How Physician Groups Manage Their Patients’ Chronic Illnesses

A long-term study of physician organizations and their use of care management processes

**SUMMARY**

From 1999 to 2013, the National Study of Physician Organizations and the National Study of Small- and Medium-Sized Physician Practices analyzed the extent to which physicians used care management processes to treat patients with asthma, congestive heart failure, depression, and diabetes—and the factors promoting or impeding that use. Several studies have shown that such practices bolster patient outcomes.

Stephen M. Shortell, PhD, MPH, MBA, Blue Cross of California distinguished professor of health policy and management; director, Center for Healthcare Organizational and Innovation Research (CHOIR); and dean emeritus of the School of Public Health at the University of California-Berkeley, and Lawrence P. Casalino, MD, PhD, Livingston Farrand professor of public health at Weill Cornell Medical College, New York, directed the studies.

**Key Findings**

The research team cited these findings in articles published in the *Journal of the American Medical Association* (JAMA), *Health Affairs, New England Journal of Medicine* (NEJM), Medical Care, and other journals, and in reports to the Robert Wood Johnson Foundation (RWJF); see the Bibliography for full citations:

- The use of care management processes among physician organizations is low but has been rising. Organizations with 20 or more physicians used 46 percent of such processes in 2006–2007, for example—up from 32 percent in 2001–2002 (*JAMA* and *Medical Care*).

- Physician organizations subject to external incentives—such as public reporting on measures of health care quality and pay for performance—used more care management processes (*Journal of the American Medical Informatics Association*).
Adoption of features of patient-centered medical homes\(^1\) among a subset of surveyed physician groups was low. Very large groups were much more likely to have adopted such features than smaller groups. (Health Affairs, September 2008 and August 2011) Among the surveyed organizations:

- Less than half relied on patient-centered efforts to improve quality and safety, such as using patient educators and sending reminders to patients to schedule mammograms, immunizations, flu shots, and other screenings and treatments.
- One-third of the physician groups used primary care teams at most sites.
- Less than one-third used patient registries,\(^2\) which enable providers to track patients with chronic diseases, for at least three of the four chronic diseases.

**Funding**

Shortell received 10 grants from RWJF totaling $7,053,290 from April 1, 1999 through December 31, 2014. Casalino received three grants totaling $1,600,255 from February 15, 2007 through June 14, 2010. See the Appendix for details about the RWJF grants. The Commonwealth Fund and the California HealthCare Foundation contributed $500,737 and $350,000 to these studies, respectively.

**CONTEXT**

In 2009, 145 million Americans—almost half of the country’s citizens—lived with a chronic health condition, according to an RWJF-commissioned report from Johns Hopkins University.\(^3\) By 2040, some 21 percent of the U.S. population will be over age 65, and 90 percent of people over 65 will have at least one chronic condition.\(^4\)

Asthma, congestive heart failure, depression, and diabetes are especially prevalent, debilitating, and costly. Asthma, depression, and diabetes each affect about 15 million Americans, while chronic heart failure affects 5 million. Many of the top 20 priorities for

---

1 The patient-centered medical home model emphasizes a strong system of primary care, practice innovation, and new systems of payment. Key principles include a personal physician for each patient, a whole-person orientation, coordinated and integrated care, a focus on quality and safety, and payment reform.

2 A disease registry is a collection of secondary data about patients with specific diagnoses, conditions, and procedures provided. Registries are most commonly used for patients with chronic illnesses. They can be in paper or electronic format.


improving U.S. health care tagged by a 2003 report from the Institute of Medicine related to chronic illnesses.⁵

Studies have shown that several new approaches to managing these four conditions can bolster patient outcomes, lower costs, and reduce the use of services. They include:

- Care management processes used by medical groups, such as registries tracking patients with chronic diseases, clinical practice guidelines, case managers, and patient education and self-management
- Feedback to physicians from their practice organizations on whether and how they use specific practices, such as prescribing anti-inflammatory medication for asthma patients, and ensuring that diabetic patients receive retinal screening
- The use of information technology, such as electronic medical records

Yet research has suggested that physicians have not been using these approaches—perhaps because they require clinicians to restructure the way they deliver care. For example, a 1998 study from RWJF’s Health Tracking initiative reported, “Perhaps most disconcerting was physician organizations’ difficulty in developing the infrastructure necessary to manage financial risk and streamline and improve clinical care delivery.”⁶

**THE PROJECT**

For the National Study of Physician Organizations (NSPO) and the National Study of Small- and Medium-Sized Physician Practices, a research team completed four surveys of medical groups and independent practice associations from 1999 to 2013, to determine the extent to which they used evidence-based care management processes.⁷ Most of these were based on the Chronic Care Model developed by Ed Wagner, MD, and colleagues at the Group Health Cooperative of Puget Sound.

To participate in the survey, physician organizations had to treat patients with asthma, diabetes, congestive heart failure, and depression. To obtain the names and contact information of potential participant organizations, the researchers worked with several databases. Because the information was in flux and sometimes inaccurate, the team had to review, cull, and clean the resulting list of thousands of organizations.

---


⁶ *Health Tracking* was a multifaceted initiative aimed at informing policymakers about changes over time in the health care system and their effects on people. Read the Program Results Report.

⁷ The American Medical Association defines a medical group as an entity that shares business, clinical, and administrative facilities, records, and personnel with commonly defined practice goals, objectives, and values. Income from medical services provided by the group are treated as receipts of the group and distributed according to a prearranged plan. An independent practice association is a legal entity organized and directed by physicians that negotiates contracts with insurance companies, among other functions,
Researchers then interviewed the medical director, president, or chief executive officer of each qualifying organization. The surveys involved 45-minute telephone interviews. Near the end of the third round of the study, respondents could elect to respond by internet, and 98 percent of them did so.

The researchers asked whether the organization used 16 or 17 practices (depending on the survey) within five categories of care management processes:

- **Case management.** Case managers are available at physician request or assigned to all severely ill patients with a chronic condition.
- **Physician feedback:** Physicians receive feedback from their practice organizations on specific practices related to these conditions.
- **Disease registry.** The practice maintains disease registries of patients with the chronic conditions.
- **Clinical practice guidelines:** The practice has adopted such guidelines; physicians receive training in them; and patient charts, clinician reminder systems, and order-entry systems reflect them.
- **Self-management skills:** The organization teaches patients how to manage chronic illnesses.

The researchers also asked respondents about their organization’s ownership, financial management, use of electronic databases, physician compensation (base salary as well as extra payments based on productivity and patient satisfaction), relationships with health plans, involvement in pay-for-performance programs, quality improvement activities, and public reporting of performance data.

The team subcontracted with three research organizations to conduct the surveys: NORC at the University of Chicago, Population Research Systems (San Francisco), and RTI International (Research Triangle Park, N.C).

Diane Rittenhouse, MD, MPH, associate professor of family and community medicine at the University of California, San Francisco; Andy Ryan, PhD, assistant professor of public health at Weill Cornell Medical College; and James Robinson, PhD, Thomas Rundall, PhD, and Helen Halpin, PhD, all professors at the University of California, Berkeley School of Public Health, served as core members of the research team at various stages of the research over the years. Robin Gillies and Patty Ramsay served as study directors.
THE STUDIES & THEIR FINDINGS

National Study of Physician Organizations (NSPO) 1

For its first survey, from September 2000 to September 2001, the team contacted organizations with at least 20 physicians. NSPO 1 aimed to create a national database of such organizations, as well as to examine their use of care management and quality improvement processes. Organizations received $150 for completing the survey, which was funded as part of RWJF’s Health Tracking initiative.

Some 70 percent of the roughly 1,500 physician organizations contacted responded to the survey, yielding a national database of 1,040 organizations. The mean number of physicians per organization was 227, including 136 for medical groups and 408 for independent practice organizations. Most of the organizations (834) were multispecialty.

To gather more in-depth information on organizations in areas where managed care was common, the researchers also interviewed seven to 10 staff members during two-day visits to such organizations in Boston, Cleveland, Indianapolis, Orange County, Calif., Phoenix, and Seattle. The team also conducted 90-minute telephone interviews with a senior staff member at organizations in areas where managed care was less common, including Greenville, S.C.; Lansing, Mich.; Little Rock, Ark.; Miami; northern New Jersey; and Syracuse, N.Y. 8

Findings from NSPO 1

Several journals, including the Joint Commission Journal on Quality and Patient Safety, JAMA, Health Affairs, and NEJM, published the research team’s findings from this study. (See Bibliography for details.)

In an article in JAMA, 9 the team reported:

- The use of care management processes among these physician organizations was low: they used 5 of 16 processes, on average.

- Two-thirds of the organizations had external incentives to use care management practices, such as requirements from payers to publicly report on measures of health care quality, and pay-for-performance contracts with insurers.

- Half of these organizations did not have information technology for clinical aspects of the practice, such as information on patients’ progress, medications, and lab results.

---

8 Most of these areas participated in the Community Tracking Study, a component of the Health Tracking program.

• Organizations with more external incentives and more information technology used more care management processes.

In “What Are the Facilitators and Barriers” in the *Joint Commission Journal on Quality and Patient Safety*, the team reported:

• **Strong leadership and an organizational culture that valued the quality of care were the top drivers of the use of care management processes.** The most common barriers were a poor financial situation, reimbursement that did not reward quality, inadequate information technology, and physician resistance and workload.

• **Of 15 organizations that participated in site visits, about half (seven) used care management processes either minimally or not at all.** The organizations used these processes most often for patients with diabetes and least often for patients with depression.

**The Impact of Care Management Processes on Patients**

In a supplemental study to NSPO 1, the researchers explored whether patients 65 and over with asthma, diabetes, congestive heart failure, and depression had better outcomes in physician organizations that used more care management processes. The team did so by trying to link information on the use of such processes to information on health care quality, such as hospital discharges, gleaned from Medicare claims. The team noted that a comprehensive database linking the use of care management processes and clinical outcomes does not exist.

**National Study of Physician Organizations 2**

To track progress in the use of care management processes among large physician organizations, the research team conducted NSPO 2 from March 2006 to March 2007. The team used a survey similar to that for NSPO 1, but added questions on the use of rapid-cycle quality improvement and participation in quality improvement collaboratives.

Some 538 of 892 physician organizations responded to the survey. Of those, 369 had also participated in NSPO 1. The team further analyzed information from 291 participating organizations on their use of features of patient-centered medical homes, as interest in that approach to medical care was growing.

The researchers also tried to find information on patient outcomes, and link it to the use of evidence-based care management practices among these organizations. However, the team concluded that the limited information on outcomes and links between patients and physicians made such an analysis unfeasible.

---

**Findings from NSPO 2**

The team cited these findings in journals such as *Health Affairs* and *Medical Care* (see the Bibliography for details) and in a report to RWJF:

In “Improving Chronic Illness Care” in *Medical Care*\(^\text{11}\) and a report to RWJF, Shortell et al. reported:

- **Large physician organizations used 46 percent of 17 care management processes, on average, in 2006–2007, compared with 32 percent of such processes in 2000–2001.**
  
  — The most commonly used processes were disease registries, specially trained patient educators, and feedback from the organization to physicians on their performance.
  
  — These organizations used the most care management processes for patients with diabetes, and the fewest for patients with depression.

- **Independent practice associations and very large medical groups used more care management processes than smaller organizations.**

- **Organizations with quality improvement programs and a patient-centered focus used more care management processes, as did organizations owned by a hospital or health maintenance organization.** In contrast to NSPO 1, this study did not find a link between the use of clinical information technology and such processes.

In “Measuring the Medical Home Infrastructure in Large Medical Groups” in *Health Affairs*,\(^\text{12}\) the research team reported:

- **Among the subset of 291 organizations, adoption of features of patient-centered medical homes was low.** Very large physician organizations were much more likely to have adopted such features than smaller organizations. Of these 291 groups:
  
  — Less than half relied on patient-centered efforts to improve quality and safety, such as using patient educators and sending reminders to patients about follow-up appointments and treatment.
  
  — One-third used primary care teams at most sites.
  
  — Less than one-third used patient registries for at least three of the four chronic diseases.

---


Thirty percent used group visits for patients with chronic illnesses at most of their sites.

Twenty-five percent routinely used nurse care managers (nurses who coordinate patient care delivered by multiple care providers).

Forty-one percent said most of their physicians used electronic medical records—and nearly half of those used them to collect information on health care quality.

Sixty-five percent participated in quality improvement collaboratives.

**National Study of Small- and Medium-Sized Physician Practices**

While NSPO 1 and 2 surveyed practices of 20 or more physicians, almost half of all physicians worked in practices of five or fewer physicians in 2008. Researchers knew little about these practices, or the processes they used to improve the quality and control the cost of care. To help close that gap, the research team surveyed 1,765 small- and medium-sized practices—those with 1 to 19 physicians—from July 2007 to March 2009. Participating organizations received $175.

The team also surveyed another 184 small physician organizations in Boston, Indianapolis, and New Mexico from January to June 2010. These communities are important to *Aligning Forces for Quality*, a $131 million RWJF initiative in 16 areas across the United States aimed at achieving measurable health improvements by 2015. (Funding for this project came from that initiative beginning in 2007. Read a [2012 Report on the program](#).)

Project Co-Director Shortell cited these results in a report to RWJF:

- The research team was able to link Medicare claims on individual patients to the physicians who provided their care, and then to the 104 medical groups where those physicians practiced. However, that approach proved very labor intensive—although it was much less costly than examining the charts of individual patients, according to Shortell.

- The use of care management processes among these medical groups was not strongly associated with the quality of care.

- The fact that the use of these care management processes among physician organizations was low, and usually in its early stages, may help explain these findings.

**Findings from the Study**

The team reported findings from this study in *Health Affairs, Health Services Research, JAMA*, and other journals. (See the [Bibliography](#).)
In “Independent Practice Associations and Physician-Hospital Organizations Can Improve Care Management for Smaller Practices” in *Health Affairs*,\(^\text{13}\) Casalino et al. reported:

- **Smaller organizations participating in an independent practice association or a physician-hospital alliance used nearly three times as many care management processes as organizations that did not participate.** Only 23.8 percent of surveyed practices participated in such groups.

In “When Does Adoption of Health Information Technology” in *Journal of the American Medical Informatics Association*,\(^\text{14}\) the research team reported:

- **Small- to medium-sized organizations that publicly report on measures of health care quality, and those subject to financial incentives such as pay for performance, use more care management practices.**
  - Practices with both public reporting and financial incentives used more care management processes than practices with just one of those.
  - Some 61.2 percent of practices participated in at least one public reporting or pay-for-performance program.
  - Only 19.2 percent of these practices participated in more than one program.

- **Only 34.1 percent of smaller practices had adopted at least one care management process that entailed the use of information technology.** However, 86.2 percent of physicians in practices with an IT-related process used it.

In “Small and Medium-Size Physician Practices Use Few Patient-Centered Medical Home Processes” in *Health Affairs*,\(^\text{15}\) the research team reported:

- **Small- and medium-sized organizations used just 20 percent of care management processes linked to patient-centered medical homes, on average.** Organizations with more resources—such as those owned by hospitals and those receiving financial incentives—used more such processes.

- **“Major changes will be required if the patient-centered medical home is to be widely adopted” among smaller practices, the team concluded in a 2011 article in *Health Affairs*.** Such changes could include:


— Training physicians and staff in leadership development, the use of health information technology, data collection, and team-based care

— Encouraging small practices to share resources, such as care managers and information technology, through independent practice associations

— Expanding external incentives—such as public reporting on quality measures, pay for performance, and shared-risk approaches to payment—to smaller practices

— Preparing the next generation of physicians to practice in new types of organizations

**National Study of Physician Organizations 3**

The research team surveyed physician organizations of all sizes in NSPO 3. The team also refocused the survey somewhat to reflect provisions of the 2010 Affordable Care Act. For example, the researchers asked physician groups whether they had joined accountable care organizations, and whether they used processes linked to the chronic care model and the patient centered medical home.\(^{16}\)

The team contacted 3,977 organizations and conducted 1,397 interviews from January 2012 to November 2013. Practices received $200 for participating.

**Findings from NSPO 3**

The team is still analyzing the information from this study. However, *Health Services Research* published their findings on participation in accountable care organizations in March 2014.\(^{17}\)

- Some 23.7 percent of physician groups reported joining an accountable care organization, and 15.7 percent said they were planning to join one within 12 months. The rest—60.6 percent—said they were not planning to join.

- Practices joining an accountable care organization were more likely to:
  — Be larger
  — Be physician owned rather than hospital or health system owned
  — Receive patients from an independent practice association or a physician-hospital organization

---

\(^{16}\) Accountable care organizations are groups of providers that agree to be accountable for both the costs and quality of care for a defined population of patients. The chronic care model identifies some of the most important processes found to be associated with better outcomes of care.

— Be located in New England
— Use more care management processes linked to patient-centered medical homes

- Physician organizations participating in accountable care organizations tend to have more information technology and more resources for managing care.

**Conclusions from All the Studies**

- Physician organizations “are making progress in the use of care management processes, but it is not dramatic—it is not what it should be,” said Shortell in a March 2014 interview. The team’s findings suggest that the use of such processes “is very difficult work. It requires changes in physician behavior, the ability to work in teams and delegate to nurses and other staff, and knowledge of how to use electronic health records.”

- “Policies that tie health care payments to performance and require organizations to publicly report on measures of health care quality are making a difference in promoting the use of care management practices,” he noted, and those approaches have become more common since NSPO began.

**Communications Results**

An NSPO website includes brief descriptions of each survey and information on gaining access to the data, as well as links to the team’s journal articles. Besides publishing journal articles, the research team presented its findings at national meetings and seminars, and to various health care associations and federal agencies, including the National Institutes of Health.

According to Shortell, “The work of the researchers has been drawn on by policymakers in developing the Accountable Care Organization (ACO) concept in the Affordable Care Act and also in the development of research agendas by the federal Agency for Healthcare Research and Quality (AHRQ) and others.”

See the Bibliography for information on the articles.

**LESSONS LEARNED**

1. **Use a larger survey firm with experience in contacting physicians, even if it costs more than a smaller firm.** The decision to hire a small firm with limited experience to survey small and medium-sized practices was “penny wise and pound foolish” Casalino observed. NORC—a larger, more experienced, although more costly firm—produced a better response rate in a shorter timeframe. A larger firm is also less likely to fall behind when facing turnover among its key personnel. (Project Directors/Casalino, Shortell)

2. **Developing an accurate list of physician organizations is challenging.** The team could find no single source of physician organizations and contact information. The
IMS Health database—the best available—sometimes proved inaccurate and out of date, so the researchers had to spend a lot of time determining whether organizations qualified for the surveys and who to contact at them. (Project Co-Director/Casalino)

3. **Enlisting physicians to participate in a survey is difficult.** Phone surveys are especially challenging and costly, partly because large practices have gatekeepers who prevent access to physicians. To surmount that barrier, researchers sent a written appeal from Casalino—formerly a practicing physician—to a physician at each organization. National medical organizations and many state medical organizations also sent letters to potential respondents asking them to participate. As clinicians learned about the study, some offered to help convince colleagues to participate.

The research team suggested these steps to boost the response rate among physician organizations:

— Send a financial incentive to an individual from the start.
— As a last-ditch effort, use an abbreviated survey.
— Consider using a Web-based survey. In NSPO 3, near the conclusion of the study, researchers offered approximately 200 responding organizations the option of using the Web-based version of the survey, and 98 percent did so. Comparisons with the phone-based respondents revealed no observable biases.

**AFTERWARD**

In July 2014, Shortell received an RWJF grant\(^8\) to:

- Write five journal articles based on the NSPO 3 findings and cohort analysis of those organizations that have responded to all three of the recent surveys
- Prepare a report about methodological issues involved in conducting the surveys
- Work with Foundation staff on ideas relevant to the Foundation’s Culture of Health agenda, including, but not limited to, how best to involve and link the health care delivery system with the community and with the social services sector that together address the underlying social and behavioral determinants of health.

The team is using a grant from the Commonwealth Fund to examine links between avoidable hospital admissions among Medicare enrollees and different types of physician organizations and care management processes.

Shortell is also working with evaluators of RWJF’s *Aligning Forces for Quality* to use NSPO findings to improve care in *Aligning Forces* communities.

---

\(^8\) ID# 71934 ($249,949, July 1, 2014 through December 31, 2014).
APPENDIX

RWJF Grants for the Studies

Grants to Stephen M. Shortell

- ID# 36275 (April 1, 1999 through June 30, 2000) $72,834
  For planning NSPO 1
- ID# 38690 (July 1, 2000 through June 30, 2002) $2,139,934
  For implementing NSPO 1
- ID# 40087 (February 1, 2001 through September 30, 2001) $296,555
  For continuing implementation of NSPO 1
- ID# 41540 (April 1, 2003 through September 30, 2004) $145,503
  For the supplemental study of patient outcomes (using NSPO 1 data)
- ID# 50789 (July 1, 2004 through April 30, 2005) $50,000
  For planning NSPO 2
- ID# 51573 (May 1, 2005 through April 30, 2010) $1,399,873
  For implementing NSPO 2
- ID# 68847 (May 15, 2011 through July 31, 2013) $2,200,000
  For implementing NSPO 3
- ID# 70440 (December 1, 2012 through November 30, 2013) $298,789
  For continuing implementation of NSPO 3
- ID# 71110 (July 1, 2013 through November 30, 2013) $199,853
  For continuing implementation of NSPO 3
- ID# 71934 (July 1, 2014 through December 31, 2014) $249,949
  For preparing journal articles and reports, and convening stakeholders

Grants to Lawrence P. Casalino

- ID# 58680 (February 15, 2007 through February 14, 2009) $987,942
  For implementing the study of small- and medium-sized practices. Project continued under transfer grant ID# 65937
- ID# 65937 (March 1, 2009 through February 28, 2010) $383,725
  For continuing implementation of the study of small- and medium-sized practices
- ID# 67235 (January 15, 2010 through June 14, 2010) $228,588
  For additional surveys of small- and medium-sized practices
BIBLIOGRAPHY

(Current as of date of the report; as provided by the grantee organization; not verified by RWJF; items not available from RWJF.)

Articles


**Books & Chapters**


**Reports**


**Survey Instruments**


**Communications or Promotions**