

**Standardizing Patient Discussions Regarding Gestational Weight Gain in a Midwifery Practice: A  
Quality Improvement Project**

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## ABSTRACT

**INTRODUCTION:** Evidence shows that gestational weight gain outside of the Institute of Medicine guidelines can result in increased morbidity for the neonate and pregnant person. The aim of this QI project was to standardize CNM discussions surrounding GWG at the initial prenatal visit using the 5A's trauma informed interview framework and to bring awareness to weight-related bias using the Attitudes Towards Obese Persons (ATOP) and Beliefs About Obese Persons (BAOP) scales.

**METHODS:** This project took place at a collaborative CNM and OBGYN MD practice at a community hospital. During three Plan Do Study Act (PDSA) cycles, the CNMs were instructed to document if they utilized the 5A's interview framework in initial prenatal visits with patients in the electronic health record by using a "smartphrase". The ATOP and BAOP scales were administered to the CNMs a single time during the last PDSA cycle to bring awareness to weight-related bias.

**RESULTS:** During the third PDSA cycle, 85% of CNMs utilized the 5A's smartphrase in eligible initial prenatal visits, which did not meet the aim of 90%. The ATOP and BAOP surveys were not administered before the first PDSA cycle, which did not meet the specific aim of 100% completion of the surveys by CNMs before the first PDSA cycle. Out of seven eligible CNMs, four completed the ATOP and BAOP surveys (57%) at the end of the third PDSA cycle which did not meet the specific aim of 100% completion of the surveys by CNMs.

**DISCUSSION:** The CNMs were assessed for weight-related bias using ATOP and BAOP scales only one time, which limits the utility of survey completion as an outcome measure. Utilization of the dot phrase by CNMs was increased when reminder texts were sent the day before clinic and may have decreased when CNMs felt they did not have adequate time to discuss GWG using the 5A's prompts.

**CONCLUSION:** CNMs who provided feedback reported the 5A's framework was a useful addition to discussions about GWG, specifically the component which asked the patient for consent to discuss GWG. It may be useful to continue to encourage a standardized way to discuss GWG within the practice.

## INTRODUCTION

### Problem Description

Discussions of weight gain, nutrition, and exercise during pregnancy are important topics that should be addressed in a therapeutic manner in prenatal care. The National Academy of Medicine (NAM), formerly the Institute of Medicine (IOM), sets guidelines for gestational weight gain (GWG) based on patient body mass index (BMI) (Goldstein et al., 2017; Li et al., 2015; Rogozińska et al., 2019). These guidelines are grounded in evidence that GWG outside of the NAM recommendations is associated with adverse outcomes for both pregnant people and infants including preterm birth, small for gestational age (SGA), large for gestational age (LGA), cesarean delivery, and possibly an increased risk for gestational diabetes mellitus (GDM) (Rogozińska et al., 2019; Sun et al., 2020). Despite the implementation of the NAM GWG recommendations in pregnancy care, research has found that up to two-thirds of pregnant people gain weight outside these recommendations (Rogozińska et al., 2019).

In addition to this problem, pregnant people report feeling dissatisfied and traumatized by how GWG, nutrition, and exercise are discussed in pregnancy by care providers (Bombak et al., 2016; Lauridsen et al., 2018; Nagpal et al., 2021). Weight stigma by pregnancy care providers directly contributes to patient dissatisfaction with conversations of GWG and can have detrimental effects on patient's long-term health outcomes (Chrisler & Barney, 2017; Mcphail et al., 2016, Puhl et al., 2020). Research consistently demonstrates that pregnant patients desire non-judgmental discussions about GWG (Bombak et al., 2016; Lauridsen et al., 2018; Nagpal et al., 2021).

Certified nurse-midwives (CNMs) in a mid-sized suburban community hospital in the Pacific Northwest are interested in standardizing conversations about GWG with pregnant patients. The purpose of this quality improvement project was to assess the presence of weight-related stigma among midwifery providers and standardize CNM/patient discussions about GWG in pregnancy.

## Available Knowledge

Birthing people with gestational weight gain (GWG) above the NAM recommendations are at increased risk for cesarean delivery and having infants who are large for gestational age; those who have GWG below the NAM recommendations are at increased risk for preterm delivery and small for gestational age (SGA) infants (Rogozńska et al., 2019; Sun et al., 2020). The conditions associated with poor outcomes include infant hypoglycemia, infant respiratory distress, infant failure to thrive, altered infant neurodevelopment, shoulder dystocia, deep vein thrombosis in the pregnant person, and maternal infection, making primary prevention a key component of pregnancy care (Donnelly et al., 2015; Ream et al., 2018; Rogozńska et al., 2019; Sun et al., 2020).

Though the risks of GWG outside the NAM recommendations are clear, the way in which providers discuss GWG has the potential to cause harm to pregnant patients. One barrier to trauma-informed conversations about GWG, nutrition, and exercise in pregnancy is weight stigma. Weight stigma directed at people with larger bodies is prevalent in the United States, with one qualitative study finding that 44% of adults surveyed reported negative bias against those in larger bodies (Puhl et al., 2018). Qualitative research has demonstrated that healthcare providers in the United States, including pregnancy care providers, are capable of perpetuating weight stigma when caring for people with larger bodies (Chrisler & Barney, 2017; Mcphail et al., 2016, Puhl et al., 2020). Stigmatizing behaviors can include assuming overweight and obese pregnant patients have a lack of self-discipline and willpower, are uninterested in medical treatment to improve their health, and are knowingly endangering their pregnancies (Chrisler & Barney, 2017; Mcphail et al., 2016, Puhl et al., 2020). Not only are these assumptions incorrect and harmful, but weight stigma from healthcare providers directly harms pregnant patients and is associated with decreased prenatal care visits, increased levels of anxiety and depression, increased binge eating disorder symptoms and subsequent weight gain, increased risk for type 2 diabetes mellitus, and increased markers of stress and inflammation (Chrisler & Barney, 2017;

Hodgkinson et al., 2017; Wu & Berry, 2017). Patient-centered frameworks for discussing GWG in pregnancy are necessary to give providers tools to discuss GWG in a trauma-informed way, thereby decreasing patient's exposure to weight stigma.

Weight stigma among pregnancy care providers can be measured by validated tools including the Attitudes Towards Obese Persons (ATOP) scale and the Beliefs About Obese Persons Scale (BAOP). The ATOP scale is a commonly used tool that assesses participant attitudes toward and perceptions about people with obesity. The scale consists of 20 items and is a 6-point Likert rating scale. Participants are asked to rate their opinion about a statement from strongly disagree (-3) to strongly agree (+3) (Appendix C). A higher score is associated with more positive attitudes towards those with obesity and a lower score is associated with more negative attitudes (Allison et al., 1991; Cheng et al., 2018; Oliver et al., 2020). The reliability range of the ATOP scale is 0.76-0.84 in adult populations (Allison et al., 1991; Cheng et al., 2018).

The BAOP scale is administered in conjunction with the ATOP scale and assesses participants' beliefs regarding whether obesity is a factor that is within an individual's control. This scale is also a 6-point Likert rating scale and contains 8 items. Like the ATOP scale, participants are asked to rate their opinion about a statement from strongly disagree (-3) to strongly agree (+3) (Appendix D). A higher score indicates a weak belief that obesity is a factor that an individual can control while a lower score indicates a strong belief that obesity is a factor that an individual can control (Allison et al., 1991; Cheng et al., 2018; Oliver et al., 2020). The reliability range of the BAOP scale is 0.65-0.82 in adult populations (Allison et al., 1991).

Though the ATOP and BAOP scales were not developed specifically to assess healthcare provider attitudes and beliefs towards people with obesity, both scales have been widely utilized in research assessing healthcare provider weight-related bias (Christenson et al., 2020; LaCroix et al., 2017; Oliver et al., 2020; Poustchi et al., 2013). In a systematic review of weight bias self-report questionnaires,

researchers analyzed 40 weight-bias surveys and assigned them various psychometric quality ratings based on psychometric strength data from experts in the field, guidelines for scale development, and previous systematic reviews on this topic (LaCroix et al., 2017). The researchers rated each survey on the internal consistency, test-retest reliability, theoretical clarity, content validity, structural validity, convergent validity, discriminant validity, and sensitivity to change (LaCroix et al., 2017).

The researchers found that the ATOP survey had adequate internal consistency ( $\alpha \geq 0.70$ ), theoretical clarity, content validity, structural validity, convergent validity, and sensitivity to change but did not meet the requirements for test-retest reliability ( $r \geq 0.70$ ) or discriminant validity. Additionally, the authors found that the BAOP survey had adequate internal consistency ( $\alpha \geq 0.70$ ), theoretical clarity, content validity, and convergent validity but did not meet the requirements for test-retest reliability ( $r \geq 0.70$ ), structural validity, discriminant validity, and sensitivity to change.

Test-retest reliability refers to the tendency of an instrument to produce similar scores in the same individuals on different occasions and is important to consider when assessing a population pre- and post-intervention. Though neither the ATOP nor BAOP surveys met the requirements for test-retest reliability, 37/40 surveys examined also did not meet the requirements, demonstrating the widespread weakness of most weight-bias questionnaires in this area. Despite this weakness, both the ATOP and BAOP scales have been utilized in healthcare settings to assess for pre- and post-intervention weight-related bias in health care provider populations (Oliver et al., 2020; Poustchi et al., 2013). This widespread use strengthens applicability of the ATOP and BAOP to healthcare provider populations when assessing for bias before and after an intervention.

The ATOP and BAOP are both appropriate tools for measuring the degree of weight stigma in healthcare providers and are associated with decreased weight-related bias when paired with interventions that educate participants about the complex origins of obesity (Christenson et al., 2020; Oliver et al., 2020; Poustchi et al., 2013). This evidence, in addition to strong internal consistency,

content validity, relatively short number of survey items, and ease of scoring make the ATOP and BAOP appropriate tools for assessing weight-related bias in the healthcare setting.

Discussions about GWG can be improved by utilizing evidence-based, trauma-informed frameworks such as the “5A’s” framework. The 5A’s framework is a validated interview and behavior change framework for healthcare providers to implement when discussing exercise, nutrition, and GWG during the antepartum period. This tool has proven to be helpful when discussing weight gain in the clinical setting and is associated with increased follow-up visits from patients, increased patient satisfaction, and improved provider attitudes toward people living in larger bodies (Luig et al., 2020; Rueda-Clausen et al., 2014; Washington Cole et al., 2017).

The original 5A’s framework consists of five steps (“Assess, Advise, Agree, Assist, and Arrange”) for providers to address behavior change with patients and was developed to aid patients in smoking cessation (Washington Cole et al., 2017). This framework has been adapted by the Canadian Obesity Network specifically to discuss GWG utilizing a trauma-informed care framework; the 5A’s were altered to include “Ask, Assess, Advise, Agree, and Assist” (Vallis et al., 2013; Weeks et al., 2020). Trauma informed care refers to a therapeutic approach to health care that involves implementing patient-centered communication with a focus on reducing re-traumatization of patients (Raja et al., 2015). The use of the 5A’s framework centers patient preferences when discussing GWG and is associated with increased follow-up care and greater satisfaction with care (Vallis et al., 2013; Welzel et al., 2018).

The purpose of the Canadian Obesity Network’s adaptation of the 5A’s framework is to 1) Ask the patient for permission to discuss weight gain in pregnancy 2) Assess the patient’s BMI and pregnancy weight gain 3) Advise the patient on NAM GWG recommendations 4) Agree on patient behavior goals and plan of action, and 5) Assist the patient in achieving their personal goals (Weeks et al., 2020).

In an observational study examining the effect of the 5A's framework on GWG, researchers found that the use of any two of the 5A's without the additional three was associated with significantly decreased weight gain compared to those who did not receive counseling using the 5A's (N=120,  $p=0.001$ ; Washington-Cole et al., 2017). Additionally, these researchers found that participants who received counseling with a single component of the 5A's had decreased odds of exceeding the NAM recommendations for GWG (N=120,  $p<0.05$ ; Washington-Cole et al., 2017).

A quasi-experimental study found that when providers used the Canadian Obesity Network 5A's framework, there was a significant increase in the number of visits during which patients were asked if they would like to discuss GWG (Ask) (N=100,  $p=.047$ ) as well as an increase in subsequent discussions of GWG (Advise) (N=100,  $p=0.03$ ) when compared to discussions that did not include the 5A's framework (Weeks et al., 2020). "Ask" and "Advise" were utilized most consistently in this study, with only a small percentage of providers utilizing all five of the 5A's in their discussions; the authors speculate this was due to time limitations during clinic visits. Despite this limited implementation, the "Ask" and "Advise" components proved helpful in facilitating discussions surrounding GWG (Weeks et al., 2020).

The utilization of the 5A's framework is associated with increased patient adherence to NAM recommendations for GWG and provides a standardized and trauma-informed way for providers to discuss exercise and nutrition in pregnancy.

## **Rationale**

The Model for Improvement as outlined by the Institute for Healthcare Improvement (IHI) is a framework within which quality improvement (QI) projects can be designed, adapted, and executed (Institute for Healthcare Improvement, 2021). The Model for Improvement contains two main components, the first of which asks the following fundamental questions: "setting aims: *what are we trying to accomplish?*", "establishing measures: *how will we know that a change is an improvement?*", and "selecting changes: *what change can we make that will result in improvement?*" (Institute for



Healthcare Improvement, 2021). The second component is the implementation of Plan-Do-Study-Act (PDSA) cycles which serve to evaluate and adapt quality improvement projects in the healthcare setting (Institute for Healthcare Improvement, 2021). Several PDSA cycles are executed when implementing a quality improvement project, allowing for timely adjustment to the healthcare environment and encouraging sustainable change. The implementation of PDSA cycles is associated with workplace improvements in the healthcare setting (Knudsen et al., 2019).

When the Model for Improvement is applied in the clinical setting, the fundamental questions aid in designing the interventions and the PDSA cycles provide an evidence-based way to apply and refine said interventions (Institute for Healthcare Improvement, 2021; Knudsen et al., 2019). For this QI project, two full time CNMs in the practice were interviewed about the ways they discuss GWG, exercise, and nutrition with patients and if they ever had been assessed for weight-related bias. The CNMs reported there was no standardized way in which they discussed GWG, exercise, and nutrition in pregnancy and that they had not had their weight-related bias assessed. A fishbone diagram was created following these conversations, outlining perceived stakeholder barriers to standardizing patient discussions surrounding GWG (Appendix A). This analysis directly informed the interventions that will be executed in the PDSA cycles.

Trauma-Informed Care (TIC) is an approach to patient care based on the understanding that most patients have a history of traumatic life events and that modifying how healthcare is delivered can reduce re-traumatization and harm in these patients (Raja et al., 2015). Applying TIC can be separated into two components: universal trauma precautions and patient-centered communication and care. Universal trauma precautions involve modification of provider behavior to focus on patient consent and the knowledge that most patients have a history of trauma (Raja et al., 2015). Patient-centered communication involves applying communication techniques that center patient preferences and context while simultaneously building trust and rapport between patients and providers (Raja et al.,

2015). Discussions of GWG have the potential to be traumatizing for patients due to provider weight stigma and a lack of consideration of patient goals. A standardized, patient-centered framework in which to discuss GWG with patients satisfies both components of TIC and has the potential to reduce patient harm (Raja et al., 2015; Weeks et al., 2020). The Canadian Obesity Network's 5A's framework is a patient interview technique based on principles of TIC and consists of five interview steps: "Ask, Assess, Advise, Agree, and Assist". Utilization of the 5A's by pregnancy care providers has been shown to result in decreased GWG and increased patient satisfaction when discussing weight gain, nutrition, and exercise in pregnancy, making it an appropriate framework to implement (Vallis et al., 2013; Weeks et al., 2020; Washington-Cole et al., 2017).

### **Specific Aims**

The aim of this quality improvement project was twofold: to provide a trauma-informed and standardized way for CNMs in this practice to discuss GWG with patients using the 5A's framework and to bring CNM awareness to weight stigma by assessing CNM weight-related bias using the ATOP and BAOP scales.

There were three specific aims for this project: 1) Before the first PDSA cycle began, 100% of CNMs employed at full time equivalents (FTEs) working in the outpatient clinic would complete the ATOP and BAOP weight-related bias self-assessments. 2) In the third PDSA cycle, CNMs working in the outpatient clinic would utilize a 5A's GWG smart phrase in the electronic health record (EHR) in 90% of relevant initial prenatal visits. A smartphrase or "dot phrase" is a shortcut available through the EHR that allows pre-written text to be inserted into provider notes. 3) By the end of the third PDSA cycle, 100% of CNMs employed at FTEs working in the outpatient clinic will have completed the post-intervention ATOP and BAOP scales.

## METHODS

### Context

This quality improvement project took place in the outpatient clinic within a mid-sized suburban community hospital in the Pacific Northwest. The clinic utilized a collaborative practice model and was staffed eight CNMs employed at full time equivalents (FTEs) which included the midwifery practice manager, one per diem clinic CNM, four full-time obstetrician gynecologists (OBGYN MDs) which included a physician practice manager, one registered nurse, three medical assistants, one office manager, four front desk personnel, and various numbers of student midwives.

This collaborative practice was formed within the last three years and underwent major staff and administration changes during the time this QI project was implemented. In the collaborative practice model, OBGYN MDs and CNMs jointly manage patients. In this practice, patients defaulted to CNM primary management for pregnancy care. CNMs openly communicated with OBGYN MDs about patient conditions and care management plans without the need for a formal consultation. Due to joint management, CNMs cared for patients with higher acuity than is possible in independent CNM practice. Though rare, patients who preferred physician care or who experienced complex complications of pregnancy that required physician management were seen exclusively by OBGYN MDs.

Three new CNMs employed at FTEs and a new midwifery practice manager were oriented less than three months before this project started. Due to staff onboarding and the novelty of the practice, the team of CNMs and OBGYN MDs were still negotiating how to collaboratively manage and communicate about antepartum care amongst the different services within the practice.

Based on data collected the year before this project was implemented, the collaborative practice saw an average of 143 patients per week in the outpatient clinic. The hospital had an average of 27 births per month which included births from the family practice physicians, the collaborative practice, and providers from a practice with delivery privileges. Most patients seen in the outpatient clinic had

Medicaid health care coverage; the second and third most common plans patients used were managed care and private insurance, respectively. The racial demographics of the patient population in the collaborative practice clinic in 2021 were as follows: 77.5% white, 1.4% American Indian/Alaska Native, 5.8% Asian, 2.6% Black, 0.08% Native Hawaiian, 0.5% Other Pacific Islander, with 9.7% declined to disclose, and 0.4% Unknown. The ethnic groups of patients served by the clinic in 2021 included 26.3% patients who identified as Hispanic and 63.5% who identified as non-Hispanic, with 3.7% of patients declined to disclose, and 0.3% of patients classified as unknown.

While the QI project was being implemented, OBGYN MDs and two of the CNMs were responsible for conducting the majority of early pregnancy assessment clinic (EPAC) visits. The EPAC visit consisted of a first trimester ultrasound, decision making on whether to continue the pregnancy, and a discussion of the types of genetic screening available. An EPAC visit was not indicated or offered to patients who transfer to the practice in the second trimester.

At the time this QI project occurred, the CNMs were responsible for conducting the majority of initial prenatal visits. Initial prenatal visits took place when a patient began their early pregnancy care with the clinic or when patients transferred to the clinic later in their pregnancy. These were conducted several weeks after the EPAC visit if the patient presented for care in their first trimester. Only initial prenatal visits when patients were  $\leq 28$  weeks of gestation were included in this quality improvement project. The MAs were responsible for rooming the patients and obtaining their weight before the initial prenatal visit with the CNM began. In the initial prenatal visit, the CNM had 40 minutes to discuss the collaborative practice model, student involvement in patient care, when to schedule visits, exercise, nutrition, GWG, patient medical and surgical history, common complaints of pregnancy, conduct a focused physical exam, and generate a plan of care with the patient. The CNMs utilized a standardized initial prenatal visit note template in the EHR to document these encounters. The standardized initial prenatal visit note template was developed in collaboration with the OBGYN MDs and was implemented

at the same time as this QI project. The OBGYN MDs occasionally conducted initial prenatal visits when the CNM schedule could not accommodate the visits due to clinic volume.

### **Interventions**

Three PDSA cycles were conducted during the QI project. The first two PDSA cycles were three weeks in length, and the last PDSA cycle was four weeks in length.

Before the first PDSA cycle, an email was sent out to the CNMs that described the QI project that would take place over the next 10 weeks. A link to a 10-minute voice over slide deck presentation describing the QI project and the 5A's model for discussing GWG was included in the email.

A 5A's GWG smartphrase (dot phrase) was created through the EHR for CNMs to document the use of the 5A's framework during initial prenatal visits (Appendix B). Providers were instructed to use the 5A's dot phrase to document patient goals and preferences in the initial prenatal note if the 5A's GWG discussion took place. If providers did not discuss GWG using the 5A's framework with patients, they were instructed not to include the 5A's dot phrase in the initial prenatal note. A laminated hard copy of the 5A's dot phrase was placed in each patient room in the clinic for CNMs to reference for the discussion in case they did not open the EHR during the initial prenatal visit. A folder with printouts of slides from the voice-over presentation, a summary of the project, and extra copies of the printed 5A's dot phrase was created and placed in the CNM office.

Originally, the ATOP and BAOP surveys were scheduled to be administered before the first PDSA cycle and after the completion of the third PDSA cycle. An almost identical DNP "sister" project was taking place simultaneously at a CNM practice within the same academic institution where many of the CNMs at the site practice also worked. Several of the CNMs who were supposed to be surveyed took the ATOP and BAOP surveys with the sister project before the same surveys had been sent out for this QI project. Discussions with the chair and director of the sister project led to the decision to not survey the CNMs before the first PDSA cycle for this project. Instead, the decision was made to send the ATOP and BAOP surveys to the CNMs one time, with the goal to bring awareness to individual weight-related bias.

During the first PDSA cycle, CNMs were sent reminder texts the night before clinic shifts to use the 5A's dot phrase. An email was sent out during the second week of the first cycle that asked for feedback and suggestions for PDSA cycle two. CNMs reported they did not know where in the newly implemented initial prenatal note template to insert the 5A's dot phrase. They also reported they were having trouble remembering the BMI and weight gain target areas to discuss with patients. The CNMs requested more resources to share with patients regarding GWG.

During the second PDSA cycle, the CNMs were instructed to insert the 5A's dot phrase under the diet and nutrition section of the initial prenatal note template. The 5A's dot phrase was amended to include BMI and weight gain target ranges. CNMs were encouraged to phrase questions relating to the 5A's in a way that made sense for them. A dot phrase was added with nutrition resources for CNMs to share with patients. An email was sent out in the second week of cycle two and asked for CNM feedback. The CNMs requested that texting reminders be stopped during the third cycle and asked for more culturally appropriate nutrition resources to offer patients. Additionally, they asked if the 5A's dot phrase could be used at other visits, as they felt they did not have adequate time to have in-depth discussions about GWG when many other topics had to be covered in the initial prenatal visit.

During the third PDSA cycle, the CNMs were informed to keep using the 5A's dot phrase during the initial prenatal visit only. After consulting with the CNM practice manager, no culturally-congruent nutrition resources were provided. The practice manager reported the need for the development of standardized education materials between the OBGYN MDs and CNMs in the practice.

In the third week of the third cycle, ATOP and BAOP surveys were sent out to eligible CNMs to complete. In the email with a link to the surveys, the purpose of the surveys was outlined along with an explanation of why they would only take them once. The email also asked the CNMs to share any feedback about the surveys and if they were helpful.

### **Study of the interventions**

A weekly chart review of the EHR for initial prenatal visits by CNMs for patients  $\leq 28$  weeks was performed. Following the chart review, visits in which the 5A's dot phrase was used, the total number of visits that qualified for dot phrase use, and the percentage eligible visits where the dot phrase was used were documented in a spreadsheet.

The ATOP and BAOP surveys were sent out during the third week of the third PDSA cycle. The individual and average scores were calculated using the scoring instructions in the literature (Appendix E) and were recorded in a spreadsheet. The total number of CNMs eligible to take the surveys and the number of CNMs who took the surveys were recorded in a spreadsheet.

### **Measures**

The process measure was the frequency in which the CNMs utilized the 5A's dot phrase at eligible initial prenatal visits. The outcome measure was the percentage of CNMs that completed the ATOP and BAOP surveys.

### **Analysis**

The number of CNMs who completed the ATOP and BAOP surveys and the number of CNMs who were eligible to complete the surveys were represented in a bar graph. ATOP and BAOP individual scores and the average score on each survey were calculated and represented in bar graphs.

The week of the PDSA cycle and the percentage of eligible initial prenatal visits in which the 5A's dot phrase was used were recorded and represented in a line graph.

### **Ethical Considerations**

A request of determination was submitted to the Internal Review Board who concluded that this project was not research. The confidentiality of CNMs and patients were maintained. None of the 18 personal identifiers were collected. The scores of the ATOP and BAOP surveys were anonymous. The author had no conflict of interest or financial relationships to disclose.

## RESULTS

During the third PDSA cycle, CNMs utilized the dot phrase in an average of 85% of eligible visits, which did not meet the specific aim of 90% during PDSA cycle three. The ATOP and BAOP surveys were not administered before the first PDSA cycle, which did not meet the specific aim of 100% completion of the surveys by CNMs employed at a FTE before the first PDSA cycle. The ATOP and BAOP surveys were administered in the third week of the third PDSA cycle. Out of seven eligible CNMs, four completed the surveys (57%) which did not meet the specific aim of 100% completion of the surveys by CNMs employed at an FTE.

The average score on the BAOP survey was 33. The individual scores were 28, 33, 35, and 42 (Figure 1). BAOP scores can range from 0-48, with a higher score indicating a stronger belief that obesity is not under the person's control. Both average and individual CNM scores were above the median possible score. The CNMs who completed the surveys demonstrated stronger beliefs that obesity is not under the control of the affected individual. This reflects a potential understanding by CNMs of the complexity of body weight and the relationship to individual control.

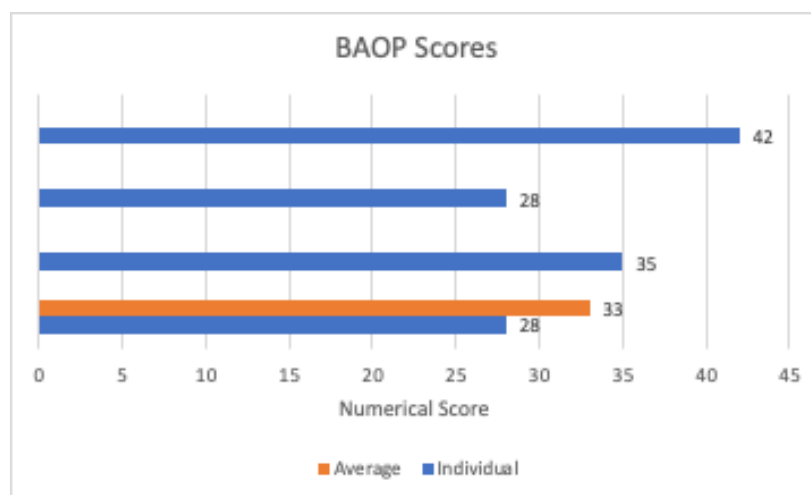


Figure 1

The average score on the ATOP survey was 93. The individual scores were 71, 96, 97, and 106 (Figure 2). ATOP scores can range from 0-120, with higher scores indicating more positive attitudes



towards obese persons. The individual and average CNM scores remained above the median possible score, indicating the CNMs had more positive attitudes towards obese persons. This may reflect less weight-related bias in the CNMs who completed this survey.

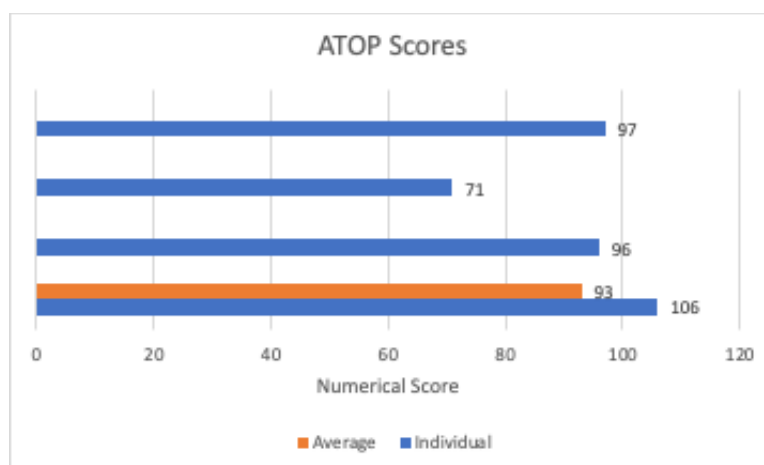


Figure 2.

Of the eligible CNMs, 57% completed the ATOP and BAOP surveys during the third PDSA cycle (Figure 3). The survey results from this limited sample are helpful, but the beliefs and attitudes illustrated by the results cannot be applied to the CNMs who did not complete the surveys. The links to the surveys were sent out only once; a second reminder email may have been helpful in recruiting more CNM participation in the surveys. Additionally, the percentage of eligible CNMs that completed the surveys was not a helpful outcome measure for this QI project. The outcome measure was originally designed to bring awareness to weight-related bias before and after the 5A's dot phrase intervention by measuring pre- and post-intervention scores. In this case, the surveys were not sent out before the first PDSA cycle due to overlap in CNM participation in the ATOP and BAOP surveys during a similar QI project at a different practice affiliated with the academic institution. This makes the collection of just one post-intervention set of scores less valuable to bring awareness to weight-related bias although it provided individual CNMs the opportunity to examine their own weight-related bias.

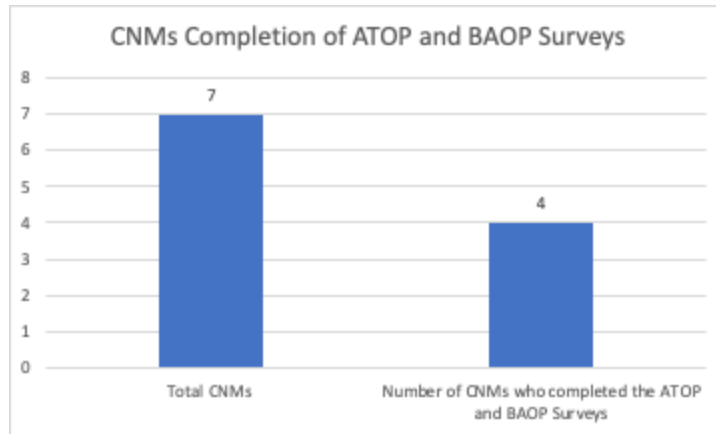


Figure 3.

The use of the 5A's dot phrase fluctuated over the three PDSA cycles (Figure 4). After the first week in the first PDSA cycle, dot phrase use at eligible visits remained at 100% for the duration of that cycle. CNMs were sent reminder texts the night before their clinic shift, which they reported were helpful in remembering to use the 5A's dot phrase and likely contributed to the high rates of dot phrase use. The CNMs began using a new initial prenatal note template with the OBGYN MDs in the first cycle independent of this QI project. The CNMs gave feedback after the first PDSA cycle that they did not know where in the template to put the 5A's dot phrase and requested that the dot phrase include the BMI and weight gain ranges to recommend to patients. They reported most patients were open to talking about GWG, but that the phrasing of certain elements of the 5A's was not understood by all patients.

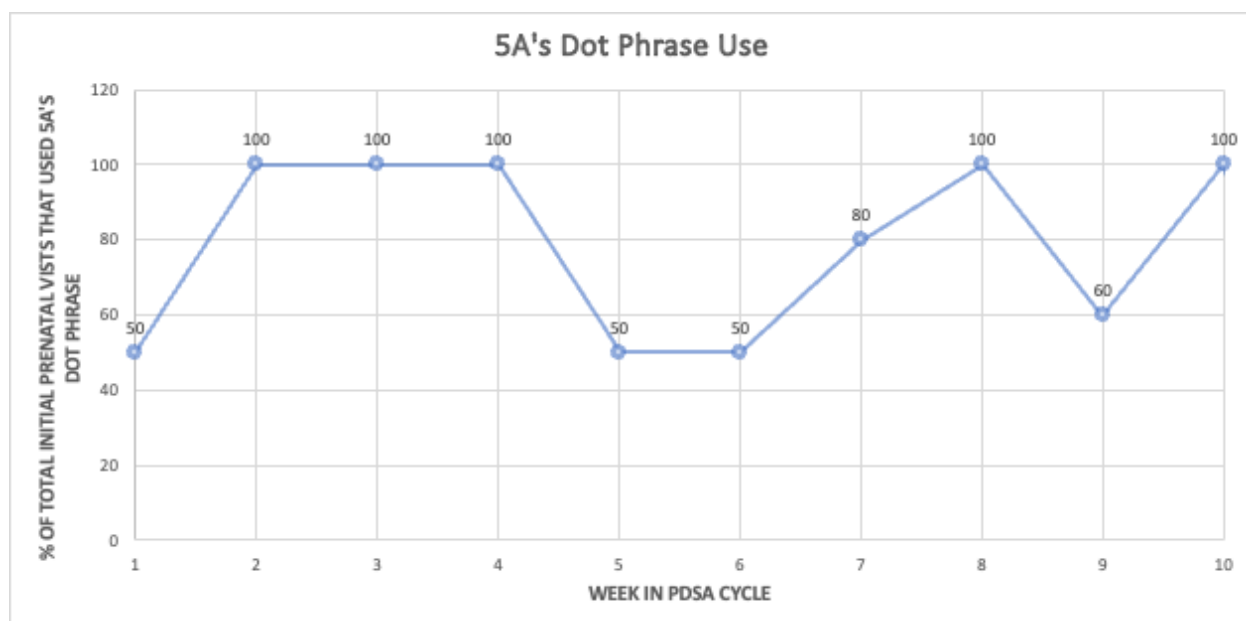


Figure 4.

Before the second PDSA cycle, wording of the 5A's prompts were edited based on CNM feedback and they were instructed on where to put the dot phrase in the template. The CNMs were also instructed to use whatever wording they felt comfortable with and made sense to patients. Use of the dot phrase in the second PDSA cycle remained at 100% during the first week but decreased to 50% for the last two weeks. This may be due to many factors. During the second week of PDSA cycle two, reminder texts were not sent out. During the third week of cycle two, text reminders began again but use of the dot phrase did not continue. When the CNMs were asked to provide feedback about cycle two, they reported the prompts in the dot phrase were helpful, but they did not have resources to share with patients about nutrition, which discouraged them from using the dot phrase. These factors may have contributed to the low percentage of use in cycle two.

During PDSA cycle three, a dot phrase that included a nutritional resource approved by the academic institution was created and shared with the CNMs. CNMs requested that text reminders be stopped during this cycle. The average compliance rate of the final PDSA cycle was 85%, which is less than the specific aim of 90%. During cycle three, use of the dot phrase fluctuated from 60% to 100%, with lower rates of use seen when CNMs that were less familiar with the DNP project were in clinic. If

these CNMs had been sent text reminders, the use of the dot phrase may have been greater. Additionally, the CNMs gave feedback that there was a need for culturally appropriate nutrition resources for the patient population at this site. If CNMs did not feel they could adequately support patients after speaking to them about GWG, they may have been less likely to open the conversation. The lack of these resources may have contributed to the fluctuating use of the 5A's dot phrase during cycle three. In the final feedback emails for cycle three, CNMs reported overall that they found the 5A's framework a useful way to discuss GWG with patients using a trauma-informed approach, specifically the "Ask" component which asked for consent to talk about GWG with patients. However, they reported they did not have enough time in the initial prenatal visit to discuss GWG and would have liked to have this discussion at a later visit, as there were too many topics to discuss when following the new initial prenatal visit template created by the collaborative practice. They also reported many patients were too nauseous to discuss nutrition during the initial prenatal visit.

## **DISCUSSION**

### **Summary**

This QI project equipped CNMs with a standardized, trauma-informed framework to discuss gestational weight gain with patients. The 5A's dot phrase served as a useful process measure for this project. CNMs reported they found the 5A's framework useful in discussing GWG and that most patients were open to having these discussions. Patient nausea during the first trimester as well as limited time to discuss the prompts during visits were barriers to using the 5A's dot phrase.

The ATOP and BAOP surveys were not administered pre- and post- intervention as originally intended, which resulted in not meeting the specific aim to have the surveys completed before the first PDSA cycle. Additionally, this lack of pre- and post- intervention scores limited the utility of completion of the surveys as an outcome measure. Out of eligible CNMs, 57% completed the surveys during the third PDSA cycle. No CNMs reported their reflections after completing the ATOP and BAOP scales. In the

limited sample, CNMs average and individual scores on the ATOP and BAOP surveys demonstrated more positive attitudes about people with obesity as well as beliefs that weight was not under the control of those affected by obesity. These results suggest the CNMs who were surveyed possess an understanding of the complexity of body weight and may be aware of personal weight-related bias.

Compliance with using the 5A's dot phrase during the last PDSA cycle was 85%, which was lower than the specific aim of 90%. Use of the dot phrase improved when CNMs were texted before their clinic shifts to remind them to use the dot phrase. The use of the dot phrase decreased when CNMs were not texted the night before, and when CNMs who were not as familiar with the QI project worked in the clinic. Overall, the CNMs provided feedback that they found the trauma-informed structure that the 5A's framework provided useful to guide GWG discussions. The CNMs stressed that nutrition resources for patients of diverse cultural backgrounds as well as community resources to increase food access would be useful when assisting patients with nutrition changes prompted by the 5A's discussions.

### **Interpretation**

Previous studies evaluating the effectiveness of the 5A's framework demonstrate that the first two components of the 5A's framework, "Ask" and "Advise", are utilized more often by providers in these discussions due to time constraints (Washington-Cole et al., 2017; Weeks et al., 2020). The issue of inadequate time to discuss GWG using the 5A's was reported by the CNMs during each of the three PDSA cycles. The CNMs suggested utilizing this framework at a visit after the initial prenatal visit when there is less information to cover, and patients generally have less nausea related to the first trimester. No research has evaluated differences in effectiveness of the 5A's framework for GWG when discussed at varying prenatal visits. Research on this subject would be helpful to understand the relationship between the effectiveness of the framework on patient satisfaction and GWG and timing of the discussion.

The population served by the CNMs was culturally diverse, largely Hispanic, and over half the patients qualified for Medicaid. The CNMs provided feedback during the second and third PDSA cycles that they needed access to nutrition resources relevant to culturally specific dietary practices as well as local resources for food insecure patients to obtain healthy food. Some CNMs reported the MyPregnancyPlate dot phrase resource did not provide dietary recommendations for culturally appropriate foods that were the staple of those patients' diets, which caused the CNMs to find the resource unhelpful in those situations.

Culturally appropriate nutrition counseling involves an understanding of culturally important foods and patient food insecurity. There is a lack of research exploring the impact of culturally appropriate provider-initiated dietary counseling in pregnant patients. However, available research has demonstrated that cultural traditions significantly impact food choice during pregnancy (Ashman et al., 2017; de Diego-Cordero et al., 2021). Limited research suggests that group prenatal care models may be effective in reducing food insecurity when compared to individual models due to increased awareness of available resources from facilitators and other pregnant people in the prenatal group (Herberlein et al. 2016). In the future, CNMs at this practice may benefit from offering group prenatal care to patients and providing resources or training for providers regarding culturally appropriate nutrition.

During this QI project, it may have been useful to consult a dietitian associated with the practice about culturally appropriate nutrition resources. Additionally, CNM participation may have been positively influenced if CNMs were explicitly encouraged to adapt the nutrition information on the MyPregnancyPlate to different food traditions that they discussed with patients. However, the CNMs specifically requested written resources about culturally appropriate nutrition in pregnancy to offer to patients. This is likely related to the limited amount of time CNMs had at initial prenatal visits to discuss the 5A's with patients. Lastly, the project would likely have benefited if a social worker or community

health worker was consulted to share a list of food resources in the community for low-income patients and their families.

### **Limitations**

The generalizability of this project was limited by the novel nature of the collaborative practice as well as the academic presence in the practice environment. There were many changes in leadership, structure, and attempts to standardize processes while this QI project was being implemented, which may have limited the amount of attention CNMs could devote to this QI project. The validity of the completion of the ATOP and BAOP surveys as an outcome measure was decreased by the administration of the surveys only during cycle three due to the sister QI project taking place at a different site. Pre- and post- intervention ATOP and BAOP scores may have been a more useful outcome measure as they could have served as a measure of changes in weight-related bias before and after use of the 5A's dot phrase in CNM practice. The assessment of the ATOP and BAOP scores a single time during the last week of the project may have been useful for bringing awareness to individual CNM weight-related bias, though no CNMs shared feedback about their experience taking the surveys. This may be attributed to the surveys being administered only a single time in the project and only one reminder email being sent out to CNMs.

### **Conclusion**

Sustainability of this project was challenged by the novel nature of the practice and the collaborative practice element. The CNM practice was less than three years old and the OBGYN MDs and CNMs were still in the process of gathering community resources for patients, creating policy, forming normative group routines, and developing benchmarking for the collaborative practice. The large number of changes that the CNMs were implementing in their practice during this QI project may have negatively influenced the attention the CNMs could devote to the 5A's dot phrase and ATOP and BAOP surveys.

CNMs who provided feedback reported the 5A's framework was a useful addition to discussions about GWG, specifically the component which asked the patient for consent to discuss GWG. Based on this feedback, it may be useful for this practice to continue to encourage the use of the 5A's framework to discuss GWG. This discussion may be better had at an earlier or later visit due to the volume of information that must be covered in the initial prenatal visit and patient nausea present in the first trimester. To be maximally helpful to patients of diverse cultural backgrounds, written resources, local food resources, and CNM training on how to discuss nutrition based on patients' unique cultural backgrounds may be useful. Offering CNM training on culturally appropriate nutrition counseling and connecting the practice with community food resources may be a useful strategy for a future QI project at this site.



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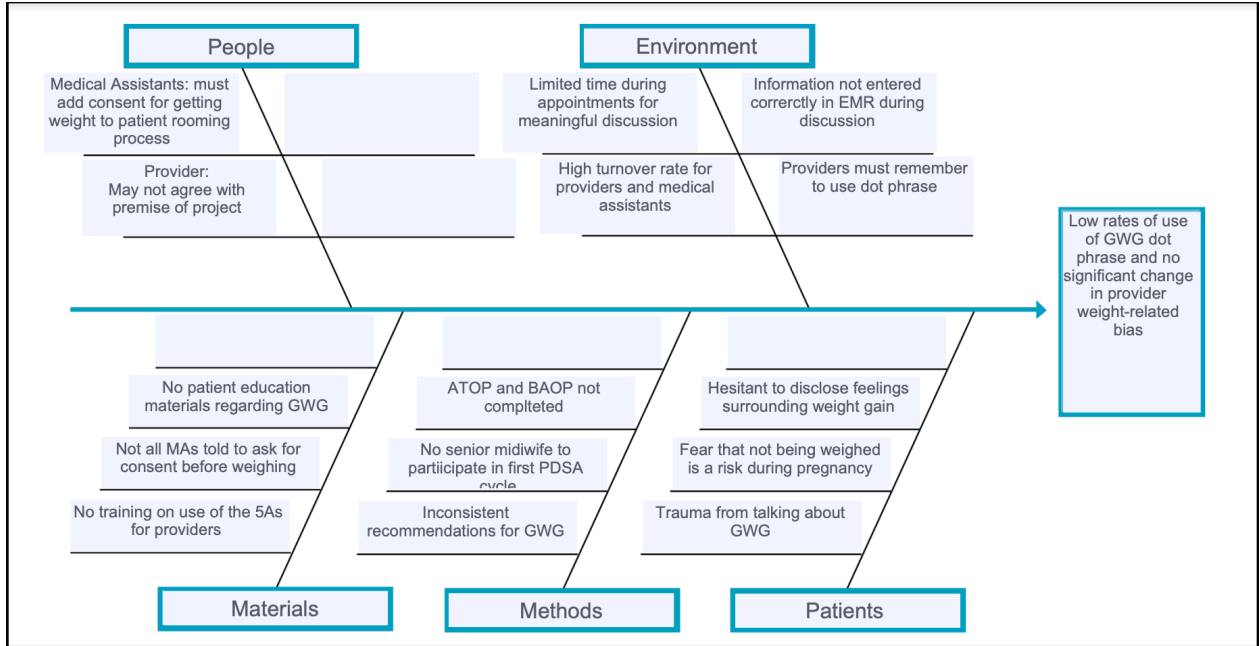
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### Appendix A



## Appendix B

### Revised 5A's Gestational Weight Gain Dot Phrase

- Ask
  - Permission from patient to discuss weight gain in pregnancy (yes/no)
  - If patient consents to discussion:
- Assess
  - Patient's personal thoughts and feelings about weight gain in this pregnancy (i.e., anxious? on-track? restricting? nauseous?)
- Advise
  - Information on recommended weight gain was provided (yes/no)
- Agree
  - The patient had the following goals for nutrition and exercise in pregnancy:
- Assist
  - The patient identified these barriers to achieving these goals:
  - Education and/or referrals were provided based on the identified barriers:



## Appendix C

### ATOP: Attitudes Towards Obese Persons Scale

The ATOP is scored using a Likert-type response format (+3 = strongly agree; +2 = somewhat agree; +1 = agree; -1 = disagree; -2 = somewhat disagree; -3 = strongly disagree). Several items are reverse scored (i.e., are multiplied by -1): Item 2 through Item 6, Item 10 through Item 12, Item 14 through Item 16, Item 18 through Item 20. Responses are summed, and 60 is added to the previous total to obtain the ATOP score. Higher scores indicate more positive views of obese persons.

1. Obese people are as happy as nonobese people.
2. Most obese people feel that they are not as good as other people.
3. Most obese people are more self-conscious than other people.
4. Obese workers cannot be as successful as other workers.
5. Most obese people would not want to marry anyone who is obese.
6. Severely obese people are usually untidy.
7. Obese people are usually sociable.
8. Most obese people are not dissatisfied with themselves.
9. Obese people are just as self-confident as other people.
10. Most people feel uncomfortable when they associate with obese people.
11. Obese people are often less aggressive than nonobese people.
12. Most obese people have different personalities than nonobese people.
13. Very few obese people are ashamed of their weight.
14. Most obese people resent normal weight people.
15. Obese people are more emotional than other people.
16. Obese people should not expect to lead normal lives.

17. Obese people are just as healthy as nonobese people.
18. Obese people are just as sexually attractive as nonobese people.
19. Obese people tend to have family problems.
20. One of the worst things that could happen to a person would be for him to become obese.

## Appendix D

### BAOP: Beliefs About Obese Persons Scale

The BAOP is scored using a Likert-type response format (+3 = strongly agree; +2 = somewhat agree; +1 = agree; -1 = disagree; -2 = somewhat disagree; -3 = strongly disagree). Several items are reverse scored (i.e., are multiplied by -1): Item 1, Item 3 through Item 6, and Item 8. Responses are summed, and 24 is added to the previous total to obtain the BAOP score. Higher scores indicate a stronger belief that obesity is not under the obese person's control.

1. Obesity often occurs when eating is used as a form of compensation for lack of love or attention.
2. In many cases, obesity is the result of a biological disorder.
3. Obesity is caused by overeating.
4. Most obese people cause their problem by not getting enough exercise.
5. Most obese people eat more than non-obese people.
6. The majority of obese people have poor eating habits which lead to their obesity.
7. Obesity is rarely caused by a lack of willpower.
8. People can become addicted to food, just as others are addicted to drugs, and these people usually become obese.

## Appendix E

### Scoring of ATOP and BAOP

#### *Scoring instructions for ATOP.*

Step 1: Multiply the response to the following items by -1 (i.e., reverse the direction of scoring):

- Item 2 through Item 6, Item 10 through Item 12, Item 14 through Item 16, Item 19 and Item 20

Step 2: Add up the responses to all items.

Step 3: Add 60 to the value obtained in Step 2. This value is the ATOP score. Higher numbers indicate more positive attitudes.

#### *Scoring instructions for BAOP.*

Step 1: Multiply the response to the following items by -1 (i.e., reverse the direction of scoring):

- Item 1, Items 3 through Item 6, Item 8

Step 2: Sum the responses to all items.

Step 3: Add 24 to the value obtained in Step 2. This value is the BAOP score. Higher numbers indicate a stronger belief that obesity is *not* under the obese person's control.

From Allison, DB. *Handbook of Assessment Methods for Eating Behaviors and Weight-Related Problems. Measures, Theory, and Research*. Thousand Oaks, CA: Sage Publications.