

BMJ Open Quality **Decreasing appointment waiting days for first consultation for patients attending adult weight management clinic in a tertiary hospital**

Dypti Lulla ¹, Jeslyn Hwee Teng Neo,² Rui En Lynette Cheah,³ Zaiton Bte Soedar,⁴ Rukshini Puvanendran¹

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¹Family Medicine Service, KK Women's and Children's Hospital, Singapore

²Quality, Safety & Risk Management Department, KK Women's and Children's Hospital, Singapore

³Department of Specialty & Ambulatory Service, KK Women's and Children's Hospital, Singapore

⁴Department of Specialist Outpatient Clinic B, KK Women's and Children's Hospital, Singapore

Correspondence to

Dr Dypti Lulla;
Dypti.lulla@singhealth.com.sg

ABSTRACT

Adult weight management (AWM) clinic at our tertiary institution is a clinical service run for overweight or obese adult women, who are also under the care of gynaecologists for subfertility or menstrual irregularities. Unfortunately, the appointment waiting days for the first consultation at AWM clinic were long, which affected the timeliness of care given to our patients. We suspect that the referred patients are more likely to forget or lose motivation during the long waiting days, resulting in higher non-attendance rates.

Baseline data confirmed that average of median appointment waiting days for the first consultation was 74 days. A multidisciplinary team of weight management clinic stakeholders was created to address this issue. Following a root cause analysis, the team implemented two interventions to improve appointment waiting days. The first intervention was offering video consultation to new cases for AWM clinic. This increased the clinic capacity without requiring additional physical clinic space. The referral criteria were refined to target patients who are most likely to benefit from the services provided at our institution. The second intervention was creating AWM clinic appointments only after patients completed the required laboratory investigations for obesity workup. A run chart demonstrated average of median appointment waiting days decreased from 74 days to 34 days after implementation of the second intervention ($p=0.0104$). The team successfully decreased and sustained the lower appointment waiting days through innovative interventions that increased clinic capacity and improved patient selection, with the potential to further increase clinic capacity if the demand surges.

BACKGROUND AND INTRODUCTION

Prevalence of obesity is increasing worldwide, especially in the developed countries. Obesity presents a significant health burden on individuals in the form of cardiovascular disease, diabetes, chronic respiratory diseases, musculoskeletal diseases and cancers, among other associated health conditions.¹ This has implications on direct cost burden on the health-care system, as well as indirect socioeconomic

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Although obesity predisposes to significant health and socioeconomic burden, weight management clinics have poor attendance rates worldwide and this can result in long appointment waiting days for clinics.

WHAT THIS STUDY ADDS

⇒ Our study highlights the importance of teamwork, innovative problem solving and incorporating technology to improve work processes and provide timely care to patients. Since obesity management is dependent on patient motivation, we identified potential surrogate to their motivation and interest, and used it to improve our clinic utilisation and to decrease our appointment waiting days.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ We highlight the importance of directing our resources to improve patient convenience, streamlining processes to minimise multiple appointments and providing timely care to those patients who are most likely to benefit from our weight management services.

costs including reduced workforce and loss of productivity.²

There is good evidence that treating patients with obesity early in the disease course can prevent or delay complications.³ Unfortunately, weight management clinics worldwide experience poor attendance and poor weight outcomes. This is possibly because treatment of obesity and maintenance of weight loss requires motivation and commitment from patients. An Australian study, which aimed to determine patient characteristics associated with poor attendance and poor weight outcomes, was unable to identify any particular demographic risk factor for non-compliance. Results of the study demonstrated that nearly half the patients (46%) never scheduled their appointment after

referral and of those who scheduled their appointments, 17% did not attend and 28% attended less than half the scheduled appointments.⁴

Adult weight management (AWM) clinic at our institution is a clinical service run by Family Medicine Service for overweight or obese adult women, who are also under the care of our gynaecological service for subfertility or menstrual irregularities. Patients with a body mass index (BMI) of 25 or greater were offered referral to the AWM clinic during their gynaecology appointment and AWM appointments were booked immediately through the Online Administrative System (OAS) application if the patient was agreeable. The AWM clinic at our institution offers a multidisciplinary approach to weight management with the family physician as the primary coordinator of care. Dietitian, sports therapist and psychology support is arranged for patients, as needed, through referral from the weight management physician.

PROBLEM

The appointment waiting days for the first consultation at AWM clinics were as long as 2–3 months. This affected the timeliness of care given to our patients. This was compounded by the high non-attendance rate in the AWM clinic, resulting in wasted clinic resources and doctor's time. We suspect that the long appointment waiting days contributed to the non-attendance at the clinic as the referred patients possibly forgot or lost motivation before their appointment.⁵

PROJECT OBJECTIVE

Under the six domains of healthcare quality, the objective of this study is to provide timely care to patients by reducing appointment waiting days and improve efficiency through optimising the clinic slot utilisation. We aim to reduce the average of median appointment waiting days for the first appointment for patients referred to AWM clinic from 74 days (baseline) to 40 days in 12 months.

MEASUREMENT

For this study, we extracted appointment waiting days and attendance data from OAS and calculated the average of median appointment waiting days by week for the run chart. Overbooking to clinic template by physicians and postponing of first available appointments by patients were excluded, as they were special, ad hoc requests. The average of median appointment waiting days for first AWM consultation at our institution was 74 days. Comparing our appointment waiting days against the average appointment waiting days of 39.6 across Singapore hospitals,⁶ we set a realistic and attainable target of 40 days, which is more aligned with the national average appointment waiting days.

DESIGN

To address this issue of long appointment waiting days, we created a multidisciplinary team of weight management physicians, dietitians, patient service associates, enrolled nurse, clinic administrators and allied health.

The team identified possible causes of the long appointment waiting days, using the Ishikawa chart. Potential root causes were then ranked based on the number of votes following one round of multivoting and one round of weighted voting creating a Pareto chart (figure 1). The top five root causes were identified: insufficient manpower; patient preference for self-management; patient declined further evaluation; referral criteria not well defined and only physical consultation was available. 'Patient felt no need for referral' and 'staff unable to reach patient to confirm appointment' were excluded based on group discussion as these factors were difficult to control or intervene.

After identifying and prioritising the root causes for the long appointment waiting days, the team formulated potential solutions to decrease the waiting time for AWM first consultation, which were tested using the plan–do–study–act (PDSA) cycles as per the model of improvement by the Institute for Healthcare Improvement framework. The appointment waiting days were monitored and

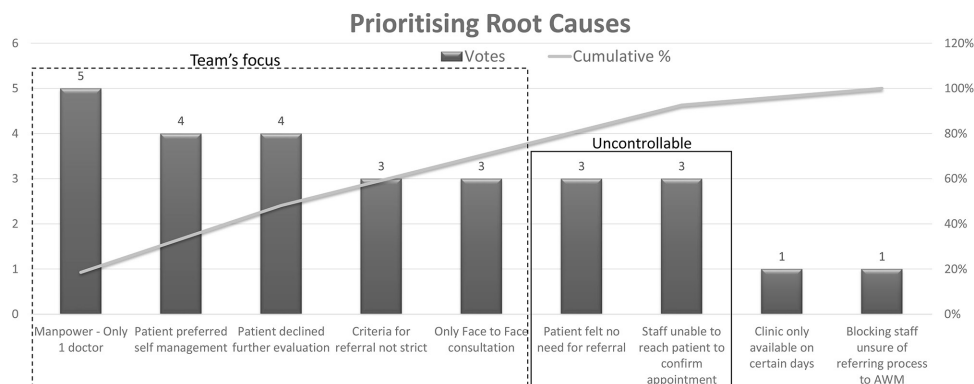


Figure 1 Root causes identified by the team were prioritised as demonstrated on this Pareto chart. The top five causes as highlighted in the dashed box were targeted using the interventions planned. AWM, adult weight management.

served as a guide and assisted in formulating additional interventions.

PATIENT AND PUBLIC INVOLVEMENT

The aim of project was designed around providing timely care to our patients. One of the suggested reasons for long appointment waiting days was patient non-attendance and wasted resources. Patient input was therefore needed to understand reasons for patient non-attendance and preference for treatment at our institution. The patient service associates conducted verbal surveys for patients requesting for appointment cancellations by inquiring their reasons for cancellation. Based on the information gathered through this survey, the team was able to further identify root causes for patient non-attendance and proceed with our Ishikawa and Pareto analysis. Patients commonly cited the following reasons for non-attendance: the patient was unaware of reason for referral or did not think the appointment was required, the patient wanted to try their own lifestyle changes to decrease their weight, the patient did not want to complete the required investigations, the patient was worried about the cost of services and the patient forgot their appointment dates. We also surveyed our patients after the introduction of interventions with regard to ease of use of teleconsultation, advantages and disadvantages. Patient feedback was generally positive. Primarily, patients preferred the convenience of teleconsultation that can be conducted from the comfort of their home or workplace without requiring medical leave or arranging alternative care arrangement for their dependents. They also appreciated the timeliness of the consult as scheduled teleconsultations tend to start and finish on time, thereby decreasing the waiting period in hospital waiting rooms, especially during the COVID-19 pandemic. Their feedback was an important determinant for continuation of the intervention.

INTERVENTIONS

PDSA cycle 1

The first intervention was trifold. The team increased the clinic capacity by increasing the number of providers from one to two and offered initial consultation sessions through video consultation using the Zoom platform. While telemedicine was previously limited to providing medical care to remote and rural communities, its role has expanded in recent times, especially during the coronavirus pandemic in 2019 to improve access to healthcare, improve quality and patient satisfaction. Telemedicine improves efficiency without higher net costs, reduces patient travel and wait times, and allows for comparable or improved quality of care. However, implementation of teleconsultation comes with barriers such as limited physical evaluation and examination, ethical concerns of data breach and confidentiality, and adoption of new technology and practice guidelines.⁷

The team also tightened the referral criteria for patients referred to the AWM clinic. Prior to this intervention,

any gynaecological patient, aged 18 years or above and with a BMI of 25 or greater, was referred to the weight management clinic. The revised referral criteria included restrictions by gynaecological conditions (only accepting patients with weight-related gynaecological complications such as irregular menses, polycystic ovarian syndrome or subfertility) and by BMI (only accepting patients with a BMI between 25 and 40), to be referred to our AWM clinic. Since we do not offer bariatric surgery at our institution, patients with a BMI of more than 40 were advised to seek consultation at a different weight management centre with an option for bariatric surgery so that they can discuss their treatment options comprehensively and are able to weigh their options before making a treatment decision.

We predicted that these interventions, targeting the lack of clinic capacity, would decrease the appointment waiting days for our patients. Implementation of these interventions required creating a new team for introduction of video consultations, educating and training this team on the new processes and use of video consultation, informing the referring physicians of the new criteria and streamlining the referral process to ensure the referral criteria were met. The referring physicians were responsible for taking consent for video consultation, and the patient service associates counselled the patients on the costs associated with the consultation and arranged the video consultation Zoom meeting link. Patients, who were not tech-savvy or did not have access to electronic devices, were provided the option for a physical consultation. The first intervention was implemented in May 2021 and outcomes were measured for 6 months from May 2021 to November 2021. Use of video consultation also allowed us to coordinate with the dietitian services and offer a seamless consultation with the physician and dietitian in the same setting. This additional service was only started in July 2021.

PDSA cycle 2

The second PDSA cycle prioritised patients who were more committed to attending our AWM clinic. A new workflow was created where the first AWM clinic appointment was assigned only after the patient completed the required laboratory investigations for obesity workup (figure 2). We predicted that this would select for patients who are willing to undergo required evaluation and wanted to be guided through the weight loss journey. Implementation of these interventions required creating a new workflow, a gatekeeper to ensure that all patients, who completed the investigations, were given a consultation appointment, and informing the referring physicians of the new workflow so investigations could be ordered prior to AWM consultations. The second intervention was implemented in November 2021 and outcomes were measured for 6 months from November 2021 to May 2022.

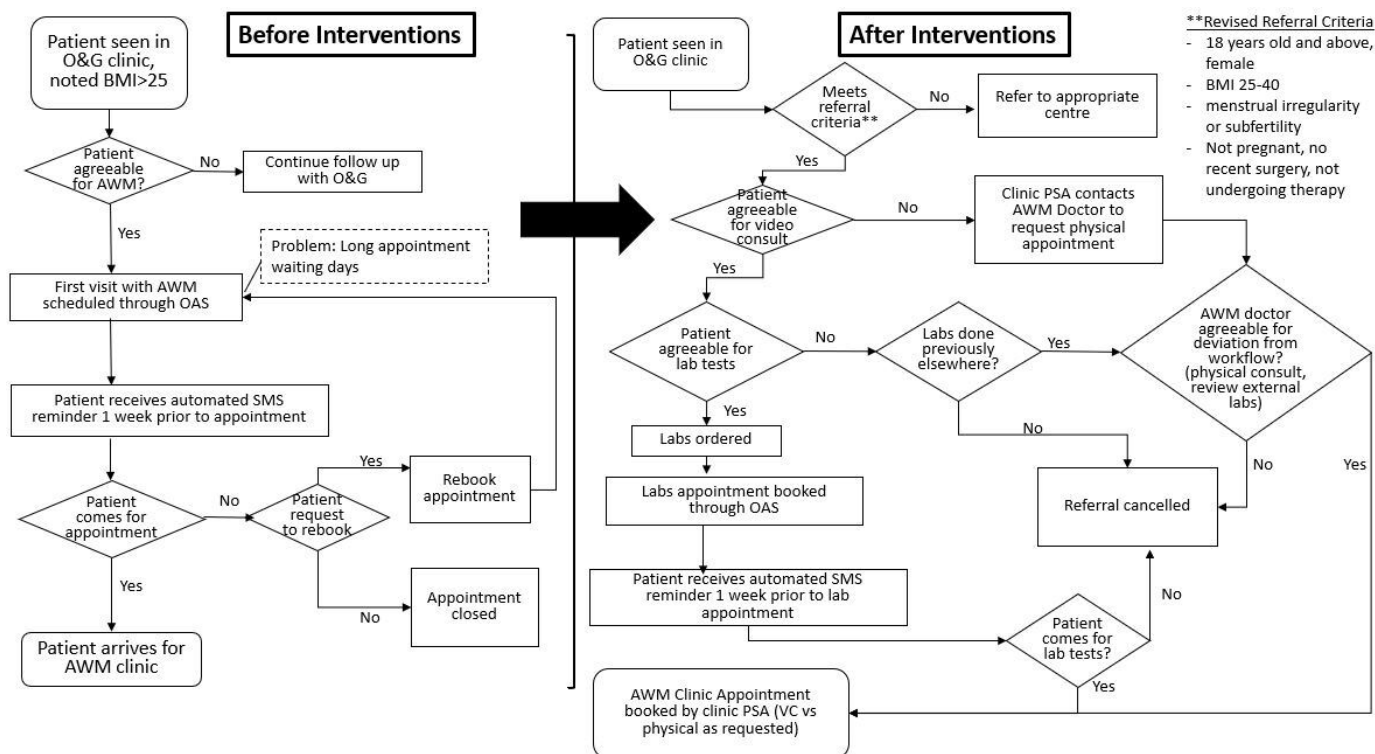


Figure 2 Changes in workflow: the workflow before implementation of interventions is noted on the left of the black arrow. The new workflow after the second intervention is shown on the right. The changes include revised criteria, steps to include video consultation and laboratory investigations prior to creating video consultation appointments into the workflow. AWM, adult weight management; BMI, body mass index; OAS, Online Administrative System; O&G, obstetrics and gynaecology; PSA, patient service associate; SMS, Short Messaging Service; VC, video consult.

RESULTS

PDSA cycle 1

Unfortunately, outcomes measured after first intervention did not demonstrate improvement in the average of median appointment waiting days. The average of median appointment waiting days, extracted from OAS, was found to be 78 days. However, patient feedback was generally positive, as the patients enjoyed the convenience of remote consultation from the comfort of their home or office. The intervention was retained but the team reconvened to discuss a second intervention to decrease appointment waiting days.

PDSA cycle 2

A run chart depicting average of median appointment waiting days, extracted from OAS after implementation of second intervention, demonstrated the average waiting days decreased to 34 days (figure 3). Our aim was achieved, with more than six successive data points below the baseline illustrating improvement, which was statistically significant. Sample t-test analysis confirmed significance ($p=0.0104$). Incidentally, we noted that the attendance rates for our video consultation clinics are higher at 76%, compared with 72% for face-to-face consultations, although this was not statistically significant ($p=0.81$).

ETHICAL CONSIDERATIONS

Teleconsultation security processes were reviewed by Telecare team to minimise risk of breach of confidentiality while setting up video consultation. Video consultations, used for the first consultation, also make it difficult to establish patient rapport. Doctors were trained in video communication skills to ensure the patient felt secure and heard, and a patient–physician relationship could be established and fostered during subsequent face-to-face consultations. Lastly, not all patients are able to adapt to technology use and as a result, we integrated an option for face-to-face consultation into our workflow to ensure the patient had an option for physical consultation.⁸

DISCUSSION

Our project aimed to improve the timeliness of care given to our patients. To achieve this, we had to expand our capacity while focusing our resources to those patients most likely to use and benefit from our services and successfully decreased appointment waiting days. Use of telemedicine enables us to increase clinic capacity if the demand for services increases. By ensuring patients complete the required evaluation prior to the consultation, we focus our care on patients who are interested in the interventions and can target their interventions from the first consultation.

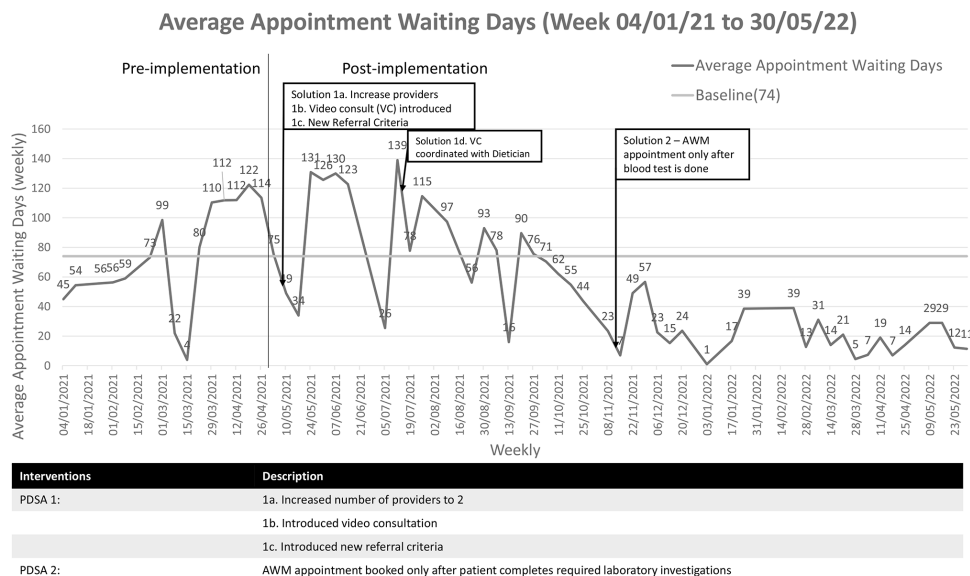


Figure 3 Run chart demonstrating the average median appointment days at baseline (74 days) and after implementing first and second interventions (34 days). AWM, adult weight management; PDSA, plan-do-study-act.

The multidisciplinary group was designed to work synergistically and each of the stakeholders provided a unique perspective to optimise our resources. The patient service associates provided patient perspectives and feedback based on verbal patient surveys. The clinic administrators extracted data required for analysis, assessed clinical resources needed to materialise our interventions and disseminated information to referring providers. The providers of healthcare reviewed referral criteria and required investigations based on their clinical expertise, and scheduled video consultation clinics based on availability. Active involvement and communication with all the stakeholders, along with the support received from the management, made it possible to pilot and implement our interventions.

We gathered verbal staff feedback during the team meetings and patient feedback through our patient service associates to assess favourability and feasibility after each intervention. In our process of improving timeliness of care, we were able to identify other patient preferences which may impact the compliance and attendance rate. Patient preference for teleconsultation was incorporated into the workflow even though the appointment waiting days did not improve after the intervention.

The implementation of the interventions faced many challenges, especially with regard to accepting video consultation as a first consultation option and training associated with it. The AWM team was receptive to a new mode of consultation, and underwent additional information technology training and overcame new challenges that came with teleconsultation. The patient service associates had additional tasks of setting up video consultations and following up with patients with regard to laboratory investigations, ensuring video consult capability, and required equipment and arranging follow-up appointments. Further interventions are required to

streamline backend processes to decrease this additional work for our clinic support staff.

LIMITATIONS

First, although we monitored the responses for 6 months after implementation of the first intervention, a longer period of assessing response may have demonstrated reduced waiting days as it would account for reduction in backlogged appointments before the interventions were implemented. However, this would have increased the time required for PDSA completion and therefore prolonged the project, in case a second intervention was required. The second limitation is the small number of appointments, which causes drastic fluctuations in case of physician unavailability and clinic closure. We attempted to overcome this limitation by extracting weekly data.

CONCLUSION

It is important to ensure that we are providing patients the best care in a timely manner. The AWM team successfully decreased the average median appointment waiting days for first consultation through evidence-based interventions, incorporating technology and modifying our workflow to suit our patient population and available services. We must continue to review our progress and ensure sustainability of our efforts. At the same time, we must ensure our employees are adequately trained and not overworked. Future interventions will focus on improving backend services to streamline the process.

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Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not required.

Ethics approval Institutional Review Board approval was not required for this audit and quality improvement project since no patient information was collected.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplemental information.

Author note The manuscript has been drafted based on SQUIRE guidelines for quality improvement projects.

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ORCID iD

Dypti Lulla <http://orcid.org/0000-0002-1105-9636>

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