AUSTRALIAN NATIONAL DIABETES AUDIT

COVID-19 SERVICE SURVEY REPORT | 2020

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Abbreviations and Acronyms

ANDA	Australian National Diabetes Audit
ADS	Australian Diabetes Society
AQSMA	Australian Quality Self-Management Audit
COVID-19	Coronavirus Disease 2019
DKA	Diabetic Ketoacidosis
GDM	Gestational Diabetes Mellitus
HHS	Hyperosmolar Hyperglycaemic State
NADC	National Association of Diabetes Centres
PPE	Personal Protective Equipment
REDCap	Research Electronic Data Capture

FOREWORD

FROM THE ANDA PROJECT LEAD

The Australian National Diabetes Audit (ANDA) provides an overview of the clinical status of people with diabetes attending services for diabetes care in Australia. It gives participating diabetes centres, endocrinologists, general practitioners and other diabetes health care professionals the opportunity to evaluate their data against their peers, enabling them to identify and implement mechanisms to improve outcomes for people with diabetes.

Due to the unprecedented burden of managing the threat of Coronavirus Disease 2019 (COVID-19) and in consultation with diabetes centres, the Australian Department of Health, the Australian Diabetes Society (ADS) and the National Association of Diabetes Centres (NADC), the usual Australian Quality Self-Management Audit (ANDA-AQSMA) activity was suspended for 2020.

To understand the impact of COVID-19 on diabetes care, and how diabetes services/centres had to change their models of care, a short online COVID-19 service survey was developed by the ANDA team. The aim of the survey was to gather and share vital information that would help diabetes centres and the broader diabetes service response to COVID-19, as well as assist with future planning should there be another unforeseen emergency situation.

A nominated representative of each diabetes service/centre listed with the NADC was invited to complete the survey. The invitation was posted online three times over the course of 6 months in order to capture changes during the course of the pandemic.

This document reports on the survey responses to the COVID-19 Service Survey. The results are reported in a pooled manner (without identifying any particular centre) and have been made available to all centres listed with the NADC nationally.

The information contained in this report provides a unique snapshot of diabetes health care delivery during the COVID-19 pandemic including:

i) impact on staff and staffing
ii) impact on patient presentations and ongoing patient management
iii) impact on availability of resources
iv) challenges in adapting to changes in delivery of healthcare

In summary, 71 diabetes centres completed the initial survey during the course of May and June, 77 diabetes centres completed the survey 3-months later during August and September and 63 diabetes centres completed the survey 6-months later during October and November of this year.

In this undertaking, we acknowledge the generous support of the Australian Government Department of Health.

The ANDA Project Executive and Scientific Advisory Committees would like to thank the diabetes services/centres who participated in the surveys, sharing their experiences of health care delivery during the COVID-19 pandemic, and thus providing significant contributions to this report.

We hope this report will be widely disseminated.

Professor Sophia Zoungas
Project Lead on behalf of the ANDA Project Executive,
the ANDA Scientific Advisory Committees and the NADC
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FROM THE ADS PRESIDENT

The COVID-19 pandemic has certainly caused disruption to daily living, including the way that health care is delivered. We saw that many outpatient services, including diabetes care, completely halt face-to-face consultations and switch to telephone/telehealth interactions. This occurred over a very short period of time, which added further stress and strain to a system that was functioning at capacity. Services had to adapt to a new way of delivering care and the person with diabetes had to adapt to a different way of receiving that care. There were many learnings from this process, including the added cost of establishing and providing telephone/telehealth care, the development and implementation of new protocols as well as the mental stress for the healthcare workforce that continued to work in hospitals and being re-deployed to COVID-19 specific activities.

It is important that we capture the learnings from the COVID-19 pandemic so that we can be well-prepared for future pandemics and natural disasters, should they occur again. The Australian National Diabetes Audit (ANDA) under the auspices of the National Association of Diabetes Centres (NADC is a division of ADS) has conducted a series of surveys of diabetes services to capture information about how centres coped with the changing environment induced by the COVID-19 pandemic: what worked well and what required further adjustment and support.

As President of the Australian Diabetes Society, I am proud to present the outcomes of the surveys. The intention is to learn from how we responded to COVID-19 and to advocate for what we need so that we are prepared should another pandemic or natural disaster cause a similar disruption to diabetes care. I am sure that as I did, you will also find the results of significant interest as we move to the post-COVID-19 era of diabetes care. As always, please do not hesitate to contact me if you would like to discuss these outcomes further.

Regards,
A/Prof Stephen Stranks
ADS President

ACKNOWLEDGEMENTS

ANDA has been supported by funding from the Australian Government Department of Health

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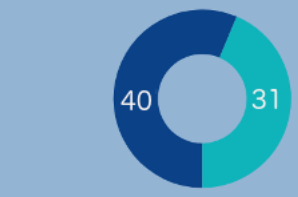
We would like to thank the participating diabetes services/centres for their time in completing the surveys.

We also acknowledge the support and contribution of the ADS and NADC.

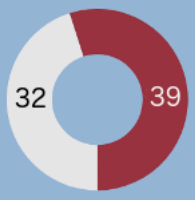
KEY SURVEY FINDINGS

SITE CHARACTERISTICS

71 Initial Survey Sites

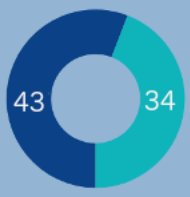


Primary/Secondary Health Care Centres (56.34%)
Tertiary Health Care Centres (43.66%)

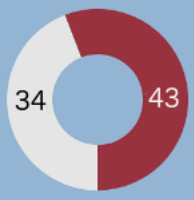


Metropolitan Centres (45.07%)
Regional/Rural/Remote Centres (54.93%)

77 3-Month Survey Sites

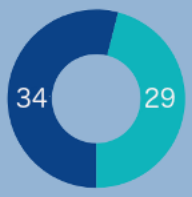


Primary/Secondary Health Care Centres (55.84%)
Tertiary Health Care Centres (44.16%)

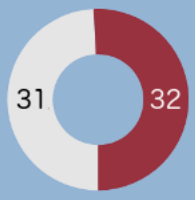


Metropolitan Centres (44.16%)
Regional/Rural/Remote Centres (55.84%)

63 6-Month Survey Sites



Primary/Secondary Health Care Centres (53.97...
Tertiary Health Care Centres (46.03%)

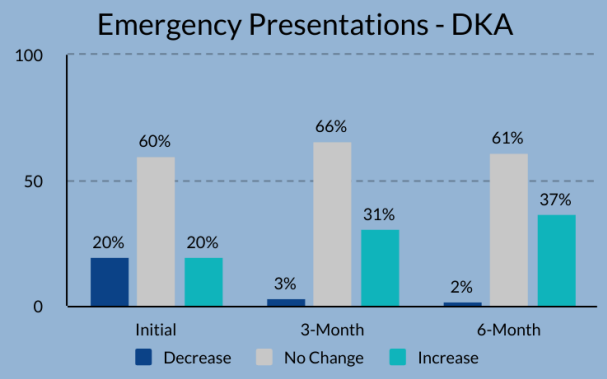


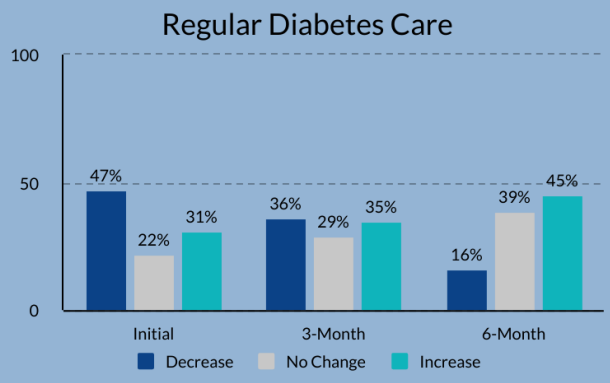
Metropolitan Centres (49.21%)
Regional/Rural/Remote Centres (50.79%)

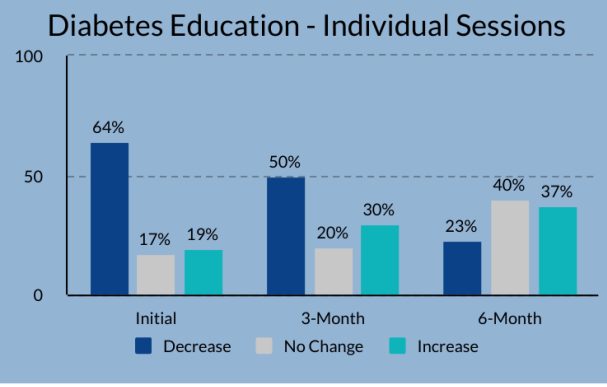
IMPACT ON STAFF

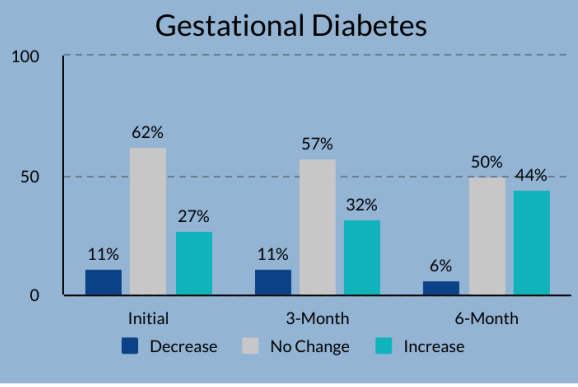
	Initial	3-Month	6-Month
Centres were unprepared to deal with the COVID-19 crisis	**32%**	**4%**	**2%**
Centres had difficulty adapting to the required changes	**34%**	**29%**	**11%**
Staffing shortages due to self isolation / quarantine requirements	**45%**	**55%**	**51%**
Staff have experienced stress due to staffing changes	**73%**	**86%**	**76%**
Staff have experienced stress due to work practice changes	**86%**	**95%**	**86%**
Staff were concerned about being exposed to COVID-19	**97%**	**97%**	**94%**

CHANGES IN WORKLOAD









CHALLENGES IN ACCESS

High risk foot services	Allied health services	Other services/ specialities	Interpreters
41%	48%	55%	68%
Initial	Initial	Initial	Initial
37%	49%	62%	52%
3-Month	3-Month	3-Month	3-Month
29%	51%	53%	60%
6-Month	6-Month	6-Month	6-Month

1. Background

As of January 2021, the COVID-19 pandemic has infected over 93 million people and resulted in 2 million deaths globally. In Australia, there have been over 28,000 infections and 909 deaths in Australia (1). Preventing and managing COVID-19 infections is currently the top priority for Australia's public health and healthcare system.

While diabetes does not increase the risk of contracting COVID-19, it worsens prognosis and increases mortality with COVID-19 infection (2). With the scientific base of this pandemic ever changing and increasing, and the varying COVID-19 case numbers in each Australian state/territory, the implications for our public health and healthcare system are considerable.

COVID-19 has had a major impact on people with diabetes as well as on the services providing clinical diabetes care. The pandemic response has placed an unprecedented strain on our hospital system and clinical services with resources pivoting to mitigate and manage COVID-19 risks within the health system.

The ANDA COVID-19 service survey was developed to understand structural, staffing, support and knowledge challenges due to COVID-19. The aim was to characterise how diabetes centres provided health care during the early months of the COVID-19 pandemic and thereafter with varying public health directives and restrictions.

We hope to share this vital information to aid the broader diabetes service response to COVID-19 and assist diabetes services with future planning should there be another unforeseen emergency. We also hope to use the experience of dealing with COVID-19 as a way to consider other sustained improvements to diabetes healthcare.

The ANDA-COVID-19 service survey was disseminated to all diabetes centres from metropolitan and regional/rural/remote areas who are members of the National Association of Diabetes Centres at three timepoints in 2020.

2. Methodology

2.1 Ethics approval

The ANDA COVID-19 Service Survey was developed with the National Association of Diabetes Centres in lieu of the usual ANDA-AQSMA activity for 2020. The survey collected de-identified service responses from sites transmitted through a trusted third party (the ANDA Secretariat). There was no patient involvement or patient data contained in the survey. This COVID-19 related amendment was approved by the Monash Health Human Research Ethics Committee. Completing and submitting the survey implied consent from each site representative as listed in the National Statement on Ethical Conduct in Human Research 2007 (Updated 2018).

2.2 Governance

Established in 2015, the ANDA Scientific Advisory Committee provides strategic guidance to ensure the objectives, outcomes and deliverables of ANDA, as specified by the Australian Department of Health, are achieved. This committee consists of representatives of key stakeholder organisations including endocrinologists, general practitioners, diabetes nurse educators and consumer representatives. The committee works to an agreed Terms of Reference with the ultimate vision of assisting ANDA to maintain high visibility, appropriate engagement and relevance for diabetes service delivery.

2.3 Data collection and validation

An invitation to complete the COVID-19 service survey was extended to 152 diabetes services/centres registered with the National Association of Diabetes Centres. One representative of each centre was invited to complete the survey at 3 time points during the course of the pandemic (over a 6-month period). The invitations were sent via email which included access to the survey with a unique personalised online link. The site representative was given 2 to 4 weeks to complete the survey. Reminders were sent during each dissemination period to promote survey completion with centres able to complete any or all of the surveys.

The survey was disseminated in May-June (Initial), August (3-month) and October-November (6-month) 2020. All communication regarding the survey occurred between the participating sites and the ANDA secretariat, enabling each individual site to remain blinded for data analysis. Survey responses were submitted through a Web-Based Data Collection – Research Electronic Data Capture (REDCap) system (3). The REDCap electronic data capture system was hosted and managed by Helix (Health Data Platform – initiative of Monash University working collaboratively with key health partners).

REDCap is a secure, web-based application designed to support data capture for research studies, providing:

1) an intuitive interface for validated data entry
2) audit trails for tracking data manipulation and export procedures
3) automated export procedures for seamless data downloads to common statistical packages
4) procedures for importing data from external sources

Branching logic coding was used to skip irrelevant questions. Data validations were put in place to help prevent data entry errors and reduce data queries. Staff were granted site specific access to complete the coded survey.

2.4 Statistical analysis

Descriptive statistics were presented as frequencies and percentages for categorical variables. The percentages were based on complete data and excluded missing or non-applicable responses (for questions deemed not relevant to the services provided by the diabetes centre). Our main results present the initial data in graphs and tables and changes in values at the 3-month and 6-month surveys are annotated in the text of the report.

3. Results

3.1 Site characteristics

Diabetes centres in all Australian states and territories participated in the three surveys with a similar proportion of centres from metropolitan and rural/regional/remote areas. As expected, the proportion of participating tertiary centres was greater in metropolitan areas and the proportion of participating primary/secondary centres was greater in rural/regional/remote areas.

Table 1. Breakdown by centre type

	Initial survey	3-month survey	6-month survey
Primary/Secondary	40 (56%)	43 (56%)	34 (54%)
Tertiary	31 (44%)	34 (44%)	29 (46%)
Total	71	77	63

Table 2. Breakdown by location

	Initial survey	3-month survey	6-month survey
Metropolitan	32 (45%)	34 (44%)	31 (49%)
Regional/Rural/Remote	39 (55%)	43 (56%)	32 (51%)
Total	71	77	63

Table 3. Metropolitan versus Regional/Rural/Remote

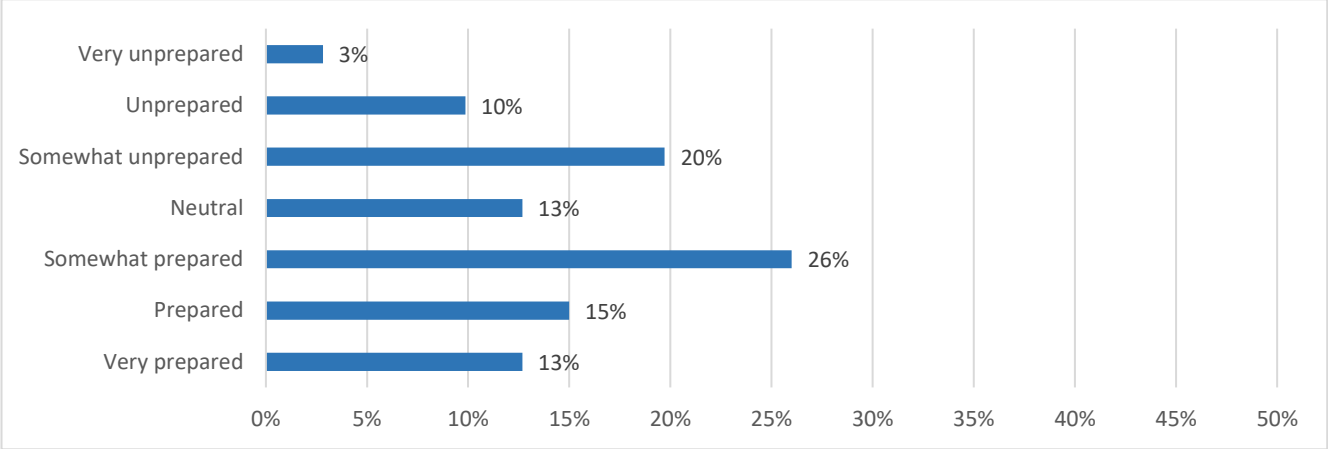
	Initial survey	3-month survey	6-month survey
Metropolitan			
• Primary/Secondary	11 (34%)	12 (35%)	9 (29%)
• Tertiary	21 (66%)	22 (65%)	22 (71%)
Total	32	34	31
Regional/Rural/Remote			
• Primary/Secondary	29 (74%)	31 (72%)	25 (78%)
• Tertiary	10 (26%)	12 (28%)	7 (22%)
Total	39	43	32

3.2 Centre and staffing changes

3.2.1 Preparedness

At the initial survey, 33% of centres reported any level of unpreparedness to deal with the COVID-19 pandemic, whereas at 6 months only 2% of centres reported being unprepared. Diabetes centres' preparedness to deal with COVID-19 improved from the initial survey to the surveys at 3 and 6 months.

Figure 1. Diabetes centres' preparedness to deal with COVID-19 – Initial survey

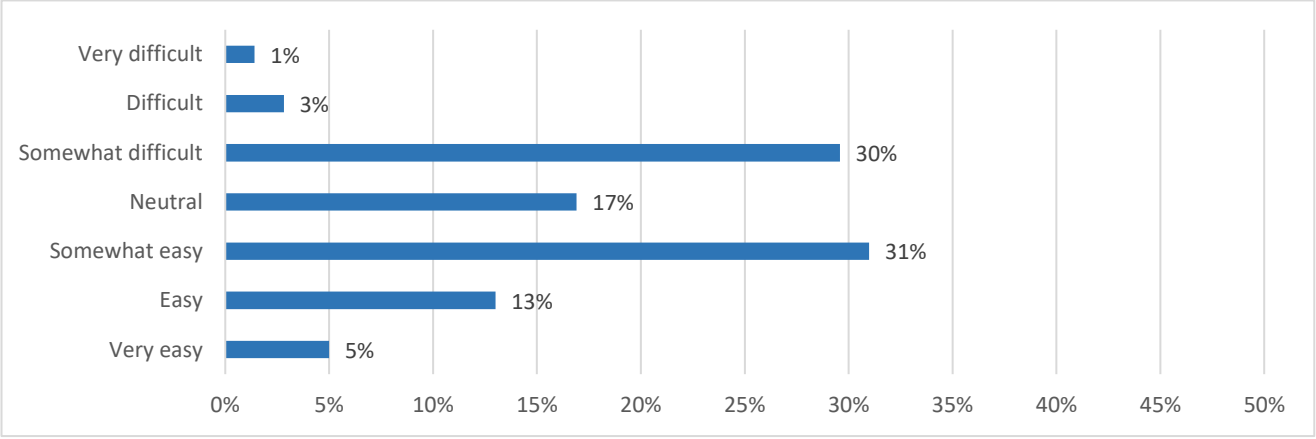


Number of centres: 71

3.2.2 Adapt

At the initial survey, 34% of centres reported any level of difficulty in adapting to COVID-19 related changes whereas at 6 months only 11% of centres reported difficulty adapting to COVID-19 related changes. Diabetes centres' ability to adapt to COVID-19 changes improved from the initial survey to the surveys at 3 and 6 months.

Figure 2. Diabetes centres' ability to adapt to COVID-19 related changes – Initial survey



Number of centres: 71

3.2.3 Impact on staffing

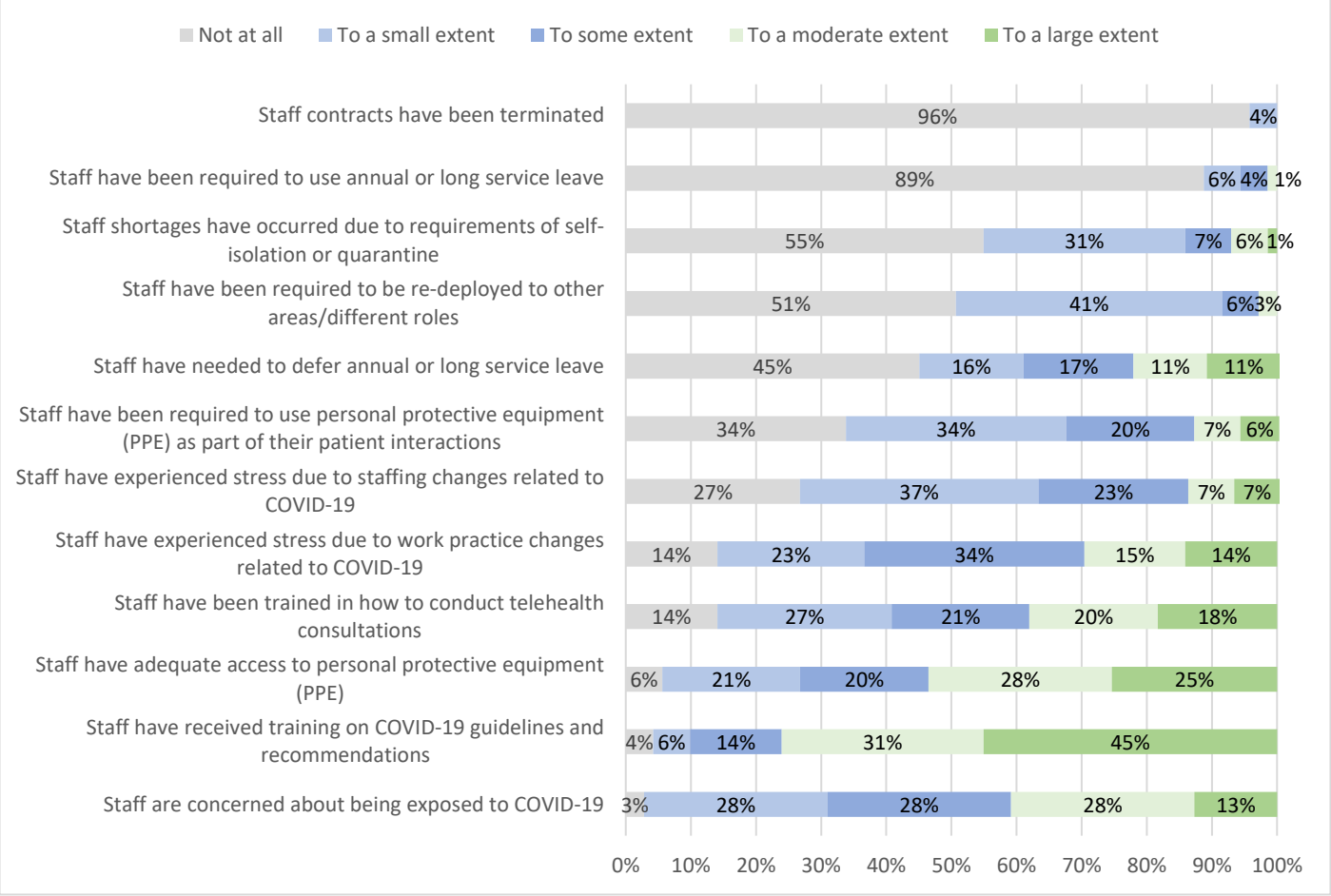
Almost half of diabetes centres reported staff shortages due to self-isolation or quarantine and/or staff needing to be redeployed.

A majority of diabetes centres reported staff stress due to staffing changes and/or work practice changes. The level of reported stress persisted over 6 months.

A majority of diabetes centres reported some level of staff concern about being exposed to COVID-19.

A majority of diabetes centres reported satisfactory access to sufficient PPE and training on COVID-19 guidelines.

Figure 3. The impact on staffing due to COVID-19 crisis – Initial survey

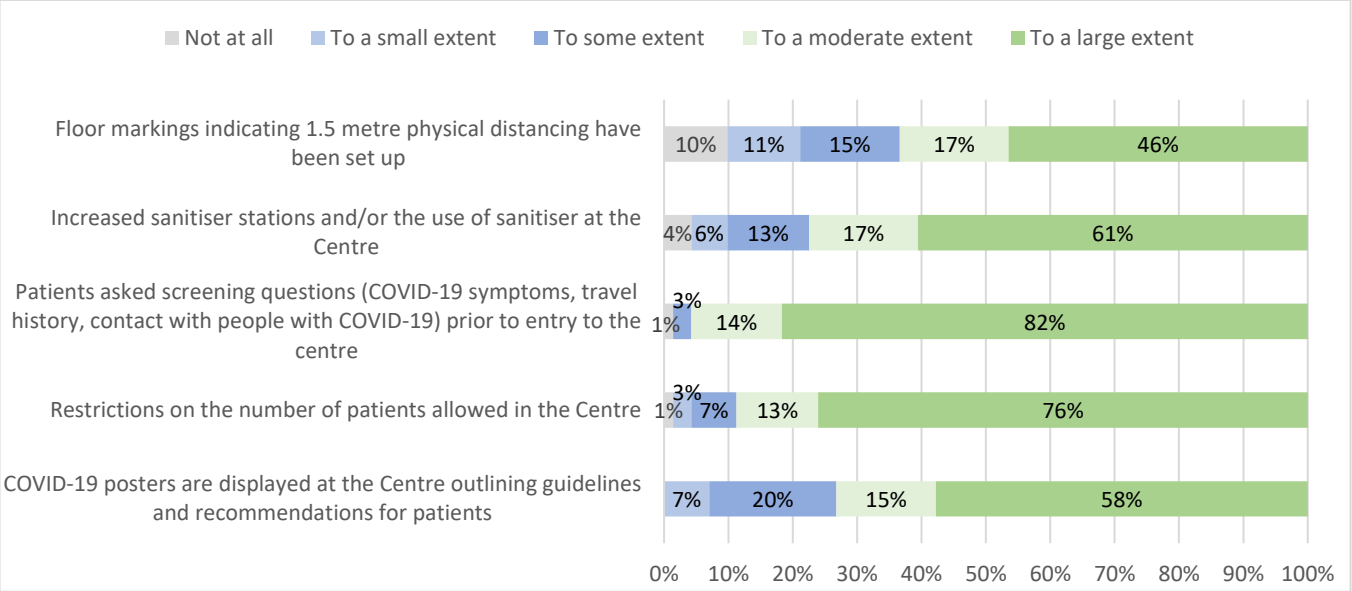


Number of centres: 71

3.2.3 Changes made to the health centre space

A majority of diabetes centres reported having made changes to their health centre space to comply with COVID-19 guidelines as per state and national directives.

Figure 4. Changes made to the health centre space – Initial survey



Number of centres: 71

3.3 Health care delivery changes

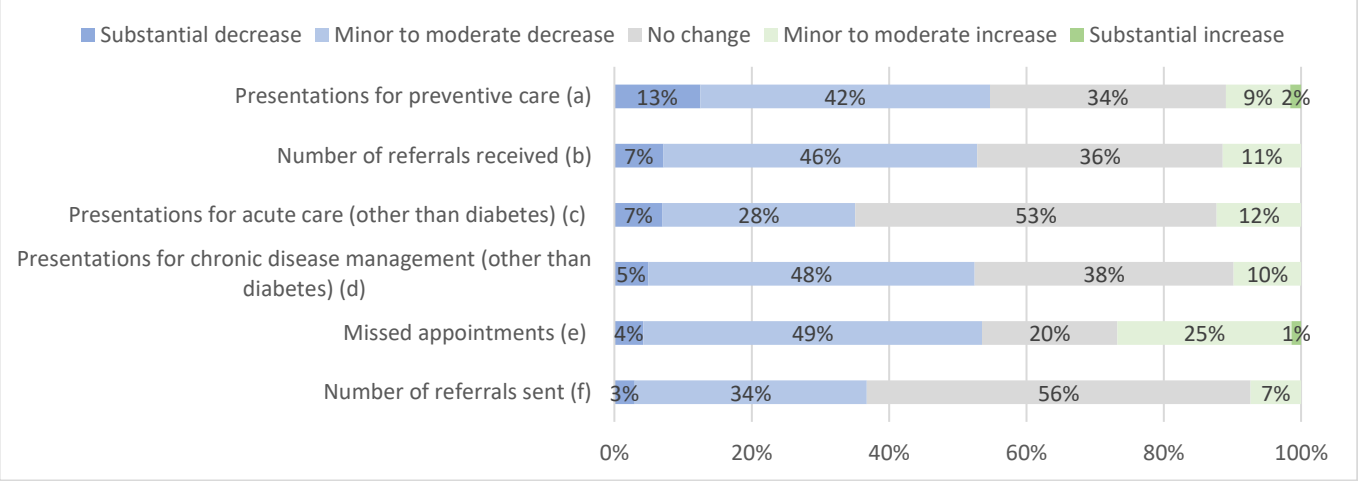
3.3.1 Impact on diabetes centre workload

A majority of diabetes centres reported reductions in usual care and acute presentations and increases in missed appointments. This improved from the initial survey to the surveys at 3 and 6 months.

At the initial survey:

- About half of diabetes centres reported a decrease in presentations for preventive care and/or usual chronic disease management,
- More than one third of diabetes centres reported a decrease in presentations for acute care, and
- More than one quarter of diabetes centres reported an increase in missed appointments.

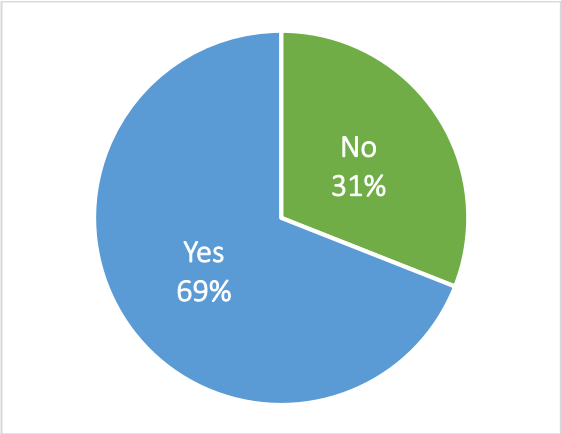
Figure 5. Impact on diabetes centre workload – Initial survey



Number of centres: (a) 64, (b) 70, (c) 57, (d) 61, (e) 71, (f) 68

A majority of diabetes centres reported that they had created COVID-19 specific clinical pathways.

Figure 6. Creation of COVID-19 clinical pathways – Initial survey

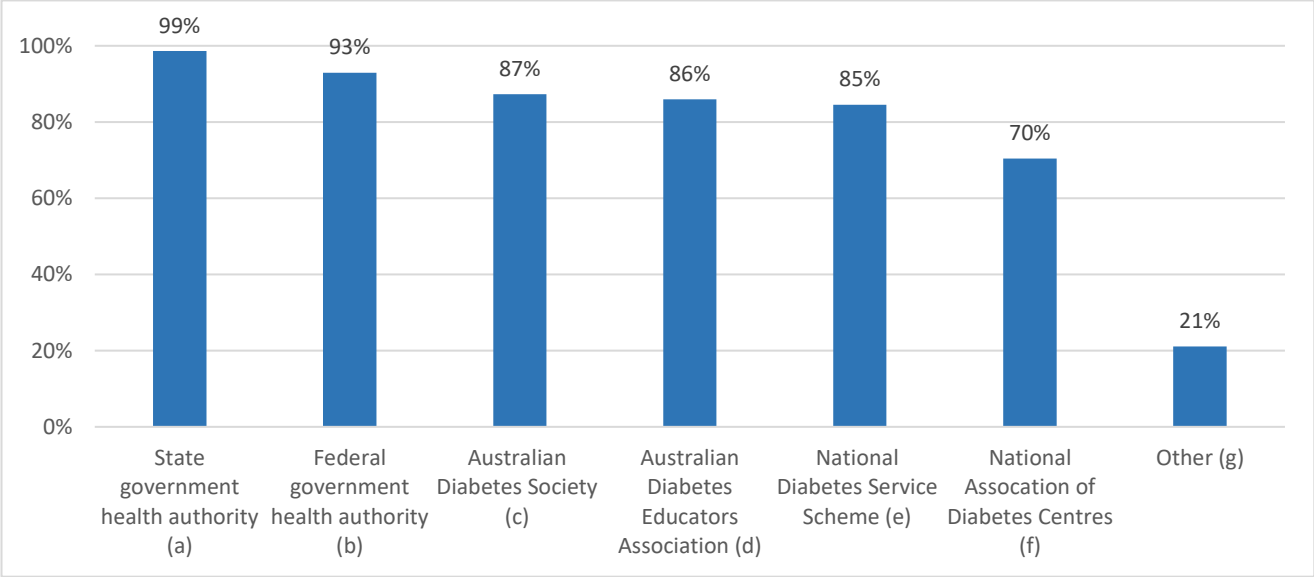


Number of centres: 71

3.3.2 Awareness of COVID-19 guidelines and recommendations

The vast majority of diabetes centres reported awareness of COVID-19 specific guidelines and recommendations.

Figure 7. Centres aware of specific COVID-19 guidelines and recommendations – Initial survey



Number of centres: (a) 70, (b) 66, (c) 62, (d) 61, (e) 60, (f) 50, (g) 15

3.3.3 Hospital presentations

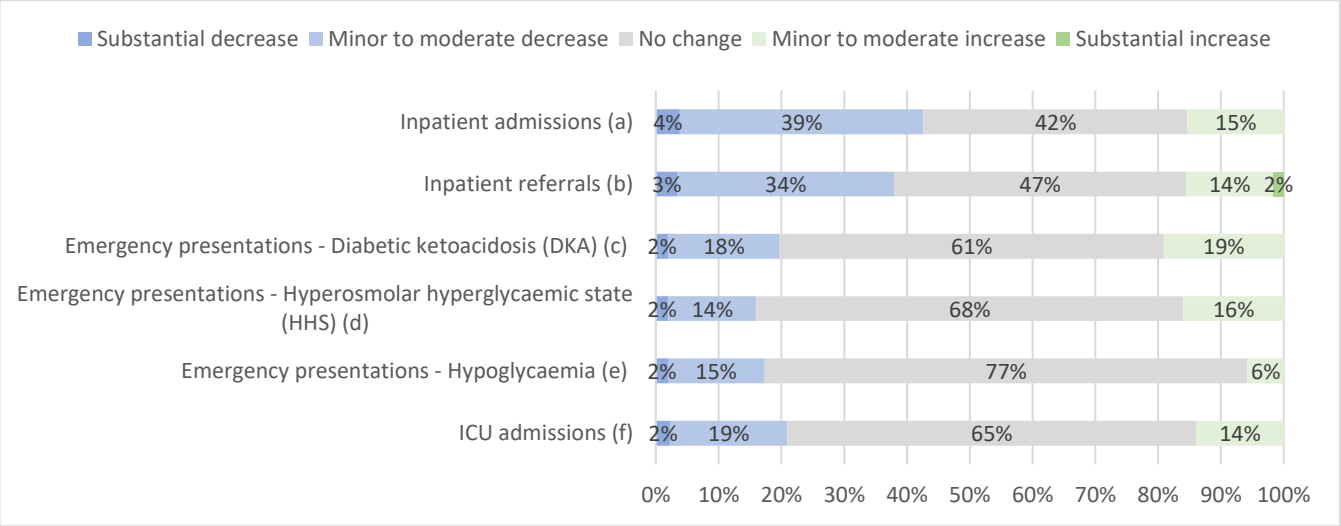
Almost half of diabetes centres reported reductions in hospital admissions and inpatient referrals at the initial survey and increases at the 3 and 6-month surveys.

The majority of diabetes centres reported no change in emergency presentations for DKA, HHS and hypoglycaemia at the initial survey but almost half reported increases at the 3 and 6-month surveys.

At the initial survey:

- 43% of diabetes centres reported a decrease in inpatient admissions,
- 37% of diabetes centres reported a decrease in inpatient referrals, and
- 61%, 68% and 77% reported no change in emergency presentations for DKA, HHS and hypoglycaemia respectively

Figure 8. Changes in hospital presentations – Initial survey



Number of centres: (a) 52, (b) 58, (c) 51, (d) 50, (e) 52, (f) 43

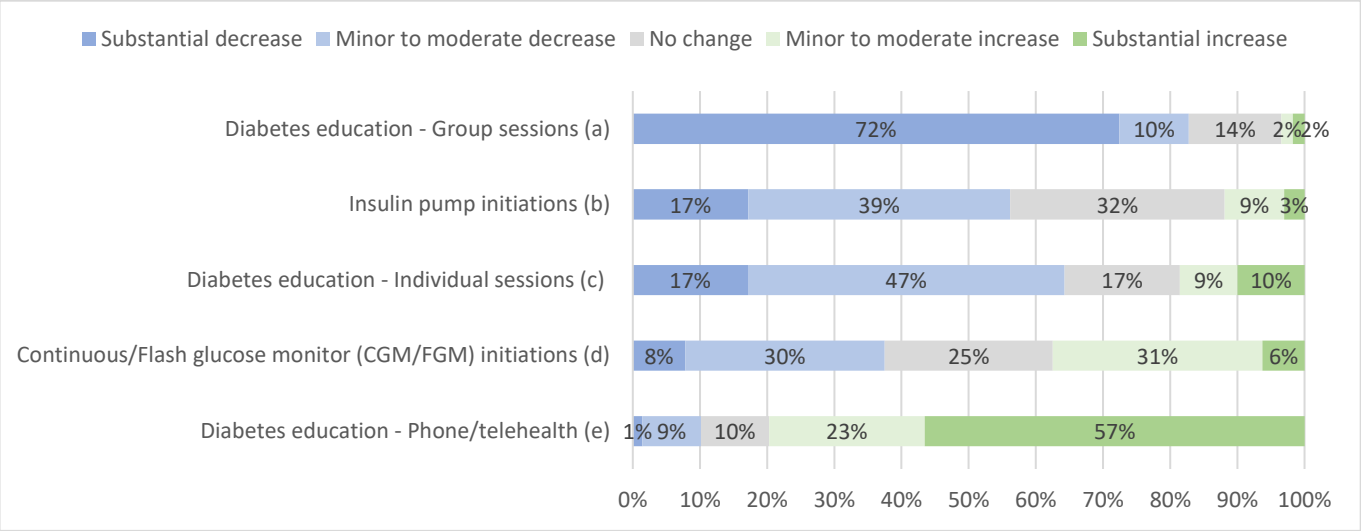
3.3.4 Diabetes education

A majority of diabetes centres reported reductions in "in person" group and/or individual diabetes education sessions and increases in "phone/telehealth" diabetes education sessions at the initial survey. Many diabetes centres also reported reductions in initiations of continuous/flash glucose monitoring or insulin pump therapy.

At the initial survey:

- 82% of diabetes centres reported a decrease in group diabetes education sessions,
- 64% of diabetes centres reported a decrease in individual diabetes education sessions,
- 56% of diabetes centres reported a decrease in insulin pump initiations, and
- 38% of diabetes centres reported a reported a decrease in CGM/FGM initiations.
- 80% of diabetes centres reported an increase in diabetes education sessions delivered via phone/telehealth

Figure 9. Changes in diabetes education workload – Initial survey

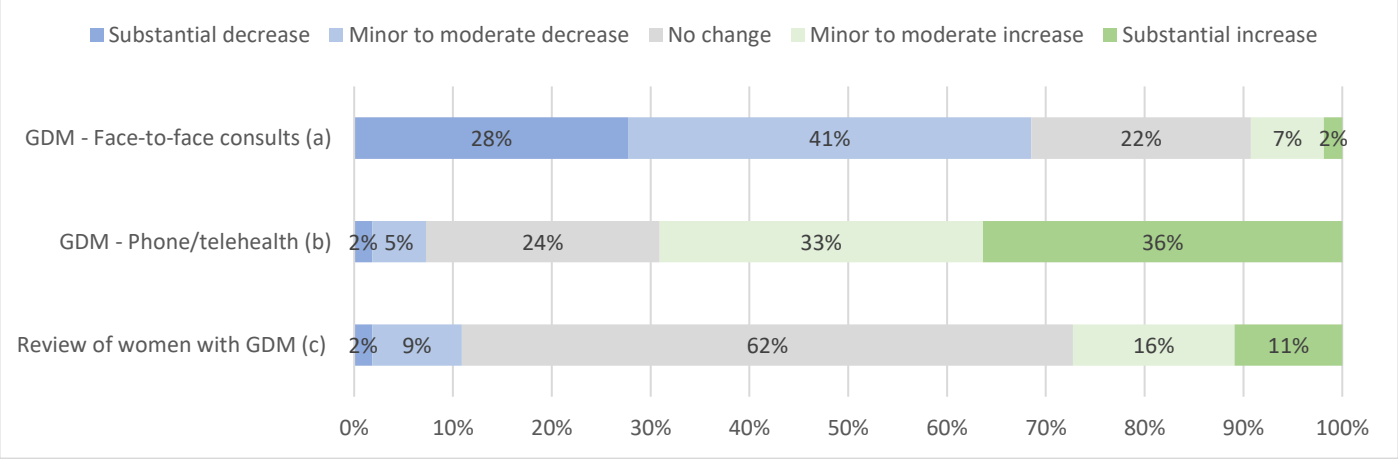


Number of centres: (a) 58, (b) 57, (c) 70, (d) 64, (e) 69

3.3.5 Gestational diabetes

A majority of diabetes centres reported reductions in face-to-face gestational diabetes (GDM) consults and increases in phone/telehealth GDM consults at the initial, 3 and 6-month surveys. One in 4 centres reported a substantial increase in reviews of women with GDM.

Figure 10. Changes in gestational diabetes workload – Initial survey

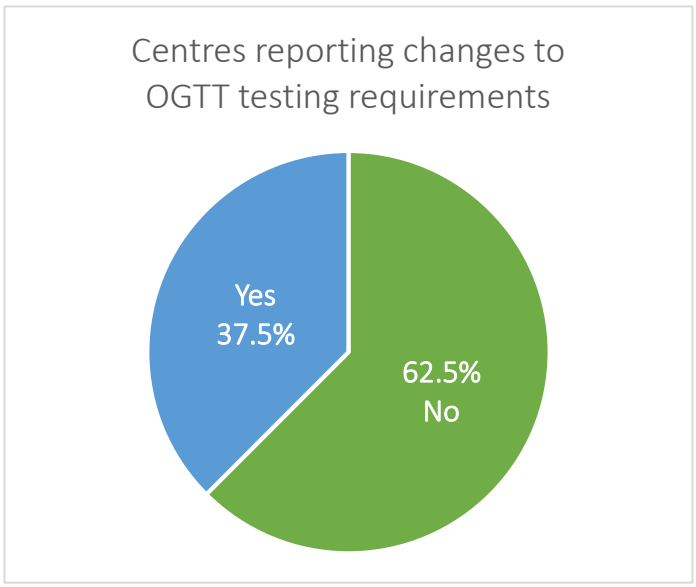


Number of centres: (a) 54, (b) 55, (c) 55

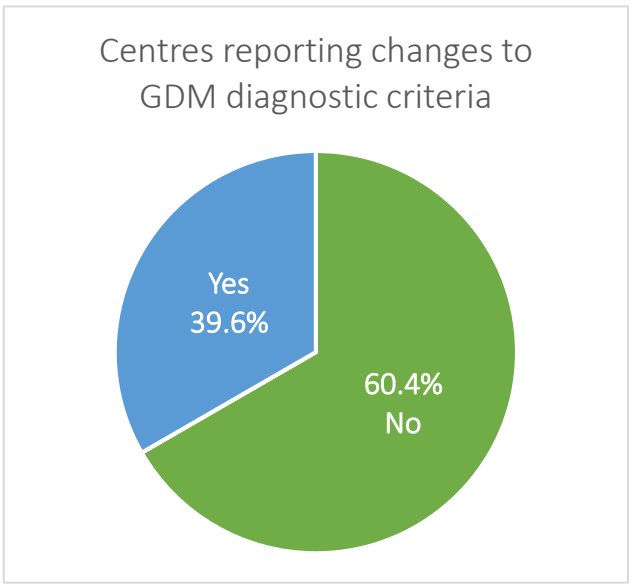
3.3.6 Changes to oral glucose tolerance testing (OGTT)

Over one third of diabetes centres reported changes to OGTT testing requirements for screening for GDM and less than half of diabetes centres reported changes to the diagnostic criteria at the initial survey.

Figure 11. Changes to oral glucose tolerance testing and GDM diagnostic criteria – Initial survey



Number of centres: 71

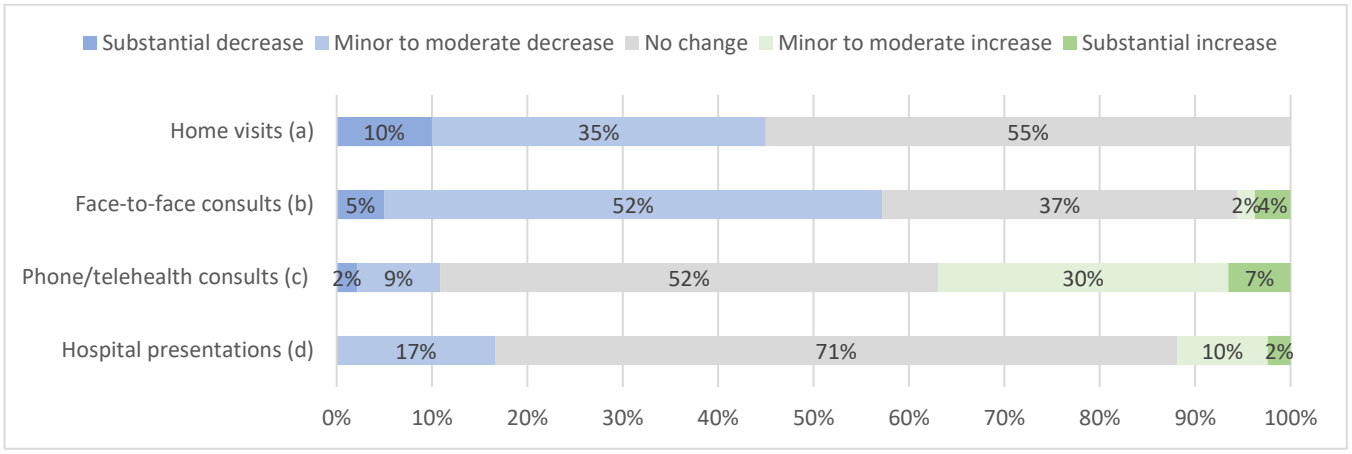


Number of centres: 71

3.3.7 Diabetes related foot disease

A majority of diabetes centres reported no change in hospital presentations for diabetes related foot disease. About half of diabetes centres reported reductions in home visits or face to face consults for diabetes related foot disease, while over one third of centres reported an increase in phone/telehealth consults for diabetes related foot disease.

Figure 12. Changes to diabetes related foot disease workload – Initial survey



Number of centres: (a) 20, (b) 54, (c) 46, (d) 42

3.3.8 General diabetes care

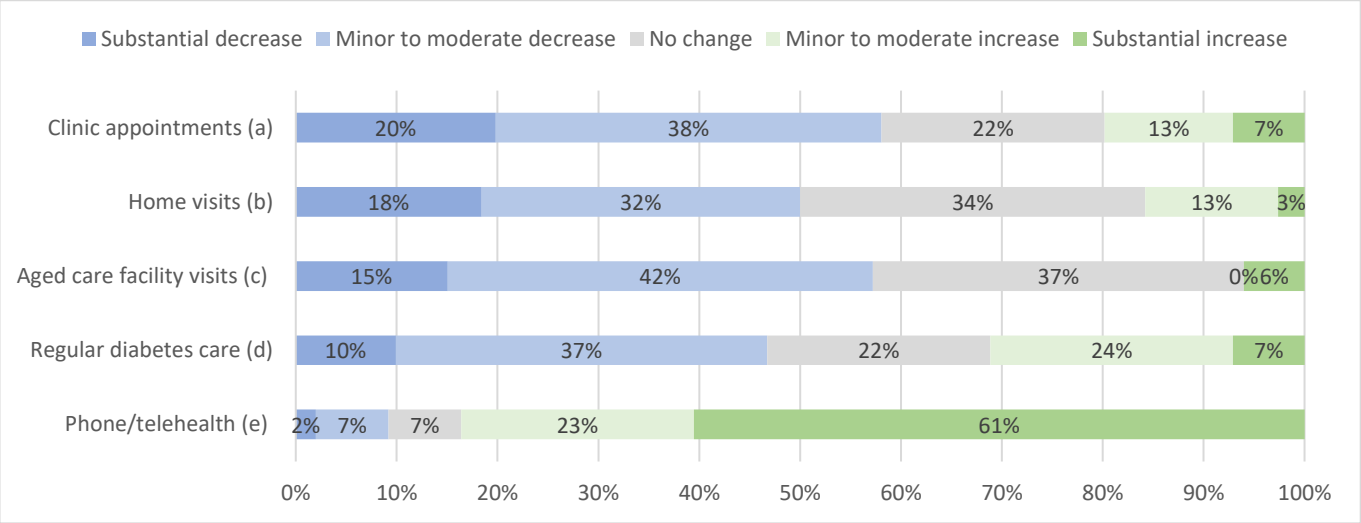
A majority of diabetes centres reported reductions in face-to-face clinic appointments at the initial survey but increases at the 3 and 6-month surveys.

A majority of diabetes centres reported reductions in aged care facility visits at the initial survey, which was maintained at the 3 and 6-month surveys.

Almost half of diabetes centres reported reductions in regular diabetes care at the initial and 3-month surveys but increases at the 6-month surveys.

A majority of diabetes centres reported increases in phone/telehealth visits at the initial survey as well as at the 3 and 6-month surveys.

Figure 13. Changes to regular diabetes care workload – Initial survey



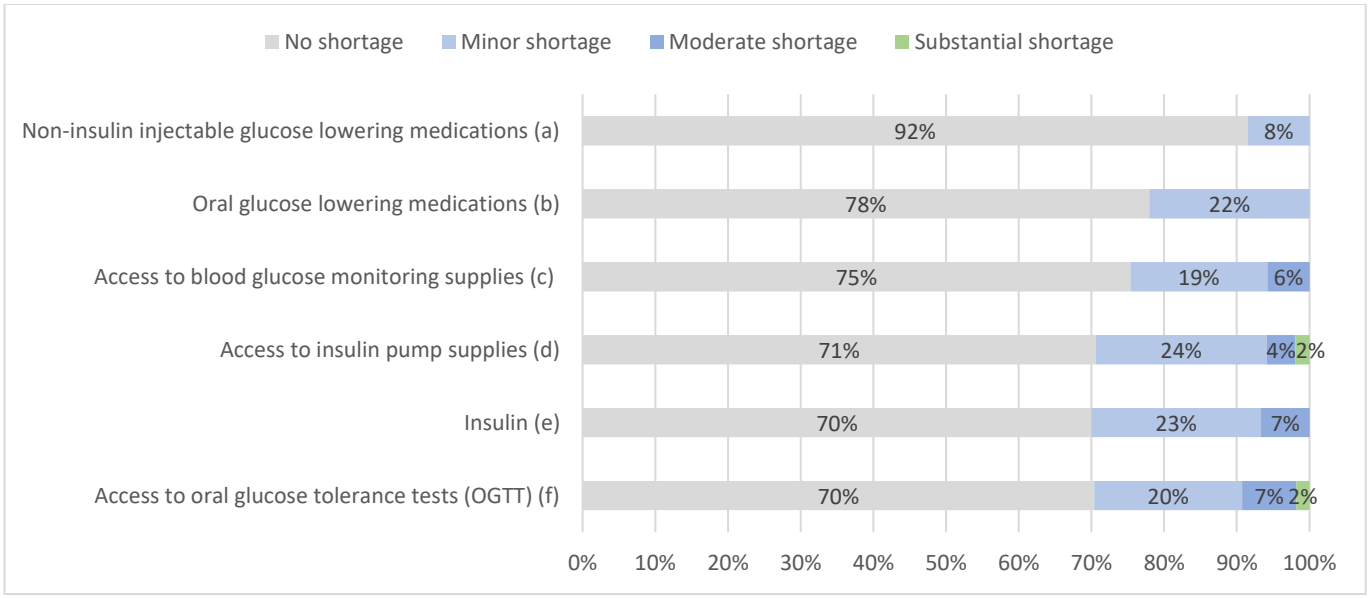
Number of centres: (a) 71, (b) 38, (c) 33, (d) 71, (e) 69

3.4 Shortages and access to services

3.4.1 Shortages experienced

A minority of diabetes centres reported shortages of oral or injectable glucose lowering medications including insulin and shortages of blood glucose monitoring and insulin pump supplies.

Figure 14. Shortages experienced by centres – Initial survey



Number of centres: (a) 59, (b) 59, (c) 69, (d) 51, (e) 60, (f) 54

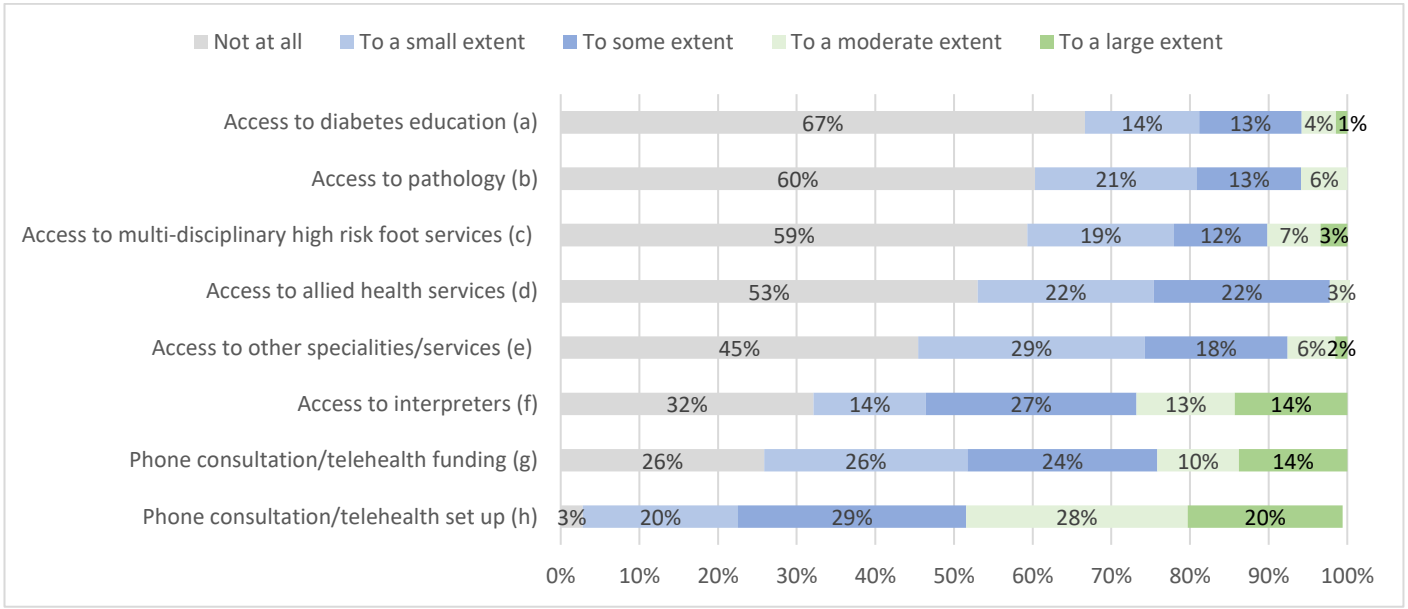
3.4.2 Challenges experienced

A majority of diabetes centres reported challenges with phone consultation/telehealth funding and/or set up, and access to other specialities and/or interpreters.

Almost half of diabetes centres reported challenges with access to allied health services, pathology and/or high-risk foot services.

A minority of diabetes centres reported challenges with access to diabetes education.

Figure 15. Challenges reported by centres – Initial survey



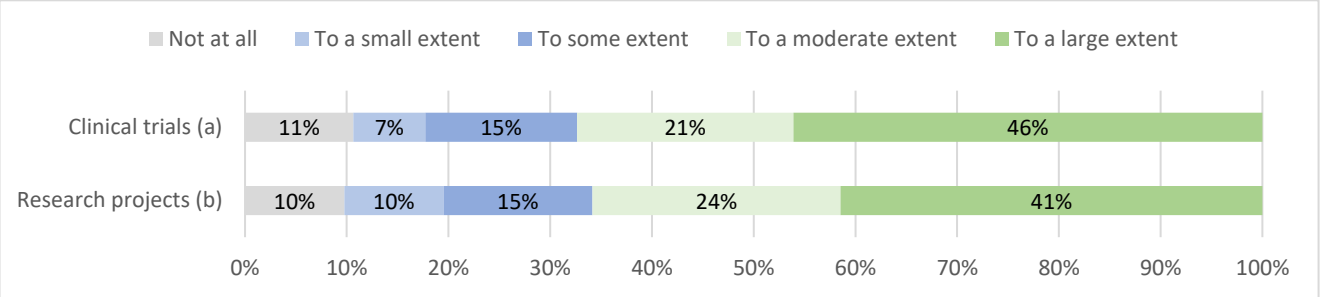
Number of centres: (a) 69, (b) 68, (c) 59, (d) 67, (e) 66, (f) 56, (g) 58, (h) 71

3.5 Research

3.5.1 Disruptions to research and clinical trials

A majority of diabetes centres reported disruptions to clinical trials and research projects at the initial, 3 and 6-month surveys.

Figure 16. Disruption to clinical trials and research projects – Initial survey

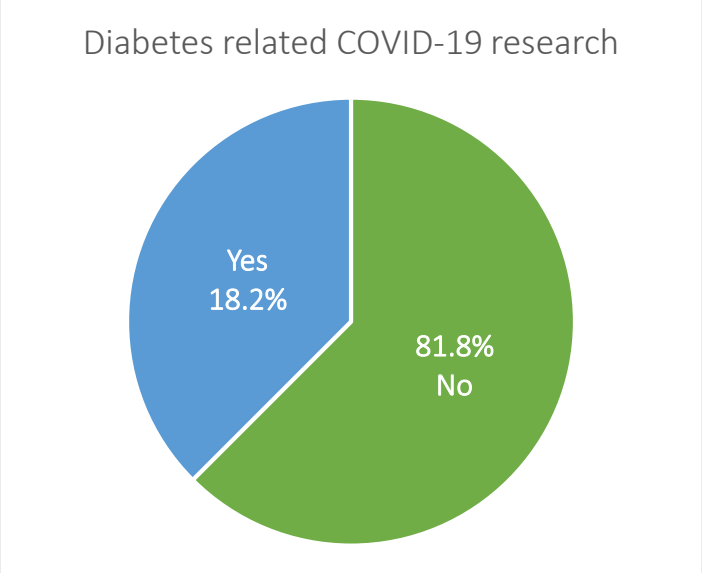


Number of centres: (a) 28, (b) 41

3.5.2 Diabetes related COVID-19 research

A minority of diabetes centres reported commencing diabetes-related COVID-19 research at the initial survey.

Figure 17. Centres that have commenced diabetes-related COVID-19 research – Initial survey



Number of centres: 66

4. Discussion

Despite the rapid need for changes in health services to respond to the COVID-19 pandemic, only 32% of diabetes centre reported being unprepared to deal with the COVID-19 crisis at the initial survey. Similarly, only 34% of diabetes centres found it difficult to adapt to the required changes.

Almost half of centres reported staffing shortages due to self-isolation or quarantine requirements. Almost all centres reported staff were concerned about being exposed to COVID-19, despite most diabetes centres reporting adequate access to PPE. Staff concerns of COVID-19 exposure remained high but relatively stable over time. Reasons for this may include a heightened level of ongoing anxiety associated with the emergence of the pandemic, lack of confidence in the protection offered by PPE and/or inadequate training in the appropriate use of PPE. Stress related to staffing changes and work practice changes was highest at the 3-month survey.

While the data represent a range of health settings, changes in hospital and emergency presentations were notable at the initial survey, with 43% of centres reporting fewer diabetes-related inpatient admissions. In contrast, about one third of centres reported increases in emergency presentations at the 3 and 6-month surveys. Possible factors underlying these changes could include the fear of exposure to COVID-19 in the hospital setting, move away from face-to-face contact and reduction in preventive care management. These observations underscore the vulnerability of the diabetes population to substantial changes in healthcare delivery and the potential long-term impact of the pandemic on our patients and workforce.

The main change to practice reported was the widespread uptake of telehealth. At the same time, 97% of centres reported some degree of difficulty with telehealth setup, which may reflect common difficulties in Australia at this time such as restricted funding, technological challenges, lack of telehealth training, variable access to appropriate technology for patients, and limited logistical support to move entire healthcare workforces to virtual delivery (4).

This work shows that most Australian diabetes centres reported being able to respond and adapt to unforeseen changes in service delivery early in the COVID-19 pandemic, despite staff shortages, concern regarding exposure to COVID-19 and difficulties with telehealth setup.

As the number of centres that provided responses to the survey varied at different timepoints, future analyses will consider the determinants of responses over the course of the pandemic and in relation to subsequent waves of infection.

5. References

1. COVID-19 Weekly Epidemiological Update. World Health Organisation 17/01/2021.
2. Apicella M, Campopiano MC, Mantuano M, Mazoni L, Coppelli A, Del Prato S. COVID-19 in people with diabetes: understanding the reasons for worse outcomes. Lancet Diabetes Endocrinol. 2020;8(9):782-92.
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4. Smith AC, Thomas E, Snoswell CL, Haydon H, Mehrotra A, Clemensen J, et al. Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19). Journal of telemedicine and telecare. 2020:1357633X20916567.