Western Sydney with Additional Integrated Care Services. Australasian Diabetes Society Annual Congress 2021.

11. **Maberly, G**. The Diabetes Epidemic Meets the COVID-19 Pandemic in Western Sydney: Accelerating Integrated Virtual Care of Type 2 Diabetes with Community Providers National Telehealth Summit 2021.

12. **Maberly, G**. Adapting to the COVID-19 pandemic: a value-based approach to Virtual Care for diabetes in Western Sydney in 2020. Value Based Healthcare Conference 2021.

13. **Meyerowitz-Katz,** G. Communicating Science to People. International Network on Health and Hepatitis in Substance Users 2021.

14. **Meyerowitz-Katz, G**. A Short Guide To Twitter. Wiser Healthcare Summit 2021.

15. Maberly, G. Diabetes Masterclass. PSA Virtual 2021

Non-Academic Presentations

- **Risks of having Diabetes and COVID-19 and how that risk can be best manage**d, Cecilia Chi, COVID-19 and Diabetes Forum, October 2021
- **How General Practice can best protect against COVID-19 transmission and what to do when the Public Health Unit works with you to investigate when a case visits a General Practice**, Tim Usherwood, COVID-19 and Diabetes Forum, October 2021
- **The stage of the pandemic and the changing approaches going forward**, Shopna Bag, COVID-19 and Diabetes Forum, October 2021
- **A sweet pregnancy: Myths, Dos & Don'ts**, Mani Manoharan, Gestational Diabetes Forum, March 2021
- **End the confusio**n, Glen Maberly, Ask the Experts Forum, September 2021
- **Big picture for Leaders**, Glen Maberly, Leaders Alliance Meeting, May 2021
- **Alliance Updates**, Janine Dawson, Leaders Alliance Meeting, May 2021
- **Secondary Prevention and Remission of Diabetes**, Raymond Kodsi, Diabetes Masterclass, July 2021
- **How medicines work and what will PBS allow**, Glen Maberly, Diabetes Masterclass, July 2021
- **Telehealth model of care**, Glen Maberly, Diabetes Masterclass, July 2021
- **Using CGM Technology in those with T2D**, Rajini Jayaballa and Sian Bramwell, Diabetes Masterclass, July 2021
- **What is the Diabetes epidemic we all fac**e, Gideon Meyerowitz-Katz, Diabetes Masterclass, August 2021
- **Diet for diabetes prevention**, Cecilia Chi, Diabetes Masterclass, August 2021
- C**reating an Engaged Alliance**, Janine Dawson and Heloise Tolar, Diabetes Masterclass, August 2021
- **Practical cases in obesity managemen**t, Ramy Bishay, Diabetes Masterclass, August 2021
- **NEW TOOLS FOR GENERAL PRACTICE Freestyle Libre Workshop**, Ana Murugesan and Glen Maberly, Libre Workshop, July 2021

- **Western Sydney Diabetes: Research, Evaluation, and Collaboration**, Gideon Meyerowitz-Katz, Research Exchange Forum, May 2021
- **Western Sydney Diabetes Virtual Care: the successful establishment of a fully online diabetes service during COVID-19**, Rajini Jayaballa, Research Exchange Forum, May 2021
- **A Murmur From The Past**, Raymond Kodsi, Westmead Endocrine Grand Rounds, April 2021
- **Diabetic Kidney Disease**, Raymond Kodsi, Blacktown Hospital Diabetes Meeting, April 2021
- **Recent and Upcoming Developments in Incretin Therapie**s, Raymond Kodsi, Blacktown Hospital Diabetes Meeting, August 2021
- **Secondary Prevention of T2DM and Pre-Diabetes**, Raymond Kodsi, Masterclass, August 2021
- **Let's talk about preventing diabetes**, Aruni Ratnayake, International Women's Day, March 2021
- **Walking for good health**, Aruni Ratnayake, The Blacktown-Hills Community Care forum, March 2021
- **Aboriginal and Torres Strait Islander people and diabetes**, Aruni Ratnayake, Western Sydney Koori Interagency, March 2021
- **Let's talk about preventing diabetes**, Aruni Ratnayake, Gurdwara Sahib Glenwood, May 2021
- **Walking for good healt**h, Aruni Ratnayake, NDSS Punjabi diabetes education seminar, May 2021
- **Western Sydney Diabetes and community initiatives with Aboriginal peopl**e, Aruni Ratnayake, Greater Western Aboriginal Health Service, June 2021
- **Diabetes prevention & community initiatives with priority population**s, Aruni Ratnayake, Endocrinology clinical meeting, July 2021
- **Aboriginal and Torres Strait Islander people and diabetes**, Aruni Ratnayake,Western Sydney Primary Health Network Aboriginal Cultural Awareness Training, August 2021

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See myINTERACT for a full list of faculty including short Bios

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

GLOSSARY

ACI Agency for Clinical Innovation
ACNC Australian Charities and Not-for-profits Commission
ADC Australasian Diabetes Congress
ADHA Australian Digital Health Agency
AHP Allied Health Professional
AIHW Australian Institute for Health and Welfare
ATCC Australian Tamil Chamber of Commerce
BAS Business Analytics Service
BCC Blacktown City Council
BCE Bilingual Community Education
BMDH Blacktown and Mount Druitt Hospitals
BMWLC Blacktown Metabolic and Weight Loss Clinic
CALD Culturally and Linguistically Diverse
CDE Credentialed Diabetes Educator
CGM Continuous Glucose Monitoring
CNC Clinical Nurse Consultant
CPH Centre for Population Health
CSIRO Commonwealth Scientific and Industrial Research Organisation
CT2DC Complex Type 2 Diabetes Clinic
DCC Diabetes Case Conference
DDE Department of Diabetes and Endocrinology
DDMS Diabetes Detection and Management Strategy
DDMT Data for Decision Making Taskforce
DEC Diabetes Education Centre
DHS Digital Health Solutions
DOMTRU Diabetes, Obesity and Metabolism Translational Research Unit
DPC Department of Premier and Cabinet
DPIE Department of Planning, Industry and Environment
ED Emergency Department
EMR Electronic Medical Records
EMT Executive Management Team
EN Enrolled Nurse
FTE Full-Time Equivalent
GDM Gestational Diabetes Mellitus
GP General Practitioner
GPP General Practice Pharmacy
GWAHS Greater Western Aboriginal Health Services
HLO Healthy Living Options
HLT Healthy Living Toongabbie
HOPE Health Outcomes and Patient Experience
HRFS High Risk Foot Service
IC Integrated Care
ICH Integrated and Community Health
ICP Integrated Care Program
JGPSCC Joint GP Specialist Case Conferencing
JSDMHCC Joint Specialist Diabetes and Mental Health Case Conferences
JSGP-CDC Joint Specialist General Practice Community Diabetes Clinic
LHD Local Health District
MBS Medicare Benefits Schedule
MDCDC Mount Druitt Community Diabetes Clinic
MDCHC Mount Druitt Community Health Centre
MOH Ministry of Health
MPSCG Mobilising Public Support Communications Group
NADC National Association of Diabetes Centres
NAIDOC National Aborigines and Islanders Day Observance Committee
NBMLHD Nepean Blue Mountains Local Health District
NBMPHN Nepean Blue Mountains Primary Health Network
NDCC National Diabetes Care Course
NDSS National Diabetes Service Scheme
NHMRC National Health and Medical Research Council
NWAU Nationally Weighted Activity Unit
OOS Occasions of Service
PATBI PEN Analytics Tool, Business Intelligence
PCMH Patient Centred Medical Homes
PDC Post-Discharge Diabetes Clinic
PHN Primary Health Network
PGA Pharmacy Guild of Australia
PN Practice Nurse
PSA Pharmaceutical Society Australia
PwC PricewaterhouseCoopers
RACGP Royal Australian College of General Practitioners
RCT Randomised Controlled Trial
SAKGF Stephanie Alexander Kitchen Garden Foundation
SWSLHD South Western Sydney Local Health District
TNP Transition to Nurse Practitioner
UNSW University of NSW
UOW University of Wollongong
USYD University of Sydney
UTS University of Technology Sydney
VMO Visiting Medical Officer
WH Westmead Hospital
WS Western Sydney
WSD Western Sydney Diabetes
WSLD Western Sydney Leadership Dialogue
WSLHD Western Sydney Local Health District
WSPHN Western Sydney Primary Health Network
WSROC Western Sydney Regional Organisation of Councils
WSU Western Sydney University
WW WentWest

Western Sydney Diabetes
Beating Diabetes Together

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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