


# A Survey of Primary Care Practices on Their Use of the Intensive Behavioral Therapy for Obese Medicare Patients



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**OBJECTIVE:** To fill the gap in knowledge on systematic differences between primary care practices (PCP) that do or do not provide intensive behavioral therapy (IBT) for obese Medicare patients.

**METHODS:** A mixed modality survey (paper and online) of primary care practices obtained from a random sample of Medicare databases and a convenience sample of practice-based research network practices.

**KEY RESULTS:** A total of 287 practices responded to the survey, including 140 (7.4% response rate) from the random sample and 147 (response rate not estimable) from the convenience sample. We found differences between the IBT-using and non-using practices in practice ownership, patient populations, and participation in Accountable Care Organizations. The non-IBT-using practices, though not billing for IBT, did offer some other assistance with obesity for their patients. Among those who had billed for IBT, but stopped billing, the most commonly cited reason was billing difficulties. Many providers experienced denied claims due to billing complexities.

**CONCLUSIONS:** Although the Centers for Medicare and Medicaid Services established payment codes for PCPs to deliver IBT for obesity in 2011, very few providers submitted fee-for-service claims for these services after almost 10 years. A survey completed by both a random and convenience sample of practices using and not using IBT for obesity payment codes revealed that billing for these services was problematic, and many providers that began using the codes discontinued using them over the past 7 years.

**KEY WORDS:** obesity management; primary health care; delivery of health care; intensive behavioral therapy.

J Gen Intern Med 36(9):2700–8  
DOI: 10.1007/s11606-021-06596-w  
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**Prior presentation** None.

Received August 3, 2020

Accepted January 1, 2021

Published online January 22, 2021

## INTRODUCTION

In 2011 and 2015, the Centers for Medicare and Medicaid Services (CMS) approved reimbursement to primary care providers (PCPs) under two procedure codes (G0447 and G0473) for providing intensive behavior therapy (IBT) for obese Medicare beneficiaries, defined as a body mass index (BMI) of 30 or more.<sup>1</sup> IBT is an evidence-based<sup>2–4</sup> and cost-effective<sup>5</sup> treatment for obesity, consisting of the provision of frequent behavioral support provided by an approved provider.<sup>6,7</sup> However, the number of PCPs use of these codes is extremely low (0.1% of eligible beneficiaries in 2012 and 0.2% in 2015).<sup>8,9</sup> Several systematic or narrative reviews,<sup>10–13</sup> surveys,<sup>14</sup> and qualitative interviews<sup>15–18</sup> described clinicians' knowledge, beliefs, attitudes, and practices on weight management in primary care and barriers to implementation. However, there has not been a systematic description of the practice-level characteristics and comparison between practices that billed for IBT and those that did not, a gap filled by this paper. A better understanding of the differences can guide future targeted policies to improve obesity services. A companion paper details the reasons why practices do not use IBT through key informant interviews.<sup>19</sup>

## METHODS

The study was approved by the Institutional Review Boards of University of Colorado and Michigan State University.

## Random Sample Sampling Frame

The billable IBT codes for obesity services were established for PCPs to deliver IBT care to obese Medicare beneficiaries. Using the 2012–2015 Medicare Fee-for-service Provider Utilization and Payment Data Physician and Other Supplier Public Use Files (FFSPUP), we constructed a sampling frame of providers stratified by IBT users and non-users. The

FFSPUP data contain information on utilization by and payment to providers (indexed by the National Provider Identifier, NPI), Healthcare Common Procedure Coding System (HCPCS) code, and place of service for 100% final-action claims for the Medicare FFS population. The FFSPUP public use files include NPI-HCPCS aggregates for providers that received payments for 11 or more beneficiaries for specific HCPCS codes. We restricted our sampling frame to PCPs in family practice, general practice, and internal medicine. To ensure feasibility of an intensive follow-up interview and qualitative data collection in the larger project, we restricted providers to 14 states (FL, NC, SC, TN, TX, CA, CO, NJ, NY, PA, IL, IN, MI, and OH) based on geographic regional diversity and potential IBT-user population size. PCPs who billed the HCPCS codes G0447 or G0473 between 2012 and 2015 were identified in the FFSPUP data, which were the publicly available data at the time of sample design.

Our target unit of analysis was the primary care practice (not individual providers) that served the Medicare population and to develop a sampling frame of practices we considered two strategies to group PCPs into practices. First, the Physician Compare national downloadable file includes both a provider's NPI and a group practice identifier that was used to associate PCPs with practices. However, it was common for PCPs to be associated with multiple practices and some group practice identifiers had multiple locations and phone numbers making it difficult to associate a PCP with a single practice. Second, we used the National Plan and Provider Enumeration System (NPPES) data and associated PCPs with a practice if the PCP and the group practice had the same phone number recorded at the end of the corresponding years from the NPPES. Eventually, the second strategy was adopted and the resulting sampling frame of practices with associated PCPs was used to select a random sample of practices stratified by states and practice types (see below). Research assistants verified the accuracy of the grouping by web search and/or calling the practices. When we encountered a practice that could not be associated with any PCPs working at the practice, we randomly selected another practice in the same state and of the same type to replace it.

### Type of Practices

Because the number of practices providing IBT services was small, we adopted a stratified sampling method to ensure diversity of practices. We stratified practices into three types: those that started billing for IBT in 2012 or 2013 and were still billing IBT for obesity as of 2014 or 2015 (type I); those that billed for IBT for obesity before 2014, but did not do so in 2014 or 2015 (type II); and those who did not bill for IBT in 2012–2015 (type III). Note, as we were only able to identify providers billing IBT for 11 or more beneficiaries, it is possible that some of the type II or type III providers did utilize IBT for obesity, but to a lesser extent. Research assistants spent a tremendous amount of time verifying mailing addresses and

phone numbers as the FFSPUP data were often not up to date. The survey questionnaire was sent to the verified practice mailing addresses. If two PCPs shared the same phone number, they were considered working in the same practice and their addresses were confirmed. If one provider had multiple phone numbers, these phone numbers represented distinct practices by our assumption. If a practice had more than one type of providers, then the classification of practices used the rule that type I superseded types II and III, and type II superseded type III.

From previous experience, we knew the survey response rates for primary care practices would be low. Therefore, we did not design the survey as a national representative sample of PCPs, nor to determine the prevalence rate of use of IBT for obesity in the nation<sup>9</sup>. Rather, this survey was intended as a case-finding approach to improve our understanding of the factors associated with the use of the IBT billing codes and inform future practice. Thus, we did not predetermine the number of practices of each type to be sampled in the study. We began with paper mailing and then later included the option for online completion (using the Qualtrics online data survey method) as modes of data collection for the survey.

### Convenience Sample

Because the initial response rates to the paper surveys from all three strata in the random sample were low, we supplemented the random sample with a convenience sample by identifying primary care practices affiliated with one of several practice-based research networks (PBRNs). PBRNs are groups of practices that represent typical practice, and also agree to participate in selected research projects of interest<sup>20,21</sup>. The investigators of this study were PBRN directors and had extensive contacts with PBRN directors throughout the USA. We utilized these contacts to elicit participation from member practices using an online format of the same survey questionnaire that was mailed to the random sample. They were offered the mailed questionnaire if they called to request it. The practice types used in the sample design are not available for the convenience sample.

### Survey Questionnaire

The questionnaire encompassed three sections: (1) general information about the practice (including specialties and number of providers, ownership, affiliation with physician organization, employees of health systems or Managed Care Organization or Health Management Organization (MCO/HMO), recognition as Patient-Centered Medical Home (PCMH), participation in Comprehensive Primary Care Plus or an Accountable Care Organization (ACO), quality improvement activities, and patient insurance composition); (2) services for obesity care (including type of services provided and provider training); and (3) billing and coding for obesity care (including billing for IBT for obesity using G0447 or G0473).

We hypothesized that when compared to practices that never used IBT for obesity, practices with a higher percentage of Medicare patients, who are majority owned by a hospital, health system, or managed care organization and who provide obesity services also to non-Medicare patients would be more likely to use the Medicare IBT for obesity benefit. In addition, compared to practices that stopped using the IBT for obesity, practices that continued using the service would differ in orientation toward obesity treatment as a key element of primary care, PCMH designation, capacity in reporting changes, and supportive structures and personnel for obesity treatment. Thus, our questionnaire was created to assess these characteristics of the practices (see [Appendix](#) for the full questionnaire).

## Statistical Analysis

We present descriptive statistics (frequency and percentage) for practice characteristics by sampling strategies, by practice settings, and by self-reported IBT for obesity utilization status. Chi-square tests and *t* tests are used for two-sample comparisons of categorical and continuous variables, and analysis of variance is used for three-group comparisons of continuous variables.

## RESULTS

A total of 287 practices responded to the survey, including 140 from the random sample and 147 from the convenience sample. Because the denominator for the PBRN list was not specifically delineated (an email went out to the network distribution list by the PBRN directors), we could only calculate the response rate for the second sampling strategy. Out of the 1890 letters mailed to practices identified by the Medicare FFSPUP data, 140 (7.4%) responded.

Table 1 describes the practice characteristics by the sampling strategies, highlighting differences in physician and patient composition, size, and ownership structures between randomly selected versus PBRN practices. Although the proportions of Medicare patients are similar between the two groups, PBRN practices are less likely to participate in the Medicare Shared Savings or Next Generation ACOs (18% vs. 39%). All practices participate in some form of quality improvement activities, but the PBRN practice activities are more formal and structured, e.g., having a quality improvement committee and process such as Lean, Six sigma, and Plan-Do-Study-Act.

Because the variation in sampling primarily reflects difference in delivery setting (ownership), Table 2 compares practices independently owned by physicians or medical groups ( $n = 151$ ); practices owned by a hospital, health system, MCO/HMO, university practices, nonprofit or Federally Qualified Health Center, Veterans Affairs, Department of Defense, or other government entities ( $n = 101$ ) and other types of practices ( $n = 35$ ). Results are consistent with Table 1, showing a

more prominent difference between practices in size, patient insurance, and quality improvement activities. The independently owned practices have more Medicare patients than the other two groups.

Based on the self-report of using G0447 and G0473 to bill for IBT services, we group the practices to be current IBT-using practices ( $n = 96$ ), non-IBT practices ( $n = 119$ ), and not sure/unknown practices ( $n = 72$ ) in Table 3. Given the requirement for billing IBT services, it is not surprising that compared with the non-IBT practices, the current IBT-using practices have more general internal medicine providers, fewer internal medicine/pediatrics providers, and more Medicare patients. Perhaps because the IBT-using practices are more likely to be independently owned (82% vs. 49%), they are less likely to be recognized as a PCMH (13% vs. 24%) but more likely to participate in Medicare ACOs (39% vs. 28%).

Figures 1 and 2 show types of obesity treatment services and practitioners providing these services. Although all practices provide some obesity treatment services, more current IBT-using practices provide all types of services except for group weight loss program and referrals to other programs. The proportion of IBT practices offering obesity treatment services by physicians is higher than that of the others; but the proportion of non-IBT practices by registered dietitians is higher than the others.

Table 4 describes the practices' billing experience by self-reported IBT status. Consistent with their ownership, IBT-using practices are more likely to submit claims by themselves (73%) as compared to the non-IBT practices (48%). Both IBT user and non-user practices experience billing issues, such as not getting paid or getting paid a very low reimbursement rate for obesity treatment, but non-IBT practices are more likely to report "not sure when it is appropriate to bill for obesity treatment" and "not sure how to bill for obesity treatment" compared with the IBT-using practices. Among other issues, two frequently mentioned reasons are unpaid dietetic services and the requirement for a physician to cosign all notes. Among the non-IBT practices, 20 (17%) indicated that they used to bill for G0447 or G0473 but stopped; and 10 (8%) cited the reason that "it was more hassle than it was worth" to bill for the service.

## DISCUSSION

In this paper, we used a mixed modality survey of a random sample and a convenience sample of PCPs to compare practices that did or did not bill for IBT for eligible obese Medicare patients using the two approved procedure codes (G0447 and G0473). We found systematic differences between the IBT-using practices and non-IBT practices in ownership, patient population, and participation in ACOs. The non-IBT practices offered other forms of obesity treatments for their patients, but among those who stopped billing for IBT, the most commonly cited reason was billing difficulties.

Table 1 Characteristics of the Sampled Primary Care Practices by Sampling Phases

	Random sample practices in CMS 2012–2015 <sup>a</sup> (N = 140)	Convenience sample practice in PBRN <sup>b</sup> (N = 147)	Total (N = 287)	p value <sup>c</sup>
Does your practice have the following specialties (check all that apply)?				
Family medicine	61 (43.6%)	60 (40.8%)	121 (42.2%)	0.637
General internal medicine	81 (57.9%)	44 (29.9%)	125 (43.6%)	< 0.001
Med/peds	3 (2.1%)	26 (17.7%)	29 (10.1%)	< 0.001
Other	26 (18.6%)	72 (49.0%)	98 (34.1%)	< 0.001
Size of practice (physicians, resident physicians, certified nurse specialists, nurse practitioner, physician assistants)				
Small (< 5)	106 (75.7%)	88 (59.9%)	194 (67.6%)	0.004
Moderate to large (≥ 5)	34 (25.9%)	59 (40.1%)	93 (32.4%)	
Who is the majority owner of your practice (check only one)?				
Independent owned by physician or medical group	113 (80.7%)	38 (25.9%)	151 (52.6%)	< 0.001
Hospital or health system, MCO/HMO, university practices, nonprofit or FQHC, VA, DOD or other government	22 (15.7%)	79 (53.7%)	101 (35.2%)	
Other/unknown	5 (3.6%)	30 (20.4%)	35 (12.2%)	
Approximately what percent of your practice's patients have the following primary payer?				
	Mean (SD)	Mean (SD)	Mean (SD)	
Private insurance	40.6 (23.1)	34.4 (31.8)	37.4 (28.0)	0.057
Medicare	34.7 (20.6)	18.7 (20.6)	26.5 (22.1)	< 0.001
Medicaid	11.1 (18.1)	13.2 (18.3)	12.2 (18.7)	0.332
Other public	1.8 (6.4)	2.5 (8.6)	2.2 (7.65)	0.387
Self-pay/uninsured	5.3 (8.2)	8.8 (19.2)	7.1 (15.0)	0.047
Is your practice recognized as a Patient-Centered Medical Home (PCMH) by any of the following organizations (check all that apply)?				
NCQA <sup>d</sup>	24 (17.1%)	20 (13.6%)	44 (15.3%)	0.406
Blue Cross and Blue Shield	9 (6.3%)	6 (4.1%)	15 (5.2%)	0.372
Joint Commission/other	5 (3.6%)	3 (2.0%)	8 (2.8%)	0.431
Does your practice participate in any of the following Accountable Care Organization (check all that apply)?				
Medicare Shared Savings or Next Generation	54 (38.6%)	26 (17.7%)	80 (27.9%)	< 0.001
Medicaid	6 (4.3%)	18 (12.2%)	24 (8.4%)	0.015
Private insurance	11 (7.9%)	13 (8.8%)	24 (8.4%)	0.763
Which of the following quality improvement activities are happening in your practice (check all that apply)?				
Work with a quality improvement coach/facilitator	39 (27.9%)	40 (27.2%)	79 (27.5%)	0.902
Have a quality improvement committee	29 (20.7%)	54 (36.1%)	83 (28.6%)	0.004
Have a practice leader(s) who drive forward quality improvement	68 (48.6%)	70 (47.6%)	138 (48.1%)	0.872
Have a process for identifying quality improvement goals and track progress toward goals	63 (45.0%)	78 (53.1%)	141 (49.1%)	0.172
Use a quality improvement process such as Lean, Six Sigma, PDSA <sup>e</sup> cycles, or other	15 (10.7%)	44 (29.9%)	59 (20.6%)	< 0.001
Have a system for using data to measure progress toward quality improvement goals	66 (47.1%)	71 (48.3%)	137 (47.7%)	0.845
Have a system or committee for patient and family input and involvement	30 (21.4%)	47 (32.0%)	77 (26.8%)	0.044
None of the above	12 (8.6%)	12 (8.2%)	24 (8.4%)	0.901

<sup>a</sup>CMS = Center for Medicare and Medicaid Services, data = Public Use File on Provider Utilization and Payment (Physician and Other Supplier)

<sup>b</sup>PBRN = Practice-based Research Network

<sup>c</sup>p values for categorical variables based on chi-square test and for continuous variables based on t test

<sup>d</sup>NCQA = National Committee for Quality Assurance

<sup>e</sup>PDSA = Plan-Do-Study-Act

Using IBT for obesity services, the documentation for continued billing requires patients must lose at least 3 kg (6.6 lbs.) by 6 months; however, they cannot drop their BMI below 30 or they no longer qualify. Many providers experienced denied claims due to billing problems. For therapy to be intensive, for example, some providers counseled patients for 30 min and billed for 2 units of the service; but such billing tended to be denied. The rate of reimbursement for a 15-min consultation of IBT is currently \$26, whereas payment for a typical evaluation and management code for an established patient for a level 2 visit (99212) is \$45 and a level 3 visit (99213) \$74 (Medicare payment for calendar year 2018).

With these difficulties, it is perhaps not a surprise that the uptake rate of IBT for obesity services is so low.<sup>8,9</sup> Assuming that IBT can confer notable weight loss if appropriately

delivered, interested PCPs need to be prepared to put in significant effort to initiate and maintain the services for all Medicare obese patients. In the population aged 60 years or older, the prevalence of obesity increased from 23.5% in 1988–1994 to 36.0% in 2005–2012.<sup>22</sup> As the composition of the Medicare population continues to change to have higher obesity, chronic conditions, and disabilities, the financial burden for Medicare will be more profound. Simplifying billing requirements might be the natural first step to the process of reducing provider burden and increasing obese Medicare beneficiaries' access to evidence-based services.

It may be that some practices contain providers who are simply more interested in addressing obesity in their practice. The IBT-using practices provided more types of obesity services, by more types of providers, and had more clinicians

Table 2 Characteristics of Sampled Primary Care Practices by Delivery Settings

	Independent <sup>a</sup> (N = 151)	Health system <sup>b</sup> (N = 101)	Other/unknown (N = 35)	p value
Does your practice have the following specialties (check all that apply)?				
Family medicine	70 (46.4%)	41 (40.6%)	10 (28.6%)	0.146
General internal medicine	78 (51.7%)	39 (38.6%)	8 (22.9%)	0.004
Med/peds	4 (2.6%)	19 (18.8%)	6 (17.1%)	<0.001
Other	28 (18.5%)	45 (44.6%)	25 (71.4%)	<0.001
Size of practice (physicians, resident physicians, certified nurse specialists, nurse practitioner, physician assistants)				
Small (<5)	116 (76.8%)	47 (46.5%)	31 (88.6%)	<0.001
Moderate to large (≥5)	35 (23.2%)	54 (53.5%)	4 (11.4%)	
Approximately what percent of your practice's patients have the following primary payer?				
	Mean (SD)	Mean (SD)	Mean (SD)	
Private insurance	45.0 (24.7)	33.5 (27.4)	16.0 (30.2)	<0.001
Medicare	32.8 (21.2)	24.5 (20.6)	4.8 (13.4)	<0.001
Medicaid	8.5 (14.5)	19.5 (21.5)	6.6 (20.6)	<0.001
Other public	1.8 (6.2)	2.9 (9.6)	1.6 (6.5)	0.468
Self-pay/uninsured	6.7 (13.9)	7.4 (12.7)	7.7 (23.8)	0.911
Is your practice recognized as a Patient-Centered Medical Home (PCMH) by any of the following organizations (check all that apply)?				
NCQA	26 (17.2%)	18 (17.8%)	0 (0.0%)	0.027
BCBS	12 (7.9%)	3 (3.0%)	0 (0.0%)	0.073
Joint commission/other	2 (1.3%)	5 (5.0%)	1 (2.9%)	0.230
Does your practice participate in any of the following Accountable Care Organization (check all that apply)?				
Medicare Shared Savings or Next Generation	51 (33.8%)	28 (27.7%)	1 (2.9%)	0.001
Medicaid	5 (3.3%)	18 (17.8%)	1 (2.9%)	<0.001
Private insurance	11 (7.3%)	12 (11.9%)	1 (2.9%)	0.197
Which of the following quality improvement activities are happening in your practice (check all that apply)?				
Work with a quality improvement coach/facilitator	46 (30.5%)	31 (30.7%)	2 (5.7%)	0.009
Have a quality improvement committee	32 (21.2%)	49 (48.5%)	1 (2.9%)	<0.001
Have a practice leader(s) who drive forward quality improvement	78 (51.7%)	57 (56.4%)	3 (8.6%)	<0.001
Have a process for identifying quality improvement goals and track progress toward goals	76 (50.3%)	62 (61.4%)	3 (8.6%)	<0.001
Use a quality improvement process such as Lean, Six Sigma, PDSA cycles, or other	22 (14.6%)	36 (35.6%)	1 (2.9%)	<0.001
Have a system for using data to measure progress toward quality improvement goals	74 (49.0%)	63 (62.4%)	0 (0.0%)	<0.001
Have a system or committee for patient and family input and involvement	39 (25.8%)	35 (34.7%)	3 (8.6%)	0.010
None of the above	14 (9.3%)	7 (6.9%)	3 (8.6%)	0.805

<sup>a</sup>Independently owned by physician or medical group

<sup>b</sup>Hospital or health system, MCO/HMO, university practices, nonprofit or FQHC, VA, DOD, or other government

<sup>c</sup>p values for categorical variables based on chi-square test and for continuous variables based on ANOVA

with certification to perform obesity management. The IBT and non-IBT practices also differed in their ownership, patient population, PCMH recognition, ACO participation, and quality improvement activities.

Our results are similar to others in the literature.<sup>23,24</sup> Providers who have delivered IBT benefit note a high burden with implementation, and the strict criteria of providers who are eligible to deliver and bill for services may lead to

increased workforce challenges, adding an additional burden to PCPs.<sup>23</sup> Further, some practices have to accept fewer Medicare/Medicaid patients due to reduced reimbursement rates and increased primary care operating costs.<sup>24</sup> While CMS aimed to increase utilization of preventive service and screenings recommended by the United States (US) Preventive Services Task Force through new procedure codes, the uptake rates for these services have been low.<sup>25–28</sup> Only 3%

**Table 3 Characteristics of Sampled Primary Care Practices by Intensive Behavioral Therapy (IBT) for Obesity Status**

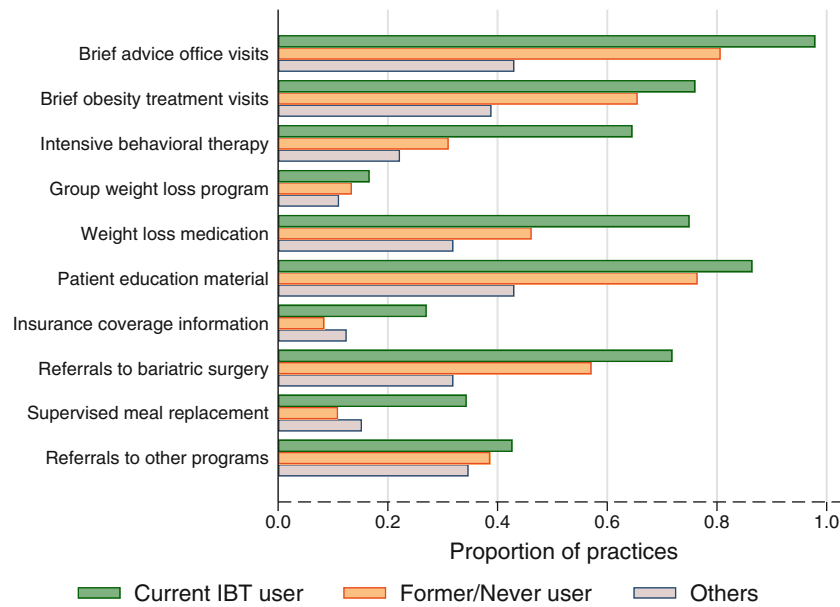
	IBT for obesity using practice (N=96)	Non-IBT for obesity using practice (N=119)	Not sure/unknown (N=72)	p value <sup>a</sup>
Does your practice have the following specialties (check all that apply)?				
Family medicine	47 (49.0%)	51 (42.9%)	23 (31.9%)	0.085
General internal medicine	56 (58.3%)	41 (34.5%)	28 (38.9%)	0.001
Med/peds	3 (3.1%)	11 (9.2%)	15 (20.8%)	0.001
Other	23 (24.0%)	38 (31.9%)	37 (51.4%)	0.001
Size of practice (physicians, resident physicians, certified nurse specialists, nurse practitioner, physician assistants)				
Small (<5)	72 (75.0%)	76 (63.9%)	46 (63.9%)	0.164
Moderate to large (≥5)	24 (25.0%)	43 (36.1%)	26 (36.1%)	
Who is the majority owner of your practice?				
Independent owned by physician or medical group	79 (82.3%)	58 (48.7%)	14 (19.4%)	< 0.001
Hospital or health system, MCO/HMO, university practices, nonprofit or FQHC, VA, DOD, or other government	14 (14.6%)	55 (46.2%)	32 (44.4%)	
Other/unknown	3 (3.1%)	6 (5.0%)	26 (36.1%)	
Approximately what percent of your practice's patients have the following primary payer?				
	Mean (SD)	Mean (SD)	Mean (SD)	
Private insurance	41.7 (21.5)	44.4 (29.4)	20.1 (26.2)	< 0.001
Medicare	36.4 (20.9)	24.7 (20.5)	16.2 (20.9)	< 0.001
Medicaid	10.0 (15.7)	13.8 (19.3)	12.3 (21.4)	0.333
Other public	1.8 (6.5)	2.2 (7.1)	2.5 (9.5)	0.823
Self-pay/uninsured	5.4 (7.0)	10.1 (21.2)	4.3 (8.1)	0.013
Is your practice recognized as a Patient-Centered Medical Home (PCMH) by any of the following organizations (check all that apply)?				
NCQA	12 (12.5%)	28 (23.5%)	4 (5.6%)	0.002
BCBS	7 (7.3%)	6 (5.0%)	2 (2.8%)	0.426
Joint commission/other	3 (3.1%)	2 (1.7%)	3 (4.2%)	0.582
Does your practice participate in any of the following Accountable Care Organization (check all that apply)?				
Medicare Shared Savings or Next Generation	37 (38.5%)	33 (27.7%)	10 (13.9%)	0.002
Medicaid	5 (5.2%)	15 (12.6%)	4 (5.6%)	0.092
Private insurance	9 (9.4%)	13 (10.9%)	2 (2.8%)	0.130
Which of the following quality improvement activities are happening in your practice (check all that apply)?				
Work with a quality improvement coach/facilitator	31 (32.3%)	35 (29.4%)	13 (18.1%)	0.103
Have a quality improvement committee	21 (21.9%)	44 (37.0%)	17 (23.6%)	0.029
Have a practice leader(s) who drive forward quality improvement	49 (51.0%)	68 (57.1%)	21 (29.2%)	0.001
Have a process for identifying quality improvement goals and track progress toward goals	50 (52.1%)	64 (53.8%)	27 (37.5%)	0.072
Use a quality improvement process such as Lean, Six Sigma, PDSA cycles, or other	14 (14.6%)	35 (29.4%)	10 (13.9%)	0.008
Have a system for using data to measure progress toward quality improvement goals	50 (52.1%)	70 (58.8%)	17 (23.6%)	< 0.001
Have a system or committee for patient and family input and involvement	22 (22.9%)	41 (34.5%)	14 (19.4%)	0.043
None of the above	6 (6.2%)	16 (13.4%)	2 (2.8%)	0.023

<sup>a</sup>p values for categorical variables based on chi-square test and for continuous variables based on ANOVA

of Medicare FFS beneficiaries received a visit specifically addressing depression screening in 2016 and 22% may have received depression screening as part of their Welcome to Medicare visit.<sup>25</sup> The G-codes for Annual Wellness Visits were introduced in 2011 with much higher allowable charge than obesity counseling services but the penetration was only 16~17% in 2014.<sup>26-28</sup> Lack of time and low

reimbursement are common barriers to using the IBT for obesity codes identified in our study.

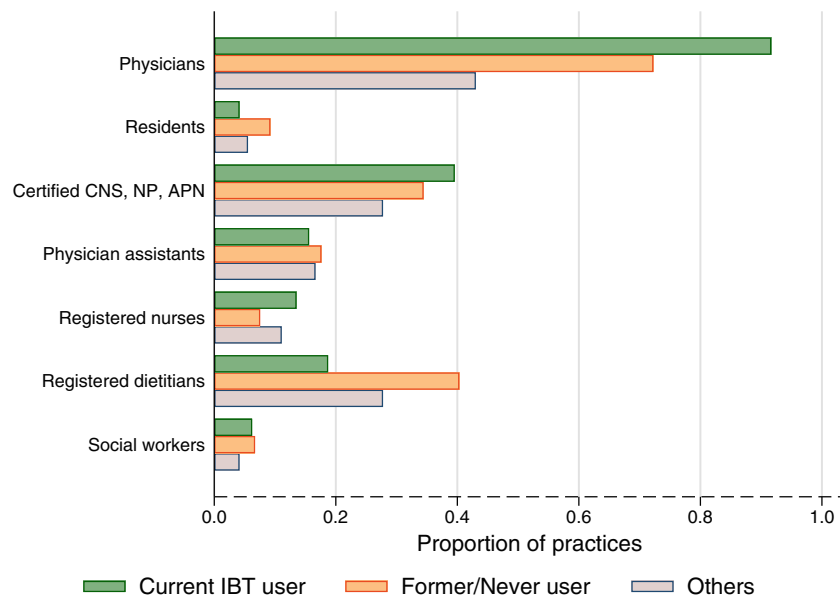
Limitations of this study are notable. First, the survey was not intended to represent the US constellation of PCPs with regard to their billing practices for IBT for obesity. However, the data provide insight into understanding of the use of the benefit for future planning. Second, the survey had to adopt two modes of



**Figure 1** Proportion of practices providing obesity treatment services by service type and practice self-reported IBT status. For all types of services, proportions of practices providing them are statistically significant except for group weight loss program and referrals to other programs.

sampling due to the low response rate in the random sample. It did collect responses from PCPs geographically distributed across the US and representing many different practice ownership types and involvement in quality improvement programs. Through the convenience sample via the PBRN, we learned how much dietitians are involved in the care of obese patients and their contributions are difficult to be credited. Third, the accuracy of our comparison between IBT users and non-users depends on the correct classification of the practices. Although we asked the

person(s) who filled the survey to “consult with different members of your practice team to get the most complete and representative answers as possible,” there were still responses with “Not sure/don’t know” to IBT billing and service questions. This potential misclassification may bias the results in either direction. However, in follow-up phone calls with practices that self-identified as users or non-users, we found their answers to be consistent with survey response. Thus, the results for these two groups are less prone to misclassification bias.



**Figure 2** Proportion of practices providing obesity treatment services by provider types and self-reported IBT status. The proportions of practices offering obesity treatment services by physicians and by registered dietitians are statistically significantly different by self-reported IBT status. CNS = certified clinical nurse specialists, NP = nurse practitioners, APN = advanced practice nurses.

Table 4 Obesity-Related Services and Billing by Intensive Behavioral Therapy (IBT) Status

	IBT for obesity using practice (N=96)	Non-IBT for obesity using practice (N=119)	Not sure/unknown (N=72)	p value <sup>a</sup>
With regard to coding, which statement best describes your practice (check all that apply)?				
Physicians and providers do their own coding	71 (74.0%)	83 (69.7%)	18 (25.0%)	<0.001
Coding and/or review is provided by someone in our practice	42 (43.8%)	36 (30.3%)	13 (18.1%)	0.002
Coding and/or review is provided for us by our affiliated practice organization or health system	9 (9.4%)	16 (13.4%)	17 (23.6%)	0.032
With regard to billing, which statement best describes your practice (check all that apply)?				
Claims are submitted by someone in our practice	70 (72.9%)	57 (47.9%)	16 (22.2%)	<0.001
Claims are submitted by an external agency unaffiliated with our practice (i.e. billing company)	23 (24.0%)	23 (19.3%)	7 (9.7%)	0.060
Claims are submitted by our affiliated practice organization or health system	8 (8.3%)	37 (31.1%)	17 (23.6%)	<0.001
Does your practice currently submit claims for obesity treatment to insurers and if so, which ones (check all the apply)?				
Yes, under Medicare	87 (90.6%)	32 (26.9%)	11 (15.3%)	<0.001
Yes, under Medicaid	30 (31.2%)	16 (13.4%)	7 (9.7%)	<0.001
Yes, under private insurance	75 (78.1%)	46 (38.7%)	17 (23.6%)	<0.001
Has your practice experienced difficulties with billing for obesity services (check all that apply)?				
Billing and not getting paid	70 (72.9%)	46 (38.7%)	6 (8.3%)	<0.001
Getting paid a very low rate for obesity treatment	58 (60.4%)	34 (28.6%)	4 (5.6%)	<0.001
Not sure when it is appropriate to bill for obesity treatment	5 (5.2%)	29 (24.4%)	9 (12.5%)	<0.001
Not sure how to bill for obesity treatment	4 (4.2%)	45 (37.8%)	19 (26.4%)	<0.001
Other issues	16 (16.7%)	31 (26.1%)	9 (12.5%)	0.005

<sup>a</sup>p values for categorical variables based on chi-square test

This study provides evidence of continued difficulty billing the IBT for obesity benefit as one factor implicating the extremely low use of this benefit; and contributes to the overall field of understanding about the provision of services for obesity management in primary care.

**Acknowledgments:** Contributors: Other MOST study team members who contributed to the manuscript include Liang Wang (MSU) who created the Qualtrics questionnaire and Noelle Reimers (UC) who helped verifying practice addresses.

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**Funding** This study was supported by the Agency for Healthcare Research and Quality, grant HS024843, PI (Holtrop).

**Compliance with Ethical Standards:**

**Conflict of Interest:** The authors declare that they do not have a conflict of interest.

## REFERENCES

- Hager M. The Centers for Medicare & Medicare Services Expands Obesity Coverage to Include "Intensive Behavioral Therapy." *Nutrition Today*. 2012;47(2):72-74. doi:<https://doi.org/10.1097/NT.0b013e318250432f>
- 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(5):373-378. doi:<https://doi.org/10.7326/0003-4819-157-5-201209040-00475>
- Fitzpatrick SL, Wischenka D, Appelhans BM, et al. An Evidence-based Guide for Obesity Treatment in Primary Care. *The American Journal of Medicine*. 2016;129(1):115.e1-115.e7. doi:<https://doi.org/10.1016/j.amjmed.2015.07.015>
- Treviño RP, Piña C, Fuentes JC, Nuñez M. Evaluation of Medicare's Intensive Behavioral Therapy for Obesity: the Bienestar Experience. *American Journal of Preventive Medicine*. 2018;54(4):497-502. doi:<https://doi.org/10.1016/j.amepre.2018.01.018>
- Hoerger TJ, Crouse WL, Zhuo X, Gregg EW, Albright AL, Zhang P. Medicare's Intensive Behavioral Therapy for Obesity: An Exploratory Cost-Effectiveness Analysis. *American Journal of Preventive Medicine*. 2015;48(4):419-425. doi:<https://doi.org/10.1016/j.amepre.2014.11.008>
- Agency for Healthcare Research and Quality. Five Major Steps to Intervention (The "5 A's"). Accessed January 21, 2020. <http://www.ahrq.gov/prevention/guidelines/tobacco/5steps.html>
- Sturgiss E, van Weel C. The 5 As framework for obesity management. *Can Fam Physician*. 2017;63(7):506-508.
- Batsis JA, Bynum JPW. Uptake of the centers for Medicare and Medicaid obesity benefit: 2012–2013. *Obesity*. 2016;24(9):1983-1988. doi:<https://doi.org/10.1002/oby.21578>
- Dewar S, Bynum J, Batsis JA. Uptake of Obesity Intensive Behavioral Treatment Codes in Medicare Beneficiaries, 2012–2015. *J GEN INTERN MED*. Published online October 22, 2019. doi:<https://doi.org/10.1007/s11606-019-05437-1>
- Teixeira FV, Pais-Ribeiro JL, Maia Â. Beliefs and practices of healthcare providers regarding obesity: a systematic review. *Rev Assoc Med Bras (1992)*. 2012;58(2):254-262.
- Teixeira FV, Pais-Ribeiro JL, Maia Â. A qualitative study of GPs' views towards obesity: are they fighting or giving up? *Public Health*. 2015;129(3):218-225. doi:<https://doi.org/10.1016/j.puhe.2015.01.004>
- Dewhurst A, Peters S, Devereux-Fitzgerald A, Hart J. Physicians' views and experiences of discussing weight management within routine clinical consultations: A thematic synthesis. *Patient Educ Couns*. 2017;100(5):897-908. doi:<https://doi.org/10.1016/j.pec.2016.12.017>



13. **Kahan SI.** Practical Strategies for Engaging Individuals With Obesity in Primary Care. *Mayo Clinic Proceedings.* 2018;93(3):351-359. doi:<https://doi.org/10.1016/j.mayocp.2018.01.006>
14. **Smith AW, Borowski LA, Liu B,** et al. U.S. primary care physicians' diet-, physical activity-, and weight-related care of adult patients. *Am J Prev Med.* 2011;41(1):33-42. doi:<https://doi.org/10.1016/j.amepre.2011.03.017>
15. **Steeves JA, Liu B, Willis G, Lee R, Smith AW.** Physicians' personal beliefs about weight-related care and their associations with care delivery: The U.S. National Survey of Energy Balance Related Care among Primary Care Physicians. *Obes Res Clin Pract.* 2015;9(3):243-255. doi:<https://doi.org/10.1016/j.orcp.2014.08.002>
16. **Glauser TA, Roepke N, Stevenin B, Dubois AM, Ahn SM.** Physician knowledge about and perceptions of obesity management. *Obesity Research & Clinical Practice.* 2015;9(6):573-583. doi:<https://doi.org/10.1016/j.orcp.2015.02.011>
17. **Petrin C, Kahan S, Turner M, Gallagher C, Dietz WH.** Current attitudes and practices of obesity counselling by health care providers. *Obesity Research & Clinical Practice.* 2017;11(3):352-359. doi:<https://doi.org/10.1016/j.orcp.2016.08.005>
18. **Nair D, Hart A.** Family Physicians' Perspectives on Their Weight Loss Nutrition Counseling in a High Obesity Prevalence Area. *J Am Board Fam Med.* 2018;31(4):522-528. doi:<https://doi.org/10.3122/jabfm.2018.04.170467>
19. **Nederveld A, Phimphasone-Brady P, Connelly L, Fitzpatrick L, Holtrop JS.** The joys and challenges of delivering obesity care in US primary care practices. Published online Under Review.
20. **Nutting PA, Beasley JW, Werner JJ.** Practice-based research networks answer primary care questions. *JAMA.* 1999;281(8):686-688. doi:<https://doi.org/10.1001/jama.281.8.686>
21. **Green LA, Dovey SM.** Practice based primary care research networks. They work and are ready for full development and support. *BMJ.* 2001;322(7286):567-568. doi:<https://doi.org/10.1136/bmj.322.7286.567>
22. **Chang VW, Alley DE, Dowd JB.** Trends in the Relationship Between Obesity and Disability, 1988-2012. *Am J Epidemiol.* 2017;186(6):688-695. doi:<https://doi.org/10.1093/aje/kwx092>
23. **Lee RT, Seo B, Hladkyj S, Lovell BL, Schwartzmann L.** Correlates of physician burnout across regions and specialties: a meta-analysis. *Hum Resour Health.* 2013;11:48. doi:<https://doi.org/10.1186/1478-4491-11-48>
24. **Decker SL.** In 2011 Nearly One-Third Of Physicians Said They Would Not Accept New Medicaid Patients, But Rising Fees May Help. *Health Affairs.* 2012;31(8):1673-1679. doi:<https://doi.org/10.1377/hlthaff.2012.0294>
25. **Colligan EM, Cross-Barnet C, Lloyd JT, McNeely J.** Barriers and facilitators to depression screening in older adults: a qualitative study. *Aging & Mental Health.* 2020;24(2):341-348. doi:<https://doi.org/10.1080/13607863.2018.1531376>
26. **Camacho F, Yao N** (Aaron), Anderson R. The Effectiveness of Medicare Wellness Visits in Accessing Preventive Screening. *J Prim Care Community Health.* 2017;8(4):247-255. doi:<https://doi.org/10.1177/2150131917736613>
27. **Tao G.** Utilization pattern of other preventive services during the US Medicare annual wellness visit. *Preventive Medicine Reports.* 2018;10:210-211. doi:<https://doi.org/10.1016/j.pmedr.2017.12.014>
28. **Misra A, Lloyd JT, Strawbridge LM, Wensky SG.** Use of Welcome to Medicare Visits Among Older Adults Following the Affordable Care Act. *Am J Prev Med.* 2018;54(1):37-43. doi:<https://doi.org/10.1016/j.amepre.2017.08.030>

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