

person who has been awake for more than 22 of the previous 24 hours is impaired by sleep deprivation (www.sleepresearchsociety.org/GovernmentAffairs.aspx).

Chronic sleep deprivation degrades one's ability to recognize the impairments induced by sleep loss.⁵ Sleep-deprived clinicians are therefore not likely to assess accurately the risks posed when they perform procedures in such a state, and they should not be permitted to decide whether or not to proceed with elective surgery without obtaining the patient's informed consent. In keeping with the ethical and legal standards of informed consent, patients awaiting a scheduled elective surgery should be explicitly informed about possible impairments induced by sleep deprivation and the increased risk of complications. They should then be given the choice of proceeding with the surgery, rescheduling it, or proceeding with a different physician. If patients decide to proceed, they should explicitly consent to do so — in writing, on the day of the procedure, in front of a witness, and ideally on a standardized form designed for this purpose.

This approach would represent a fundamental shift in the responsibility patients are asked

to assume in making decisions about their own care and might prove burdensome to patients and physicians and damaging to the patient-physician relationship. Yet this shift may be necessary until institutions take responsibility for ensuring that patients rarely face such dilemmas. Although it may be challenging to assess sleep deprivation, estimate the risk of resulting harm, and enforce a formal sleep policy that necessitates the disclosure of clinicians' personal information, we believe that the benefit of creating such a policy outweighs the burden. To implement such policies, institutions will need to absorb the financial and administrative consequences of canceling and rescheduling elective surgeries in a timely manner. But these steps might ultimately reduce institutional costs if outcomes are improved and complications reduced.

The problem of sleep deprivation vexes medical practice. Public debate and creative solutions are needed to ensure that patients' interests are protected. We believe that elective surgeries provide an opportunity to create and evaluate a policy designed to avert the adverse effects of sleep deprivation on patient outcomes. Strategies learned from applying

such policies can then inform other areas of practice.

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Editor's note: A related letter to the Editor from the American College of Surgeons appears in this issue (pages 2672–2673).

1. Ulmer C, Wolman DM, Johns MME, eds. Resident duty hours: enhancing sleep, supervision, and safety. Washington, DC: National Academies Press, 2008.
 2. Nasca TJ, Day SH, Arnis ES Jr. The new recommendations on duty hours from the ACGME task force. *N Engl J Med* 2010;363(2):e3. (Available at NEJM.org.)
 3. Rothschild JM, Keohane CA, Rogers S, et al. Risks of complications by attending physicians after performing nighttime procedures. *JAMA* 2009;302:1565-72.
 4. Blum AB, Raiszadeh F, Shea S, et al. U.S. public opinion regarding proposed limits on resident physician work hours. *BMC Med* 2010;8:33.
 5. Van Dongen HPA, Maislin G, Mullington JM, Dinges DF. The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep* 2003;26:117-26.
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Physicians versus Hospitals as Leaders of Accountable Care Organizations

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Enactment of the Affordable Care Act (ACA) was a historic event. Along with the Recovery Act, the ACA will usher in the most extensive changes in the U.S. health care system since the creation of Medicare and Medicaid.

Under this law, the next few years will be a period of what economists call “creative destruction”: our fragmented, fee-for-service health care delivery system will be transformed into a higher-quality, higher-productivity sys-

tem with strong incentives for efficient, coordinated care.¹ Consequently, the actions of physicians and hospitals during this period will determine the structure of the delivery system for many years. The implications will

be profound for hospitals' dominant role in the health care system and for physicians' income, autonomy, and work environments.

The ACA aims to simultaneously improve the quality of care and reduce costs. Doing so will require focused efforts to improve care for the 10% of patients who account for 64% of all U.S. health care costs.² Much of this cost derives from high rates of unnecessary hospitalizations and potentially avoidable complications,³ and these, in turn, are partially driven by fee-for-service incentives that fail to adequately reward coordinated care that effectively prevents illness. The ACA includes numerous provisions designed to catalyze transformation of the delivery system, moving it away from fee for service and toward coordinated care (see table).

These provisions will result in incentives for the development of the information systems and infrastructure necessary for better and more efficient management of chronic conditions. Such outpatient changes will be reinforced by hospital readmissions policies that improve handoffs and by initiatives to reduce the occurrence of hospital-acquired infections and "never events."

The desired consequence of these changes is enhanced tertiary prevention, leading to substantial reductions in unnecessarily expensive specialty referrals and tests and avoidable complications. And the ultimate consequences should be significant improvements in health and fewer exacerbations of chronic illnesses.

Achievement of this level of care coordination will require the development of larger integrated

delivery organizations — preferably, accountable care organizations (ACOs) that incorporate primary care practices structured as patient-centered medical homes and that can support new investments in information systems and care teams and can maintain service hours resembling those of retailers.⁴ A move toward ACOs will mean major changes in the structure of physicians' practices, since even physician-group-based ACOs may include one or more hospitals, though they may instead contract with hospitals for specific services chosen on the basis of their relative value.

Larger ACOs are likely to be contracted directly by payers to manage the continuum of care. They are also likely to bear financial risk, receiving greater payments for the care of chronically ill patients and accepting at least partial responsibility for the costs of specialists' visits, tests, emergency room visits, and hospitalizations. Memories of the inflexible managed-care gatekeepers of the 1990s could lead to theoretically permissive, if practically narrow, networks of providers, although these organizations will need to work closely with a small group of efficient specialists and facilities to achieve their quality and efficiency goals.

A crucial question is who will control these ACOs. We can envision two possible futures: one of physician-controlled ACOs, with physicians affiliating and contracting with hospitals, controlling the flow of funds through the marketplace; and one of hospital-controlled ACOs that will employ physicians. Whoever controls the ACOs will capture the largest share of any savings.

For physicians to control ACOs, they would have to overcome several hurdles. The first is collaboration: ACOs will require clinical, administrative, and fiscal cooperation, and physicians have seldom demonstrated the ability to effectively organize themselves into groups, agree on clinical guidelines, and devise ways to equitably distribute money. Nearly three quarters of office-based physicians, representing nearly 95% of all U.S. practices, work in groups of five or fewer physicians.⁵ Since much of the savings from coordinating care will come from successfully avoiding tests, procedures, and hospitalizations, the question of how to divide profits among primary care physicians and specialists will be contentious. Proceduralists who would end up losing income are likely to resist key structural changes.

In addition, ACOs will require sophisticated information technology (IT) systems and skilled managers in order to hold clinicians accountable. Historically, doctors have not shown the willingness to assume more capital risk or to invest in overhead. Finally, memories of the failed capitation models of the 1990s may make some physicians hesitant to participate.

If hospitals are to control ACOs, they, too, will need to overcome barriers. First, they will need to trade near-term revenue for long-term savings. Hospitals are typically at the center of current health care markets, and by focusing on procedures and severely ill patients, most have been fairly profitable. Building an ACO will require hospitals to shift to a more outpatient-focused, coord-

ACA Provisions Catalyzing a Shift from Fragmented Care to Coordinated Care.	
Summary	Implications
Patient-Centered Medical Homes (§3502)	
Community-based, interdisciplinary, interprofessional teams that support primary care practices	Will drive improved organization of outpatient care
Government to provide grants or enter into contracts with eligible entities	Will fund care coordination and a team-based approach
Accountable Care Organizations (§3022)	
Shared-savings program that encompasses primary care, specialist practice, and hospitals	Requires vertical coordination
Care processes to be redesigned for the efficient delivery of high-quality services	Most of the savings are likely to come from hospitals
Bundled Payments (§3023)	
Pilot program	Will provide incentives for care-delivery systems to reduce costs in order to increase margins
Applicable to eight conditions selected by the secretary of health and human services	
An "episode of care" defined as the period from 3 days before admission through 30 days after discharge	
Readmissions Reduction Program (§3025)	
Reduces payments for readmissions	Will motivate hospitals to engage with care coordinators and organize delivery systems better
Applicable to three conditions selected by the secretary of health and human services; to be expanded in 2015	
Secretary to determine what is considered a readmission (i.e., minimum time between admissions)	
Hospital-Acquired Conditions (§3008)	
Payments for care for hospital-acquired conditions to be reduced, starting in 2015	Will provide hospitals an incentive to standardize protocols and procedures to reduce hospital-acquired conditions
Individual hospitals' infection data to be made available online	

minated care model and forgo some profits from procedures and admissions. Hospitals' decisions will be further complicated if payers do not change their payment models similarly and simultaneously.

Second, hospitals, which have generally struggled to operate outpatient practices effectively, may have difficulty designing ACOs. Acquiring practices and hiring physicians as employees typically reduce the physicians' incentive to work long hours and, therefore, reduce their productivity.

It is unlikely that one of these

ACO models will dominate throughout the country; local market conditions will influence which one prevails in each community. In geographic areas where the physician base is fragmented and physicians are unlikely to collaborate or where there are already well-established hospital-based health systems, hospitals are likely to dominate. In areas that have well-functioning physician groups, with working IT systems and effective management systems, physician dominance seems more likely. In many other markets, the future is open.

In these places, hospitals have the advantage, since they traditionally have more management talent, accounting capability, IT systems, and cheaper access to capital than do physician groups.

Holding off on creating ACOs is likely to be a bad long-term strategy for physicians. First, health care reform has passed, bringing extensive changes, and it would be very difficult to repeal or modify the ACA so as to delay reforms. Congress's pay-as-you-go rules would require lawmakers to find equivalent savings if they discarded ACA provisions

that were expected to save health care dollars — especially at a time when there is tremendous pressure to use any available savings to reduce the deficit. Moreover, policies pursued by the new Independent Payment Advisory Board will probably increase the pressure on providers to coordinate care and form ACOs. Finally, private health plans are facing even more pressure from employers and state insurance commissioners to control premiums.

Established institutional relationships tend to persist because of “path dependence”: decisions about the future are constrained by decisions made in the past, even though circumstances may change. Although it is unequivocally inefficient, inequitable, and otherwise problematic to finance health care with a combination of employer-based coverage, Medicare, and Medicaid, it has proved impossible to change this structure. Similarly, once the new payment system and other changes included in the ACA transform the relationship between hospitals and physicians, the new order will become entrenched and persist until the next period of creative destruction.

If physicians come to dominate, hospitals' census will decline, and their revenue will fall, with little compensatory growth in outpatient services, since physicians are likely to self-refer. This decline will, in turn, lower hos-

pitals' bond ratings, making it harder for them to borrow money and expand. As hospitals' financial activity and employment decline, their influence in their local communities will also wane. And it will be hard for them to recover from this diminished role.

Conversely, if hospitals come to dominate ACOs, they will accrue more of the savings from the new delivery system, and physicians' incomes and status as independent professionals will decline. Once relegated to the position of employees and contractors, physicians will have difficulty regaining income, status, the ability to raise capital, and the influence necessary to control health care institutions.

Therefore, the actor who moves first effectively is likely to assume the momentum and dominate the local market. A wait-and-see approach could succeed if the first mover executes poorly, failing to coordinate care and manage risk. But rather than controlling destiny, cautious actors will be hanging their fate on the mistakes of others.

In the early 20th century, the health care system changed dramatically with the introduction of antisepsis and the increasing safety and success of surgery: hospitals gained power as they became associated with hope and health rather than fear and death. Now, after decades of hospital hegemony, we stand at another

crossroads; physicians may be able to gain market leadership if they move first. How the development of ACOs plays out over the next few years is likely to have lasting implications for the practice of medicine, patients' experience of health care, and health care costs in the United States. The next decade will be critical for developing an effective model and making historic changes in the structure of our health care system.

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1. Schumpeter JA. *Capitalism, socialism, and democracy*. New York: Harper & Row, 1976.
2. Orszag PR, Emanuel EJ. Health care reform and cost control. *N Engl J Med* 2010; 363:601-3.
3. de Brantes F, Rosenthal MB, Painter M. Building a bridge from fragmentation to accountability — the Prometheus Payment model. *N Engl J Med* 2009;361:1033-6.
4. Kocher R, Emanuel EJ, DeParle NA. The Affordable Care Act and the future of clinical medicine: the opportunities and challenges. *Ann Intern Med* 2010;153:536-9.
5. Hing E, Burt CW. Office-based medical practices: methods and estimates from the National Ambulatory Medical Care Survey. Advance data from vital and health statistics. No. 383. Hyattsville, MD: National Center for Health Statistics, 2007. (DHHS publication no. (PHS) 2007-1250.) (<http://www.cdc.gov/nchs/data/ad/ad383.pdf>)

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