Models for Delivering Weight Management in Primary Care: Qualitative Results from the MOST Obesity Study

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Background: Obesity is a leading cause of morbidity and mortality in the United States (US). Primary care medical practices can educate patients about the health effects of obesity and help patients with obesity lose and manage their weight. However, implementation of weight management in primary care is challenging. We sought to examine how practices that implement weight management services do so feasibly.

Methods: Multiple methods including site visits, observations, interviews, and document reviews were utilized to identify and learn from primary care practices located across the US. A qualitative multidimensional classification of empirical cases was performed to identify unique delivery features that were feasible to implement in primary care.

Results: Across 21 practices, 4 delivery models were identified: group, integrated into standard primary care, hiring an "other" professional, and using a specific program. Model characteristics included who delivered the weight management services, whether delivered to an individual or group, the types of approaches used, and how the care was reimbursed or paid. Most practices integrated weight management services and primary care delivery, although some created specific carve-out programs.

Conclusion: This study identified 4 models that may serve to overcome challenges in delivering weight management services in primary care. Based on practice characteristics, preferences, and resources, primary care practices can identify a model for successfully implementing weight management services that best fits their context and needs. It is time for primary care to truly address obesity care as the health issue it is and make it a standard of care for all patients with obesity. (J Am Board Fam Med 2023;00:000–000.)

Keywords: Body Composition, Obesity, Organizational Innovation, Qualitative Research, Weight Loss

Introduction

Obesity rates continue to rise in the United States; the current national prevalence of obesity is more than 42%.¹ In addition, class III obesity (Body Mass Index

[BMI] greater than or equal to 40) has dramatically increased over the past several decades, currently being close to 10%.^{1,2} Obesity is associated with multiple comorbidities and chronic health conditions,^{3,4} which amount to high human^{5,6} and economic costs.⁷

Research demonstrates that when people with obesity are provided with intensive behavioral therapy, medications, bariatric surgery, or other such evidencebased treatments, they are able to lose weight and, in

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some cases, sustain that weight loss.^{8–12} In light of this evidence, the United States Preventive Services Task Force (USPSTF) recommends that obesity screening and intensive behavioral counseling for weight loss be provided in primary care settings.^{13–15} In addition, primary care clinicians uniformly endorse that obesity is a health issue that should be addressed in primary care.16 However, most patients do not receive weight management assistance from their primary care physician or care team.^{17,18} There are many reasons for this: lack of training in treating obesity, lack of payment for providing weight management services,^{19–21} concern about success of available treatments such as weightloss medication and bariatric surgery,²²⁻²⁵ belief that patients should simply be able to adhere to the lifestyle changes needed for maintaining an appropriate weight,^{26,27} and the ever-present tyranny of the urgent and the competing demands of other more acute health conditions.²⁸ Moreover, many behavioral treatment approaches are time- and resource-intensive, making them difficult to implement and sustain.²⁵ Therefore, determination of how to effectively and feasibly implement these services in primary care practices such that patients can receive these benefits may lead to improved individual and population health.

What can be done to overcome these barriers to implementing weight management services in primary care practices? A review of US practices that were billing for the Medicare Intensive Behavioral Therapy for Obesity benefit from the Medicare Provider Utilization and Payment Data: Physician and Other Supplier²⁹ finds that a small number of primary care practices are regularly providing weight management services. The Making Obesity Services and Treatments Work (MOST) Study sought to identify and learn from these practices. How were they able to continue providing weight management services in their practice? How do they organize the care to implement in practice? In this article, we will share the different ways that weight management services can be organized and sustainably implemented in primary care practices. Illuminating how some primary care practices organize weight management services may help increase efforts to treat obesity in the US.

Methods

Making Obesity Services and Treatments Work (MOST) Study

The goal of the overall study (AHRQ #1R01HS024943-01) was to investigate why so

few primary care practices were using the Medicare procedure codes for Intensive Behavioral Therapy for Obesity (IBT), whereas the purpose of this article is to provide results related to practices we identified that were delivering weight management services in their practices.

To begin, despite the overwhelming prevalence of obesity in the US Medicare population, as of December 31, 2019, less than 2% of eligible Primary Care Providers (PCPs) in the US were providing this service to enough patients to be counted in this data set (ie, provided the service to 11 or more unique patients and billing Medicare).³⁰ In phase 1 of our study, we surveyed 282 primary care practices. We found that many faced the barriers discussed above. In particular, respondents noted the extremely low reimbursement rates from Medicare for the IBT services and the numerous hassles of using the IBT codes for reimbursement.31 We conducted follow-up interviews with key informants of 75 of these practices, which revealed other barriers such as lack of knowledge about how to go about providing weight management services and the lack of workflows to accommodate care delivery. Respondents facing these barriers frequently reported feeling overwhelmed when confronting the obesogenic culture of the US.¹⁶ Nevertheless, there were also practices that had integrated weight management services into their care delivery. To learn more about the implementation and sustainability of their weight management services, we completed additional data collection. In phase 2, we selectively identified practices appropriate for further exploration. This article describes the results of phase 2 of this study, where we made onsite visits to learn in depth from these practices how they were delivering weight management services and what made the difference in their ability to sustain this care. The Colorado Multiple Institutional Review Board (IRB) as well as the IRBs at Michigan State University and Duke University approved this protocol.

Setting and Participants

From the total 75 available practices, we selectively identified 29 practices to learn more about based on our assessment of the quality of their program. The criteria we used were as follows: primary care practice, description of successful implementation of weight management services provided within their own practice, program ongoing for at least a year,

| Practice Characteristic | N (%) |
|-------------------------------|---------|
| Discipline | |
| Family Medicine | 10 (48) |
| General Internal Medicine | 11 (52) |
| Practice Size | |
| Small (less than 4 providers) | 17 (81) |
| Medium (4 to 6 providers) | 1 (5) |
| Large (more than 6 providers) | 3 (14) |
| Ownership | |
| Private | 17 (81) |
| Health system | 4 (19) |
| Location | |
| Urban | 11 (52) |
| Rural | 2 (10) |
| Suburban | 8 (38) |
| Geography | |
| Northeast | 3 (14) |
| South | 9 (43) |
| Midwest | 8 (38) |
| West | 1 (5) |

and willingness to host a 2-day site visit. We approached all 29 practices and 21 agreed to and participated in an onsite visit by a research team member. Table 1 provides the practice descriptions. Practices were split between family and general internal medicine, and ended up being mostly small and privately owned, and in urban/suburban locations with underrepresentation of the west.

Data Collection

Table 2 describes our data sources. This article focuses on the qualitative results from the practice summary, which included data from the practice tour, patient visit observations, practice member interviews, and the narrative portion of the costs and resources survey. Data collection occurred in person at the practice by a female PhD qualitative analyst and study investigator or 1 of 2 female master's prepared professional research assistants over the course of 1 to 2 days. Visits occurred between March and September 2019. Each practice was compensated a total of \$2000 for completion of the data collection, including additional data not described here (eg, patient outcomes data).

As part of these practice visits, we conducted 61 practice member interviews with individuals in the following roles: physician, nurse practitioner, practice manager, health coach, registered nurse, registered dietitian nutritionist (RDN), personal trainer, business manager, pharmacist, psychologist, and medical assistant. The selection of interviewee was to represent the 3 to 5 key roles of weight management services delivery and provide information-rich accounts of how and why the weight management services were delivered. Each interview lasted 45 to 75 minutes. Written informed consent was obtained before the interview.

Practice member interviews were conducted using a semistructured interview guide developed by the study team, reviewed by experts, and pilot tested with nonstudy sites. The guide was designed to gain an understanding of how weight management services were delivered, which included describing practice member roles and involvement, resources available, workflows, and payment or reimbursement. Factors influencing the ability to continue delivery of these services were explored as well. In addition, interviewees were asked about clinician and practice philosophy of care for obesity

Table 2. MOST Study Phase 2 Data Sources for This Analysis

| Data Source | Product | Unit |
|--------------------------------|--|---|
| Practice tour | Field notes using template | One per practice |
| Patient visit observations | Visit summary using template | One per patient (n = 2 to 10 per practice) |
| Practice member interviews | Recordings made into transcriptions | One per interviewee (n = 1 to 6 per practice) |
| Cost and resources oral survey | Accounting of resources needed and their associated monetary costs using template Interpretation | One per practice |
| All | Practice summary | One per practice |

and as a primary care service, knowledge and special training in weight management, reimbursement and payment mechanisms, and challenges and recommendations for managing patients with weight concerns. Templates included questions for specific categories of information as well as open-ended areas for taking field notes to capture descriptions and observer impressions related to each desired area of inquiry.

The practice tour template covered information on the responsibilities, functions, and interactions of team members, knowledge and use of the 5 A's approach,³² the relationship between staff members and with the providers (ie, team dynamics observed), details about the office and physical space (eg, community access, amount and type of office space, size of practice), resources available and used (eg, handouts/brochures, food models or other props, meal replacement foods, supplements, etc.), community resources and referrals, and billing for weight management services.

Before the onsite visit, the provider identified and asked patients about their willingness to have a researcher present in the room during their weight management appointment. On agreement to be approached by the researcher, patient written informed consent was obtained either in the examination room or a secluded area within the practice before observation. Ninety-five weight management visits were observed and documented.

The patient visit template encompassed notes about payment, referrals, content, type of program (eg, healthy lifestyle, weight loss medications), assessments (eg, diet, physical activity, smoking status, alcohol use), referrals based on assessments or previous discussion, the extent of goal setting, elements of the 5 As and who did them, and addressing patient emotion that arose during the visit. Qualitative notes of the provider's approach were noted. For example, notes assessing provider response to patient emotion may include their use of motivational interviewing techniques, responding to patient self-report or obvious emotional distress, exploring emotional eating, fostering an honest and open relationship, observing patient body language, etc.

The cost and resources survey collected typical weekly responsibilities and financial information on staff, supervision, and administrative support for delivering IBT for obesity services and the costs of resources required to start up and conduct activities associated with weight management services.

Immediately after completing the practice visit, the researcher completed the practice summary, which included answering questions and providing quantitative or qualitative evidence for answers across all data collection sources. An individual and abbreviated process of immersion/crystallization was utilized by depth review of the experience and discussing with the team the aspects of the data collected to assure summarization.³³ This practice visit summary described a synopsis of how the practice provided weight management services for patients identified as being appropriate. It included a detailed description of their weight management approach, documentation and billing procedures, staff and provider relationships, interactions with patients, and practice culture. Facilitators and barriers to providing weight management services were also described.

Analysis

A core analysis team with qualitative training and experience, including a practicing primary care physician (AN), PhD qualitative health services researcher (JH), and a professional research assistant (LC) completed the qualitative analysis. The team utilized a case study³⁴ approach to analyze the data with several steps. First, we reviewed the data for thematic elements with the interview data. The audio recordings were transcribed into text documents and then loaded into ATLAS.ti (version 8, Scientific Software Development GmbH). The team identified codes using a collaborative exercise of placing, comparing, and refining the codes using an emergent coding process. Several rounds of review across coders with the transcripts were conducted until coding³⁴ was calibrated. Calibration was achieved when the analysis team reached consensus on their understanding and use of the codes. Key areas of inquiry were then reviewed and added to the practice summaries.

Then we organized the themes into a table to illustrate the cases represented using a matrix approach.³⁵ In this method, the summaries for each practice were reviewed for key features by each core team member and then discussed. Through multiple discussions, the study team identified the features of weight management services delivery, which included both practical (ie, who, what, when) and philosophical/conceptual (ie, approach to counseling) considerations. Table 3 describes these features. Then a qualitative multidimensional classification of empirical cases was conducted to construct a typology of models. The core analysis team then

| Table 3 | . Weight | Management | Services | Deliverv | Model | Features |
|----------|----------|------------|----------|----------|-------|------------|
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| Feature | Description | Categories |
|-----------------------------------|---|--|
| Visit type | How the visit with the patient was conducted | Individual, Group, Both |
| Role of provider | Key personnel involved in delivering weight management | Physician, Advanced Practice Provider, Registered Dietitian, Other |
| Multidisciplinary team | Use of different specialist training in the delivery of weight management | Yes, No |
| Program development | How the program was developed | External program, Self-developed Program, No Program |
| Weight loss approach | The diet and/or physical activity and/or other way of obtaining weight loss results | Healthy lifestyle, High protein/keto, Calorie reduction, Other |
| Methods to facilitate weight loss | The use of other methods or services to facilitate use of the approach | Medications, Meal replacement, supplements, Apps or online tools, Educational materials, Other |
| Counseling approaches | Approaches for behavioral management of weight loss | Stress, Mindfulness, Therapy, None, Other |
| Focus of practice | If weight loss services are a focus of the practice | Weight loss only, Blended into primary care, Combination |
| Method of payment | How the practice financially sustains the weight loss services | IBT for obesity, E&M codes, Patient self- pay, Subsidized |

Abbreviation: IBT, Intensive Behavioral Therapy for Obesity.

made slight adjustments based on their knowledge/ understanding of the program implementation within each practice. This included consideration of not only the clustering of the features but what was considered the defining results in a typology of model types.

Results

Table 4 presents the results of the qualitative multidimensional classification. Four main models were identified. Table 5 presents the defining characteristics of each model and offers recommendations regarding the situations in which that model may be helpful based on particular primary care practice circumstances.

Group Program Model

The distinguishing characteristic of the group program is how patients receive care for weight management. This is distinct from other models in that patients gather with other patients to receive education and support from a practice member. The emphasis is less on who is providing the program, although it was usually provided by an advanced practice provider (APP) or other individual such as a health coach. In our data set, physicians or RDNs did not usually provide this program, although they could. Getting paid for providing the group program overlapped with other methods of getting reimbursed, and most of the time insurance was billed, and the IBT for obesity codes were utilized.

Integrated into Standard Primary Care Model

The distinguishing characteristic of this model is that weight management services are being provided by a medical provider (physician or APP) and in individual visits much like any other chronic disease care. Ongoing visits are scheduled at various intervals, and weight management counseling is provided, much like IBT for obesity. A specific program protocol across all patients is not utilized. The emphasis is typically on healthy diet, physical activity, and healthy lifestyle, although some providers blended in mental health and stress reduction. Some emphasized specific dietary approaches such as a high protein diet. This model was most likely to also use medications to treat weight loss.

"Other" Professional Model

The distinguishing characteristic of this model is the use of someone with nutrition, behavioral health, or weight management expertise to provide the weight management service to patients in the practice. This is most often an RDN but could be other professionals. For example, we visited 1 practice that utilized a person with training as a food scientist. Another provider type is a behavioral health provider. The key here is that someone

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|----------------|--|--|--|---|---|-----------------------|---|---|
| Practice ID | Visit Type (Individual, Group, Both) | Type/Training of Key Role in Program Delivery (Physician, Nurse Practitioner or PA, Registered Dietitian, Others) | Additional Role Types in Delivery Using an Interdisciplinary Team Approach (yes/no) | Set Program Approach (Purchased Program, Self- Developed or no) | Weight Loss Focus of the Clinic (Blended with other primary care, Partial weight loss clinic, Weight loss only clinic) | W eight Loss Approach | Methods to Facilitate Weight Loss | Method of payment (IBT plus others insur- ance billing, other in- surance billing, self-pay plus ins billing, self-pay only) |
| | | | Integ | rated into Stand | dard Primary Care | Model | | |
| 1 | IND | SXHd | ON | SELF | BLENDED | HL | EDUC, CSLG | IBT ATTER |
| 2 | IND | SXHd | NO | NO | BLENDED | HL | MEDS, CSLG | UTHEK IBT OTTER |
| 3 | IND | NP/PA | NO | ON | BLENDED | HL, PA | EDUC, MEDS | OTHER OTHER set f dav |
| 4 | IND | PA | NO | NO | BLENDED | HL, PA | EDUC, MEDS | SELF-FAT OTHER |
| S | CINI | SYHq | NO | SELF | BLENDED | HL, CAL RED | EDUC, MEDS, BF, CSLG | SELF-FAI IBT OTHFR |
| 9 | QNI | SXHd | YES | SELF | PARTIAL WEIGHT LOSS | HL, PA | EDUC, SUP EX, BF, CSLG | IBT OTHER |
| | | | | Other Prof | fessional Model | | | SELF-PAY |
| Γ | CINI | PHYS, RDN | YES | SELF | WEIGHT LOSS ONLY | HL, CAL RED | EDUC, MEDS, BF, CSLG | OTHER SELF-PAY |
| × | QNI | RDN/FOOD SCIENTIST | NO | SELF | BLENDED | HL, CAL RED | EDUC, CSLG, SUP EX | IBT |
| 6 | IND | RDN | NO | NO | BLENDED | HL | EDUC | OTHER |
| 10 | IND | RDN | ON | SELF | BLENDED | HL, CAL RED | EDUC, CSLG | IBT |
| 11 | IND | RDN | NO | SELF | BLENDED | HL | EDUC | OTHER |
| 12 | QNI | RDN | ON | PURCHASED | BLENDED | HL | EDUC, CSLG, SUP EX | IBT Other |
| | | | Pur | chased (or Deve | eloped) Program M | Iodel | | |
| 13 | IND | SYHT | NO | SELF | BLENDED | HP, PA, IF | MEDS, MEALS | IBT |
| 14 | DNI | HEALTH COACH | ON | PURCHASED | PARTIAL WEIGHT LOSS | HP | APPS, EDUC, MEALS | OTHER CTHER |
| 15 | IND | dN/S/Hd | ON | SELF | WEIGHT LOSS ONLY | HL, CAL RED | APPS, MEALS, SUPP, EDUC, MEDS, CSLG, BF | SELF-FAT IBT OTHER SELF-PAY |
| | | | | | | | | Continued |

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| Table 4. | Continued | | | | | | | |
|--|--|--|--|---|---|--|--|---|
| Practice ID | Visit Type (Individual, Group, Both) | Type/Training of Key Role in Program Delivery (Physician, Nurse Practitioner or PA, Registered Dietitian, Others) | Additional Role Types in Delivery Using an Interdisciplinary Team Approach (yes/no) | Set Program Approach (Purchased Program, Self- Developed or no) | Weight Loss Focus of the Clinic (Blended with other primary care, Partial weight loss clinic, Weight loss only clinic) | Weight Loss Approach | Methods to Facilitate Weight Loss | Method of payment (IBT plus others insur- ance billing, other in- surance billing, self-pay plus ins billing, self-pay only) |
| | | | | Gro | up Model | | | |
| 16 | GROUP | HEALTH COACH | YES | SELF | BLENDED | HL, CAL RED, IF, HP | EDUC | IBT OTHER Set e dav |
| 17 | GROUP | NP | ON | SELF | BLENDED | HL | EDUC, CSLG | JELF-FAI IBT |
| | | | | Multij | ple Models | | | |
| 18 | IND | SYHq | ON | SELF | PARTIAL WEIGHT LOSS | HL, CAL RED | EDUC, MEALS, MEDS, SUPP, BF, CSLG | IBT OTHER |
| 19 | BOTH | PHY/RDN/BEH HEALTH PROVIDER/ FITNESS | YES | SELF | WEIGHT LOSS ONLY | HL, PA, HP | APPS, EDUC, MEALS, SUP EX, MEDS, CSLG | SELF-PAY OTHER |
| 20 | BOTH | RDN | YES | PURCHASED | BLENDED | Н | EDUC, CSLG | IBT OTHER SELF-PAY |
| 21 | BOTH | SAHd | YES | SELF | PARTIAL WEIGHT LOSS | HL, CAL RED, HP | APPS, EDUC, MEALS, REP, SUPP, BF, CSLG, SG | IBT OTHER SELF-PAY |
| Abbreviati Supplemen Fasting; SC | ons: IBT, Intensive its or vitamins; HP = 3 = Support Group. | Behavioral Therapy for Ob Keto or other high protein. | oesity. EDUC = Edu ; SUP EX = Supervis | ıcation; APPS = W ed Exercise; PA = PH | eb Apps; MEALS = Me aysical Activity; BF = Bio | al Replacements; MEDS = feedback; CAL RED = Calor | Prescribed Meds; HL = Hea cie Reduction; CSLG = Couns | althy Lifestyle; SUPP = seling; IF = Intermittent |

| ladie versioninant versu | it management Denvery models in Fart | icipating Practices | |
|--|---|--|--|
| Distinguishing Feature | Description | Classification of Features | General Description of Model in Practice |
| | Integ | ated into Standard Primary Care Model | |
| Medical provider delivers weight management interspersed with other patient care | Medical provider provides individualized weight management counseling within the daily care of other patients | Visit type = individual Role of provider = Physician or APP Multidisciplinary team = Not usually Program development = Self or other Weight loss approach = Variable Methods to facilitate weight loss = Meds, apps, ed materials Counseling approaches = Variable Focus of practice = Blended Method of payment = Variable, usually E&M | Usually a physician, although can be an APP External program not needed due to professional expertise Focus on healthy lifestyle approach usually although some focus on high protein diet Other methods often included apps and use of medications Paid for by insurance billing and some patient co-pay |
| Another provider that is not the medical provider delivers the care | Medical provider identifies and refers internally to another professional to provide individual weight management counseling | Other Professional Model Visit type = usually individual Role of provider = RDN, BHP, other Multidisciplinary team = Sometimes Program development = Self Weight loss approach = Lifestyle Methods to facilitate weight loss = Ed materials, Medications Counseling approaches = Variable Focus of practice = Variable Method of payment = Variable | Usually an RDN, although can be another knowledgeable provider External program not needed due to professional expertise Focus on healthy lifestyle approach Other methods usually nor needed, but sometimes apps and educational materials utilized Paid for by insurance billing and some patient co-pay |
| | | | Continued |

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| Table 5. Continued | | | |
|---|--|---|--|
| Distinguishing Feature | Description | Classification of Features | General Description of Model in Practice |
| Following a program developed externally or self-development of a program that follows similar protocols | Pur Practice contracts (purchases license) with a provider of weight management services to deliver the specified program within their practice | chased (or Developed) Program Model Visit type = individual Role of provider = physician, APP Multidisciplinary team = Sometimes Program development = other Weight loss approach = Often keto/protein, other Weight loss approach = Sten keto/protein, other meal replacement, supplements meal replacement, supplements Counseling approaches = Variable Focus of practice = Often full weight loss or partial weight loss Method of payment = Variable, often self-pay | Usually provided by a combination of visits with medical provider occasionally and health coach or medical assistant for regular check-ins External program licensed Focus on high protein/keto Other methods usually include meal replacement and/or supplements, and educational materials utilized Mostly paid for by patient self-pay, some insurance may cover physician visits |
| Group delivery distinct from all other models | Patients gather together for a group educational and support program led by someone from the practice with group facilitation skills and knowledge and/or using a weight loss curriculum | Model: Group program Visit type = group Role of provider = APP, RDN, other Multidisciplinary team = Sometimes Program development = Self or other Weight loss approach = Lifestyle Methods to facilitate weight loss = Ed materials Counseling approaches = Variable Focus of practice = Blended Method of payment = Variable | Facilitator was usually an APP or health coach, but could be any knowledgeable provider Either developed program (not purchased) or self-developed if professional expertise Focus on healthy lifestyle approach Uses educational materials Paid for by IBT group visit, patient self-pay |
| Abbreviations: IBT, Intensive bel | avioral therapy for obesity; RDN, Registere | l dietitian nutritionists; APP, Advanced practice provi | der. |

other than a medical provider provides the weight management services.

Purchased (or Developed) Program Model

This model's distinguishing feature is the use of a specified program that was often, but not always, externally developed. This is often a meal replacement program such as Opti-fast or Ideal Protein, where the practice purchases the products for the program and then earns an income by selling these specialized foods and supplements to patients, typically for cash-pay and not through insurance. The physician visit portion of the program, however, may be paid for by insurance reimbursement. For example, IBT for obesity may be billed for the ongoing portion of the care that involves regular check-ins and counseling. Practices that use this model often are marketed as weight loss providers and receive referrals from other practices, as a portion of their practice is specializing in weight loss. This is often for care of patients with class III obesity (previously called morbid obesity), rather than overweight or class I or II obesity.36 Sometimes in this model the practice has created their own program, often with other additions like meal replacement or supplements, and a specific diet to follow that is recommended for all qualifying patients as a general standard.

A model worth noting that we did not observe is the "Identify and Refer Model," in which a referral relationship exists between the practice and an external weight management program. This may occur between a hospital-sponsored program or, for example, Weight Watchers. The key to this model is that the referral is initiated and monitored by the treating providers to determine the patient's progress over time. This was not evident in our phase 2 data set as our focus was on weight management models occurring exclusively within a practice.

Discussion

Primary care practices decide whether or not to provide weight management services and how much and in what way. This varies with local circumstances, the patients served, and the ability of the practices to deliver these services. In this study, we found that there are different organizing structures, which we chose to call models, that can make provision of weight management services possible in the primary care setting. For example, practices may choose to use 1 approach to providing weight management care for a subset of existing patients but otherwise continue to provide full-spectrum primary care. Alternatively, practices can shift more of their time toward weight management by carving out part of their practice toward weight management services.

We identified 4 models of care that may be a useful starting point for other primary care practices considering implementing something similar. One distinction is that some expand the care team to include nonmedical staff members to act as the primary providers of aspects of weight management services. The weight management care is "integrated" in the sense that it occurs under the roof of the primary care practice, but is not primarily provided (other than what we call the integrated model) by the medical providers. In these models, connection with the PCP may be an important link differentiating these efforts from other referrals to outside programs. Another distinct feature is whether the care is delivered individually or in a group or both. Each has unique pragmatic considerations and possible effectiveness for patient outcomes.37,38 Although we found these practices by seeking information about IBT for obesity reimbursed through Medicare, we found that all these practices utilized various payment methods for reimbursement of their services such as through commercial payors. This included coverage through commercial payors, Medicare follow-up appointments or Wellness Visits, or Medicaid. Others also accepted self-pay. Thus, our sample of practices did not represent practices that only used IBT for obesity for reimbursement.

A narrative review of the literature on obesity treatment in primary care³⁹ concluded that various treatment approaches lead to overall weight loss in intervention patients. Medications,⁴⁰ meal replacements,^{41,42} and behavioral interventions²⁵ have all been shown to be more effective than usual care (ie, simply advise patients to "eat less and exercise more"). However, as we found in phase 1 of this research,¹⁶ beginning and maintaining a way to deliver these possible treatments to patients for treating obesity is challenging. Because many behavioral interventions are not delivered by primary care clinicians but by other providers like behavioral health providers,²⁵ a strength of our study findings may be that practices can choose to use another professional for this role. A review of the

literature describes many approaches to the treatment of obesity which usually are a form of integrating obesity care into other primary care (our integrated model). However, although how the weight management services are delivered is described, consideration of the delivery model itself seems to be mostly missing. Use of online methods and telemedicine/health are approaches currently being explored⁴³⁻⁴⁵ that were not available during the time of our study data collection, which was before the COVID-19 pandemic. Providing counseling via video conference may be a promising new avenue; however, it would still likely fall within 1 of our models of delivery such as integrated or group programs. Some approaches consider what we describe as the other professional model, but not explicitly. For example, Feldman and Burkowitz describe the role of the behavioral health provider in primary care to include care for behavioral issues such as obesity.46 There are additionally several studies that have investigated an RDN model of care.^{47–49} However, what our study brings together in 1 article is the consideration of explicitly identifying and selecting a care delivery model as a method of implementation.

The models identified here allow primary care practices to leverage existing resources such as available personnel, options for reimbursement, and community services to use those evidencebased treatments in their own practices. For example, the use of a 5 As framework, consisting of the 5 steps-assessing interest in weight loss, advising of options, agreeing to a treatment approach, assisting with access to that approach, and arranging for follow-up-is an evidence-based approach to behavior change and weight management in primary care.^{32,50} The models we identified can use the 5As approach by helping practices decide how to address each component of this framework in a sustainable and practical way.³² A practice already employing a behavioral health provider may choose, for example, the other professional model starting with a few patients to test workflows and evaluate results.

Limitations of this study include the fact that only 21 practices were evaluated and, although these practices were geographically dispersed and purposefully selected, they likely underrepresent many practice types such as large health system practices or federally qualified health centers.⁵¹ Although we cannot be certain, this may indicate that systems and federally qualified health centers are less able to provide targeted weight management services with their current staff and structures. The models presented may not cover all the methods and possible organizing structures for weight management services in primary care. In addition, although we sought to obtain outcome data on patient weight loss results and on reimbursement for services, this proved very difficult, and we were unable to do so because the practices did not have the data systems needed to provide this data within the study's resources. Therefore, we have no data to support whether these models were in fact successful in helping patients achieve short or longterm weight loss.

Conclusion

There is a real need for primary care practices to step up and start providing weight management services, given the pressing health issue of obesity and sequalae of associated health problems. This article is important because it can provide information for PCPs and their practices to take that first step. Successfully delivering weight management services in primary care is challenging; however, the practices we studied confirm that doing so is achievable. Identifying and choosing an established model for care delivery may be a useful path for primary care practices to get started with providing weight management services. Further research should investigate how the models result in different outcomes for patients as well as their implementation potential across a wide range of typical practices.

Authors' Resource

From this work and as a means of distributing how to organize care according to these models, our team developed a website for practices to determine which model might work best for their practice. This website describes the features of each model, information on why weight management is important in primary care, and resources for implementation. The title for this website is Practical Solutions for Weight Management in Primary Care and can be found at: https://medschool.cuanschutz.edu/ weightmanagementinprimarycare.

To see this article online, please go to: http://jabfm.org/content/ 00/00/000.full.

References

- National Center for Health Statistics. Prevalence of obesity and severe obesity among adults: United States, 2017–2018. Data brief no. 360. Updated February 2020. Accessed November 23, 2021. Available from: https://www.cdc.gov/nchs/products/databriefs/ db360.htm.
- Sturm R, Hattori A. Morbid obesity rates continue to rise rapidly in the United States. Int J Obes (Lond) 2013;37:889–91.
- Apovian CM. Obesity: definition, comorbidities, causes, and burden. Am J Manag Care 2016;22: s176–85.
- Schelbert KB. Comorbidities of obesity. Prim Care 2009;36:271–85.
- Bullen V, Feenie V. The human cost of failing to address obesity. British Journal of Obesity 2015;1: 19–24.
- Sarwer DB, Polonsky HM. The psychosocial burden of obesity. Endocrinol Metab Clin North Am 2016;45:677–88.
- Tremmel M, Gerdtham U-G, Nilsson PM, Saha S. Economic Burden of Obesity: A Systematic Literature Review. IJERPH 2017;14:435.
- Tronieri JS, Wadden TA, Chao AM, Tsai AG. Primary care interventions for obesity: review of the evidence. Curr Obes Rep 2019;8:128–36.
- Leblanc ES, O'Connor E, Whitlock EP, Patnode CD, Kapka T. Effectiveness of primary care-relevant treatments for obesity in adults: a systematic evidence review for the U.S. Preventive Services Task Force. Ann Intern Med 2011;155:434–47.
- Thompson WG, Cook DA, Clark MM, Bardia A, Levine JA. Treatment of obesity. Mayo Clin Proc 2007;82:93–101. quiz 101-2.
- Yanovski SZ, Yanovski JA. Long-term drug treatment for obesity: a systematic and clinical review. JAMA 2014;311:74–86.
- Wadden TA, Sarwer DB. Behavioral treatment of obesity. In: Goldstein DJ, ed. The management of eating disorders and obesity. Humana Press; 1999: 173–99. Nutrition and health.
- McTigue KM, Harris R, Hemphill B, Dec 2, et al. Screening and interventions for obesity in adults: summary of the evidence for the U.S. Preventive Services Task Force. Ann Intern Med. 2003;139: 933–49.
- Moyer VA, U.S. Preventive Services Task Force. Screening for and management of obesity in adults: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2012;157:373–8.
- Curry SJ, Krist AH, Owens DK, US Preventive Services Task Force, et al. Behavioral weight loss interventions to prevent obesity-related morbidity and mortality in adults: US Preventive Services Task Force Recommendation Statement. JAMA. 2018;320:1163–71.

- Nederveld A, Phimphasone-Brady P, Connelly L, Fitzpatrick L, Holtrop JS. The joys and challenges of delivering obesity care: a qualitative study of US primary care practices. J Gen Intern Med 2021; 36:2709–16.
- Bleich SN, Pickett-Blakely O, Cooper LA. Physician practice patterns of obesity diagnosis and weight-related counseling. Patient Educ Couns 2011;82:123–9.
- Yates EA, Macpherson AK, Kuk JL. Secular trends in the diagnosis and treatment of obesity among US adults in the primary care setting. Obesity (Silver Spring) 2012;20:1909–14.
- Shreve M, Scott A, Vowell Johnson K. Adequately addressing pediatric obesity: challenges faced by primary care providers. South Med J 2017;110: 486–90.
- Ritten A, LaManna J. Unmet needs in obesity management: From guidelines to clinic. J Am Assoc Nurse Pract 2017;29:S30–s42.
- 21. Braverman-Panza J, Kuritzky L, Horn DB. Answers to clinical questions in the primary care management of people with obesity: practice redesign and reimbursement. J Fam Pract 2016;65:S25–7.
- 22. Funk LM, Jolles SA, Greenberg CC, et al. Primary care physician decision making regarding severe obesity treatment and bariatric surgery: a qualitative study. Surg Obes Relat Dis May 2016;12:893–901.
- Avidor Y, Still CD, Brunner M, Buchwald JN, Buchwald H. Primary care and subspecialty management of morbid obesity: referral patterns for bariatric surgery. Surg Obes Relat Dis 2007;3:392– 407.
- Petrin C, Kahan S, Turner M, Gallagher C, Dietz WH. Current practices of obesity pharma-cotherapy, bariatric surgery referral and coding for counselling by healthcare professionals. Obes Sci Pract 2016;2:266–71.
- Wadden TA, Butryn ML, Hong PS, Tsai AG. Behavioral treatment of obesity in patients encountered in primary care settings: a systematic review. JAMA 2014;312:1779–91.
- Ogden J, Flanagan Z. Beliefs about the causes and solutions to obesity: a comparison of GPs and lay people. Patient Educ Couns 2008;71:72–8.
- 27. Bleich SN, Gudzune KA, Bennett WL, Cooper LA. Do physician beliefs about causes of obesity translate into actionable issues on which physicians counsel their patients? Prev Med 2013;56:326–8.
- Tsai AG, Wadden TA. Treatment of obesity in primary care practice in the United States: a systematic review. J Gen Intern Med 2009;24:1073–9.
- Centers for Medicare & Medicaid Services. Medicare physician and other practitioners—by provider and service. Updated August 31, 2021. Accessed November 23, 2021. Available from: https://data. cms.gov/provider-summary-by-type-of-service/

medicare-physician-other-practitioners/medicare-physician-other-practitioners-by-provider-and-service.

- Ozoor M, Gritz M, Dolor R, Holtrop JS, Luo Z. Primary care provider uptake of intensive behavioral therapy for obesity in Medicare patients, 2013–2020. Under review.
- Luo Z, Gritz M, Connelly L, et al. A survey of primary care practices on their use of the intensive behavioral therapy for obese medicare patients. J Gen Intern Med 2021;36:2700–8.
- 32. Sherson EA, Yakes Jimenez E, Katalanos N, Aug. A review of the use of the 5 A's model for weight loss counselling: differences between physician practice and patient demand. Fam Pract 2014;31:389–98.
- Borkan J. Immersion/crystallization. In: Crabtree BF, Miller WL, eds. Doing Qualitative Research. 2nd ed. Sage Publications; 1999:179–94.
- Yin RK. Case study research: design and methods. 4th ed. Applied Social Research Methods. Sage Publications, Inc.; 2008.
- Miles MB, Huberman AM. Matrix displays, some rules of thumb. In: Miles MB, Huberman AM, eds. Qualitative data analysis: an expanded sourcebook. 2nd ed. Sage; 1994:239–44.
- Weir CB, A. J. BMI Classification percentile and cut off points. In: StatPearls StatPearls Publishing. Updated 2022 Jun 27. Accessed August 29, 2022. Available at: https://www.ncbi.nlm.nih.gov/books/ NBK541070/.
- Befort CA, VanWormer JJ, Desouza C, et al. Effect of behavioral therapy with in-clinic or telephone group visits vs in-clinic individual visits on weight loss among patients with obesity in rural clinical practice: a randomized clinical trial. JAMA 2021;325:363–72.
- Katzmarzyk PT, Martin CK, Newton RL, Jr. et al. Weight Loss in Underserved Patients - A Cluster-Randomized Trial. N Engl J Med 2020;383: 909–18.
- Carvajal R, Wadden TA, Tsai AG, Peck K, Moran CH. Managing obesity in primary care practice: a narrative review. Ann NY Acad Sci 2013;1281:191–206.
- Ryan DH, Johnson WD, Myers VH, et al. Nonsurgical weight loss for extreme obesity in primary care settings: results of the Louisiana Obese Subjects Study. Arch Intern Med 2010;170:146–54.
- 41. Kruschitz R, Wallner-Liebmann S, Lothaller H, Luger M, Ludvik B. Long-term weight-loss maintenance by a

meal replacement based weight management program in primary care. Obes Facts 2017;10: 76–84.

- Haas WC, Moore JB, Kaplan M, Lazorick S. Outcomes from a medical weight loss program: primary care clinics versus weight loss clinics. Am J Med 2012;125:600. e7–e11.
- 43. Espel-Huynh HM, Wing RR, Goldstein CM, Thomas JG. Rationale and design for a pragmatic effectiveness-implementation trial of online behavioral obesity treatment in primary care. Contemp Clin Trials 2019;82:9–16.
- 44. Batsis JA, Pletcher SN, Stahl JE. Telemedicine and primary care obesity management in rural areas innovative approach for older adults? BMC Geriatr 2017;17:6.
- 45. Brown JD, Hales S, Evans TE, et al. Description, utilisation and results from a telehealth primary care weight management intervention for adults with obesity in South Carolina. J Telemed Telecare 2020;26:28–35.
- Feldman MD, Berkowitz SA. Role of behavioral medicine in primary care. Curr Opin Psychiatry. 2012;25:121–7.
- 47. Jacobs M, Harris J, Craven K, Sastre L. Sharing the 'weight' of obesity management in primary care: integration of registered dietitian nutritionists to provide intensive behavioural therapy for obesity for Medicare patients. Fam Pract 2021;38:18–24.
- 48. Marincic PZ, Hardin A, Salazar MV, Scott S, Fan SX, Gaillard PR. Diabetes self-management education and medical nutrition therapy improve patient outcomes: a pilot study documenting the efficacy of registered dietitian nutritionist interventions through retrospective chart review. J Acad Nutr Diet 2017;117: 1254–64.
- 49. Haas K, Hayoz S, Maurer-Wiesner S. Effectiveness and feasibility of a remote lifestyle intervention by dietitians for overweight and obese adults: pilot study. JMIR Mhealth Uhealth 2019;7:e12289.
- Fitzpatrick SL, Wischenka D, Appelhans BM, et al. An evidence-based guide for obesity treatment in primary care. Am J Med 2016;129:115. e1–e7.
- American Medical Association. Physician Practice Benchmark Survey. Updated October 14, 2022. Accessed December 16, 2022. Available at: https:// www.ama-assn.org/about/research/physician-practicebenchmark-survey.