

initiation. *Am J Kidney Dis.* 2012;59(4):550-557. doi: 10.1053/j.ajkd.2011.11.040

27. Centers for Medicare & Medicaid Services. *Medicare program; revisions to payment policies under the physician fee schedule and other revisions to part B for CY 2019; Medicare shared savings program requirements; quality payment program; Medicaid promoting interoperability program; quality payment program-extreme and uncontrollable circumstance policy for the 2019 MIPS payment year; provisions from the Medicare shared savings program-accountable care organizations-pathways to success; and expanding the use of telehealth services for the treatment of opioid use disorder under the substance use-disorder prevention that promotes opioid recovery and treatment (SUPPORT) for patients and communities act. Fed Regist.* 2018;83(226):59452-60303. Accessed October 6, 2022. <https://www.federalregister.gov/documents/2018/11/23/2018-24170/medicare-program-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other-revisions>

28. Sloan CE, Coffman CJ, Sanders LL, et al. Trends in peritoneal dialysis use in the United States after Medicare payment reform. *Clin J Am Soc Nephrol.* 2019;14(12):1763-1772. doi: 10.2215/CJN.05910519

29. Alexander D. How do doctors respond to incentives: unintended consequences of paying doctors to reduce costs. *J Polit Econ.* 2020;128(11):4046-4096. doi: 10.1086/710334

30. Werner RM, Asch DA. The unintended consequences of publicly reporting quality information. *JAMA.* 2005;293(10):1239-1244. doi: 10.1001/jama.293.10.1239

31. Gu Q, Koenig L, Faerberg J, Steinberg CR, Vaz C, Wheatley MP. The Medicare Hospital Readmissions Reduction Program: potential unintended consequences for hospitals serving vulnerable populations. *Health Serv Res.* 2014;49(3):818-837. doi: 10.1111/1475-6773.12150

32. Werner RM, Asch DA, Polsky D. Racial profiling: the unintended consequences of coronary artery bypass graft report cards. *Circulation.* 2005;111(10):1257-1263. doi: 10.1161/01.CIR.0000157729.59754.09

33. Glickman A, Lin E, Berns JS. Conflicts of interest in dialysis: a barrier to policy reforms. *Semin Dial.* 2020;33(1):83-89. doi: 10.1111/sdi.12848

34. University of Michigan Kidney Epidemiology and Cost Center. Report for the Standardized Transfusion Ratio: NQF #2979. Accessed June 16, 2021. [https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/ESRDQIP/Downloads/Restricted-STR-Methodology-Report\\_June2017.pdf](https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/ESRDQIP/Downloads/Restricted-STR-Methodology-Report_June2017.pdf)

### Invited Commentary

## Physicians as Owners and Agents—A Call for Further Study

Paul J. Eliason, PhD; Ryan C. McDevitt, PhD; James W. Roberts, PhD

**Physicians act as gatekeepers** in the US health care system, helping patients decide what care to seek and where to seek it, as well as coordinating and evaluating the care they ultimately receive. This unique position of authority could lead

+  
Multimedia

Related article page 1267

to conflicts of interest, however, if financial incentives influence physicians' recommendations at the expense of patients or payers. In their cross-sectional cohort study

in this issue of *JAMA Internal Medicine*, Lin et al<sup>1</sup> therefore make an important contribution by studying how physicians' ownership of dialysis facilities is associated with patient care and outcomes. Using ownership data for 2017 obtained from a Freedom of Information Act request and a difference-in-differences research design, they establish 2 key results: ownership is associated with a more limited use of erythropoiesis-stimulating agents (ESAs) and a more extensive use of home dialysis. Both findings capture critical features of the care of patients receiving dialysis, given the historical overuse of ESAs<sup>2</sup> and underuse of home dialysis.<sup>3</sup>

Ownership arrangements between physicians and health care facilities take a variety of forms, such as an individual physician investing in an independent facility, a partnership, or a joint venture (JV), and are common across many sectors of the health care system. Despite the prevalence of physician ownership, its implications have not been studied extensively, largely due to a lack of data and transparency. The limited work outside dialysis provides mixed evidence on how physician ownership affects patient care and prices (eg, Swanson<sup>4</sup>); Lin et al<sup>1</sup> advance this knowledge for a segment of the health care system where nearly 1 in 3 facilities now operates as a JV between for-profit dialysis chains and local physicians.<sup>5</sup>

Although dialysis chains assert that JVs benefit patients by improving the coordination of care and its quality,<sup>6</sup> other stake-

holders have questioned whether they might distort treatment decisions and harm patients. A 2022 report from the Medicare Payment Advisory Commission, for example, suggests that clinicians with financial interests in dialysis facilities may be inappropriately influenced when it comes to decisions about patient care.<sup>7</sup> This might include initiating patients on dialysis when it is of questionable value, pushing patients to in-center dialysis instead of home dialysis or transplantation, steering patients to facilities in which they have an ownership stake even if a different facility might be better for that patient, and overproviding profitable separately billed services or underproviding bundled services.<sup>7</sup> Central to this debate is the physician's role as an agent acting on behalf of patients. Ownership of a health care facility could enable physicians to better navigate corporate constraints for their patients, or it could lead physicians to put their own financial interests ahead of their patients' well-being.

Lin et al<sup>1</sup> bring new evidence to the broader debate surrounding physicians' ownership of health care facilities. The authors' primary analysis relies on a difference-in-differences-type empirical strategy, and their main empirical challenge is selection bias. To understand whether physician ownership affects care decisions, an ideal randomized clinical trial (RCT) would randomly assign different ownership arrangements across physicians, facilities, and patients. Because such an experiment is infeasible, the next-best alternative is to use quasi-experimental methods to mimic the design of an RCT as closely as possible using observational data.

A difference-in-differences method typically does this by (1) specifying a comparison group (like a control group in an RCT) and (2) comparing changes from before and after a treatment (such as a physician becoming an owner of a facility) for the treated group relative to the control group. Set up this way, the difference-in-differences method eliminates any confounding factors related to common time trends, as well as fac-

tors that contribute to constant differences between the treated and comparison groups. The design in Lin et al<sup>1</sup> is slightly different, however, in that their cross-sectional data prevent them from meaningfully comparing pretreatment and posttreatment periods. Rather, the authors specify the treated group to be the set of patients receiving dialysis at facilities with a physician owner along with a comparison group made up of patients receiving dialysis at facilities without a physician owner. They then compare the differences between patients treated by a physician owner and those treated by a physician non-owner within treated facilities to the same difference at comparison facilities. This design controls for the systematic ways that certain types of facilities may enter into ownership arrangements with physicians, as well as which types of physicians opt to become owners.

In so doing, Lin et al<sup>1</sup> make the most of the data they have but leave some critical questions for future inquiries. Left unanswered by this design are questions about how physician ownership affects all patients treated at a facility: Is there a facility-wide effect from physician ownership that might affect both patients treated by the owner and patients treated by non-owners? Are patients managed by physicians who have an ownership stake at a facility other than the one they receive treatment from more likely to be neglected? Do the results they find arise because physicians are better able to act as altruistic agents on behalf of patients, or because of alignment with the financial incentives of being an owner? An important and related limitation is that the difference-in-differences design does not account for the nonrandom assignment of patients to facilities. That is, a physician may be financially motivated to steer patients who need costly ESAs to a facility where they do not have an ownership stake—and therefore do not bear the

costs of administering the drugs—or they may cherry-pick patients who are better suited for home dialysis, steering them to their own facility. Steering such as this could generate the results in Lin et al<sup>1</sup> even if the actual use of ESAs or home dialysis does not differ across owners and nonowners.

Although the authors<sup>1</sup> acknowledge this limitation and assess how observable patient attributes differ across physician and facility types, the potential for physician owners to steer patients to their own facilities for financial reasons merits further research, as it may directly affect patient welfare.<sup>7</sup> In our own contemporaneous and independent work, we complement the work by Lin et al<sup>1</sup> by studying the economics that underpin dialysis JVs.<sup>5</sup> Using data on facilities that transition to being JVs over a 12-year span, we find that entering into a JV increases the number of patients treated at a facility by 13.4% to 14.8%, due largely to increased referrals from physicians. These findings suggest that large dialysis organizations seek out these arrangements to ensure that patients continue to receive dialysis at their facilities, particularly patients with lucrative private insurance.

As physician ownership arrangements extend throughout the health care system, more analysis of how they affect patients and payers is urgently needed. The study by Lin et al<sup>1</sup> provides a substantial step in this direction, even if some important questions remain open for further exploration. Although multiple laws seek to limit the potential conflicts of interest arising out of physician ownership, such as the Stark Law, certain sectors, including the dialysis industry, receive exceptions. Obtaining a greater understanding of the trade-offs between the potential gains from physician ownership and costs due to conflicts of interest would inform the policy discussion and potentially benefit patients and stakeholders alike.

## ARTICLE INFORMATION

**Author Affiliations:** Department of Economics, Brigham Young University, Provo, Utah (Eliason); National Bureau of Economic Research, Cambridge, Massachusetts (Eliason, McDevitt, Roberts); Fuqua School of Business, Duke University, Durham, North Carolina (McDevitt); Department of Economics, Duke University, Durham, North Carolina (Roberts).

**Corresponding Author:** Paul J. Eliason, PhD, Brigham Young University, 2146 West View Bldg, Provo, UT 84602 (paul.eliason@byu.edu).

**Published Online:** November 7, 2022. doi:10.1001/jamainternmed.2022.5025

**Conflict of Interest Disclosures:** Drs Eliason and Roberts reported receiving grants from Washington Center for Equitable Growth during the submitted work. Dr McDevitt reported receiving grants from Washington Center for Equitable Growth during the submitted work; and personal fees for serving on an advisory board for Renalogic, a dialysis billing

company not involved with patient care, outside the submitted work.

## REFERENCES

1. Lin E, McCoy MS, Liu M, et al. Association between nephrologist ownership of dialysis facilities and clinical outcomes. *JAMA Intern Med*. Published online November 7, 2022. doi:10.1001/jamainternmed.2022.5002
2. Weiner D, Watnick S. The ESRD quality incentive program—can we bridge the chasm? *J Am Soc Nephrol*. 2017;28(6):1697-1706. doi:10.1681/ASN.2016101079
3. Lin E, Cheng XS, Chin KK, et al. Home dialysis in the prospective payment system era. *J Am Soc Nephrol*. 2017;28(10):2993-3004. doi:10.1681/ASN.2017010041
4. Swanson A. Physician investment in hospitals: specialization, selection, and quality in cardiac care.
5. Eliason P, McDevitt RC, Roberts JW. Comparing the effects of vertical integration and horizontal consolidation: evidence from the dialysis industry. *SSRN*. Published September 14, 2022. Accessed October 7, 2022. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4219238](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4219238)
6. DaVita. Joint ventures and acquisitions. Accessed October 10, 2022. <https://www.davita.com/physicians/partnerships/joint-ventures-acquisitions>
7. Medicare Payment Advisory Commission. Outpatient dialysis services. In: *Report to the Congress: Medicare Payment Policy*. March 2022. Accessed August 31, 2022. [https://www.medpac.gov/wp-content/uploads/2022/03/Mar22\\_MedPAC\\_ReportToCongress\\_Ch6\\_v2\\_SEC.pdf](https://www.medpac.gov/wp-content/uploads/2022/03/Mar22_MedPAC_ReportToCongress_Ch6_v2_SEC.pdf)