

# Diabetes Care Quality: Do Large Medical Groups Perform Better?

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**M**edical care delivery in the United States is in the midst of large changes, moving from traditional independent physician practices to larger aggregations of employed doctors with expanded care teams and multispecialty, multisite practices often vertically integrated with hospitals and/or health insurance plans. In 2018, Furukawa et al found that 51% of all physicians and 49% of primary care physicians were affiliated with health systems that also included an acute care hospital, up from 40% and 38%, respectively, in 2016.<sup>1</sup> Although policy makers hoped that these changes would lead to improved quality and cost of care, it is unclear whether those goals have been achieved. Fang, for example, tracked trends in diabetes management among US adults from 1999 to 2016 and found that after early improvements in glycemic, blood pressure, and lipid control, more recent trends were getting worse.<sup>2</sup> Carlin et al studied the effects on care quality after multispecialty care systems were acquired by hospital-owned care systems and concluded that there were limited increases in some quality-of-care indicators.<sup>3</sup> However, the probability of ambulatory care-sensitive hospital admissions also increased after the change. Similarly, Casalino et al used Medicare data to show nationally that small physician-owned practices (3-9 physicians) had fewer preventable admissions than either larger ones (10-19 physicians) or hospital-owned practices.<sup>4</sup> On the other hand, Weeks et al found that large multispecialty medical groups provided higher quality care at a lower annual cost than practices not in such groups.<sup>5</sup>

Few other studies address the question of whether medical group size and ownership type make much difference in quality or cost, and they have mostly relied on indirect measures of care system type or performance.<sup>6-12</sup> Because Minnesota underwent long ago the mergers and buyouts of practices that most states are experiencing only recently, it has had time for its large care systems to develop and mature. Most large groups in the state have existed for 20 to 30 years, and relatively few single-site practices are left. To be clear, this study compares practices that are part of large organizations (those with many sites) with practices that are part of smaller organizations; it does not address the size of those individual sites, some of which might be quite small.

## ABSTRACT

**OBJECTIVES:** To compare primary care management processes (CMPs) and outcome measures for diabetes quality among large, medium, and small medical groups.

**STUDY DESIGN:** Observational comparison of differences in processes and outcomes over time among 329 primary care practices that agreed to participate and returned completed surveys in both 2017 and 2019.

**METHODS:** We used a standardized composite measure of diabetes quality along with its 5 components and a survey measure of the presence of systematic CMPs to compare the outcomes and processes of care among clinics that were in large ( $\geq 12$  sites), medium (4-11 sites), and small (1-3 sites) medical groups.

**RESULTS:** Practices from large groups had better performance than those in medium and small groups on the composite measure of diabetes outcomes in 2017 (46.5 vs 40.6 and 34.4, respectively;  $P < .001$ ), as well as on each of the 5 component measures. They also had more CMPs in place (74.2% vs 66.9% and 61.4%;  $P < .001$ ), including the 10 CMPs that are associated with the highest level of performance (84.2% vs 77.9% and 72.2%;  $P < .001$ ). However, repeated measures in 2019 showed that the smaller groups had gained on both quality and CMP measures. There was also substantial overlap on both CMPs and performance among practices in groups of different sizes.

**CONCLUSIONS:** On average, primary care practices that are part of large well-established medical groups outperformed smaller-sized groups in diabetes care quality, probably because they have the resources, leadership, and infrastructure to provide more consistent care through more organized CMPs.

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**TAKEAWAY POINTS**

Large medical groups perform better than medium- or small-sized groups on diabetes quality measures, perhaps because they have more care management processes in place. This suggests that managed care leaders should:

- ▶ Build strong infrastructure for supporting quality improvement in frontline clinical care, including strong local leadership for effective implementation.
- ▶ Focus on implementing the care management processes that are most highly associated with better performance, especially those involving proactive care and outreach.
- ▶ Use both literature and data from your own care system to search for new strategies that will support the next wave of improvement.

**TABLE 1.** Care Management Processes With Evidence of Improving Diabetes Care

Each question below begins with the words “Does your clinic”	
Strong evidence of improving diabetes care	
1.	Have a system for tracking laboratory tests until results are available to the clinician?
2.	Manage patient care using checklists of tests or interventions that are needed for prevention or monitoring of diabetes?
3.	Have a systematic approach to identify and remind patients with chronic illnesses who are due for testing (eg, LDL cholesterol test, dilated eye exam)?
4.	Routinely provide after-visit follow-up as a component of care management to your patients with diabetes by someone other than a physician, PA, or NP?
5.	Have guideline-based reminders for age-appropriate preventive services (eg, influenza vaccine) that the patient should receive when seeing the clinician?
6.	Have a systematic process to screen or assess patients for alcohol/substance use disorder?
7.	Provide or refer patients to formal support programs for weight loss management to assist in self-management for conditions or age-specific risk factors?
8.	Routinely provide written materials that explain recommended medical care guidelines for their illness to encourage patient self-management?
9.	Have systems to encourage patient self-management for diabetes?
10.	Have a formal process (ie, a written plan with a set of procedures and defined end points for accountability) for measuring performance for individual physicians or for the practice site?
Moderate evidence of improving diabetes care	
11.	Have a system to provide alerts about clinically important abnormal laboratory test results to the doctors at the time they are received?
12.	Have a structured protocol for following up with patients when abnormal test results are identified?
13.	Maintain a diabetes registry (a list of patients with diabetes along with associated clinical data for each patient)?
14.	Use its scheduling system to encourage patients to see their personal physician?
15.	Have a systematic approach to identify and remind patients with chronic illnesses who are due for a follow-up visit?
16.	Routinely provide follow-up when patients have missed important appointments as a component of care management to patients with diabetes by someone other than a physician, PA, or NP?
17.	Provide or refer patients to formal support programs for physical activity to assist in self-management for conditions or age-specific risk factors?
18.	Provide or refer patients to formal support programs for asthma to assist in self-management for conditions or age-specific risk factors?
19.	Provide or refer patients to formal support programs for cardiovascular disease to assist in self-management for conditions or age-specific risk factors?
20.	Routinely support self-management for patients and their families by using and exchanging data with patients who have access to their own electronic health record or personal health record?

LDL, low-density lipoprotein; NP, nurse practitioner; PA, physician assistant.

Minnesota also has an unusual ability to compare quality measures across all practices. It has a nonprofit organization (MN Community Measurement, or MNCM) that has been collecting and publicly reporting on standardized performance measures for all practices in the state for 15 years.<sup>13</sup> A National Institutes of Health grant has supported analysis of these quality data for diabetes, along with newly collected measures of practice use of care management processes (CMPs). These factors have provided an unusual opportunity to answer the question of whether medical group size and ownership type are associated with better care quality for diabetes.<sup>14</sup> We have also explored whether the presence of CMPs may be a mechanism for any differences found.

**METHODS**

**Setting**

Of the 586 primary care practices in Minnesota and border areas of neighboring states that submitted data to MNCM for 2017 public reporting on quality of care for adult patients with diabetes, 451 (77%) agreed to participate in this study and 415 of those (92%) returned completed surveys (see Data Collection section). In 2019, 504 of the 627 practices submitting data to MNCM agreed to participate in this study (80%) and 451 of those returned completed surveys (89%). After eliminating practices that did not complete surveys in both years or did not have matching MNCM data, we were left with 329 practices organized into 44 groups with complete data in both years. These 329 practices were used as the denominator for the analyses in this paper.

**Data Collection**

A leader of each of the practices was asked to complete a 107-question survey (the Physician Practice Connections–Research Survey) that included questions about the presence of various CMPs to support high-quality care for patients. The 20 questions that have evidence for association with quality measures are listed in **Table 1** to both identify those questions and provide examples of the types of questions in the full survey (which is available from the authors). Ten of these 20 questions have been highlighted as having the strongest association

with quality measures (unpublished data available from the authors). Both the overall CMP score and scores for subgroups of questions that we have found to be strongly or very strongly associated with quality measures were calculated as a percentage of the total possible score with equal weight for each question.

The survey instrument was first created and tested for reliability by the National Committee for Quality Assurance as a way of assessing the presence of various features of the Chronic Care Model.<sup>15</sup> It has been widely used in research and has been demonstrated to be associated with quality of care for patients with diabetes or depression and with utilization and costs for patients with diabetes.<sup>16-18</sup>

Outcomes performance measures for each practice were computed from MNMCM data for the same years. For diabetes, these included measures of the proportion of adult patients with diabetes at a practice who had glycated hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) controlled (HbA<sub>1c</sub> < 8.0%), had blood pressure controlled (< 140/90 mm Hg), were on statins unless contraindicated, were on prophylactic aspirin unless contraindicated, and were not tobacco users, as well as a composite all-or-none measure of the proportion of patients with all 5 measures under control, called optimal diabetes care (ODC). Practices use direct data submission procedures to provide these patient-level data for their populations with diabetes to MNMCM annually as a part of the Minnesota Department of Health Statewide Quality Reporting and Measurement System.<sup>19</sup>

The MNMCM system includes only limited information about patient characteristics: age, sex, urban/rural residence, health insurance type (including no insurance), whether the patient has type 1 diabetes, and presence of depression and/or ischemic vascular disease diagnoses. To include a broader range of socioeconomic characteristics for this analysis, we were able to use patient zip codes to describe the neighborhoods in which they lived. We matched zip codes to the 5-year American Community Survey data released in the observation year to describe the patient's neighborhood.<sup>20</sup> We measured race and ethnicity using the percentage of residents who were non-Hispanic White; education using the percentage of residents 25 years or older with a high school degree but not a 4-year college degree and the percentage with a 4-year college degree; percentage who were foreign born; and income and wealth estimates using the percentage of households with incomes under the federal poverty level.<sup>20</sup>

## Analysis

We first calculated summary statistics describing the practices and patient populations for medical groups that were small (1-3 practices), medium (4-11 practices), and large (12 or more practices). Then, we calculated the mean CMP scores and ODC rates for each group size. Statistical significance of differences by medical group size was calculated using analysis of variance tests, adjusting the ODC rates by practice for heteroscedasticity caused by varying practice sizes.

To account for differences in patient and practice characteristics, we also conducted multivariate analyses predicting the CMP scores and predicting patterns in ODC rates. Practice controls included

whether the practice is a federally qualified health center and the rurality of the practice (urban, large rural town, small rural town, isolated rural town). Rurality was defined by practice zip code mapped to Rural-Urban Commuting Area Codes.<sup>21</sup> Patient controls included patient age, sex, record of a diagnosis of ischemic vascular disease, record of diagnosed depression, presence of type 1 diabetes, and the patient's insurance product (commercial, Medicare, Medicaid, dual Medicare/Medicaid coverage, self-pay). The CMP scores, in total and by subset, were modeled at the practice level using linear regression with practice control variables. The practices' ODC rates (ie, the percentage of patients in the practice meeting the quality standard) and the rates of meeting each of the 5 ODC components individually were modeled at the practice level using linear regression, adjusting for average patient, average neighborhood, and practice control variables.

## RESULTS

As noted in the Setting section earlier, responses to the CMP survey were obtained from 92% of 451 participant practices in 2017 and 89% of 504 participant practices in 2019, although the results presented here are for the 329 practices that returned completed surveys and had matching MNMCM data in both years. **Table 2** displays the clinic and patient characteristics for the 3 sizes of medical groups in 2017. Practices that are in large medical groups are more likely to be urban and to have more patients with commercial health insurance. Small groups had the highest proportion of patients on Medicaid, and medium groups had the most with no insurance. There were no differences in prevalence of age, sex, neighborhood population descriptors, or depression among the different size groups. The clinic and patient characteristics in 2019 are not shown for brevity, because the 2019 characteristics differed from those of 2017 in only a slight increase in the number of patients without insurance.

**Table 3** compares the unadjusted proportion of CMPs, or CMP scores, at the clinic level in the 3 types of groups, as well as the change in scores between 2017 and 2019. Large groups had significantly more CMPs in place in 2017, both for all CMPs and those specific to diabetes, as well as those CMPs with evidence for importance in diabetes measures. However, by 2019 the small groups had narrowed the gap with large groups by 48% to 72% and with medium groups by 25% to 80%, depending on the measure.

Table 3 also shows the same types of unadjusted comparisons for the 6 ODC measures (5 components + composite) by group size. In 2017, large groups had significantly higher ODC rates than medium or small groups on all 6 measures, although the differences were very small for aspirin use because all 3 sizes of groups were nearly perfect here (99%). Again, by 2019 the medium and smaller groups had narrowed the gaps, although not by as much as for the CMPs, and all but 1 difference (aspirin use) continued to be statistically significant.

**Table 4** summarizes the CMP scores and ODC rates adjusted for differences in patient, practice, and neighborhood characteristics. The results for CMP scores parallel the unadjusted rates in Table 3,

## CLINICAL

**TABLE 2.** Practice and Patient Characteristics by Organization Size in 2017\*

Characteristics	≥ 12 sites	4-11 sites	1-3 sites	P <sup>b</sup>
<b>Practice</b>				
N of practices	267	39	23	
N of medical groups	15	12	17	
Urban	70.4%	43.6%	56.5%	.002
FQHC	0.0%	15.4%	26.1%	<.001
<b>Patient</b>				
N of patients	160,284	16,949	11,065	
Urban	76.8%	57.4%	58.5%	.001
Mean age in years	58.4	58.8	58.7	.080
Female	46.4%	46.9%	46.2%	.492
White, non-Hispanic <sup>c</sup>	79.5%	76.5%	84.2%	.397
Foreign born <sup>c</sup>	9.4%	9.5%	6.8%	.106
Income under FPL <sup>c</sup>	10.3%	12.8%	11.3%	.015
Aged ≥25 years without a college degree <sup>c</sup>	66.1%	70.0%	71.1%	<.001
<b>Insurance</b>				
Commercial	43.8%	31.7%	33.4%	<.001
Medicaid	13.5%	14.0%	17.9%	
Medicare	36.9%	39.0%	40.6%	
None	1.9%	10.3%	3.7%	
Type 1 diabetes	6.4%	4.3%	5.2%	.009
Ischemic vascular disease	16.2%	13.7%	14.3%	.019
Depression	23.9%	23.4%	21.9%	.902

FPL, federal poverty level; FQHC, federally qualified health center.

\*2017 is representative of the 2019 characteristics, other than a slight increase in the rate of patients without insurance, particularly in large medical groups.

<sup>b</sup>P values indicate the statistical significance of a  $\chi^2$  test of differences in means or proportions across the 3 groups.

<sup>c</sup>Mean neighborhood characteristics in patient's zip code from the American Community Survey.

with statistically significant differences by medical group size in 2017 narrowing and losing statistical significance in 2019. This narrowing of the gap is concentrated in the CMPs shown to be associated with improved performance measures for patients with diabetes. Changes in adjusted ODC rates also parallel the changes seen in the unadjusted rates in Table 3. Practices in large groups were achieving better ODC performance in 2017, driven primarily by better statin use and blood pressure control. These analyses also confirmed that the gaps narrowed in 2019 for blood pressure and statin use as practices in smaller systems improved, although there were minimal changes in statistical significance.

Finally, although these differences among practices in different size groups were clearly significant, there was still considerable variation among the practices within groups in each size category. This can be seen in the [Figure](#), which shows a frequency distribution of diabetes-specific CMP scores for practices in each medical group size category and a similar frequency distribution for ODC rates. The peaks of the distributions increase with medical group size for both CMP scores and ODC rates. For example, the most frequent

**TABLE 3.** CMPs and Outcome Measures in 2017 and Change in 2019 (%)

Measures	≥ 12 sites	4-11 sites	1-3 sites	P <sup>a</sup>
<b>CMP scores</b>				
% of all 107 CMPs present				
2017	74.2	66.9	61.4	<.001
2019	74.4	69.0	67.7	.035
Change	0.3	2.1	6.4	
% of all 62 diabetes CMPs present				
2017	82.3	75.6	72.6	<.001
2019	82.2	78.0	78.8	.113
Change	-0.1	2.4	6.2	
% of 20 CMPs with evidence of better outcomes				
2017	84.5	77.9	71.7	<.001
2019	83.7	82.4	80.2	.517
Change	-0.7	4.5	8.5	
% of 10 CMPs with strong evidence of better outcomes				
2017	84.2	77.9	72.2	<.001
2019	84.0	81.8	79.6	.371
Change	-0.1	3.8	7.4	
<b>Optimal diabetes care measures</b>				
% meeting overall D5 <sup>b</sup> score				
2017	46.5	40.6	34.4	<.001
2019	46.9	41.5	36.4	<.001
Change	0.4	1.0	2.1	
% with HbA <sub>1c</sub> < 8.0%				
2017	70.6	68.5	65.4	<.001
2019	72.0	69.1	67.6	<.001
Change	1.3	0.6	2.2	
% with blood pressure < 140/90 mm Hg				
2017	85.6	79.6	76.7	<.001
2019	84.9	81.0	77.1	<.001
Change	-0.7	1.4	0.4	
% with appropriate statin use				
2017	87.5	84.2	79.0	<.001
2019	88.2	85.0	81.8	<.001
Change	0.7	0.8	2.8	
% with appropriate aspirin use				
2017	99.7	99.5	99.1	.001
2019	99.4	99.6	99.2	.056
Change	-0.2	0.1	0.0	
% with documentation of no tobacco use				
2017	83.4	82.5	78.5	<.001
2019	83.5	82.9	79.7	<.001
Change	0.1	0.4	1.2	

CMP, care management process; HbA<sub>1c</sub>, glycated hemoglobin A<sub>1c</sub>.

<sup>a</sup>P values indicate the statistical significance of a  $\chi^2$  test of differences in means or proportions across the 3 groups within the year.

<sup>b</sup>D5 is a composite of the 5 separate measures listed in this table.

**TABLE 4.** CMPs and Diabetes Care Measures Adjusted for Patient and Practice Characteristics<sup>a</sup>

Measures	≥ 12 sites	4-11 sites	1-3 sites	P <sup>b</sup>	
				Medium vs large	Small vs large
<b>CMP scores</b>					
% of all 107 CMPs present					
2017	74.3	65.7	61.7	<b>.003</b>	<b>.001</b>
2019	75.0	67.6	67.7	<b>.010</b>	<b>.046</b>
Change	0.7	1.9	6.0		
% of all 62 diabetes CMPs present					
2017	82.5	74.4	72.3	<b>.001</b>	<b>.001</b>
2019	82.8	76.8	78.3	<b>.009</b>	.126
Change	0.3	2.3	5.9		
% of 20 CMPs with evidence of better outcomes					
2017	84.7	76.8	71.8	<b>.002</b>	<b>&lt;.001</b>
2019	84.2	81.2	79.9	.232	.180
Change	-0.4	4.3	8.1		
% of 10 CMPs with strong evidence of better outcomes					
2017	84.5	76.1	71.0	<b>.004</b>	<b>&lt;.001</b>
2019	84.8	79.7	77.9	.079	.061
Change	0.2	3.6	6.9		
<b>Optimal diabetes care measures</b>					
% meeting overall D5 <sup>c</sup> score					
2017	46.1	42.1	37.7	<b>.002</b>	<b>&lt;.001</b>
2019	46.9	43.3	39.5	<b>.005</b>	<b>&lt;.001</b>
Change	0.9	1.2	1.8		
% with HbA <sub>1c</sub> < 8.0%					
2017	70.4	69.5	67.9	.346	<b>.034</b>
2019	72.3	70.4	69.9	<b>.035</b>	<b>.041</b>
Change	1.9	0.8	2.0		
% with blood pressure < 140/90 mm Hg					
2017	85.4	79.7	79.2	<b>&lt;.001</b>	<b>&lt;.001</b>
2019	84.9	81.0	79.2	<b>&lt;.001</b>	<b>&lt;.001</b>
Change	-0.5	1.4	0.0		
% with appropriate statin use					
2017	87.6	84.5	79.0	<b>.003</b>	<b>&lt;.001</b>
2019	88.1	85.5	82.1	<b>.010</b>	<b>&lt;.001</b>
Change	0.5	1.0	3.1		
% with appropriate aspirin use					
2017	99.7	99.5	99.1	.177	<b>&lt;.001</b>
2019	99.4	99.6	99.1	.146	<b>.004</b>
Change	-0.2	0.0	0.0		
% with documentation of no tobacco use					
2017	82.8	84.3	81.2	.058	.107
2019	83.2	84.3	82.1	.161	.263
Change	0.4	0.0	0.9		

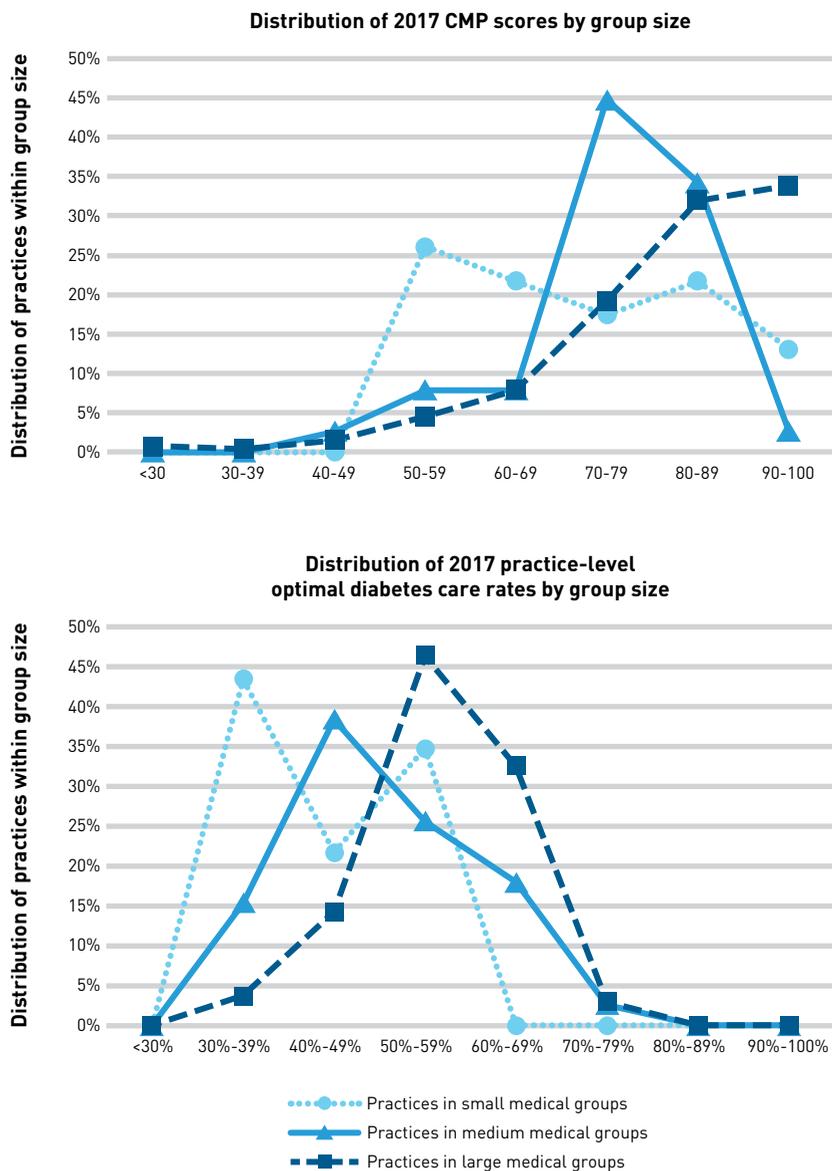
CMP, care management process; HbA<sub>1c</sub>, glycated hemoglobin A<sub>1c</sub>.

<sup>a</sup>Adjusted characteristics include whether the practice is a federally qualified health center and the rurality of the practice. Patient controls include patient age, sex, record of a diagnosis of ischemic vascular disease, record of diagnosed depression, presence of type 1 diabetes, and the patient's insurance product.

<sup>b</sup>P values indicate statistical significance of differences in the year's adjusted CMP scores and optimal care rates in clinics from smaller systems, relative to the scores and rates in large systems. The P values were computed using the *margins* function in Stata SE version 15. P values < .05 have been bolded to facilitate identifying patterns in statistical significance.

<sup>c</sup>D5 is a composite of the 5 separate measures listed in this table.

**FIGURE.** Distribution of 2017 Total Diabetes CMP Scores and Practice-Level Optimal Diabetes Care Rates by Size of Medical Group



CMP, care management process.

CMP scores were in the range of 50 to 59 for small medical groups, 70 to 79 for medium medical groups, and 90 to 100 for large medical groups. Similar trends are apparent in the ODC rates. However, there is considerable overlap in both CMP scores and ODC rates, so many practices perform as well or poorly as those in the other size groups.

## DISCUSSION

This analysis demonstrates relatively high performance on diabetes outcome measures among all the participating practices. However,

on average, practices in large medical groups had significantly higher scores in 2017 on each measure than those in small or midsize groups. On average, they also had considerably more CMPs, both overall and for those limited to diabetes care, as well as of a subset of 10 CMPs with the strongest evidence of ties to better outcomes. However, 2 years later, the practices in large medical groups had made little change in either CMP scores or ODC rates, whereas those in smaller groups had improved in both areas, especially those in the smallest medical groups (1-3 practices). This also suggests the existence of a connection between the number of CMPs in place and outcomes and that clinics in smaller medical groups are able to implement system changes almost as well despite their more limited resources.

Gillies et al used Healthcare Effectiveness Data and Information Set (HEDIS) data to compare preventive screening rates among 272 health plans and found that those that were based on group/staff practices had better performance on 4 of 5 measures than those based on independent practices.<sup>6</sup> Rittenhouse et al measured the use of systematic CMPs among 1344 small- and medium-sized practices (not groups) and found that, on average, they used only 1 of 5 such systems.<sup>9</sup> The same investigators had previously shown that higher levels of CMPs were associated with improved quality and that large medical groups had implemented half the potential systems asked about (2.5 times as many as small groups).<sup>7,8</sup> Bishop et al studied the use of CMPs in practices that were acquired by hospitals and found that large practices had large increases in CMPs, whereas small- and medium-sized practices had smaller increases.<sup>10</sup> Korenstein et al conducted a systematic review in 2016 of evaluations of system-level interventions on the value of health care provided.<sup>22</sup> They

concluded that health system reforms can improve value, but this was tempered by the varying outcomes evaluated across studies with little documented improvement in outcome quality measures. For diabetes in particular, Fang's recent study of trends in diabetes management among US adults from 1999 to 2016 found that the proportion who had control of HbA<sub>1c</sub>, blood pressure, and lipids rose from 13.3% in 1999-2004 to 24.8% in 2005-2010, but fell back to 20.2% in 2011-2016 (during a time of increasing consolidation of practices).<sup>2</sup> Note that all of these levels are substantially lower than those in any practice groupings in Minnesota for a measure

that contains 2 additional components, thereby making it harder to achieve high all-in-one scores.

## Limitations

Although this study has many strengths in having consistent information for a large share of primary care practices in Minnesota, this state is not typical in either its patient population or its approach to care, so there are both limitations and lessons for the rest of the country. As demonstrated by Table 2, Minnesota has less racial diversity than many states and the great majority of primary care physicians are in group practice, especially in large medical groups, and they have been for a long time. Few solo practices are left, and most primary care is delivered by a dozen large groups, although this analysis demonstrates that small groups are not only performing well but even catching up with the large medical groups, at least in diabetes care. Although our measure of CMPs has been used in many studies and has been demonstrated to be valid and reliable, it only measures their presence, not their function level. Finally, although we demonstrate differential change over time among groups, it is only for a 2-year period, so that may not reflect longer-term trends.

## CONCLUSIONS

Despite these limitations, this is the first study to show that primary care practices in large medical groups on average provide care for patients with diabetes that is of better quality than that provided by smaller groups. Their ability to do that may reflect in part their higher proportion of the CMPs thought to be important for that result, because practices in lower-performing groups on average also have fewer of those processes in place. The most surprising findings, however, are that there is extensive variation among practices and that, on average, those in smaller groups appear to be catching up. Perhaps, in large medical groups, the levels of these quality measures are near the maximum achievable with current technologies and strategies. There may also be diffusion from large to small groups. In any case, these data should be reassuring to those fearful that care is not improving and that amalgamation of small practices into larger and larger groups in other states will make it even more difficult to achieve good outcomes for patients. ■

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