

Primary Care Provider Uptake of Intensive Behavioral Therapy for Obesity in Medicare Patients, 2012-2017

Mounira Ozoor

Michigan State University

Mark Gritz

University of Colorado Denver - Anschutz Medical Campus

Rowena J Dolor

Duke University School of Medicine

Jodi S Holtrop

University of Colorado Denver - Anschutz Medical Campus

Zhehui Luo (✉ zluo@msu.edu)

Department of Epidemiology and Biostatistics, Michigan State University, East Lansing, 48824, USA <https://orcid.org/0000-0001-9193-3380>

Research article

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Abstract

Background: The delivery of Intensive Behavioral Therapy for obesity (IBT) by primary care providers (PCPs) has been covered by Medicare to support elderly obese individuals (BMI > 30 kg/m²) in managing their weight since 2011 for individual therapy and 2015 for group therapy. We sought to understand patterns of uptake of IBT for obesity services among PCPs serving the Medicare population across the U.S.

Methods: We used the Centers for Medicare and Medicaid Services Provider Utilization and Payment Data from 2012 to 2017 to extract all PCPs who served more than 10 Medicare beneficiaries in each of the six-year period for form a longitudinal study. The procedure codes G0447 and/or G0473 were used to identify PCPs who provided IBT and their characteristics were compared by the IBT-using status.

Results: Of the 452,127 eligible PCPs who served Medicare patients in all six years, only 0.9% were found to be IBT utilizers in at least one year from 2012 through 2017 (147 always users, 988 early adopters, and 3,062 late adopters). IBT utilizing providers shared a few common characteristics: they were more likely to be male, internal medicine and family practice providers, saw a higher number of unique Medicare beneficiaries, and practiced in the South and Northeast regions. The proportions of patients with hypertension, diabetes or hyperlipidemia were similar between IBT and non-IBT providers.

Conclusions: Very few primary care providers continuously bill IBT services for Medicare patients. Further investigation is needed to identify barriers to the uptake of IBT services among PCPs.

Trial registration: not applicable.

Background

The prevalence of obesity in the U.S. has been rising^{1,2} and is currently at an all-time high.³ As of 2018, approximately 30% of the adult population and 28.5% of the senior population are obese.⁴ As they age, the baby-boomer generation has higher rates of obesity than previous generations.⁵ Obesity is one of the major drivers of preventable health care costs, which is estimated between \$147 billion and \$210 billion.⁶ In order to address this challenging public health issue, in 2011, the Centers for Medicare and Medicaid Services (CMS) established a Healthcare Common Procedure Coding System (HCPCS) code and authorized primary care providers (PCPs) to deliver and bill for Intensive Behavioral Therapy (IBT) for obesity in an attempt to help treat obese individuals (BMI ≥ 30 kg/m²).⁷

IBT is an evidence-based service with a “B” rating and recommendation from the United States Preventive Services Task Force, which concluded that high intensity counseling, as well as behavioral interventions, will deliver continuous weight loss for obese individuals.⁸ To encourage Medicare beneficiaries to receive IBT services, CMS waived the Medicare coinsurance and Part B deductible for this service. However, CMS established several requirements that must be met for PCPs to receive reimbursement for delivering IBT services to obese beneficiaries, including: (1) the service must be provided in a primary care setting by a qualified PCP; (2) a total of 22 visits can be billed in a 12-month period; (3) patients are seen once per week in the first month and twice per month through month 6; and (4) patients must meet a weight loss goal of at least 3 kg (6.6 lbs.) during the first 6 months to continue treatment, which is expected to be once a month for the remaining 6 months. If the patient does not achieve the weight loss goal they must wait at least 6 months and be reassessed in order to begin a new treatment period.⁹

IBT services are reimbursed through two HCPCS codes. The first code, G0447, was authorized for services beginning in November 2011 and is used for one-on-one face-to-face behavioral counseling for obesity for a 15-minute encounter. The second code, G0473, was authorized beginning in January 2015 for face-to-face group (2–10 patients) behavioral counseling for obesity for a 30-minute group session. The average reimbursement rates for each service is \$24-\$26 for G0447 and \$12-\$13 for G0473 in 2018.¹⁰

The uptake of IBT services among Medicare providers has been underwhelming since CMS authorized billing in 2011. The purpose of this paper is to improve our understanding of the underutilization as well as the pattern of utilization of IBT for obesity services among PCPs serving the Medicare population across the U.S. Our analysis of provider characteristics complements and adds to our understanding of the uptake of IBT services presented in Batsis and Bynum (2016) and Dewar et al. (2019), which examined uptake by beneficiary characteristics.^{11,12}

Methods

Data Sources

The publicly available Medicare Fee-for-service Provider Utilization and Payment data for Physician and Other Supplier Public Use File (POSPUF) as well as the Provider Summary Tables from CMS covering calendar years 2012 through 2017 are used to identify the primary care providers eligible for delivering IBT.¹³ The POSPUF population is for providers that had a valid National Provider Identifier (NPI) and submitted Medicare Part B non-institutional claims in a calendar year. To protect the privacy of Medicare beneficiaries, any aggregated records which are derived from 10 or fewer beneficiaries are excluded from the POSPUF. The data elements include the provider’s NPI, provider type, gender, zip code, state, HCPCS codes billed for more than 10 unique beneficiaries by the provider, number of claims by HCPCS codes, number of unique beneficiaries by HCPCS codes, and average Medicare payment amount by HCPCS codes. The Provider Summary Tables include data pertaining to provider utilization, payments, provider demographics, and beneficiary demographics. America’s Health Ranking’s obesity data¹⁴ and Kaiser Family Foundation’s publications¹⁵ are used to find obese Medicare beneficiary populations by state.

Data Analysis

We restricted the PCP types to family practice, general practice, internal medicine, nurse practitioner and physician assistant as these were the PCPs who were authorized to bill under the two IBT HCPCS codes. If a provider who was included in the analysis did not have any of the two HCPCS codes in a given year, the provider was considered an *IBT non-user* for that year. We categorized the providers based on their IBT-usage pattern over this period: *always users* include providers who had IBT claims for more than 10 unique Medicare beneficiaries every year during 2012 through 2017; *early adopters* include providers who had at least some utilization during 2012 or 2013 but not always in the other four years; *late adopters* include providers who did not have IBT claims reported during 2012 and 2013, but did during at least one year in 2014 through 2017, and lastly, *never users* include providers who had no reported payments for IBT claims from 2012 through 2017. Within each of these categories, we examined the following provider characteristics: gender, region, provider type, average count of unique Medicare beneficiaries, provider charges and beneficiary chronic conditions.

We examine the IBT service penetration in two ways: the number of Medicare beneficiaries per 1,000 elderly obese population in a state, and the number of PCPs who billed for IBT per 1,000 PCPs in a state. Heat maps are used to show utilization over the 6- year period across states. These heat maps can identify regions of strong and weak adoption of the services.

Results

Table shows provider characteristics by their IBT utilization patterns (*never users*, *late adopters*, *early adopters* and *always users*) for the 452,127 providers identified in the POSPUF data. Of these providers, the majority of them were considered *never users* (99.1%); of the *never users*, 58.1% were females, mainly practicing in the South (36.3%) and Midwest (24.3%), and were primarily made up of internal medicine providers (27.5%), nurse practitioners (30.0%), and family practice providers (22.3%). The *never users* had a median count of 149 unique Medicare beneficiaries per year when considering all Medicare claims.

Late adopters comprised just 3,062 (0.7%) providers. The majority of these providers were males (58.4%), practicing mainly in the South (42.5%) and Northeast (26.2%). The *late adopters* were mainly internal medicine (45.6%) and family practice (37.9%) providers, with a median count of 310 unique Medicare beneficiaries per year.

Early adopters consisted of only 988 providers (0.2%), with 64.3% being males. The *early adopters* mainly practiced in the South (48.2%) and the Northeast (23.6%) and were primarily internal medicine (54.6%) and family practice providers (35.1%). The early adopters had a median count of 312 unique Medicare beneficiaries per year.

Lastly, the smallest group, the *always users*, consisted of only 147 providers (0.03%), and also shared a similar distribution of characteristics as the early and late adopters. These providers were 66.7% male, practicing mainly in the South (45.6%) and Northeast (35.4%), and made up of mostly internal medicine (66.0%) and family practice (32.0%) providers. The *always users* had a median count of 362 unique Medicare beneficiaries per year.

We also utilized the Provider Summary Tables to help further understand the distribution of several other variables among the different IBT provider patterns. We examined average number of total annual services or encounters provided, average number of annual unique HCPCS codes, and average of annual total submitted charge amount. Based on the results seen in Table 1, we see generally the average amount of services rendered was lowest among non-IBT providers and highest among the *always users*. We also examined the distribution of obesity related chronic conditions among the beneficiaries among the different IBT provider patterns, which included hypertension, diabetes, and hyperlipidemia.¹⁷ The results in Table 1 showed that the proportions of patients with these chronic conditions were similar across all types of IBT providers and non-users.

Figure 1 displays the total number of claim counts for IBT services and the total number of unique Medicare beneficiaries reported in the POSPUF data from 2012 to 2017 for providers that delivered IBT services to more than 10 fee-for-service Medicare beneficiaries in a year. Approximately 28.5% of Medicare beneficiaries are estimated to meet criteria for obesity, suggesting there are about 10 to 11 million fee-for-service beneficiaries that meet the criteria to receive IBT services per year.^{4,16} Although over the years there has been a steady increase seen in utilization, both in the number of claims and number of beneficiaries, Fig. 1 suggests that well under 1% of the eligible Medicare population received IBT services from 2012 through 2017. Even if the uptake of IBT is higher among Medicare Advantage beneficiaries and if an additional 5,000 beneficiaries receive IBT services from primary care providers that provide this service to 10 or fewer beneficiaries, the uptake of IBT is far short of what is needed to address obesity among the Medicare population.

Figure 2 presents heat maps that summarize the number of Medicare beneficiaries receiving IBT services per estimated 1,000 obese Medicare beneficiaries in each state for 2013, 2015 and 2017, alongside the number of IBT providers delivering IBT services to more than 10 beneficiaries in a year per 1,000 eligible providers. There was a faster increase in IBT beneficiaries occurring mainly in the South and Northeast, with a slower increase in the Midwest. Although the vast majority of providers are classified as *never users*, the heat maps confirm the regional pattern that IBT participation increased more in the South and Northeast regions. However, the state that the largest increase in the absolute number of IBT PCPs per 1,000 providers was New Jersey (5.6 to 21.1 from 2012 to 2017); and Vermont had a slight decrease in the number of IBT providers (1.2 per 1,000 to 1 per 1,000).

Discussion

This study was the first to classify providers by the IBT uptake timing to early, late, always or never user groups and examine differences between these groups. There is a pattern in the characteristics of providers delivering IBT services to more than 10 Medicare beneficiaries in a calendar year. Specifically, providers delivering IBT services are more likely to be male, internal medicine and family practice providers, provide primary care services to a larger number of unique beneficiaries in a year, and primarily practice in the South and Northeast. The heat maps suggest that the uptake of IBT services are increasing more in the South and Northeast regions than the other regions.

Although IBT utilization in the Medicare population across the U.S. has been steadily increasing over the years since implementation of the CMS procedure codes, it is still a highly underutilized benefit among the Medicare population who qualify for the service. There are likely a range of factors affecting providers' and Medicare beneficiaries' decisions that are resulting in the very low utilization of IBT for obesity services. Among the factors that may affect providers' decisions to deliver IBT for obesity services are some of the structural features of the billing and payment requirements CMS established for the two HCPCS codes for individual and group sessions. For example, one potentially important factor is the low reimbursement rates for both individual and group sessions relative to primary care evaluation and management reimbursement levels. Another factor is likely the expectation of weekly visits for the first month and twice a month for the next five months, which for busy primary care practices could significantly curtail the available appointments for their entire patient panel. In addition, these requirements may be difficult for patients to achieve in certain populations due to other higher priority health conditions and transportation barriers.

Another important barrier to uptake is the restriction that the service needs to be provided in a primary care setting by a physician, nurse practitioner, physician assistant or a qualified provider under their direct supervision.¹⁷ A non-physician practitioner, such as a registered dietician, could bill "incident to" the primary care physician. In the Medicare Fee-for-service Provider Utilization and Payment data for Physician and Other Supplier Public Use File from 2012 to 2017, we found the following provider specialty types who submitted Medicare claims for IBT services: general practice, family practice, internal medicine, obstetrics/gynecology, pediatric medicine, geriatric medicine, nurse practitioner, certified nurse specialist, or physician assistant. Had other providers been certified to provide obesity service it might increase uptake of the benefit.

Two similar studies have examined the uptake rates of IBT services since its implementation in 2012.^{11,12} The first study examined utilization in 2012 and 2013,¹¹ and the second study for 2012 through 2015.¹² These two studies showed very similar results in terms of overall low IBT utilization. However, in contrast to this study, their analysis focused on Medicare beneficiary characteristics and not provider characteristics. Using patient-level claims data both studies described the demographics of the patients who were utilizing IBT services. Our study focused on the IBT utilizing and non-utilizing provider characteristics, including geographic differences, which has not yet been evaluated in similar studies. This new area of information allows us to further understand where IBT utilization is extremely low and how it varies across different provider types. Also, these results examine the data over a longer period of time, indicating the trend towards low utilization has continued.

One limitation of this work is that we were not able to assess providers who did provide IBT for obesity, but for 10 or fewer beneficiaries. There may be many providers who were using IBT for obesity at a low level (10 or fewer beneficiaries), but we don't have a way to verify the extent of utilization for small practices using the CMS publicly available data. Compared with the previous report,¹² our estimated number of beneficiaries in 2012 and 2013 were slightly lower. Therefore, our results may underrepresent the true amount of IBT for obesity happening in the earlier years. However, our estimates in 2014 and 2015 were slightly higher which might be due to the updates of final-action claim items over time. The differences in our estimates and previous reports were small and would not change the qualitative conclusions of the study.

Another limitation of the Physician and Other Supplier PUF data is that it only contains information on Medicare fee-for-service beneficiaries and as such it may not be representative of a physician's entire practice pattern. A third limitation of the study is that when we classified providers into early, late, always or never users we did not exclude providers who were not in the National Plan and Provider Enumeration System until after 2012 or providers who were deactivated between 2012 and 2017. The number of providers would decrease to 316,408 if we had done so but we would miss some Medicare beneficiaries who received the service and further underestimate the utilization of the services.

Our study provides the targeting areas and provider types to increase utilization in the future. Many structural changes may be needed to improve the uptake of IBT services for Medicare beneficiaries. Low reimbursement rates relative to other services provided by or under the direct supervision of PCPs are often cited as a reason PCPs do not offer IBT or similar types of services to Medicare beneficiaries¹⁸. Another structural change CMS could adopt to increase beneficiary access to IBT for obesity services is to remove the requirement for delivery by or under the direct supervision of a PCP. Registered Dietitians (RDs) are authorized Medicare Part B providers and CMS could change their coverage determination to permit RDs to independently deliver and bill for IBT for obesity services. As evidenced by the recent rapid transition to more telehealth services, IBT for obesity services are a good candidate for consideration of delivery via telehealth modes that would enhance the access to these services by Medicare beneficiaries that face transportation barriers in accessing in-person services. Finally, these results identify states with higher uptake that researchers can target for a further study regarding practice characteristics that are related to successful utilization of the service.

Conclusion

This study documents the extremely low use of IBT for obesity benefit in Medicare and shows regional variations in uptake rates with the South and Northeast U.S. regions having the highest number of IBT-billing providers. Adopters of the IBT services tend to differ systematically from the never users. Without improving the benefit design this valuable service will continue to be underutilized. Further investigation is needed to identify barriers to the uptake of IBT services among PCPs.

Abbreviations

| | |
|--------|--|
| IBT | Intensive behavioral therapy |
| PCP | Primary care provider |
| BMI | Body mass index |
| CMS | Centers for Medicare and Medicaid Services |
| HCPCS | Healthcare Common Procedure Coding System |
| POSPUF | Physician and Other Supplier Public Use File |
| NPI | National provider identifier |
| RD | Registered dietitian |

Declarations

Ethics approval and consent to participate

The study was approved by the University of Colorado, Michigan State University and Duke University IRB. All data were publicly available.

Consent for publication

Not Applicable.

Availability of data and material

All data are from publicly available sources as noted in the manuscript.

Competing interests

There is no conflict of interest, competing interest or prior presentation of the paper at any conference.

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Authors' contributions

The contributions of authors to this manuscript are as follows: JSH obtained funding for the study; ZL conceptualized the study; MO and ZL designed and performed statistical analyses; MO and ZL prepared the first draft; MG, RJD and JSH provided critical comments and revision; and all authors contributed to the interpretation of results.

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Not Applicable.

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Tables

Table 1: Provider characteristics by intensive behavioral therapy for obesity (IBT) utilization patterns (N=452,127)

| | Non-IBT providers (n=447,930) | | IBT providers* (n=3,062) | | | | | |
|--|----------------------------------|-------|-----------------------------|-------|---------------------------|-------|-------------------------|-------|
| | | | Late Adopters (n=988) | | Early Adopters (n=147) | | Always Users (n=147) | |
| | n | % | n | % | n | % | n | % |
| Gender | | | | | | | | |
| Males | 187,608 | 41.9% | 1,789 | 58.4% | 635 | 64.3% | 98 | 66.7% |
| Females | 260,322 | 58.1% | 1,273 | 41.6% | 353 | 35.7% | 49 | 33.3% |
| Region: | | | | | | | | |
| Midwest | 108,668 | 24.3% | 472 | 15.4% | 117 | 11.8% | 11 | 7.5% |
| Northeast | 91,830 | 20.5% | 802 | 26.2% | 233 | 23.6% | 52 | 35.4% |
| South | 162,733 | 36.3% | 1,302 | 42.5% | 476 | 48.2% | 67 | 45.6% |
| West | 84,699 | 18.9% | 486 | 15.9% | 162 | 16.4% | 17 | 11.6% |
| Provider Type: | | | | | | | | |
| Family practice | 100,052 | 22.3% | 1,160 | 37.9% | 347 | 35.1% | 47 | 32.0% |
| General practice † | 7,307 | 1.6% | 81 | 2.7% | 26 | 2.6% | 1 | 0.7% |
| Internal medicine | 123,224 | 27.5% | 1,397 | 45.6% | 539 | 54.6% | 97 | 66.0% |
| Nurse practitioner | 134,412 | 30.0% | 313 | 10.2% | 59 | 6.0% | 2 | 1.4% |
| Physician assistant | 82,935 | 18.5% | 111 | 3.6% | 17 | 1.7% | 0 | 0% |
| Median annual number of unique Medicare beneficiaries | 149 | | 310 | | 312 | | 362 | |
| Average annual number of services/encounters per year | 1,287 | | 4,772 | | 4,946 | | 7,850 | |
| Average annual number of all procedure codes | 26 | | 59 | | 57 | | 70 | |
| Average annual submitted charge amount | \$149,910 | | \$389,136 | | \$408,347 | | \$599,741 | |
| Percent of beneficiaries with obesity related chronic conditions ‡ | | | | | | | | |
| Hypertension | 68.0% | | 70.6% | | 70.7% | | 72.7% | |
| Diabetes | 37.8% | | 38.9% | | 38.4% | | 42.2% | |
| Hyperlipidemia | 53.7% | | 58.2% | | 59.4% | | 60.2% | |

* Always users include providers who have had IBT claims every year during 2012 through 2017; early adopters include providers who had at least some utilization during 2012 or 2013 but not always in the other four years; late adopters include providers who had zero IBT claims during 2012 and 2013, but some utilization occurred during at least one year in 2014 through 2017; and never users include providers who had zero IBT claims for more than 10 beneficiaries during 2012 through 2017.

† The provider type general practice is used by the Medicare Fee-for-service Provider Utilization and Payment data for Physician and Other Supplier Public Use File (POSPUF) as a separate category, as are nurse practitioner and physician assistant.

‡ Percentages based on providers with available data from Provider Summary Tables: Hypertension: 436,124; Diabetes: 398,133; Hyperlipidemia: 419,066

Figures

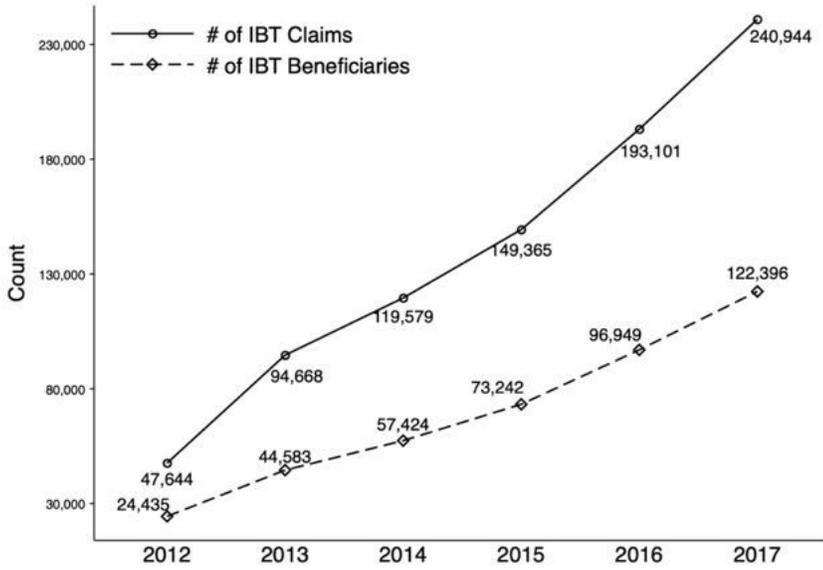


Figure 1
Total intensive behavioral therapy (IBT) for obesity claims (solid line) and beneficiaries (dash line) from 2012 to 2017 in Medicare Fee-for-Service Provider Utilization and Payment Data for Physicians and Other Suppliers

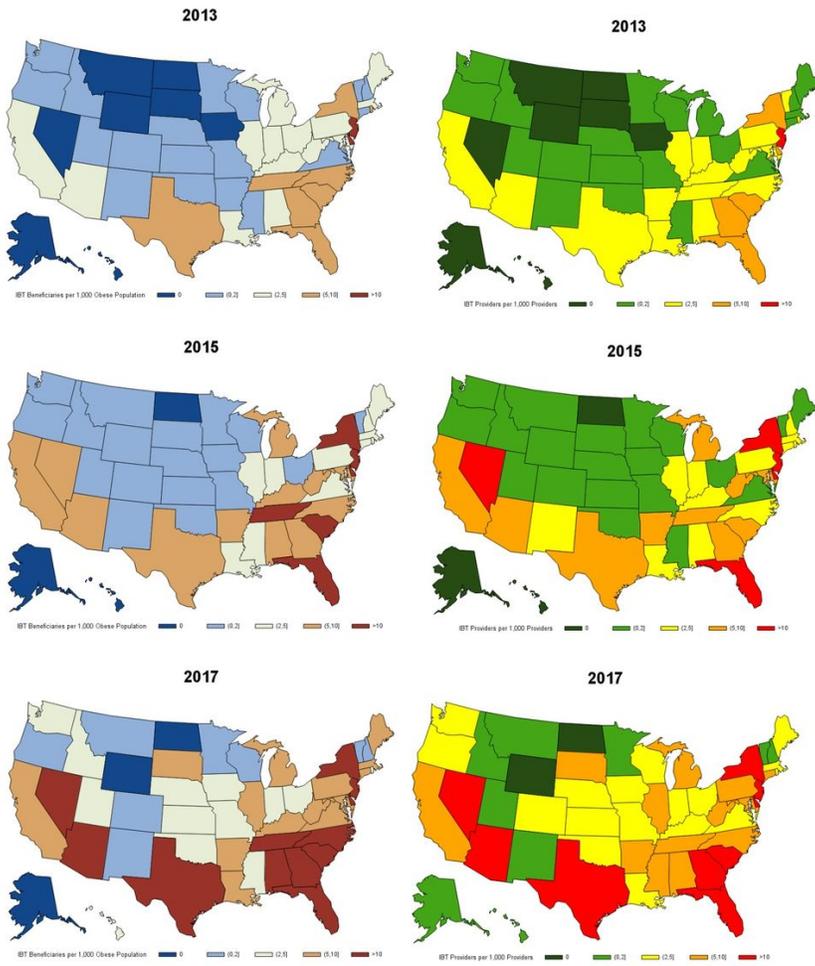


Figure 2

Intensive behavioral therapy (IBT) beneficiaries per 1,000 obese Medicare population (left panel) and providers per 1,000 eligible primary care providers (right panel) across the United States in 2013, 2015 and 2017