Implementation of a Virtual Patient-Centered Weight-Loss Maintenance Behavior Competency Assessment in Adults with Obesity

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Abstract

Background: Evidence states 95-98% of individuals who undergo a diet for weight-loss purposes will gain back the weight within five years. *Local Problem*: No standardized method exists to assess weight-loss maintenance (WLM) behavior competencies in patients as they lose weight within a telehealth nutritional counseling private practice. Incorporating this assessment can be used to increase patient self-efficacy and predict a patient's likelihood of long-term weight success. *Methods*: Rapid cycle quality improvement using four plan-do-study-act cycles. Each cycle included tests of change related to team and patient engagement, implementation of a WLM assessment, and an audit adherence. Data were analyzed using run charts to evaluate the impact of interventions on outcomes. *Interventions*: The clinical team submitted a weekly WLM competency survey. A patient intake form was completed to identify behavior risks, followed by implementation of a WLM assessment in weekly follow-ups. A team adherence audit was completed and submitted every week. *Results*: Team WLM competency levels rose 32%, averaging at 82% at project conclusion. Completion of the patient intake form reached and held at 100% for the entire duration. Utilization of the WLM assessment peaked at 97%, correlating to increased behavior competence by 27.5% as he or she advanced. Team adherence gradually inclined, peaking at 100%. *Conclusions*: Patient screening forms and audit logs created a standardized process to collect, deliver, and better coordinate care. Findings suggest patients who embodied higher behavioral competence will have a greater likelihood of sustaining their weight results and become the successful 2-5% of weight maintainers.

Keywords: quality improvement, obesity, weight-loss, weight maintenance, behavior competency

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This country does not have a weight-loss problem, but rather a weight maintenance problem. The Centers for Disease Control and Prevention (CDC, 2017) stated that more than one-third (36.5%) of the United States population is considered obese; this exceeds the national proposed goal (< 30.5%) set out by Healthy People 2020 (2017). Additionally, obesity is expected to worsen over the next decade, as its linear trends are forecasted to hit 51% by the year 2030 (Finkelstein et al., 2012). Furthermore, Befort et al. (2008) established that 95-98% of individuals who undergo a diet for weight-loss purposes will gain back the weight within five years.

Focusing on the transition from active weight-loss to weight maintenance is often neglected in primary care. To master sustainable health behaviors, it requires deep reflection, recognition, application, and reinforcement of actions. However, there was no established method for the local practice in this study to assess patient competencies towards weight maintenance; in fact, 93% of the clinical team identified a strong need for this. A separate patient survey examined his or her ability to maintain weight autonomously: 45% were very confident, 39% felt somewhat confident, but collectively, 16% felt not to hardly confident. While this is a significant improvement compared to 95-98% (Befort et al., 2008) from national rates, this was seen as an opportunity to improve practice methods.

Available Knowledge

The principle outcome in obesity treatment is the health of the patient, which includes a multifaceted approach of appropriate screening, customized nutrition, physical activity, behavioral modifications, and ongoing support to promote adherence and permanence (Agency

for Healthcare Research and Quality [AHRQ], 2014; Garvey et al., 2016; Reeves, Biesemeier, Gee, Harper, & St. Jeor, 2014). The National Weight Control Registry has analyzed over 10,000 individuals who have lost and maintained their weight for a significant amount of time. They first summarized specific WLM behavior competencies, which have been adopted by national health and dietetic organizations (Thomas & Wing, 2009). Within these competencies are adaptive (emotional, cognitive, and motivational) and technical (dietary logging, exercise, nutrition education) modalities to master that must be tailored to the patient's goals, preferences, and values (2009). Doing so promotes greater patient self-efficacy.

Rationale

Addressing WLM behavior competence is integral to patient-centered care, which is among the six aims of healthcare defined by the Institute of Medicine (AHRQ, 2016). The framework provided by the WLM assessment served as a guideline for delivery of patient-centered care to promote self-efficacy. Patient-centeredness is already provided by clinicians through evaluation of one's weight and nutritional progress, in addition to discussion of potentially disinhibitory behaviors. However, simply becoming more active or eating healthier are not strong enough indicators by themselves to predict success; developing behavioral competence is critical in sustaining long-term results. Thus, the aim of this quality improvement (QI) project was to increase patient self-efficacy by 30%, by incorporating the team's perceived competence and implementation of a WLM behavior competency assessment among adults with obesity over a 90-day period.

Methods

The Diet Doc – Independence, LLC, is a telehealth nutritional counseling private practice located in northern Kentucky serving adults across their lifespans. It is aimed at implementing

sustainable, empirical health behavior competencies to prevent and manage obesity and its complications through affordable and accessible means. An advanced practice registered nurse, the sole proprietor, maintains daily operations of the low-volume practice. There are non-staff clinicians within the entire practice organization, spanning many health disciplines (medicine, dietetics, health psychology, exercise science, pharmacy), who work together virtually for collaborations, consultations, and referrals based on patient needs. Due to the business structure, seven non-staff clinicians participated in this QI project by utilizing their patient loads as if employed as healthcare providers of the practice. Among the provided services, complex health conditions such as diabetes, hypertension, dyslipidemia, and hypothyroidism were shared.

The QI project design consisted of four rapid plan-do-study-act (PDSA) cycles over 90 days. Each PDSA cycle was approached with tests of change and were categorized into team and patient engagement, as well as a WLM behavior competency assessment, and an adherence audit. A new cycle was modified and implemented every two weeks based on team and patient feedback and data findings.

Interventions

Team engagement included discussions of the project's interventions and performance, as well as education to incorporate different teaching methods of the WLM competencies. This included advanced preparation of videos and notes, with application of the teach-back technique. Interventions to improve patient engagement included an initial intake form used by the team for new patient consultations. This helped identify and stratify patient behavior risks, which assisted each clinician in developing a care plan. Clinicians then utilized a created mnemonic WLM behavior competency assessment during weekly patient follow-ups. This provided clinical prompts and questions to ask patients, which served as an opportunity to introduce, teach, or

reinforce specific WLM behavior concepts. A team audit summary was completed and submitted every week to collect data on patient consultations and verify WLM assessment compliance. Table 1 outlines each PDSA cycle and core interventions.

Study of Interventions

Quantitative data were gathered through two separate online 5-point Likert-surveys designed to evaluate team and patient WLM behavior competence. Initially, the team survey deadline was mid-week to promote urgency, but this created inconvenience because it did not correspond with other submission deadlines. Thus, survey submission was moved to end-of-week to coincide with the audit summary form. After weekly patient follow-ups, patients completed a WLM competency survey and the team collected and recorded results end of the week. Iterative changes and qualitative data were collected through open-ended questions on both surveys, and responses were used to supplement the quantitative data submitted. For team convenience, both the verifying intake form for new patients and use of the WLM assessment were incorporated into the audit summary form. Audit frequency started out at three days a week before expanding to five days midway through. Once submitted, audit forms and survey responses were transcribed onto a run chart to record data and graphing, and reviewed every two to three days.

Measures

Process measures shaped the steps to achieve the desired outcomes, whereas outcome measures represented the end result. These operational definitions are defined in Table 2, along with their respective core interventions and percentage baselines, goals, and results. A validated questionnaire (Benner, 1982; Self-determination Theory, n.d.a; Self-determination Theory, n.d.b) served as the team outcome measurement. The patient intake form offered baseline findings into

how competent a patient may feel towards development of specific WLM behaviors, which represented the patient engagement outcome measurement. After each weekly follow-up, the patient completed a validated WLM competency survey as the outcome measurement (1982; n.d.a; n.d.b). Clinician submissions of audit summaries verified adherence, which made up the outcome measurement. Team satisfaction of the project was used as the balancing measure. To ensure completeness and reliability of the data, inputted data entries were compared with audit summaries, and measurement definitions were kept consistent.

Analysis

Run charts were used for evaluation of data entries and cycle progression. Qualitative data collected through open-ended questions and one-on-one conversations were reviewed to gain insight on team and patient engagement progress. Any annotations from audit summaries were recorded onto the run chart measurements and spreadsheets of the respective clinicians each week. Once collected, they were analyzed to identify common cause or special cause variation and interpret runs and trends (Ogrinc et al., 2012). This doctoral QI project was excused from review by the Institutional Review Board at Frontier Nursing University because it did not qualify as human subjects research and met federal requirements. No outside funding was received for this project.

Results

Over time, interventions adapted to match the contextual needs of the team and patients. Beginning with team engagement, video teaching sessions were dispersed within a private Facebook group to accommodate for the clinicians' different time zones. This communication platform provided analytics to identify which clinicians viewed the content. At the end of every week, data were collected and plotted on a run chart to score clinicians' "attendance." While

there was no prior baseline percentage for attendance, the team's participation rose immediately to 75%, peaking at 90% midway through, and averaged 85% throughout the project. Before implementation of structured weekly teachings, team competency scores averaged at 50%. Teaching sessions evolved from weekly videos to PowerPoint slides and then to collaborative online video meetings for clinicians to teach-back their clinical methods. Utilizing teach-back as a learning modality to enhance understanding of the WLM competencies had the greatest impact on the team. Overall, competency levels demonstrated a 32% increase (mean 82%; range 75-89%).

While there were no baseline figures for utilization of the patient intake form, it rapidly reached 100% and remained constant throughout the project. As each PDSA cycle advanced, the intake form was modified to better collect pertinent information for both the patient and clinician. This involved adding new elements to the form, such as listing WLM concepts on the front page and developing a baseline patient competency score to identify primary focus areas. Because of the consultatory nature of the practice, documentation of patient behavior risk (mean 87%; range 60-100%) followed a wave-like pattern due to patient volume seen on particular days of the week (see Figure 1).

New patients first had to be onboarded into the program, which signified mixed use of the WLM assessment in cycle one, as it was not always applicable. Despite this, usage of the WLM assessment trended upward to an average of 84%, peaking at 97%. No baseline data existed. Once onboarded, one anticipated barrier for new patients was to remember or be willing to complete a weekly competency survey. To overcome this barrier, this task was transferred to the clinicians to avoid non-responses after cycle one. Early in the program, it was expected that patients would not have high knowledge of the WLM competencies, so it seemed logical for

clinicians to "grade" patients on a weekly scorecard and compare scores after follow-ups. The scorecard sought out the same information requested in the patient competency survey. Baseline WLM competency scores from prior patients averaged at 45%. From the 288 total participating patients in this project, competency scores demonstrated a 14% net increase (mean 43%; range 0-59%) (see Figure 2).

Team adherence to ongoing use of the WLM assessment ranged between 33-100%, averaging at 85%. Although the onboarding process initially influenced sample size, both widening the collection period to Monday through Friday and expanding patient inclusion criteria midway through enabled sample size to flourish. Because of these modifications, more frequent reminders were placed in the online forum to maintain audit summary adherence (mean 90%; range 63-100%). However, frequency of reminders elevated team fatigue according to the satisfaction survey. Scaling back to fewer reminders not only maintained team satisfaction averages well above 75%, it also demonstrated their ability to adhere to weekly tasks without as many ongoing prompts.

Discussion

The aim of this project was to increase patient self-efficacy by 30% in a 90-day period by incorporating the team's perceived competence and implementation of a WLM assessment. Utilization of the WLM assessment correlated to a 27.5% increased likelihood of a patient maintaining his or her weight (see Figure 3). This increase, along with more specific education and care to the patient, were the project strengths. Throughout the project, the team's participation rose sharply and averaged 85%, and correlated to similar findings when measuring their competency levels (mean 82%; range 75-89%). Completion of the patient intake form was 100% during the entire study, which served as a method to identify and quantify patient WLM

behavior risk, ranging between 60-100% with a mean of 87%. Utilization of the WLM assessment incrementally rose to a mean of 84%, peaking at 97%, and this was also seen among the patients' competency scores (mean 43%; range 0-59%) as they advanced. With increased patient volume and utilization of the assessment, continued team adherence of patient-centered care gradually increased from 33 to 100% in later cycles to help successfully complete the project.

Interpretation

Both the team and patients were the drivers that influenced results. After the initial onboarding process, WLM competency scores began to trend up as the ratio of established-to-new patients grew. With more established patients cycling forward, higher levels of competence were demonstrated. As patient volume maintained, the intake form was simply modified to better identify risk and continue collecting weekly results on the patient scorecard. Keeping the processes practical and simple to conduct, complete, and replicate carried over into patient care, which permitted for better teaching opportunities and more specific support. Increased behavioral competence reduces risk of regaining weight within a few years (Befort et al., 2008; Propst, 2015; Sorgente et al., 2017). One patient remarked, "This will be a true mentorship. The honesty, time to educate, optimism, sincerity to help *me*. I feel better already!" Another patient shared, "I'm impressed by the intensity of compassion to help me lose weight and understand how to keep it off."

Despite inherent challenges of virtual operations, open communication was critical for timely and effective teaching. Being able to stratify patient behavioral risks on intake forms enabled the clinicians to begin teaching and formulating a plan early in the process, along with providing patient-centered care with the WLM assessment during weekly follow-ups. Weekly

competency grading resulted in reinforcing the understanding, application, and overall competence of the WLM behaviors for both the team and patients. Throughout this project, the power of trust and collaboration was affirmed, and this is the essence of primary care.

Limitations

Since the study was conducted in a telehealth setting with a fairly small sample of 288 patients in a relatively short timeframe, integration of the WLM assessment cannot yet be generalized to other primary care practices. Had obesity prevalence remained constant at the 15% target suggested by Healthy People 2010, attributable medical costs savings would have totaled $1.9 trillion (Finkelstein et al., 2012). Because this program focuses on sustainability, local healthcare providers can collaborate and benefit from projections to implement a change in obesity treatment and management in order to better maintain patient results, improve success rates, offset medical expenditure, and help reduce obesity rates. One other limitation was potential team bias for the balance measure survey, which encouraged feedback on project logistics. While comments were overwhelmingly positive, it must be considered the team may have been reluctant to answer honestly due to personal feelings.

Conclusion

Implementation of the WLM assessment exhibited positive results with patient's demonstrating a 27.5% greater likelihood of maintaining weight loss, but the future will be the best determiner of long-term patient outcomes. As colleagues at The Diet Doc already embody these WLM principles, assessment continuation and sustainability remain high because it begins standardizing and simplifying the care process, which will lead to future QI projects. With recognition, repetition, and ongoing competency "grading," these tangible data metrics, coupled

with extensive care, can empower a patient to cultivate greater self-efficacy towards becoming the successful 2-5% of weight maintainers.

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Table 1

PDSA Cycles and Interventions

Focus	PDSA #1	PDSA #2	PDSA #3	PDSA #4
Team engagement	1) weekly virtual team meeting; 2) implement online team competency survey	Add midweek and end of week team meeting	Develop and disperse PPT slides for team meetings	Team to begin teach-back on the WLM competency behaviors
Patient intake form	Patient intake form to identify WLM behavior risks	1) WLM behaviors added onto intake form; 2) implement baseline competency scoring	Widen patient inclusion criteria for baseline scoring	Add "WLM Focus Areas" on intake form
WLM assessment	Implement WLM assessment	Implement weekly patient record to use with WLM assessment	Implement a weekly scorecard to document patients' scores	Continue weekly scorecard to document patients' scores
Adherence audit	Implement audit summary with data collection form on MWF	Expand collection period M-F for audits/form	Add in Tu/Th reminders to complete audits	Scale back to only MF reminders

Note. WLM = weight-loss maintenance; PPT = PowerPoint; MWF = Monday, Wednesday, Friday; Tu/Th = Tuesday/Thursday; M-F = Monday through Friday

Table 2

Project Measures and Results

	Core Intervention	Measure	Operational Definition	Baseline %	Goal %	Project Results % (mean)
AIM: Increase patient self-efficacy by incorporating the team's perceived competence and implementation of a WLM behavior competency assessment among adults with obesity over a 90-day period			Summation of average team and patient competency scores/# total scores	45%	**75%**	62%
Team engagement	Perform a team WLM competence survey	**Process**:	# team members attended meeting/# total number of team	0%	**90%**	85%
		Outcome:	Mean scores of Likert-scale on perceived team competence on WLM behaviors	50%	**80%**	82%
Patient intake form	Use created intake forms to assess and identify behavior development difficulty towards WLM competence	**Process**:	# of completed intake forms/# total patients consulted	0%	**95%**	100%
		Outcome:	# new patients ID'd for WLM risks/# total patients with completed intake assessment	0%	**90%**	87%
WLM assessment	Implement WLM assessment for patient follow-ups to evaluate nutritionally-related measures and WLM behavior competencies	**Process**:	# of assessments completed/# assessed patients that day	0%	**90%**	84%
		Outcome:	Mean scores of Likert-scale on patient WLM competency	45%	**75%**	43%
Adherence audit	Implement team adherence audit of WLM assessment use with patients throughout PDSA duration	**Process**:	# audits for WLM assessment use/# patients assessed/followed-up that day	0%	**90%**	85%
		Outcome:	# team members who completed audits/# total number of team	0%	**95%**	90%
Balancing Measure: Maintain clinician satisfaction with implemented changes			Mean scores of Likert-scale on team satisfaction	93%	**>75%**	82%

Note. WLM = weight-loss maintenance; ID'd = identified; PDSA = plan-do-study-act

Figure 1

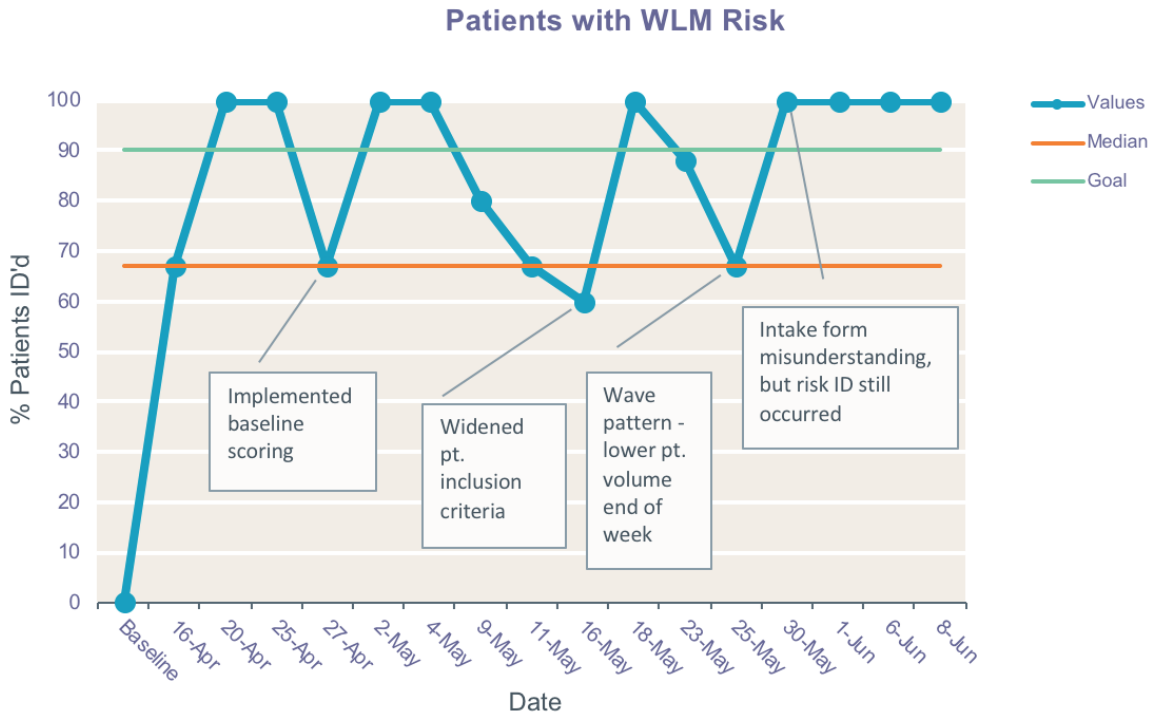

Figure 1. Initiating a baseline competency score allowed for clinicians to better utilize the WLM assessment in patient follow-ups to serve as a weekly snapshot of progress. Once patient inclusion criterion expanded, patient volume was more evenly dispersed throughout the week to consistently stratify patient behavior risk during consults and weekly follow-ups.

Figure 2

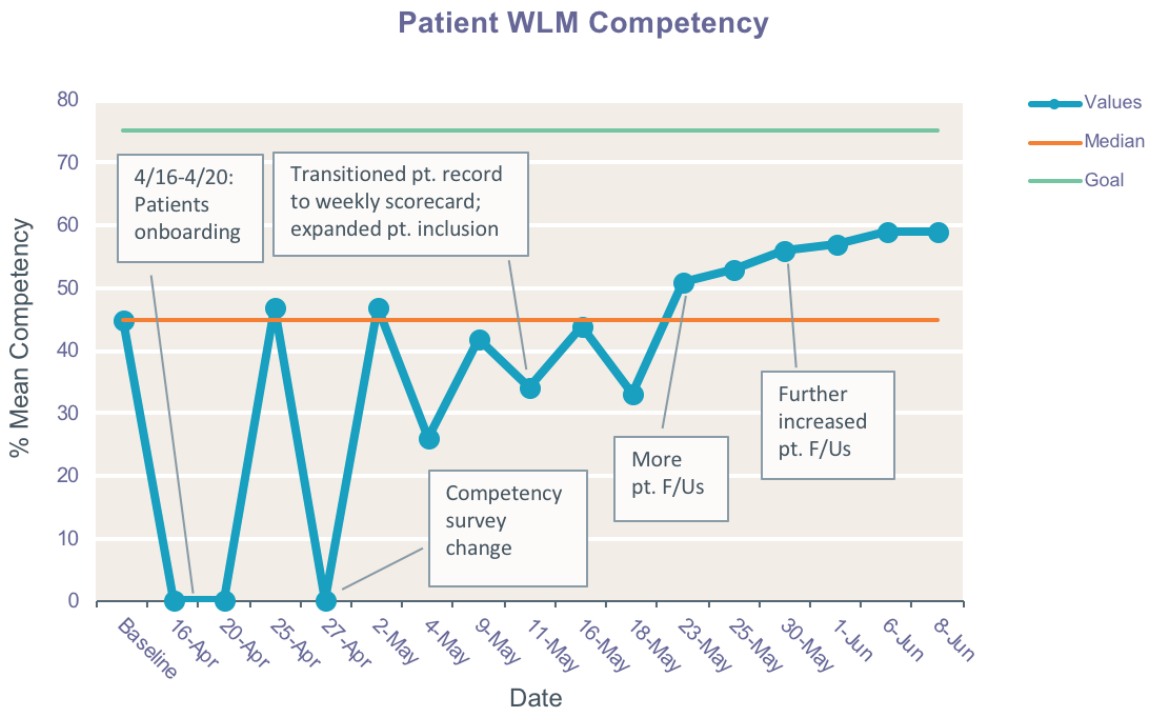

Figure 2. Once past the onboarding process, another hurdle was getting patients to complete a weekly competency survey as it related to the WLM assessment concepts. To bypass this, clinicians used a weekly scorecard to "grade" patients during follow-ups, and based on these updated scores the clinicians would refer to the WLM assessment as guidance with the patient in order to strengthen needed areas.

Figure 3

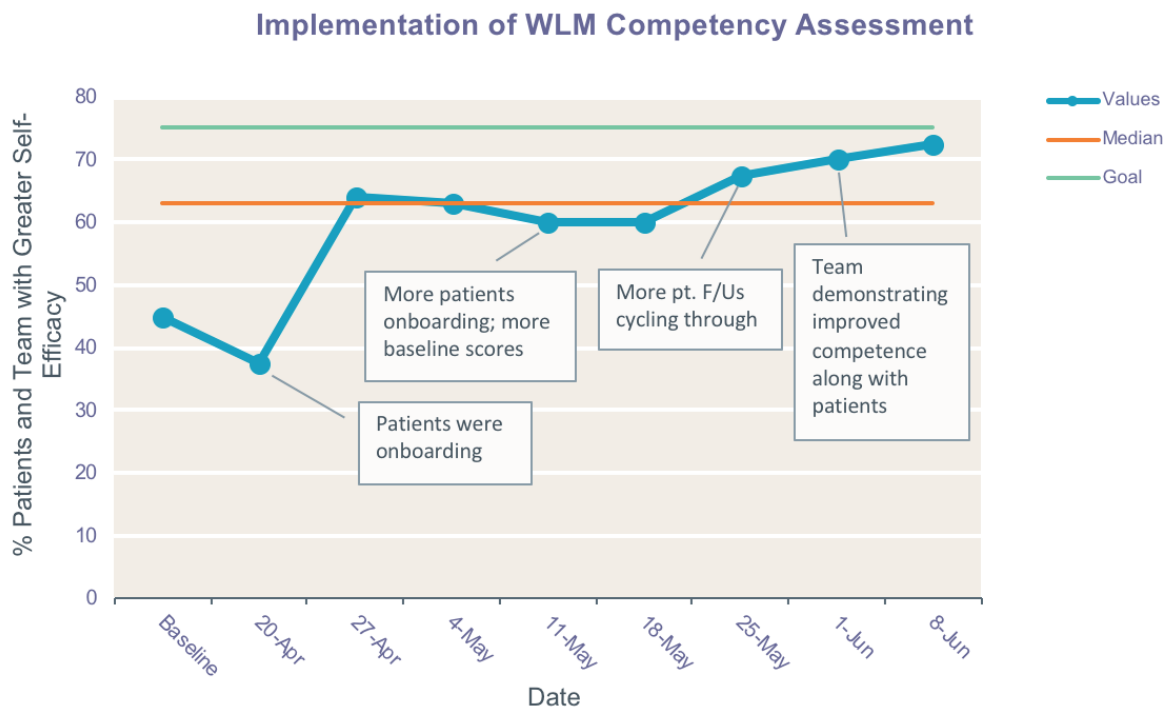

Figure 3. As patients were being "graded" on their WLM competence so were the clinicians' understanding on the concepts, and these averaged scores determined the aim. Each week composed of more established patients to new ones – ultimately more patient volume – and as a result, these improved scores (behavioral competence) over time climbed higher towards the aim.