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# A Pragmatic and Cost-Effective Solution to Treating Excess Bodyweight in Primary Care

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## **Introduction**

The United States and other western societies are facing a serious obesity problem. Over the last few decades weight gain in the U.S. has significantly increased compared to the middle decades of the 20<sup>th</sup> century. The average weight has increased approximately 25 pounds per individual from 1960 to 2002<sup>1</sup>. However, recent trends in primary care offices indicate a decline in the number of patients identified as being obese.

From 1994 to 2000, professional advice to obese patients about managing bodyweight decreased four percentage points (i.e., 44 to 40%)<sup>2</sup>. Why would a reduction in professional advice to lose weight occur when most, if not all, healthcare professionals are aware of the strong association between obesity and comorbid conditions (e.g., diabetes, cardiovascular disease, some cancers, depression, etc)<sup>3</sup>. In an attempt to answer the first portion of the question, a detailed review of the obesity epidemic is needed to better understand the seriousness of societal obesity. In addition, a review of the literature will provide three identified physician barriers to obesity management. Finally, a system of best practices is provided in attempt to minimize physician barriers to provide effective treatment for overweight patients.

## **Obesity in the United States**

Approximately 65% of the U.S. adults are overweight (BMI (Body Mass Index)  $\geq 25$  kg/m<sup>2</sup>) and 30% are obese (BMI  $\geq 30$  kg/m<sup>2</sup>)<sup>4</sup>. Americas' youth is also experiencing similar obesity issues. The prevalence of overweight children is 15.5% for 12 to 19-year-olds, 15.3% 6 to 11 year-olds, and 10.4% among 2 to 5 year-olds. Overweight has increased five percentage points among 12 to 19 year-olds from 10.5% to 15.5% in approximately 10 years<sup>5</sup>. Some segments of the U.S. population are more likely to be overweight such as Blacks and Hispanics.

White Americans have a lower rate of obesity in the U.S. when compared to other ethnic groups. The average rate of obesity in White adults is 29.4%. The obesity rate of White Men is 28.2% in comparison to the 30.7% in White women<sup>4</sup>. However, the number of White men that are classified as being overweight is staggering. Nearly 70% of the White men are classified as being overweight in comparison to 57% of White women<sup>4</sup>. White children do not have the same levels of obesity as White adults. However, the trend towards obesity continues as an overweight child ages through life<sup>6</sup>.

Black adults and children have higher levels of obesity when compared to White adults and children. The obesity rate among Black adults is 39.4% with the obesity rate in Black men at 27.9%. Black women have the highest obesity rate when compared to any gender or ethnic/racial group at 49%<sup>4</sup>. Also, Black children have significantly increased in bodyweight over the years. The prevalence of overweight for Black adolescents increased from 13.4% to 23.6% between 1988 to 1994 and 1999 to 2000<sup>5</sup>. The growing obesity problem among Black adolescents, especially among Black females, will continue to increase unless effective solutions are implemented for this population.

An immediate issue is the growing number of immigrants in the U.S. According to the latest U.S. Census Bureau (USCB), the Hispanic population is now the largest minority group in the U.S. reflecting nearly 15% of the total population<sup>7</sup>. The Hispanic population has grown exponentially over the years due to legal and illegal immigration. With the Hispanic population growth, the growth in obesity has increased in both Hispanic adults and children. Approximately 38% of Hispanic women and 28% of Hispanic men are obese<sup>5</sup>. Although these numbers are similar to Black adults and close to White Men, the number of overweight Hispanics is astonishing. Approximately 72% of Hispanic men and 73% of Hispanic women are overweight<sup>5</sup>. In addition, Hispanic children are becoming more overweight or obese, especially among Hispanic males. From 1999 to 2002, a study evaluated over 4,100 Mexican-American adolescents for overweight and obesity. Results from the study indicated 41% of the study population were overweight and 23% were obese<sup>8</sup>. This trend has nearly doubled over the past decade. A study published in 2002 indicated 23.4% of Mexican-American adolescents aged 12 to 19 years were overweight compared to 14.1% between 1988 to 1994<sup>5</sup>. The growing Hispanic population is likely to increase and the rate of obesity among second and third generation U.S. born Hispanics are likely to follow a similar trend<sup>9,10</sup>.

## **Health economics related to obesity**

The economic burden to treat obesity is staggering. The U.S. Department of Health and Human Services (USDHHS) estimates annual indirect and direct costs associated from obesity is \$117 billion dollars<sup>11</sup>. Direct costs associated with obesity include doctor visits, medications, hospitalizations, and nursing home stays. The indirect costs include lost wages and productivity due to illness and premature death. The average direct cost associated with being overweight is far less than being obese. An overweight individual will have approximately \$165 to \$200 more medical costs each year. Whereas an obese individual will have between \$590 to \$800 more medical expenditures per year<sup>12,13</sup>. Not only does obesity increase medical costs, but obesity leads to mortality.

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It is estimated that approximately 112,000 individuals (i.e., 300 per day) die each year due to obesity<sup>3</sup>. According to the American Heart Association (AHA) The leading cause of death, 36.7% of all mortalities, in the U.S. is cardiovascular disease with hypertension (i.e., high blood pressure) being the top form of cardiovascular disease<sup>14</sup>. Obese adults are two to three times more likely of developing hypertension than normal weight adults<sup>15</sup>. Based on these staggering statistics, one could assume the leading cause of death amongst obese individuals is cardiovascular disease and many of these deaths being attributed to hypertension. As a result, the Center for Medicare Services (CMS)<sup>16</sup> changed the policy for addressing obesity as a medical condition. CMS now recognizes obesity as disease and has removed barriers to covering anti-obesity interventions that improve health outcomes<sup>16</sup>. An average weight loss of approximately 20 lbs is associated with a reduction of 5 mmHg in systolic blood pressure and a 7 mmHg reduction in diastolic blood pressure. As little as a 5 lb weight reduction may result in reductions of 4.5 mmHg in DBP and 2.5 mmHg in SBP<sup>17</sup>. In addition, it is well documented that a 5% reduction in bodyweight can decrease the risk of type 2 diabetes by as much as 58%<sup>18</sup>. Therefore, small reductions in bodyweight have large clinical and economical benefits.

### ***Physicians and obesity treatment***

Though societal obesity has drastically increased and the declaration by CMS that obesity is now a disease, primary care physicians (PCP) are doing little to counteract the obesity issue. In fact, the trend for healthcare providers providing some form of obesity management services (e.g., counseling, identification, etc.) is decreasing. A notable study published in 1999, in the Journal of American Medical Association, was the first study that evaluated how frequent obese patients were advised to lose weight<sup>19</sup>. Galuska et al. (1999) conducted telephone surveys with 12,835 adult obese patients that had a physician visit in the previous year. Results from the study indicated 42% of obese patients remembered being advised to lose weight<sup>19</sup>. More importantly were the types of individuals being advised to lose weight. Middle-aged females with more education were more likely to receive advice to lose weight. Second, individuals that had diabetes mellitus were more likely to receive advice to lose weight<sup>19</sup>. Though the results were based from self-report data, it could be argued that the results are biased towards individuals remembering the advice from the physician. However, if the patient had received more meaningful advice to lose weight than the likelihood of the patient remembering the advice might have been greater. In fact, patients counseled on nutrition and exercise are more likely to recall the physician's advice if the physician allocates adequate time with the patient and the advice is relevant to a current health problem<sup>20</sup>. Therefore, the results might be an accurate portrayal of the frequency of weight loss advice physicians provide to obese patients.

What is most alarming is the negative trend in healthcare advice to lose weight for obese patients. Jackson et al. (2005) evaluated data from 1994 (n=10,705), 1996 (n=13,800), 1998 (n=18,816), and 2000 (n=26,454) from the Behavioral Risk Factor Surveillance System (BRFSS) regarding self-reported advice from a health care professional to control bodyweight. Results from the study suggested a decrease over six years. The number of adult obese individuals advised to lose weight was 44% in 1994, 43% in 1996, 42.2% in 1998, and 40% in 2000<sup>2</sup>. Similar to the study conducted by Galuska et al. (1999), educated obese patients were more likely to receive advice to lose weight than less educated

obese patients (2000: college degree 44.8%, high school education 40.8%, and no high school education 31.8%; p=.001). It is also alarming that younger adults (18 to 34 years) and the older population ( $\geq 65$  years) were less likely to receive advice (2000: 34.8% and 32.4%) to lose weight in comparison to 35 to 64 year olds (2000: 44%)<sup>2</sup>. Considering the projections for the aging population this is of great concern. It is estimated the proportion of U.S. adults aged 65 years or older will increase from 12% to 20% by 2050<sup>21</sup>. Moreover, it is estimated by 2010 obesity will increase 5% and normal weight older adults will decrease 4%<sup>22</sup>.

Since 2000, it was expected that the trend would either stabilize or would reverse (i.e., increase in the number of physicians identifying and counseling obese patients). This expectation was based on CMS recognizing obesity as a classified medical condition and the volume of media information regarding the obesity epidemic. However, a recent study indicated a slight decline from the Jackson et al. (2005) study. Among 1,873 obese adults visiting a physician in the previous 12 months, 39% reported being advised to lose weight<sup>23</sup>. Similar to the previous studies, men had lower chances of being advised to lose weight and middle-aged adults with chronic diseases were more likely to be advised to lose weight. Based on these data individuals in all age categories should equally receive advice to prevent the development of diseases associated from obesity.

One noted problem with PCPs' inadequately treating obesity is the lack of appropriate identification methods as noted by the clinical guidelines<sup>24,25</sup>. In a study conducted in an inner-city PCP clinic, researchers investigated the frequency of patients that were obese and evaluated if the physician documented if the patient was diagnosed as obese<sup>26</sup>. Researchers in the study randomly evaluated 84 patient charts and indicated 80% of the patients were either overweight (n=25) or obese (n=42). However, only 21% of obese patients had a documented (n=9) diagnosis as being obese and only 11% (n=3) of overweight patients had a documented diagnosis as being overweight<sup>26</sup>. Based from this study, BMI was rarely recorded in patient charts. Second, the patient charts indicated poor documented diagnoses of overweight and obesity by physicians. These results confirm an earlier study evaluating close to 56,000 adult office visits from the 1995-1996 National Ambulatory Medical Care Surveys<sup>27</sup>. Stafford et al. (2000) indicated that physicians reported obesity in only 38% of their adult obese patients.

A similar trend is noted in pediatric patients. A study evaluated 2,515 pediatric patient visits in a children's hospital PCP center over a three month period<sup>28</sup>. Results from the study indicated only 53% (n=129) of the cases met the study criteria for obesity (n=244) based from the providers documentation of obesity in patient assessments. A recent study confirms a similar trend in pediatric physicians. In 21 pediatric PCP offices in the St. Louis area, results indicated pediatricians identified obesity and overweight in 27% of children with a BMI at the 85th to 94th percentile. However, a greater identification (i.e. 86%) of children with a BMI at or above the 95th percentile was noticed in during the study<sup>29</sup>. Though physicians appear to identify heavier children, most often physicians do not adequately screen for obesity.

### ***Barriers to PCP obesity treatment***

There are several reasons why PCPs' are not providing adequate identification and treatment services for obese patients. Three known barriers identified by physicians include the belief that obesity treatment is futile and not effective<sup>30-32</sup>; lack of insurance

reimbursement for obesity management<sup>32-35</sup>, and lack of clinic time to properly manage obesity<sup>34, 36, 37</sup>.

**Futility perception.** Many physicians apparently believe the treatment of obesity is not effective. A study conducted nearly two decades ago assessed the perception family practitioners had towards obese patients and treatment<sup>30</sup>. Over two-thirds of respondents (n=220) believed obese patients lacked self-control. Although a large majority of the responding physicians indicated that counseling the obese patient was gratifying, only 29% believed the patient could lose a significant amount of bodyweight and 37% of the physicians believed the patient could maintain the weight loss<sup>30</sup>. It could be argued that the physicians, during the time of the study, were not astute to the obesity problem and had no unified direction on effective methods to treat obese patients. However, the results indicated otherwise. When advising patients to lose weight, 92% of the responding physicians indicated a recommendation for a reduced calorie diet. Moreover, 84% of the responding physicians recommended participation in Weight Watchers<sup>30</sup>. Though most physicians provided some guidance for weight reduction, most believe the attempts were futile.

A study conducted nearly twenty years later provided support to Price et al. (1987). Over 600 family practitioners were surveyed about perceptions to the cause of obesity, attitudes towards obese patients, beliefs about obesity treatment, and efficacy of obesity treatment compared to other chronic medical conditions<sup>32</sup>. The responding physicians viewed lack of physical activity as the primary cause of obesity. The physicians also viewed overeating and a high fat diet were the next major causes of obesity. Similar to Price et al. (1987), results indicated that over 50% of the physicians believed the obese patient lacked self-control and were not compliant to physician advice. Nearly 75% of physicians agreed with the clinical guidelines<sup>25</sup> that a 10% reduction in bodyweight weight was sufficient to improve obesity-related health complications. However, the same number of physicians viewed a 14% weight reduction as an acceptable treatment outcome<sup>32</sup>. This outcome belief might negatively influence the perception that obesity treatment is less effective than treating other chronic medical conditions. It is well documented that 5% weight loss and maintenance can have significant health benefits. The contrast between what is needed versus what is expected might negatively influence the physicians' perception of obesity treatment compared to other chronic illnesses. Less than 75% of the responding physicians believed treating hypertension, diabetes, hyperlipidemia, asthma, coronary artery diseases, and depression was more effective than treating obesity. Over 50% of the responding physicians believed smoking cessation, alcoholism, and drug addiction were equally effective to obesity treatment<sup>32</sup>. If only 5% weight reduction is beneficial for health outcomes, then it could easily be argued that the results are small and may be remote, since most individuals regain nearly all the weight following treatment<sup>38</sup>. However, this argument is truly irrelevant as it could be argued that other diseases states have similar long-term effective results (i.e., Prader-Willi Syndrome and Pancreatic Cancer) and that are remote (i.e. osteoporosis) to only a few individuals<sup>33</sup>. Regardless of disease and relative benefit of treatment, the physician has an ethical and moral obligation to the obese patient ensuring positive health outcomes.

**Insurance reimbursement.** The second barrier identified by PCPs' is the lack of insurance reimbursement for treating obesity. Similar to previous studies mentioned regarding perceptions of

PCPs' treating obesity, Kushner (1995) surveyed 2,250 PCPs' selected from the American Medical Association's manifest. Forty-nine percent of the physicians responded to the survey. From this study, over two-thirds (i.e. 65%) of PCPs' provided dietary counseling to less than 40% of obese patients. One of the barriers that was listed to why this number was relatively low, yet similar to previous research<sup>2, 19, 27</sup>, was inadequate insurance reimbursement. Over 60% (n=673) of surveyed PCPs' indicated that lack of adequate insurance reimbursement as a limitation to providing obese treatment<sup>34</sup>.

In a more recent article, Tsai, Wadden, and Ash (2006) indicated the lack of insurance reimbursement for obesity treatment as a barrier for many clinicians. In an attempt to understand the barrier to insurance reimbursement, researchers surveyed 25 major health plans in Pennsylvania. The researchers asked the plans if coverage for obesity treatment was available in eight categories (i.e., bariatric surgery, individual dietary counseling, behavior modification, physical activity programs, commercial weight loss programs, group dietary counseling, telephonic or email counseling, meal replacements, FDA approved weight loss drugs, or medically supervised programs). Sixteen plans responded to the survey and 100% of the plans indicated coverage for bariatric surgery. Unfortunately, this form of treatment is not available to PCPs' unless the PCP is eligible to perform bariatric surgery. Often times this would not be the case as PCPs' complete residency requirements in family or internal medicine. Therefore, only the remaining seven categories would be available to PCPs'.

Only 56% of the responding health plans (n=7) indicated coverage for individual dietary counseling and 44% (n=7) indicated coverage for behavior modification<sup>35</sup>. All other categories were covered by less than 33% of the health plans. Even more interesting to the individual dietary counseling and behavior modification treatment plans was the requirement for comorbid condition (e.g., diabetes, cardiovascular disease, etc.). Five of eight plans covering individual dietary counseling and three of four plans covering behavior modification indicated a comorbid requirement<sup>35</sup>. The requirement for a comorbid condition for individual counseling confirms results from previous studies. It appears Medicaid will usually cover dietary counseling if the patient has a comorbid medical condition associated with obesity<sup>39</sup>. These results were based from 54 Medicaid programs in 14 states. Though the coverage was not universal, when managed care was included as part of the Medicaid program, insurance coverage for nutritional counseling was typically covered. Though dietary counseling is effective for reducing bodyweight and preventing the development of comorbid diseases, the current structure of the insurance system does not compensate for many disease prevention programs. Therefore, PCPs' may only receive reimbursement approximately 50% of the time for obese patients with one or more comorbid diseases. The complexities of negotiating pre-approval and payment could be another barrier due to the limited time constraints and staff recourses many PCPs' face on a daily basis. Unfortunately, if the reimbursement is not close to 100% for obese comorbid patients, then physicians are less likely to provide service for obesity.

**Lack of time.** The third barrier to obesity treatment is the lack of clinic time to address the issue of obesity in chronic care patients. Approximately 75% (n=827) of physicians indicate a lack of time in a day to treat obesity<sup>34</sup>. Kushner (1995) also indicated most patients need more time than what is typically scheduled for the patient. Moreover, PCPs' indicated greater than 50% of the scheduled time was in-adequate for these patients.

Another study confirmed this perception. In a recent study of 48 internal medicine PCPs<sup>37</sup>, researchers ascertained limitations to providing adequate obesity treatment. A major limitation to why internal medicine PCPs<sup>37</sup> do not adequately address the obesity issue was the lack of time in clinic<sup>40</sup>. Though the amount of time was indicated as a barrier, researchers did not mention specifics to the time limitation. Therefore, it is not known how much time was allotted for the obese patient. However, one could argue that the time limitation is not a perception. Many older adult obese patients have multiple chronic diseases (i.e. diabetes, sleep apnea, hypertension, hyperlipidemia, etc.)<sup>15,41</sup> and to properly address one or more of these comorbid conditions in a short appointment time (i.e. 15 minutes) is extremely difficult when combining the additive of obesity treatment to the appointment time.

Since many of the studies listed reported subjective measures to determine time barriers, a more objective form of measurement was needed to ascertain the “true” time required for obese patients with comorbid diseases. Rafferty (1998) conducted a study using a work sampling method to estimate the proportion of time spent on health prevention during routine care in hospital-based clinics. The work sampling method has several advantages over subjective measures such as limiting recall biases of the PCP and is preferred over direct observation where office visits may be short or when the office visit may be blended with other activities<sup>42</sup>. A mixed number of health care providers participated in the study (i.e. 7 general internists, 3 family practitioners, 3 nurse practitioners, and 1 physician assistant)<sup>36</sup>. Though the study was limited to the number of participants, the participants represented a standard office with a combination of healthcare providers (e.g., family physicians, nurse practitioners, etc.). The participants were observed over a six month period totaling more than 4,500 observed patient visits<sup>36</sup>. Clinicians spent only 11% of the total time or seven minutes per patient year on prevention services. The two most common prevention services that were observed (73%) were breast cancer and cervical cancer screenings. Interestingly, over 50% of the preventative services were counseling patients about diet and weight loss<sup>36</sup>. If combining some of these services into one appointment, the total time could easily exceed 20 to 30 minutes. In fact, previous research indicates that a prevention-based annual visit takes approximately 30 minutes per patient<sup>43</sup>. Based from this study, the time constraints in PCP practices may be too severe to deliver the full range of preventive services that are recommended by the US Preventative Services Task Force (USPSTF)<sup>36</sup>.

The results from Rafferty (1998) are supported in a recent study. Researchers sought to evaluate the amount of time needed to adhere to the USPSTF recommendations for preventative services in a standard patient panel (i.e. 2,500 patients per physician)<sup>37</sup>. To answer this question, researchers considered four elements: (1) the USPSTF recommended services<sup>44</sup>; (2) frequency of performing each recommended service; (3) the number of patients requiring each recommended service; and (4) the time required to administer each recommended service. Yarnall et al. (2003) used Census Bureau figures at the time of the study to model a panel with an age and sex distribution similar to the U.S. population. The researchers did not account for time spent with ancillary staff, only the amount of time during a typical encounter with the PCP. Finally, the researchers compared the time spent with the patient to the average work hours per week of the physician (i.e. 43 hours in patient related services)<sup>45</sup>.

Results from the study are troubling for physicians. To satisfy the USPSTF recommendations, a physician needs 1,773 annual hours or 7.4 hours per working day for the provision of preventive

services<sup>37</sup>. Considering most clinic visits deal with acute care or disease management concerns, PCPs<sup>37</sup> are not capable of fully addressing preventative services in the amount of time in a work day. In the area of weight reduction, Yarnall et al. (2003) indicated physicians need approximately 15 minutes per patient visit to adequately meet the USPSTF recommendations; BMI screening (one minute), physical activity (four minutes), and healthy eating (nine minutes). Not to mention if the patient presents with other comorbid conditions then the physician can not effectively address each issue presenting in a 15-minute visit. This may be why physicians just advise obese individuals to reduce calories, exercise more, refer to a dietitian, and/or recommend Weight Watchers<sup>30</sup>. However, advice alone is not effective in achieving weight loss. Though some studies indicate advice from physicians increase the health behavior process<sup>46</sup>, a recent systematic review of several weight loss studies (n=80) investigating the effects of weight loss from studies providing advice alone (n=28) indicated advice alone is not effective in short-term or long-term weight control<sup>47</sup>. Therefore, physicians should not just advise patients about reducing calories and exercising more but provide effective solutions for weight loss that will improve comorbidities.

### ***What do overweight patients want from their physician?***

Approximately, 40% of women and 25% of men are attempting to lose weight spending nearly \$33 billion dollars (\$459.13 per individual) annually on weight loss and maintenance products, services, and programs<sup>48</sup>. Unfortunately, most individuals seeking weight control try self-help programs and these programs have minimal to no long-term success<sup>47</sup>. Of the limited number individuals (i.e. 5%) seeking structured assistance<sup>49</sup>, approximately 20 to 30% will drop-out from these programs<sup>50</sup>. Therefore, only 3 to 4% of weight reduction-seeking individuals will likely achieve lasting weight loss. As a result of these data, it is clear effective-physician guided solutions are needed to help patients with excess bodyweight.

Patients have indicated they want help from their healthcare providers. Two recent studies indicated over 75% of overweight patients want help from their PCP<sup>26,51</sup>. However, patients do not want generalized messages “you need to lose weight; you need to eat less; or you need to exercise more.” Beran et al. (2008) indicated overweight patients are frustrated with physicians providing closed ended messages (e.g., reducing calories, exercising more, etc.). Patients desire actionable messages that are task based vs. messages that are generic. Specifically, they want to know “how to lose weight.” In addition, patients desire individualized plans that specific to their needs<sup>51,52</sup>.

Tailored messages that are specific to an individual are more effective in promoting health behavior adoption than general population-based messages<sup>53</sup>. In a recent meta-analysis consisting of 40 studies comparing tailored messages versus a general messages for various health behavior topics (e.g., diet, exercise, smoking cessation, etc) demonstrates a positive effect on health behavior change. More specifically, a tailored message specific to the characteristic of the individual versus a general message influences diet and exercise behavior change with an odds ratio of 1.05-1.10<sup>53</sup>. As noted by Noar et al. (2007) tailored messages have the advantage of being individually customized to increase the chance that the message will be viewed as personally relevant and credible thereby persuading the individual.

It is important to note that patients understand physicians are busy in their respective practice. In addition, patients understand the

physician is not likely to provide treatment. However, patients do not want the physician to provide treatment. In fact, patients only want their physician to routinely monitor their progress and adjust their treatment plan (e.g., medications, etc.)<sup>51</sup>. In addition, approximately 50% of patients desire a referral to a nutritionist<sup>26, 51, 52, 54</sup>. Therefore, patients recognize that physicians are busy in their practices and expect treatment from other providers. In addition, patients only want the physician to be the coach in the individualized treatment process.

### **System of Best Practices**

To effectively address obesity and to reduce the barriers in PCP clinics, a system of best practices will need to increase the possibility of third-party reimbursement; be integrated into the existing structure (i.e. staff resources and patient flow) of the PCP clinic or add personnel that will be cost effective for the clinic; and be efficacious in treating obesity. In order for these changes to occur, PCP clinics need to be adequately educated on the benefits of treating obesity besides just placing guidelines on the physician. As previously noted, the adherence to the USPSTF recommendations for many of the preventative services is low due to staff resources, too many patients, and the number of recommendations by the task force<sup>37</sup>. Since many practices are not in the business of scaling back patients, methods are needed to increase physician participation.

**Clinic Audit.** One method that is demonstrating promise is an audit and needs assessment of the PCP practice. Following a model developed in the United Kingdom (UK), PCP offices are now addressing the obesity issue based from an audit and needs assessment program. The Counterweight program conducted an audit of existing family practices to determine how PCP clinics were addressing the obesity issue<sup>55</sup>. Clinic staff completed baseline questionnaires assessing knowledge, beliefs, attitudes, and willingness to treat obese patients. Second, the clinic was audited for availability of appropriate equipment (e.g. large blood pressure cuffs, weight scales, tape measures, etc.). Next, a random matched control assessment was conducted between obese and non-obese patients to determine the level of burden on the U.K. healthcare system. The results to these findings were presented back to the physician and allied staff of the clinic<sup>55</sup>.

Physicians are motivated to make change by multiple interests: personal interest, societal interest, patient's best interest, and the interest of the insurance companies<sup>56</sup>. Besides attempting to change the behavior of the obese patient, the physician needs to change practice behavior. Thus, a similar model for behavior change is needed for the physician. From an evidence analysis study reviewing the most effective components of changing physician behavior the following results indicate a recommendation for an audit and feedback assessment<sup>56</sup>.

**Obesity screening.** To initiate adequate treatment solutions in PCP clinics, the physicians and/or allied staff need to screen patient BMI. As previously mentioned, most offices do not evaluate BMI in the office. The lack of screening for BMI prevents the physician, allied health staff, and even insurance companies from addressing the weight issue with the patient.

Besides assessing BMI, PCP clinics should also evaluate a patient's relative and absolute risk for other comorbid diseases. Individuals with a BMI score between 25 to 35 kg/m<sup>2</sup> should have a circumference measurement of the waist<sup>25</sup>. The reason for this screen is due to the independent risk of cardiovascular disease, type

2 diabetes, dislipideamia, and hypertension<sup>57, 58</sup>. Moreover, the addition of waist circumference will provide a simple monitoring method of abdominal fat in the absence of changes in BMI. The monitoring of waist circumference can be a useful predictor of changes in cardiovascular disease risk factors<sup>25</sup>. The measurements of BMI and waist circumference will aide the healthcare staff on the appropriate treatment algorithm for overweight and obese patients. Though these measurements are not usually reimbursable, the estimated amount of time for these two measurements is estimated be less than two minutes<sup>37</sup>. To maximize the physician's time, ancillary staff (i.e. medical assistant, nurse assistant, office assistant, etc.) could measure the patient and add these values to the medical record before placing the patient in an exam room. The physician would then be notified if the patient is overweight or obese and is at risk for comorbid diseases before examining the patient.

**Obesity treatment.** To begin appropriate treatment for the patient requires the physician to follow the clinical guidelines for obesity treatment<sup>25</sup>. The first step in obesity treatment is determining adequate nutrition requirements for the patient. Before 2006, the use of estimation equations or standardized low-calorie plans (i.e. 1200 Kcal/day) was commonly used in treating excess bodyweight. However, research has indicated these equations are less than accurate<sup>59</sup>. As a result, the American Dietetic Association has recommended the use of indirect calorimetry (i.e. measurement of metabolic needs) for accurate nutritional planning for overweight and obese individuals<sup>60</sup>. Only one study has evaluated the effects of using this technology over an estimation equation and the results are promising. The study was a randomized control trial with 54 adult overweight and obese individuals. Following 12-weeks of treatment, the intervention group (n=24) lost significantly more weight than the control group using an estimation equation (-4.3 ± 3.3 kg vs. -1.8 ± 3.2 kg; p=.02)<sup>61</sup>. A second study evaluated the use of RMR technology in a 24-week weight management program and results indicated fixed low-calorie nutrition plans, as recommended by the guidelines, do not generate anymore weight loss than nutrition plans determined by RMR and were 400-700 Kcal/day higher in calories/day<sup>62</sup>. Therefore, it appears providing a standardized nutrition plan is difficult for patients to adhere long-term and do not lose anymore weight than those consuming a higher calorie nutrition plan developed from measured RMR<sup>61-64</sup>. Based on these data, a personalized nutrition plan meets the needs of the patient (i.e., individualized plans) and is efficacious in promoting weight management.

Besides integrating evidence-based practices for nutrition assessment, the use of indirect calorimetry technology is an improved diagnostic procedure. The diagnostic procedure (CPT code: 94690) is reimbursable by Medicare and private insurance companies. Reimbursement rates for this procedure vary by carrier and locality but the national average is approximately \$70.00<sup>65</sup>. Prior to conducting the diagnostic procedure the clinician will need to determine if the assessment is medically necessary. A list of medical conditions that warrant medical necessity is listed in Table 1. Based on this information, nutritional counseling with indirect calorimetry technology provides PCPs' with a diagnostic tool that can aid weight reduction and is a covered diagnostic procedure by insurance companies.

The next step in providing effective obesity treatment is through lifestyle counseling. Lifestyle counseling with diet and exercise is still the gold-standard recommendation for overweight and obese patients<sup>25</sup>. In several studies using diet, exercise, and

Table 1. Medical conditions that warrant medical necessity for CPT 94690 diagnostic procedure.

416.0-416.9	Chronic Pulmonary Heart Disease	517.8	Lung involvement in other diseases classified elsewhere
428.0-428.9	Heart Failure	780.50-780.57	Sleep Disturbances (OSAS)
493.00-493.91	Asthma	786.00-786.09	Dyspnea and Respiratory Abnormalities, Shortness of Breath
496.0	Chronic Airway Obstruction (COPD)	799.0	Hypoxemia
Alternative ICD-9-CM codes that may support medical necessity by private payers include:			
244.9.1	Hypothyroidism	277.7	Metabolic Syndrome
250.1-250.93	Diabetes Mellitus	278.0	Obesity
272.1	Hypercholesterolemia	401.1- 401.9	Hypertension
272.4	Hyperlipidemia	414.0-414.05	Cardiovascular Disease
783.1	Abnormal Weight Gain		

behavior modification counseling the mean effect on weight loss is approximately 5-7%<sup>47,66</sup> However, the length and duration of counseling is debatable. Since PCP practices have little time to provide lengthy counseling sessions to patients, a recommendation would be to implement brief interventions lasting less than 20 minutes using existing healthcare staff (e.g., nurses, physician assistants, etc.) or use licensed health behavioralists to provide counseling for individual and group appointments. The reason for both methods is based solely on the current reimbursement standards. Dietitians are not reimbursed for providing weight control programs. The only comorbid conditions that are reimbursed for dietitian counseling are diabetes and renal disease<sup>67</sup>. Therefore, only an overweight type 2 diabetic would qualify for payer reimbursement. In contrast, the new health behavior (HB) codes allows a licensed health behavioralists to counsel a patient on managing a physical disease<sup>68</sup>. From the literature it appears the reimbursable rate for the HB codes are close to \$100.00 per hour and are billed in 15-minute units. Of course the clinician would need to determine the appropriate number of units from the insurance company. However, the addition of qualified health behavioralists that could be reimbursed provides a PCP clinic with a possible cost effective solution for treating the overweight and obese patient.

An innovative solution would be to use existing clinic staff (e.g., practical nurses and medical assistants). Counterweight has emerged as a promising program that is effective in treating overweight and obesity in a PCP office. Of those completing the program, average weight change at 12 months was -3.0 kg (95% CI = -3.5 to -2.4 kg) and 34% achieved a clinical meaningful weight loss of  $\geq 5\%$ <sup>55</sup>. The Counterweight program is lead by practice nurses which would be equivalent to licensed practice nurses (LPN). In the U.K., practice nurses have evolved to provide patient education and some cases adjusting prescriptions. In the U.S., LPNs' are limited scope and have not evolved to the same level in the U.K. In addition, most PCP offices utilize medical assistants (MA). Medical assistants either receive training through a vocational school, community college, or on the job training. The general scope of MAs' include recording vital signs, explaining treatment procedures to patients, preparing patients for examination, and assisting the physician during examinations. Medical assistants collect and prepare laboratory

specimens or perform basic laboratory tests on the premises, dispose of contaminated supplies, and sterilize medical instruments. In addition, MAs' instruct patients on medication utilization and special diets, prepare and administer medications as directed by a physician, authorize drug refills as directed, telephone prescriptions to a pharmacy, draw blood, prepare patients for x-rays, take electrocardiograms, remove sutures, and change dressings<sup>69</sup>. In addition, MAs' have evolved to be more encompassing in patient treatment. In California, MAs' have evolved to be apart of the patient care team. In a solo PCP practice in Stockton, CA MAs' are used in diabetes care. MAs' conduct educational sessions with video tapes to newly diagnosed patient with diabetes. In addition, interviewed PCP believed most MAs want to learn additional clinical skills and generally have sufficient time to perform additional functions<sup>70</sup>.

A second case study in Olympia, WA used MAs' as part of the diabetes care team. To allow MAs' to act as diabetes care managers, the clinic leadership determined two MAs working with two clinicians would be optimal; allowing one MA to perform standard duties of rooming patients and organizing patient flow while the other MA conducted planned chronic care visits with patients<sup>70</sup>. The MAs went through a 40-hour training program to become competent diabetes care managers. At the planned visit, the MA made sure all recommended studies had been done, reinforced patient education, engaged the patient in goal setting, and for smokers, discussed cessation techniques. Based on these two case studies, it appears MAs' can become apart of the chronic-care team.

More recently, MAs' were utilized as counselors in a weight loss trial conducted at the University of Pennsylvania. Fifty overweight patients were randomly assigned to one of two groups; Physician only or Physician + MA coach program<sup>71</sup>. Following the 6-month study the Physician + MA coach group lost approximately 4.5% of their bodyweight vs. no relative change in the physician only group. In addition those attending at least six or more individual MA coach sessions lost approximately 6.5% of their bodyweight. Based on these data, MAs can be trained as weight management counselors and along with physician supervision provide treatment that is efficacious.

Finally, PCPs' may be able to bill MA led educational visits. Evaluation and management (E/M) office visit codes are commonly used for billing for provider services. Practices can receive

reimbursement for staff time when educating patients without a physician seeing the patient (i.e. 99211). Current procedure terminology defines 99211 as an "office or other outpatient visit for the evaluation and management of an established patient that may not require the presence of a physician." It further states that the presenting problems are usually minimal, and typically five minutes are spent performing or supervising these services<sup>72</sup>. Therefore, PCPs' could generate additional revenue to cover the cost of brief patient education without physician presence. Based on these data, PCPs' have coding opportunities that are cost-effective in treating obese patients.

## Conclusion

In conclusion, physicians are doing little to prevent the growing incidence of obesity in adults and children. Approximately, 40% of overweight and obese patients are receiving advice on weight control. Physicians claim a lack of efficacious treatment options, inadequate reimbursement, and clinic practice time as major barriers to providing weight control services. However, physicians could initiate a screening system for BMI and waist circumference measurements for patients which would require less than two minutes. In addition, this screen could be performed by ancillary staff. Second, nutritional planning using indirect calorimetry is reimbursable under current payer reimbursement guidelines. Moreover, PCPs' could utilize allied clinical staff (e.g., behavioralists, dietitians, nurses, etc.) to deliver counseling that could be covered by insurance companies. Another alternative that appears to be gaining promise is the use of existing staff (i.e. medical assistants) to provide cost-effective services that could be efficient to the practice. However based on the current payer system, PCPs' may be limited to overweight patients with one or more comorbid conditions. None-the-less, a physician-supervised, evidence-based program offered within the PCP clinic would be equivalent to what individuals spend annually (est. \$490.00) on ineffective services and solutions marketed to the mass. In fact, based on current reimbursement fee schedules, it is estimated a 6-month program encompassing indirect calorimetry, lab values, MA lead counseling, and periodic physician visits would be valued at \$475.00 per patient. By integrating these solutions, the physician could provide cost-efficient evidence-based program that would resolve many of the perceived barriers physicians have in treating obese patients.

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