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Primary Care and Behavioral Health Practice Size: The Challenge for Healthcare Reform

Mark S. Bauer, MD[1], **Deane Leader, MBA**[2], **Hyong Un, MD**[2], **Zongshan Lai, MPH**[3], and **Amy M. Kilbourne, PhD**[3]

[1]Department of Psychiatry, Harvard Medical School & the Center for Organization, Leadership, & Management Research (COLMR), VA Boston Healthcare System, Boston, MA

[2]Aetna Behavioral Health, Aetna, Inc., Blue Bell, PA

[3]Department of Psychiatry, University of Michigan & VA Ann Arbor HSR&D Center of Excellence, Ann Arbor, MI

Abstract

Introduction—We investigated the size profile of US primary care and behavioral health physician practices since size may impact the ability to institute care management processes (CMPs) that can enhance care quality.

Method—We utilized 2009 claims data from a nationwide commercial insurer to estimate practice size by linking providers via tax identification number. We determined the proportion of primary care physicians, psychiatrists, and behavioral health providers practicing in venues of >20 providers per practice (the lower bound for current CMP practice surveys).

Results—Among primary care physicians (n= 350,350), only 2.1% of practices consisted of >20 providers. Among behavioral health practitioners (n=146,992) and psychiatrists (n=44,449), 1.3% and 1.0% of practices, respectively, had >20 providers. Sensitivity analysis excluding single-physician practices as "secondary" confirmed findings, with primary care and psychiatrist practices of >20 providers comprising, respectively, only 19.4% and 8.8% of practices (difference: $p<0.0001$). In secondary analyses, bipolar disorder was used as an tracer condition to estimate practice census for a high-complexity, high-cost behavioral health condition; only 1.3-18 patients per practice had claims for this condition.

Conclusions—The tax identification number method for estimating practice size has strengths and limitations that complement those of survey methods. The proportion of practices below the lower bound of prior CMP studies is substantial, and care models and policies will need to address the needs of such practices and their patients. Achieving a critical mass of patients for disorder-specific CMPs will require coordination across multiple small practices.

Corresponding Author: Mark S. Bauer, M.D., VA Boston Healthcare System-152M, 150 South Huntington Avenue, Boston, MA 02130 ph: 857-364-6380; fx: 857-364-6140 mark.bauer@va.gov.

Introduction

Practice Size, Care Management Processes, and Quality

Organized care management processes (CMPs)—the systematic use of guidelines supported by clinical information systems and care management—are the cornerstone of quality improvement in primary care and multi-specialty group practices[1-3]. They are a key component[2] of patient-centered medical homes[e.g.,4,5] and accountable care organizations (ACOs)[e.g.,6,7]. CMPs require sufficient organizational resources to support their implementation, such as information technology, external incentives, practice ownership type, and ability to respond to external incentives[1-3].

Additionally, CMP utilization[1,3] and other indices of quality[8,9] appear to depend at least in part on practice size. However, there are surprisingly few published, peer-reviewed studies of US physician practice size, and none of behavioral health practice size. The AMA Physician Marketplace Report for 2001[10] indicated that 37.3% of physicians practiced solo, while 21.9% practiced in groups of ≥10 physicians. By 2007-2008[11], the proportion of solo practitioners had decreased to 24.6%, but the proportion of groups of ≥10 providers actually dropped to 16.7%. Generally consistent with these findings, the 2006 National Ambulatory Medical Care Survey found that 32% of primary care physicians were in solo practice while only 7% practiced in groups of ≥10[12]. Data from the 2008 Health Tracking Physician Survey[13,14] indicated that 32% of US physicians worked in 1- to 2-physician practices, 15% in practices of 3-5 physicians, 19% in practices of 6-50 physicians, and the remainder in a variety of larger organizations or hospital-based practice. The Practice Size Exploratory Project (**PSEP**)[15] analyzed data from 10,220 Medicaid providers in 4,363 practices across four states. They found that in Arkansas, Michigan, and Pennsylvania 24-32% were in solo practice and 22-27% practiced in groups of ≥10. However, in urban New York 13-16% of Medicaid providers practiced solo, while 51-71% practiced in groups of ≥20[15].

Behavioral Health Care: The Added Challenge

Mental disorders affect over 25% of the US population at any one time[16]. Affected individuals typically receive highly fragmented, suboptimal quality care[17], and those with serious mental illness die 25 years earlier than the US average[18]. Within primary care, implementation of care management processes for depression lags behind that for common medical illnesses[1,2]. Further, while depressive and anxiety disorders are treated across general medical and behavioral health sectors, individuals with chronic disorders (including chronic or recurrent depressive and anxiety disorders) are typically treated in the behavioral health rather than general medical sector (48.3% vs. 12.7%, respectively)[19]. Coordinating care and improving quality for this population may also be enhanced via CMPs and related medical home methodologies[20-22]—but only if practice resources are adequate to support such processes.

Commercially Insured Care, Claims Data, and Practice Size

Even prior to healthcare parity legislation, 71.7% of individuals with chronic mental illnesses were covered by commercial insurance or Medicare, including 56.0% of those with psychotic or bipolar disorder[23]. Thus a substantial responsibility for the care of these populations is borne by providers working with commercial insurers.

We report here what is to our knowledge the first description of practice size for clinicians, particularly physicians, who provide commercially insured primary or behavioral health care, utilizing records of a large US commercial insurer. There are two novel aspects to this study. First, we focused on practices providing commercially insured care because the diversity of survey results indicates that sampling frame may affect practice size estimates.

For example, most surveys[10-14] show that one-quarter to one-third of physicians practice solo and 7-21.9% practice in groups of ≥10; however, sampling Medicare providers resulted in a more heterogeneous distribution, and resulted in estimating larger practice sizes[15]. In complementary fashion we therefore focused on physicians **and practices** providing commercially insured care, considering that this population might be characterized by smaller practice size than surveys indicate. Second, we estimated practice size not by survey but by linking tax identification numbers of claims as described in Methods. We reasoned that survey responses could under-represent small or solo practices which have fewer office staff to complete such surveys. We considered that this claims-based method would provide a complementary view of practice size, particularly in the commercially insured population, which we anticipated would be dominated by small practices.

We specifically hypothesized that the majority of primary care physicians, licensed behavioral health providers, and psychiatrists providing commercially insured care practice in venues with ≤20 providers, a threshold chosen because it is the lower bound of current CMP studies[1-3]. We further hypothesized that psychiatrist practice size would be even smaller than that for primary care physicians.

Additionally, we noted that CMPs are currently typically designed for specific conditions[1-3,24,25], thus requiring a critical mass of qualifying patients for implementation and sustainability. We therefore investigated practice size and practice census for a specific chronic behavioral condition, bipolar disorder. This disorder was chosen as a tracer condition because it is the most expensive mental condition for US commercial insurers due to its severity and chronicity[26], and among the most costly of all disorders to payers[27], affecting over 9,000,000 Americans[28], 44.1% of whom are covered by private insurance[29]. Additionally, the disorder provides an example of a DHHS-designated Multiple Chronic Conditions population[30], as the disorder is by definition chronic[31] and characterized by high rates of both psychiatric[32] and medical[33,34] chronic comorbidities. Managing quality for such populations will grow in importance as our population ages, since individuals with serious mental illnesses such as bipolar disorder consume an increasingly disproportionate share of both behavioral health and medical resources as they grow older[35,36].

Methods

Aetna Inc. is the fifth largest provider of commercially insured behavioral healthcare in the US. They provide benefits through employers in all 50 states, with products and services targeted specifically to small, mid-sized and large multi-site national employers.

Using claims data, we identified participating and nonparticipating providers who filed an Aetna claim in 2009. We determined practice size based on number of providers linked to the same tax identification number submitted to Aetna. We used tax identification as a proxy for practice size, reasoning that individuals who billed together could be considered to function as a practice (see Discussion for limitations). We characterized primary care practice size based on the number of physicians (internists, family practitioners, pediatricians), and behavioral health practice size based on number of licensed behavioral health professionals (psychiatrists, psychologists, advanced practice nurses, social workers). We then specifically compared psychiatrist practice size distribution to that for primary care physicians using the median test, and investigated comparative proportion of practices with >20 physicians using the X^2 statistic.

We next conducted a sensitivity analysis, repeating the analyses but excluding single-practitioner practices. This makes the very conservative assumption that all independent

practice represents “secondary” activities (e.g., “moonlighting”), and that a provider's main clinical work is in a larger practice.

Finally, to characterize the practice settings in which care for bipolar disorder is provided, we constructed a practice size profile for psychiatrists who filed a claim in 2009 for treatment of bipolar disorder (ICD-9 codes 296.4-296.8, excluding 296.82, 296.89, 296.90, 296.99) and calculated average bipolar census (patients per practice) across the distribution.

Study Results

Among primary care physicians (n=350,350 Table 1A), 89.1% of practices were single-physician practices (**48.6% of physicians**), while 2.1% of practices included >20 physicians (**35.2% of physicians**) and 0.5% had >100 physicians (**21.6% of physicians**). Among licensed behavioral health providers (n=146,992; Table 1B) rates were, respectively, 94.7%, 1.3%, and <0.1% (75.3%, 13.6%, and 4.1% of behavioral health providers). Among psychiatrists (n=44,449; Table 1C), 89.3% of practices were single-psychiatrist practices, 1.0% of practices included >20 psychiatrists, and <0.1% of practices had >100 psychiatrists.

Highly left-skewed distributions for both psychiatrists and primary care physicians did not result in significantly different medians (minimum, median, and quartiles = 1 for each group; maximum practice size for psychiatrists = 312, for primary care = 2,631; p=NS). However, fewer than half as many **psychiatric practices** as **primary care practices** consisted of >20 physicians (1.0% vs. 2.1%, $X^2(1)= 151.6$; $p<0.001$).

Sensitivity analysis, considering all single-physician practices as “secondary” and excluding them, underscored primary results. Median practice size for both groups remained small, with psychiatrists practicing in significantly smaller practices than primary care physicians (median (quartiles), respectively = 3 (2-6) vs. 4 (2-8), $p<0.001$), and having fewer than half as many practices with >20 providers (8.8% vs. 19.4%; $X^2(1)=175.8$, $p<0.0001$).

Among psychiatrists filing at least one claim in 2009 for bipolar disorder (n=6,757; Table 2A), a similar highly left-skewed distribution is seen, with single-psychiatrist practices comprising 93.2% of venues that cared for such patients, and 1.1% with >20 psychiatrists. From the perspective of the patient with bipolar disorder (n=26,652; Table 2B), 94.9% were seen in single-psychiatrist practices, while only 1.6% were seen in practices of >20 providers. The average bipolar census per practice was 1.3-18.0 bipolar patients per practice; excluding a single group of >100 psychiatrists that treated 18 bipolar patients, the range was 1.3-4.5.

Discussion

Commercially Insured Care in Practice Size Context

The vast majority of primary care and behavioral health **practices** utilizing commercial insurance consisted of ≤20 physicians, below the lower bound of practice size for current CMP implementation surveys[1-3]. As expected, this commercially insured primary care provider population revealed an even more left-skewed population than indicated by prior surveys. After excluding single-physician practices as “secondary,” the proportion of primary care **practices with >20 physicians remained quite low** (19.4%). However, including single-physician practices revealed a substantially larger proportion in single-physician primary care practices. Comparing physician-level data to surveys, 35.2% of primary care physicians practice in venues of ≥ 20 physicians, vs. 7%-21.9% in practices of ≥10 reported for most[10-14] (though not all[15]) surveys. Further, 48.8% practice independently, vs. 24.6-32% reported in surveys[10-15]. It is possible that claims data over-

report the proportion who practice independently (see next section). However, larger practice size among Medicaid providers[15] compared to other surveys[10-14] suggests that our findings, sampled through a commercial insurance frame, may also reflect a somewhat different—and not ignorable—population.

Of additional importance is that behavioral health providers practice in an even more left-skewed distribution than primary care physicians. These data, plus NSOP findings of lower rates of depression CMP adoption even in larger practices[1,3], indicate a serious quality liability for this substantial[16,19] population of Americans. Importantly, from the perspective of individuals with a specific chronic behavioral health condition that could be targeted by CMPs (using bipolar disorder as a tracer condition), the majority of commercially insured care appears to be delivered in very small venues (Table 2A) which each manage relatively small numbers of patients with that condition (Table 2B), thus making disorder-specific CMPs even more difficult to establish and maintain at the practice level. The number of patients with chronic behavioral health conditions like bipolar disorder managed solely outside of specialty behavioral health venues may be even smaller[37], although this needs to be directly studied particularly in rural settings where specialty behavioral health care may be less available.

Limitations, Further Questions, and Future Directions

The use of tax identification numbers to link providers who practice together has strengths and limitations. The advantage compared to survey methodology is that providing these data takes no effort on the practice's part, while survey data requires that the provider or an office staff member submit the information. Survey methods thus risk under-representation of smaller practices or those with negligible infrastructure who may be less likely to return such surveys. Nonetheless, more detailed analyses using survey, interview, and qualitative methods are needed in order to accurately characterize care management processes in smaller practices. For instance, we cannot determine from our methodology whether additional clinical or non-clinical staff support the physicians or other behavioral health licensed providers that comprised the basis for our analyses. Contrarily, we also do not know the degree of integration that actually characterizes the day-to-day practice processes of providers who bill together. It is also important to understand the degree to which extra-practice resources support quality enhancement processes (e.g., insurer-based or practice association-based information management infrastructures or CMPs).

Additionally, we focused attention on an *a priori* practice size cutoff of >20 providers. Although this cutoff may seem arbitrary, it is based on the lower bound of prior large CMP survey populations[1-3]. We know from these surveys that even within among larger practices, smaller size is associated with lower rates of CMP utilization; we thus reasoned that even smaller practices size would represent even higher risk of non-utilization and unmet need in terms of CMP support—and therefore would need implementation strategies designed specifically around their needs.

Finally, the degree to which other commercially insured behavioral health populations with multiple, chronic conditions[30] resemble bipolar disorder remains to be determined. Additionally it should be noted that the bipolar practice census figures reported here derive solely from Aetna-covered care and thus may represent only a proportion of a practice's total census of this condition. Nonetheless, even a tripling of these estimates yields a census so low that practice-based diagnosis-specific CMPs for this condition would be problematic to sustain.

Policy Implications

Two broad foci for policy initiatives can enhance the uptake of CMPs into smaller practice venues: policies can incent smaller practices to consolidate, and solo or small practices as they currently exist can be linked. The AMA surveys[10-11] indicate some consolidation of solo practices between 2001 and 2007-2008; however, the proportion of practices with >10 providers actually shrunk. ACOs hold promise; however, to date they have been limited to integrations that include at least one large core organization[38,39] rather than representing consolidation of multiple small practices alone. Thus smaller practices must become a policy and implementation focus.

There are several mechanisms by which existing small practices can be linked to implement and sustain CMPs. Independent practice associations (**IPAs**) have been associated with increased rates of CMP adoption, compared to non-associated medical groups of similar size[3]. Additionally, telehealth provides an avenue for CMP adaptation that can overcome the lack of critical mass of patients with a particular diagnosis in any single practice[e.g.,40,41]; however, reimbursement structures will have to align to support telehealth modalities[42].

Powerful electronic linkages may derive from meaningful use of the electronic health record (**EHR**), although EHR use to date has been modest[43]. However, increasing EHR implementation has recently become a policy focus through the Health Information Technology for Economic and Clinical Health (**HITECH**) initiative of the 2009 American Recovery and Reinvestment Act. In one example of meaningful use of both the EHR and provider incentives in small practices[44], a Center for Medicare and Medicaid Services demonstration project under the 2003 Medicare Prescription Drug, Improvement, and Modernization Act provided financial incentives to smaller practices to enhance preventive services and care for diabetes, congestive heart failure, and coronary artery disease. Initial report of over 500 practices with a mean size of 3.3 physicians indicated that 88% of participating practices earned the maximum incentive for which they were eligible, including 33% who utilized EHR.

Additionally, under the 2009 Affordable Care Act, state-level health insurance exchanges and commercial insurers can provide incentives or support for small practices. However, incentives themselves have had mixed effects, since traditional pay-for-performance models have yielded equivocal results even in larger organizations[e.g.,45,46] even when bundled with care management strategies[47].

More promising, state-level exchanges, commercial insurers, and related entities that can "bundle" smaller practices together, can support plan- or population-level CMP models. The DIAMOND initiative for depression in Minnesota indicates that partnership across health plans, providers, and the state can stimulate adaptation and implementation of evidence-base CMPs in under-resourced practices—although to date this initiative has involved primarily larger groups[48]. Further, the finding among larger practices that IPAs can enhance CMP implementation[3] suggests that this approach is worth exploring for smaller practices as well.

Additionally, a recent study of implementation of the related patient-centered medical home (PCMH) framework among predominantly smaller practices[49] indicates that such practices can establish up to 70% of PCMH criteria with or without formal external facilitation. Implementation was more difficult if multiple roles are affected, if coordination across units was necessary, if additional resources were needed, and if implementation changed an established care model. Thus some characteristics likely typical of smaller practices may actually make it easier to establish new processes (simpler systems, fewer work roles), while other characteristics predict more difficult transitions (need for additional resources,). However, definitive conclusions regarding the dependence of CMP implementation on

practice size must await direct study. Notably in this regard, in this study patient perceptions of PCMH attributes actually decreased during implementation[49], further underlining the need for direct, detailed study.

Thus in summary, the challenge of small primary care and behavioral health practices is a significant one, and one with which we will need to grapple for the foreseeable future. Present policy levers and clinical care models hold promise. What now is required is focused and sustained attention on smaller primary care and behavioral health practices among policymakers, providers, insurers, and health services researchers.

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Table 1

Distribution of Behavioral Health Practices by Size: Number of Credentialed Primary Care Physicians (A), Behavioral Health Clinicians (B), Psychiatrists (C)[a]

A. Practice Size with Given Number of Primary Care Physicians	Number of Primary Care Practices (%)	Number of Primary Care Providers (%)
Single Independent Primary Care Physician[b]	165,063 (86.1%)	165,063 (46.9%)
Single Primary Care Physician Registered as Group[b]	5,833 (3.0%)	5,833 (1.7%)
Group Practice with 2-3 Physicians	6,457 (3.4%)	12,584 (3.6%)
Group Practice with 4-10 Physicians	7,492 (3.9%)	25,253 (7.2%)
Group Practice with 11-20 Physicians	2,918 (1.5%)	18,422 (5.2%)
Group Practice with 21-100 Physicians	3,152 (1.6%)	47,554 (13.6%)
Group Practice with >100 Physicians	905 (0.5%)	75,641 (21.6%)
Total Number of Practices	191,820 (100.0%)	350,350 (100.0%)

B. Practice Size with Given Number of Behavioral Health Providers	Number of Behavioral Health Practices (%)	Number of Behavioral Health Providers (%)
Single Independent Behavioral Health Provider[b]	108,813 (93.3%)	108,813 (74.17)
Single Behavioral Health Provider Registered as Group[b]	1,596 (1.4%)	1,596(1.1%)
Group Practice with 2-3 Providers	1,440 (1.2%)	2,813(1.9%)
Group Practice with 4-10 Providers	2,071 (1.8%)	6,157 (4.2%)
Group Practice with 11-20 Providers	1,248 (1.1%)	6,536 (4.5%)
Group Practice with 21-100 Providers	1,358 (1.2%)	13,820 (9.5%)
Group Practice with >100 Providers	146 (0.1%)	5,970 (4.1%)
Total # of Practices	116,672 (100.0%)	146,992 (100.0%)

C. Practice Size with Given Number of Psychiatrists	Number of Psychiatrist Practices (%)	Number of Psychiatrists (%)
Single Independent Psychiatrist[b]	20,318 (84.1%)	20,318 (45.7%)
Single Psychiatrist Registered as Group[b]	1,250 (5.2%)	1,250 (2.8%)
Group Practice with 2-3 Psychiatrists	967 (4.0%)	4,428 (10.0%)
Group Practice with 4-10 Psychiatrists	1,029 (4.3%)	6,875 (15.4%)
Group Practice with 11-20 Psychiatrists	380 (1.6%)	5,089(11.4%)
Group Practice with 21-100 Psychiatrists	214 (0.9%)	5,645(12.7%)
Group Practice with >100 Psychiatrists	14 (0.1%)	894(2.0%)
Total Number of Practices	24,172 (100.0%)	44,449 (100.0%)

[a]Based on analysis of 350,350 primary care physicians (including internal medicine, family practice, and pediatrics), **146,992** Aetna participating and non-participating behavioral health providers (psychiatrists plus non-psychiatrist therapists), and **44,449** psychiatrists, who filed a claim with Aetna in 2009; unique providers may be represented under more than one practice.

[b]Individual providers could register with Aetna either as an independent practitioner or as a group at their own discretion.

Table 2A

Distribution of Providers Treating Individuals with Bipolar Disorder by Practice Size

Size of Practice with Given Number of Psychiatrists Providing Care for Patients with Bipolar Disorder[a]	**Number of Practices Providing Care for Bipolar Disorder (%)**
Single Independent Psychiatrist[b]	5,700 (91.8%)
Single Psychiatrist Registered as Group[b]	87 (1.4%)
Group Practice with 2-3 Psychiatrists	89 (1.4%)
Group Practice with 4-10 Psychiatrists	164 (2.6%)
Group Practice with 11-20 Psychiatrists	94 (1.5%)
Group Practice with 21-100 Psychiatrists	71 (1.1%)
Group Practice with >100 Psychiatrists	1 (0.0%)
Total Number of Practices	6,206 (100.0%)

Table 2B

Distribution of Patients with Bipolar Disorder by Practice Size

Size of Practices Providing Care for Patients with Bipolar Disorder	Number of Patients Treated for Bipolar Disorder Seen in a Given Practice Venue Size (%)[c]	Average Bipolar Patient Census[d]
Single Independent Psychiatrist[b]	20,203 (94.4%)	3.5
Single Psychiatrist Registered as Group[b]	111 (0.5%)	1.3
Group Practice with 2-3 Psychiatrists	207 (1.0%)	2.3
Group Practice with 4-10 Psychiatrists	329 (1.5%)	2.0
Group Practice with 11-20 Psychiatrists	225 (1.1%)	2.4
Group Practice with 21-100 Psychiatrists	318 (1.5%)	4.5
Group Practice with >100 Psychiatrists	18 (0.1%)	18.0
Total Number of Patients Receiving Care	21,411 (100.0%)	not applicable

[a]Based on analysis of 6,757 unique psychiatrists treating individuals with bipolar disorder; 551 (8.2%) of psychiatrists were represented under more than one tax identification number or practice.

[b]Individual providers could register with Aetna either as an independent practitioner or as a group at their own discretion.

[c]Based on analysis of 20,933 unique patients treated for bipolar disorder; 1,675 (0.8%) received care in more than one venue.

[d]Average Bipolar Patient Census = number of patients divided by number of practices of a given size (from Table 2A).