

Improvement of Outpatient Quality Metrics in a Limited-Resource Setting

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ABSTRACT

OBJECTIVES: Healthcare systems are increasingly focused on improving outpatient quality metrics to achieve better clinical outcomes. In this study, we aim to explore a model in an outpatient setting to achieve high-quality care in the context of risk-based contracts with major payers.

STUDY DESIGN: We used data from a population health initiative conducted in a primary care setting.

METHODS: In a primary care practice, a member of a healthcare network based in Massachusetts and southern New Hampshire, a population health initiative was implemented to improve screening rates for breast cancer, cervical cancer, and colorectal cancer and to improve control of hypertension and diabetes. This intervention consisted of a team-based initiative involving population health managers, a licensed practical nurse, medical assistants, and primary care providers, who identified gaps in these quality measures from 2015 to 2017.

RESULTS: Screening rates for breast cancer showed significant improvement, from 88% in 2015 to 97% in 2017 ($P < .01$). Cervical and colorectal cancer screening rates improved from below network compliance rates to surpass network performance. Control of hypertension also showed significant improvement ($P = .05$). Control of diabetes was not associated with significant improvement ($P = .20$).

CONCLUSIONS: The exhibited trends indicate that within the confines of limited resources in a local community setting, it is possible to improve delivery of quality care, leading to significant improvements compared with a larger network with more resources, without increasing systemic costs.

The American Journal of Accountable Care. 2019;7(1):4-9

Healthcare cost in the United States has been steadily increasing due to America's aging population and the burden of chronic diseases.¹ The staggering costs incurred to address our population's healthcare needs cannot be sustained over the coming decades without an overhaul in healthcare fund disbursement. A possible solution implemented by many healthcare organizations across the United States has been the adoption of global spending contracts. One mechanism to help improve quality, while controlling costs, has been the adoption of accountable care organizations (ACOs). In an ACO, a global budget is established by insurance payers, encouraging provider groups to work together to keep spending below a set target in order to take advantage of shared savings. Provider groups also assume risk for excessive spending, further promoting careful allocation of funds.²

The potential benefits of risk-based contracts have led healthcare providers to shift their focus away from the provision of supply-driven healthcare, centered around the profitability of services dispensed, and toward the delivery of value-based care. This system focuses on outcomes achieved per healthcare dollar spent, aiming to reduce costs while improving care. This system is beneficial for all stakeholders involved, including patients, who receive better care, as demonstrated by improved quality outcome metrics in healthcare systems that have already adopted this model.³

Massachusetts pioneered the adoption of alternative payment models by entering into risk-based contracts with insurance payers, such as Blue Cross Blue Shield (BCBS) and Tufts Health Plan, as early as 2009 and participating in the Pioneer ACOs under Medicare. Years of data collection have shown that healthcare providers that participate in global contracts reduce spending growth and increase quality improvements compared with providers that do not participate in the contracts. According to a 2015 report, 90% of BCBS Massachusetts-covered specialists participated in the global contract.⁴ Effective March 2018, 17 healthcare organizations across Massachusetts entered into an ACO arrangement with the state's Medicaid payer, MassHealth,⁵ demonstrating the state's pioneering leadership in the arena of healthcare reform.

ACO performance is measured through several quality measures that capture a variety of metrics, such as patient coordination, safety, and preventive health services uptake.⁶ Quality outcome metric guidelines are provided by the insurers as part of the risk-based contract model. Quality bonuses can be awarded to organizations based on reported performance data that are related to processes, quality, and patient satisfaction.²

Preventive care is an important aspect of alternative payment models and, partnered with population health initiatives, can be a powerful way to drive down costs while promoting better care.⁷ This focus is especially crucial in populations of racial/ethnic minorities, non-English speakers, and low-income individuals, who are less likely to be included in preventive care efforts but can benefit greatly from necessary screenings. The greatest benefit is seen when healthcare providers implement patient navigation efforts that are designed to promote inclusion.⁸

Despite defined guidelines on how to measure quality outcomes, there is insufficient knowledge on how to build strategic initiatives within healthcare organizations in order to meet these goals, especially in a limited-resource setting.⁹ The collection of quality outcome data can require specialized infrastructure, including automated reporting systems and dedicated population health personnel.¹⁰ Relying on practice physicians alone to deliver adequate preventive care is not always feasible, mostly due to time constraints. Prior research findings estimate that it would take 7.4 hours per working day for a physician to provide all recommended preventive care screenings to patients.¹¹ To ensure administration and reporting of preventive care in a primary care setting, many healthcare providers have adopted a team-based approach, with delegation of tasks to multiple members of the practice. Incorporating medical assistants (MAs) and licensed practical nurses (LPNs) into the quality outcome workflow has been shown to be beneficial and can be a less costly way to improve workflow without expensive organizational overhauls.¹² We sought to determine whether a team-based approach would improve preventive quality metrics under an alternative payment model in a resource-constrained community practice model.

METHODS

Study Population

This study started as a population health initiative in a community health center, aiming to improve compliance with preventive health measures based on the best practice guidelines accepted by 3 major commercial payers. Compliance data were collected from 1 point in time midyear each year to assess which preventive outcomes should be the focus of the clinic's efforts for the remaining half of the year. The patient population studied was made up of patients coming to Community Medical Associates (CMA) who were covered by 1 of the following 3 major commercial insurance plans: Harvard Pilgrim, BCBS, and Tufts Health Plan.

CMA is a patient- and family-centered medical practice serving the population of the Merrimack Valley region and southern New Hampshire. It is part of a broad healthcare organization network, which includes many hospitals and outpatient practices in Massachusetts. Starting in 2015, a population health initiative was implemented in the CMA primary care practice to improve screening rates for breast cancer, cervical cancer, and colorectal cancer (CRC) and to improve control of hypertension and diabetes. This intervention included a team-based approach with population health managers, an LPN, MAs, and primary care providers identifying gaps in quality outcomes and systematically following up on outpatient outcomes from 2015 to 2017.

Outcomes

The study period spanned from 2015 to 2017. The studied measures for compliance rate were screenings for breast cancer, cervical cancer, and CRC and control of hypertension and diabetes. Blood pressure guidelines were measurements of less than 140/90 mm Hg in the population aged 18 to 59 years, as well as in the population with diabetes and less than 150/90 mm Hg in the population aged 60 to 85 years. Overall diabetes control was defined as the percentage of patients with glycated hemoglobin (A1C) of 9.0% or less. Of note, the same standards of care were applied for the entire patient population at CMA, including the Medicare beneficiaries, but this study included only members of the previously mentioned 3 commercial insurance plans, given that the focus during the study period from the network perspective included only commercial payers.

Data collection for the outcome measures was done through claims-based search and complemented by data found within electronic health records (EHRs).

Intervention

A periodic review of the medical records for the studied measures was performed throughout the study period by an LPN. The EHR system used was eClinicalWorks. The LPN would periodically

Table. Compliance Rates for Preventive Care Metrics of Patients Seen at CMA and Throughout the Network Clinics, 2015-2017

Metrics	CMA			Network			P
	2015	2016	2017	2015	2016	2017	
Breast cancer screening	88%	91%	97%	78%	77%	79%	<.01
Cervical cancer screening	58%	74%	80%	74%	73%	79%	.53
Colorectal cancer screening	62%	71%	71%	71%	69%	70%	.55
Diabetes care: A1C ≤9.0%	92%	56%	61%	52%	56%	49%	.20
Diabetes care: blood pressure <140/90 mm Hg (DM)	82%	72%	89%	51%	57%	61%	.01
Controlling blood pressure: blood pressure <140/90 mm Hg (18-59 years), <150/90 mm Hg (60-85 years)	75%	64%	77%	54%	61%	62%	.05

A1C indicates glycated hemoglobin; CMA, Community Medical Associates; DM, diabetes mellitus.

obtain claims-based data from the athenahealth database. Using the available data, an individual chart review would be performed next, to supplement any missing or noncaptured information with information available in the patients' charts. In addition, daily review of each provider's schedule would be done, and providers and MAs would receive a message in the office note "chief complaint" section, reminding them to address any missing outcomes. The process was promoted and reviewed by the Division of Population Health under CMA's affiliated hospital, Lawrence General Hospital.

Periodic and complete review for all studied quality measures was carried out on a monthly or bimonthly basis. For any gaps in quality measures, the provider or MA would receive a message to address it at the patient's next office visit. The provider would in turn address the missing measure at the earliest convenience.

For this study, compliance data were collected from 1 point in time midyear each year. The local practice and the healthcare network compliance rates were compared, and *t* test analysis was used to assess statistical differences between the changes over time in the local community clinic and network compliance rates.

RESULTS

The **Table** shows the compliance rates for preventive medicine quality metrics for the local primary care practice and the overall compliance rates for the network. The screening compliance rates for the local practice showed an overall higher improvement over the 2015 to 2017 data collection period compared with changes in the compliance rates for the network over the same period of time.

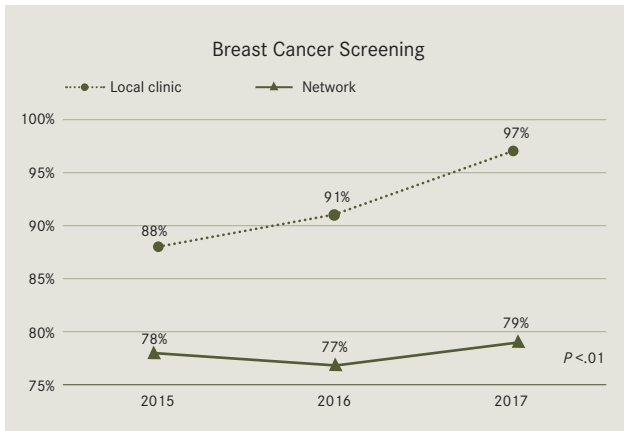
Figure A shows the compliance rates for breast cancer screening at the local and network levels for 2015 through 2017. There was a statistically significant difference in the increase of breast cancer screening at the local primary care practice (from 88% in 2015 to 97% in 2017) compared with the increase in network screening rates (from 78% in 2015 to 79% in 2017;

P <.01). **Figures B and C** show the screening compliance rates for cervical cancer and CRC screening. These measures did not show a statistically significant difference in the increases in the average annual compliance rates between the local and network levels, but the increase in compliance rates for the primary care practice still showed a marked improvement compared with the increase in network rates. Cervical cancer screening compliance rates increased from 58% in 2015 to 80% in 2017 at the local practice. The improvement in compliance rate across the network was not as pronounced, rising from 74% in 2015 to 79% in 2017. This pattern can also be noted in the much higher increase of CRC screening levels throughout the 2015 to 2017 period at the practice, rising from 62% to 71%; during the same period, network CRC screening levels remained largely unchanged, going from 71% to 70% compliance. The practice had surpassed network compliance rates for CRC screening by 2016.

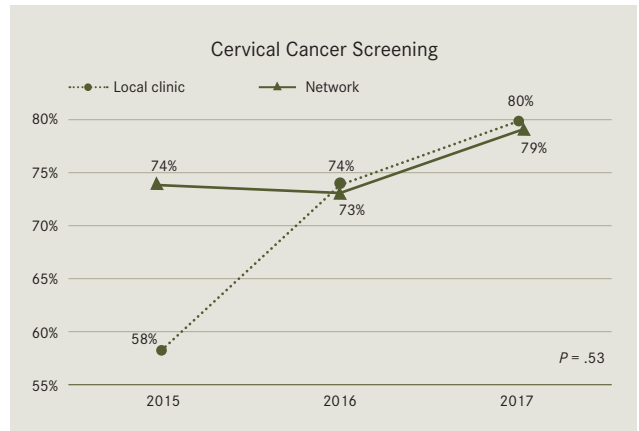
Figure D shows the compliance rate for diabetes care screening for patients with an A1C level lower than or equal to 9.0%. The difference in compliance rates for the local primary care practice and the network was not statistically significant; however, we observed that the rates for the primary care setting, when compared with the network compliance rates, surpassed the network rate by 2017. The primary care setting had a 61% diabetes care compliance rate in 2017, whereas the network rate dropped from 52% in 2015 to 49% in 2017.

Figure E shows the compliance rate for blood pressure measurements of less than 140/90 mm Hg in patients with diabetes. The local primary care practice showed a statistically significant increase in the compliance rate for this measure when compared with the network setting. The local primary care practice showed an increase from 82% to 89% in blood pressure measurement compliance for the population with diabetes from 2015 to 2017. The network setting also showed an increase in compliance

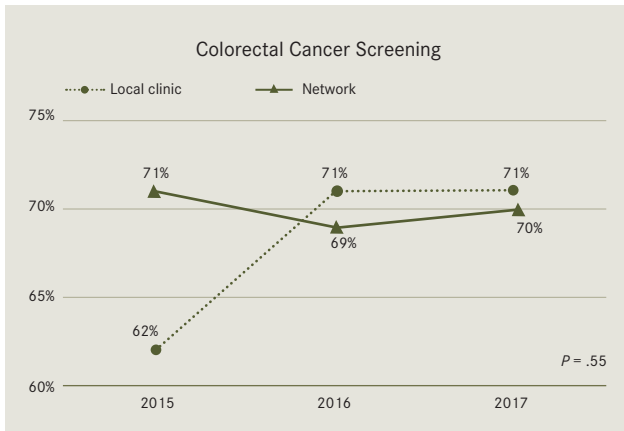
Figure. Comparison of Compliance Rates for Patients Seen at CMA and Throughout the Network Clinics, 2015-2017



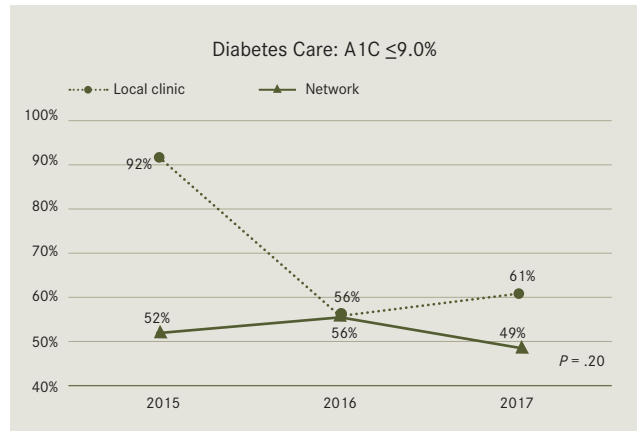
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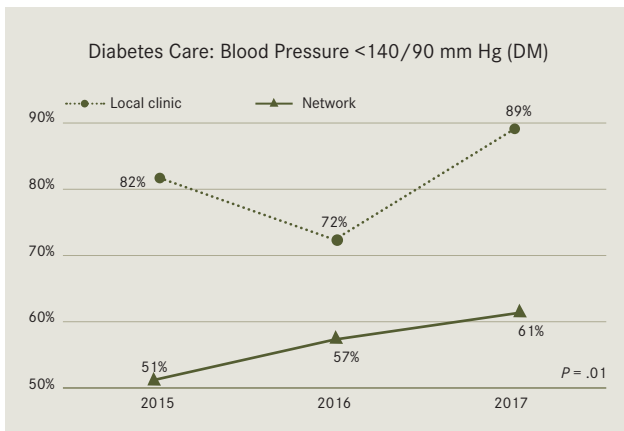
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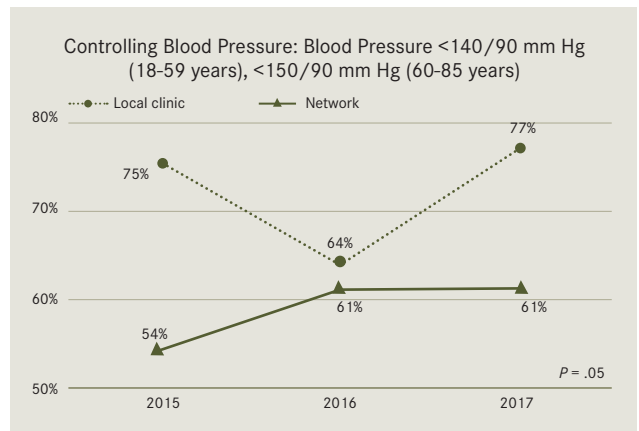
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E



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A1C indicates glycated hemoglobin; CMA, Community Medical Associates; DM, diabetes mellitus.

from 51% to 61% from 2015 to 2017 but did not achieve the compliance rates of the local primary care practice.

Figure F shows the compliance rate for blood pressure measurements of less than 140/90 mm Hg in the population aged 18 to 59 years and 150/90 mm Hg in the population aged 60 to 85 years. There was a statistically significant difference in the compliance rate for the local primary care practice when compared with the compliance rate in the network setting. The local primary care practice had a compliance rate increase from 75% to 77% in blood pressure measurements, whereas the network setting showed an increase from 54% to 62% in compliance rate in the 2015 to 2017 study period.

DISCUSSION

Population health initiatives aimed at improving the quality of preventive care can be costly and time-consuming, making them impractical for resource-limited community healthcare practices. In particular, vendor-based programs incorporating innovations in information technology are cost-prohibitive for community-based practices such as those in Lawrence, which is the poorest city in Massachusetts.¹³ Nonetheless, the remarkable improvement of the practice compared with the overall network seen in this study is very encouraging, as it demonstrates that it is possible to successfully implement population health initiatives using already available personnel and resources to achieve the desired outcomes.

The population health initiative model was brought on by the adoption of an ACO plan in conjunction with the insurance payers that service the studied patient population. ACO adoption aims to promote increased focus on in-house quality metric maintenance, encouraging more careful use of allotted clinic funds. The community health center maximized its resources by using already available staff, an LPN, to shift a portion of their working hours to perform methodical checks by reviewing claims data and individual patient charts. Future expansion of this system is set to leverage the help of the health center's MAs, who will be taught how to integrate the desired quality measures into the daily workflow, thus minimizing the burden of noncompliant measures. This will be brought about by team-based integration of all parties involved, including the MAs, the nurse, and the providers (physicians and nurse practitioners), to facilitate communication and limit waste across the system. Careful documentation into the EHR of each patient is being implemented across the clinic, in order for all members to communicate effectively and react to any deficiency. Systematic chart review prior to each visit by an MA or LPN will facilitate capturing any noncompliant measure and reacting accordingly. This will, in turn, allow

the clinician to have more time to focus on other clinical tasks—most importantly, direct patient care.

The success of this model was aided by the dedication of championing community health center staff. At our local practice, an LPN diligently carried out the steps to put a population healthcare initiative in place that encompassed the entire patient population of the clinic, independent of their insurance provider and ACO participation. An intrinsic desire to improve the health outcomes of the patient population, rather than the simple achievement of compliant status in the ACO model, was a key factor in the significant improvements in quality outcome compliance. Furthermore, the inclusion of the entire patient population in the healthcare initiative pilot prepared the staff to expand compliance data collection and analysis to other populations, including Medicare and Medicaid patients under risk contracting. Increasing appointment attendance was also addressed by providing patients with culturally sensitive educational materials in English and Spanish covering topics like cancer, diabetes, and heart disease as part of this initiative, with the intent to ease patient anxiety related to described cancer screenings and management of cardiovascular risk factors.

Limitations

This study presents some potential limitations. The analysis compared a single primary care practice with the rest of the network. This primary care practice, as described in the Study Population section, may not be generalizable to other primary care practices. However, given the general lack of resources in our community without the multiple services provided by a larger academic or hospital-based practice, the results from this primary care practice should be replicable in other settings. Another limitation was the specific commercial health plans providing insurance to our primary care population. This comprised just a portion of the entire patient population such that government payers were not represented in this study.

CONCLUSIONS

The population health initiative described was carried out in a small community health center without additional resources, which allows for replication by other practices by leveraging their current staff and technology to improve patients' health outcomes without placing additional burdens on the healthcare system. As ACO model adoption becomes more common throughout healthcare networks in the United States, healthcare providers will have to become more focused on their compliance with quality outcome metrics. Employing the methods described is an efficient way of achieving success in the ACO model and can be replicated and perfected

to achieve long-lasting improvements in the health of patient populations involved.

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Source of Funding: None.

Author Disclosures: The authors report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

Authorship Information: Concept and design (TG, SK, PE); acquisition of data (MDH, SK, PE); analysis and interpretation of data (CdS, TG, MDH, SK, PE); drafting of the manuscript (CdS, TG, MDH, PE); critical revision of the manuscript for important intellectual content (CdS, TG, PE); statistical analysis (SK); administrative, technical, or logistic support (CdS, TG, MDH, PE); and supervision (CdS).

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