



Supply and demand strategies for lowering spending on hospitals

Lowering the demand for hospital services is not, on its own, sufficient to reduce hospital costs. The supply of services must be decreased as well.

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In most health systems, hospitals account for the largest component of spending (often 40 percent to 50 percent of total outlay). Thus, any health system that wants to control costs—a necessity, given that health care budgets around the world are being squeezed—must find ways to curb its spending on hospitals.

Doing so is not easy, though. Most health systems today accept the need to lower the demand for hospital services and have tried a variety of approaches with varying levels of success. Some approaches focus on patients and aim to decrease demand directly. Others encourage clinicians to change the way they practice and thereby lower demand (for example, by helping them shorten length of stay).

However, lowering demand will not, in isolation, translate into savings that are proportionate to the decrease in activity levels because hospitals have high fixed costs. Larger savings can be obtained only if those fixed costs are lowered by reducing the supply of hospital services through capacity closure or facility reconfiguration. This step is a difficult one for most health systems. Modifications to hospital services are usually highly controversial, and considerable effort must be put into convincing local stakeholders of the need for change.

Building on our hospital experience over the past several years, we have identified a selection of strategies that have been used successfully to reduce the demand for and supply of hospital services or make it easier to realize sustainable savings once such reductions have been achieved. Although it is not comprehensive, the selection offers health systems a portfolio of ideas they can tailor to their circumstances.

Reducing patient demand

The need for hospitalization—and the risks it can entail—can be decreased through strategies that improve patients' health status or their decision-making skills. Although conceptually simple, these strategies are not always easy to implement. Nevertheless, examples from around the world show that success can be achieved.

Improving patients' health status

Three promising ways to avoid the need for hospitalization are prevention programs, disease-management programs (DMPs), and greater patient involvement in treatment.

Prevention programs, which are designed to keep healthy people from becoming sick or injured, are often most cost-effective when they target patients with conditions that increase their risk of near-term hospitalization. In New Zealand, for example, researchers at the Otago Medical School decided to focus on fall prevention in the elderly, because many older people suffer fractures and associated complications warranting hospitalization when they fall. To address this problem, the researchers created a program to improve balance and muscle strength (essentially, a series of exercises performed three times per week). The program reduces the fall rate among participants by more than one-third and lowers the need for hospitalization.¹

The Otago program, which is easy to replicate, has been adopted in other places, including Canada, Australia, and the United Kingdom. A variety of other prevention programs are also being used successfully in various countries.

DMPs are predicated on a simple idea: the better chronic diseases are managed in an outpatient setting, the less likely patients are to

¹M. Clare Robertson et al., "Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 1: Randomised controlled trial," *BMJ*, 2001, Volume 322, pp. 697–701.

need hospitalization. Six years ago, Germany began implementing DMPs nationwide to improve the care delivered to patients with chronic conditions. Its diabetes DMP, the first to get off the ground, has already lowered the hospitalization rate substantially and reduced per-patient costs.² Preliminary evidence suggests that Germany's other DMPs are similarly effective.

Several other countries are using DMPs successfully to improve outcomes in patients with chronic diseases. The best programs carefully tailor their approach to a defined subset of patients, use clear clinical pathways to determine the care delivered, and align the incentives offered to patients and doctors to ensure that they work together effectively. DMPs are not inexpensive to set up, but the savings achieved can make them very cost-effective for specific groups of patients.

DMPs encourage patients to become more involved in their own care; however, greater patient involvement can be achieved in other ways to reduce hospitalization rates. For example, many patients with chronic kidney failure can now administer dialysis to

themselves at home. Home-based dialysis does require patients to take more responsibility for their treatment than dialysis administered at a hospital or other health care facility, but it is more convenient and markedly less expensive. Furthermore, evidence is accumulating that at least one form of home-based treatment (nocturnal hemodialysis) may produce better outcomes than facility-administered care.³

Greater patient involvement can reduce hospitalization rates only when alternative treatments are available and have proved to provide equal or better outcomes (ideally, at lower cost). But in such cases, it can be an effective way to lower demand.

Helping patients make better decisions

Decision aids, which give patients more information about the risks and benefits of treatments, can also reduce the demand for hospital services. The aids can take a variety of forms, including questionnaires, videos, reading materials, and interview guides. In some countries, patients can access online portals that enable them to study their treatment options and compare hospital quality. A few payors even provide personal decision support by allowing patients to talk directly with a doctor or nurse.

² For a closer look at the results obtained by DMPs in Germany and elsewhere, see "How to design a successful disease-management program," p. 68.

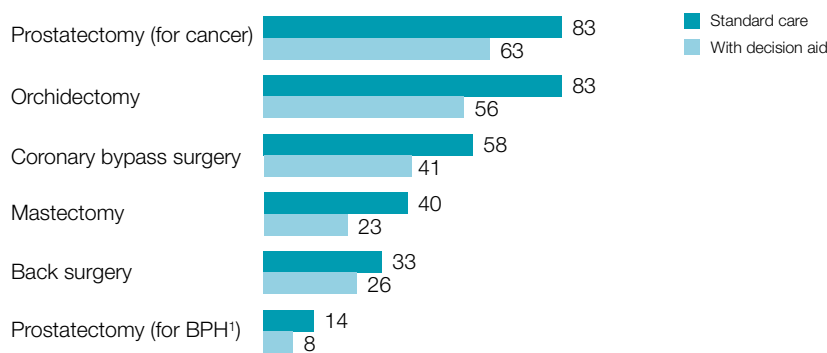
³ Scott Klarenbach and Braden Manns, "Economic analysis of dialysis therapies," *Seminars in Nephrology*, 2009, Volume 29, pp. 524–32.

DMPs are not inexpensive to set up, but the savings achieved can make them very cost-effective for specific groups of patients

Exhibit 1

Decision aids help lower elective surgery rates.

% of patients who decide to undergo a procedure



¹Benign prostatic hyperplasia.

Source: A. M. O'Connor et al., "Decision aids for people facing health screening or treatment decisions," Cochrane Database of Systematic Reviews, 2009, Issue 3, Article Number CD001431; knowledge-transfer workshop, sponsored by Strategic Training Initiative in Research in Reproductive Health Sciences and the Knowledge Translation-Improved Clinical Effectiveness through Behavioural Research Group, April 2007

Decision aids are particularly useful for patients contemplating elective surgery. Considerable evidence suggests that these patients often overestimate the benefits of surgery and do not always fully comprehend the risks or the alternative treatments they could consider. Decision aids increase their understanding of their options; as a result, many patients decide against surgery or select a less invasive alternative.

A meta-analysis of 55 studies of decision aids showed that their use reduces elective surgery rates by about 25 percent (Exhibit 1).⁴ In addition, it found that patients given decision aids have greater knowledge of their treatment options, are less passive in the

decision-making process, and have a more realistic understanding of surgery's risks and benefits.

Encouraging clinicians to change

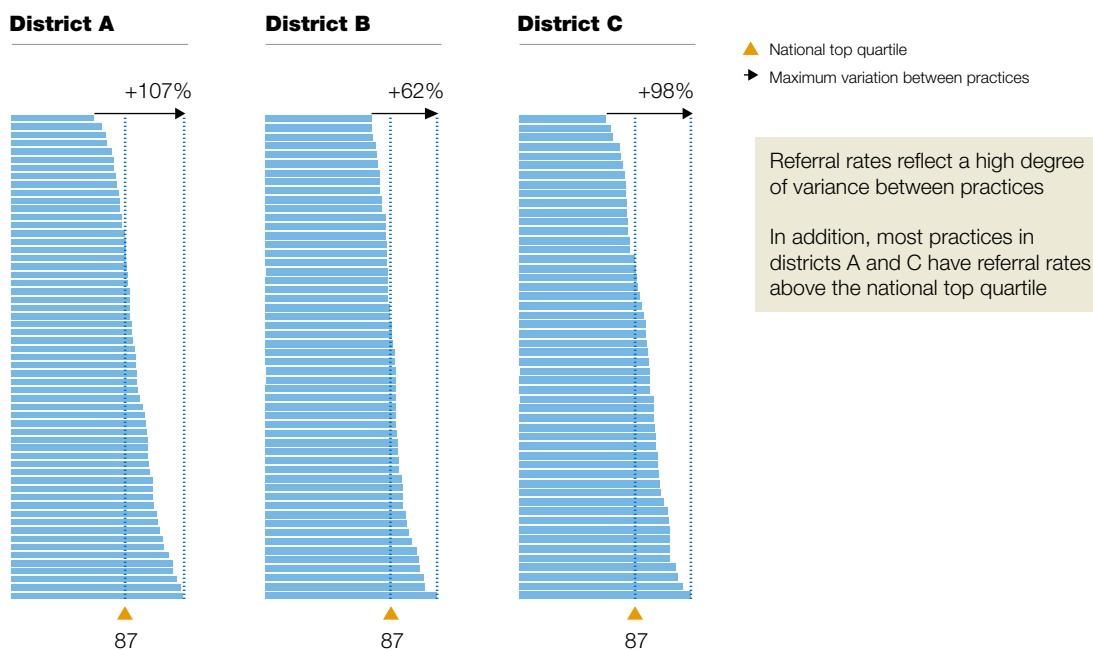
Demand for hospital services can also be lowered by giving clinicians support so that they deliver appropriate levels of care, rather than too much care. In some cases, health systems may also want to adjust the incentives they offer clinicians to ensure that they are not inadvertently encouraging overdelivery. Furthermore, by providing support and incentives to encourage clinicians to change their practice, health systems may also increase their ability to capture savings. (For a look at how this can be done, see "Using integrated care to realize savings" on p. 12.)

⁴A. M. O'Connor et al., "Decision aids for people facing health screening or treatment decisions," Cochrane Database of Systematic Reviews, 2009, Issue 3, Article Number CD001431.

Exhibit 2

General practitioners refer patients to hospitals at widely varying rates.

Standardized elective admission rate; each bar represents a general practitioner's practice



Source: Disguised data from England's Quality and Outcomes Framework (QOF) for April 2008 to March 2009

Reducing referral rates

In many health systems, particularly those with gatekeeper mechanisms, a high percentage of patients are referred to hospitals by general practitioners (GPs). However, GP referral rates often vary widely, even within a country or region (Exhibit 2). Many GPs are not aware of how their referral rates compare with those of their peers, and few have considered whether variations in referral rates are appropriate. Some of the causes we have observed for high referral rates include lack of expertise in a disease area, lack of knowledge about alternatives to hospital-based care, and difficulty in arranging community-based care.

For most conditions, there is insufficient scientific evidence to determine what referral rate is the “right” one, and thus it cannot be assumed that all GP referral rates can be lowered sharply. Many patients do need the advanced care that only hospitals can provide. But if the GPs with the highest rates could be helped to avoid clinically inappropriate referrals, demand for hospital services would drop.⁵

Furthermore, there is ample evidence that many complex conditions can be managed effectively in community settings, often at markedly lower cost. GPs need support, however, to make the best referral decisions and provide the care that

⁵Sir David Nicholson, chief executive of Britain's National Health Service, recently suggested that the system could save £0.5 billion annually if every GP made one fewer referral and ordered one fewer blood test per week.

patients with these conditions need. This support can be given in various ways: education about alternatives to hospital-based care and better use of health care resources, training on services GPs could offer to patients themselves, and review panels to evaluate hospital referrals. Financial incentives could also be used to reward GPs for the extra work required to care for sick patients outside hospitals (perhaps by allowing them to share in associated savings).

The support provided to GPs will have little impact, however, unless health systems also take steps to ensure that hospitals do not have incentives to encourage high referral rates. Many hospitals have tended to view long queues of referred patients as, in essence, future revenues and as evidence of underfunding.⁶ If this perception is to change, the incentives offered to hospitals must be altered. Stockholm has done this by implementing a dual-incentive system. To prevent overdelivery of care, hospitals are given patient volume targets and reimbursed at only 30 percent for activity levels above those targets. But to ensure that the hospitals are not underdelivering needed services, Stockholm penalizes them if they cannot meet their 90-day access targets. In the first year after the dual-incentive system was implemented, the trend toward ever-increasing inpatient activity at Stockholm hospitals was stopped; demand for elective inpatient care decreased and demand for nonelective inpatient care rose at a much slower-than-average rate.

Discouraging prolonged length of stay

In the past few decades, many countries have adopted reimbursement systems based on diagnosis-related groups (DRGs) to discourage overdelivery of care. As a result, average length of stay (ALOS) has decreased markedly. Significant variations in ALOS persist, however, not only between countries but even between and within hospitals, which suggests that additional ALOS reductions are possible.

Needless to say, no patient should be discharged before it is medically appropriate, but some health systems do routinely delay discharges unnecessarily (for example, by providing many postoperative services only within hospitals). Inappropriately delayed discharges put patients at risk—the less time they spend in hospitals, the less time they are exposed to the risk of drug-resistant infection and the other dangers that hospitals present. Reducing ALOS can therefore enhance patient safety as well as create opportunities to decrease capacity.

Among the most promising ways to reduce ALOS are these five approaches:

Clinical pathways. At a German hospital, leaders noticed large variations in ALOS that could not be explained by the patients' underlying conditions. Nevertheless, certain patterns did emerge: some doctors and wards had markedly longer ALOS than others. Because the hospital's leaders were also concerned that care quality was not always as high as it should be, they

⁶For an account of how the health system in Ireland overcame this problem, see "Frontline lessons in health care transformation: An interview with Brendan Drumm, MD," p. 42.

Using integrated care to realize savings

Many of the strategies outlined in this article work best when clinicians work closely together. But in most health systems today, clinicians have few incentives to collaborate. As a result, patient care is poorly integrated, quality of care is sometimes suboptimal, and hospitalization rates and overall costs are higher than they need be. By altering the incentives offered to clinicians, it is possible to get them to work more effectively together to improve patient care. When that happens, it is often easier to alter the supply and demand for hospital services—and to reap the resulting savings.

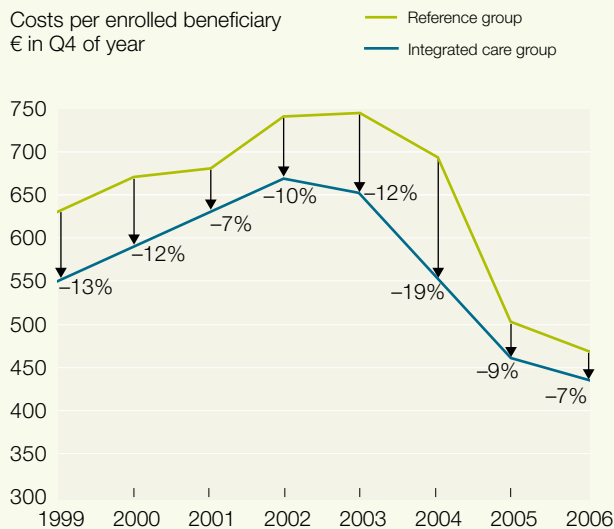
In Germany, for example, a public payor formed a network of care providers, including general practitioners (GPs) and hospitals, to integrate care delivery and lower costs. It implemented a shared IT system to make it easier for all clinicians to collaborate, and it offered incentives to the GPs to work closely with the other providers on clinical pathways to reduce demand for drugs and hospital care. All providers were given part of the savings obtained. The payor also implemented quality standards to ensure that patient care did not suffer as a result. Over the course of

eight years, its per-beneficiary costs decreased by an annual average of more than 10 percent (exhibit). In this case, the savings accrued to the payor, not the health system as a whole, but the same approach could be used by a health system to lower its costs.

The Spanish region of Valencia used an even more unusual strategy—its public health system outsourced all care management and delivery in some parts of the region to private providers. The providers are reimbursed using a capitation model, which encourages them to integrate care carefully and provide care more efficiently. Quality standards ensure that the care delivered is better, not worse, than what had been offered before. The result: per capita costs are about 25 percent less than they are in the other parts of Valencia, length of stay is lowest in the region (about 40 percent below most other hospitals), and the private providers perform approximately 50 percent more procedures in each operation room than the other hospitals do. Furthermore, patient satisfaction with the private providers is high.

Exhibit

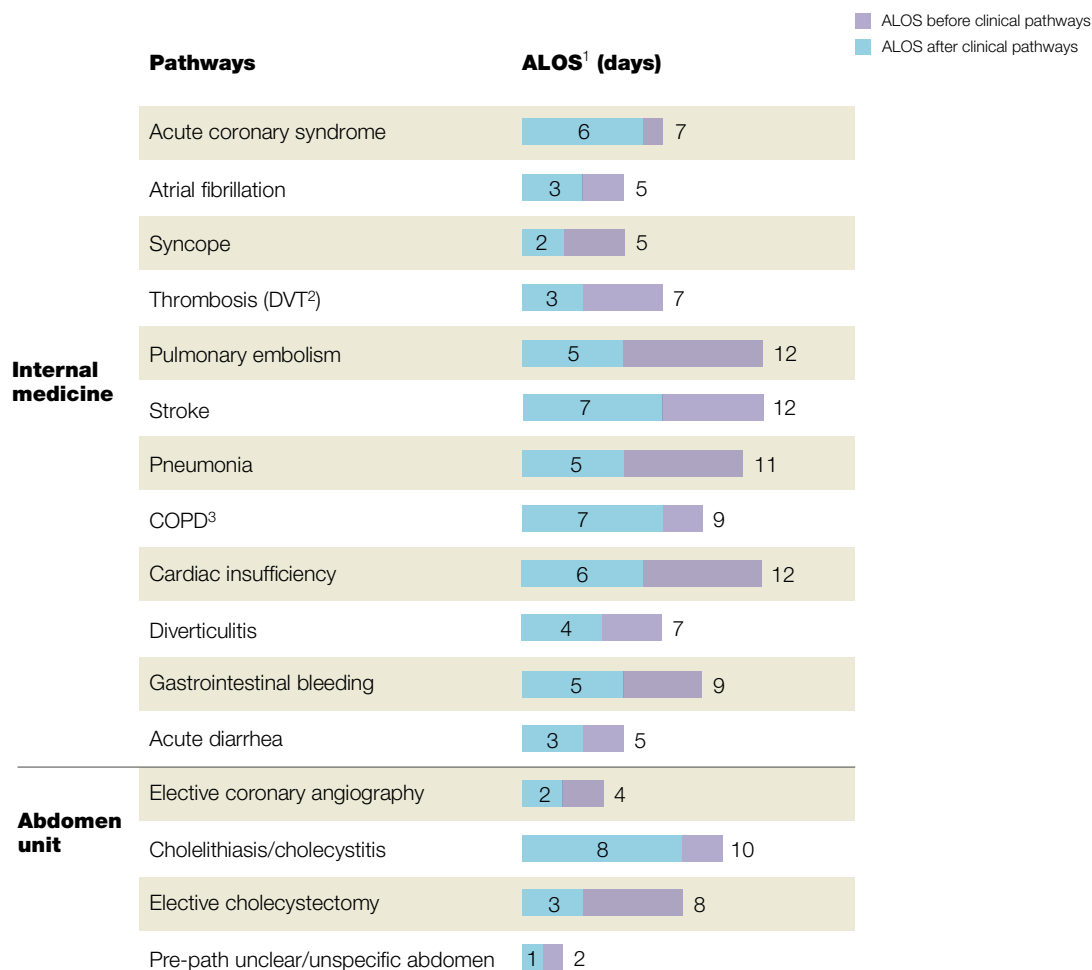
Integrated care enabled one payor to lower its costs considerably.



Source: Client experience

Exhibit 3

Standardizing clinical pathways can shorten average length of stay.



¹ Average length of stay.

² Deep venous thrombosis.

³ Chronic obstructive pulmonary disease.

Source: Client experience

decided to implement a series of standardized, best-practice clinical pathways for the conditions the hospital treated most often. Within six months, care quality had risen throughout the facility, and ALOS had dropped substantially—for some conditions, by more than 50 percent (Exhibit 3). The hospital is continuing to refine

its clinical pathways as new medical evidence emerges to ensure that it continues to deliver high-quality care.

Contracting with smaller facilities for follow-up care. Although Sweden already has perhaps the shortest ALOS in Europe, it is using a



variety of approaches to reduce it further. One of Stockholm's major hospitals, for example, has subcontracted with a smaller nearby clinic to provide care for stable patients expected to have a prolonged length of stay. The hospital's doctors still oversee the patients' treatment, which ensures quality, but all other care is delivered at the clinic. Because the clinic's fixed costs are much lower than the hospital's, it can provide the needed care less expensively. And most patients prefer the clinic's less institutional atmosphere.

Home-based care. Sweden is also using innovative techniques to discharge patients sooner. Many people are kept in hospitals simply because neither they nor their families can manage the necessary post-discharge care (intravenous drug administration and advanced pain-relief techniques, for example). However, these patients can be sent home if nurses and other ancillary health providers visit them frequently to provide that care. In our experience, the cost per day of home services is often one-fifth or less the cost of a hospital bed.

Urgent care clinics. Some community-based services can keep certain patients out of the hospital altogether. In Israel, a private provider called Terem has established a network of freestanding urgent care clinics. The facilities offer patients advanced diagnostic services and treatments usually available only at hospital emergency departments. However, they have no inpatient beds. Patients are assessed soon after arrival. The few patients who have very severe illnesses or injuries are referred to local hospitals for admission, but most people are treated and sent home rapidly (often, within 60 minutes).

Clinicians use handheld computers to capture patient histories, develop evidence-based treatment plans, and ensure care quality. Discharge e-mails are sent to the patients' primary care providers to guarantee care continuity. Costs at the urgent care clinics are considerably lower than at nearby hospitals.

One-day surgery centers. Faced with increasing demand for surgery and high bed occupancy rates, a public hospital in Portugal opened a one-day surgery facility that provides up to 24 hours of postoperative monitoring for a wide range of patients, including those who received general anesthesia. The facility, which includes sophisticated monitoring equipment and is staffed by specially trained nurses, has significantly reduced ALOS (by more than 50 percent for its top three procedures). Patients' response to the facility has been favorable; they appreciate that they do not have to wait as long for surgery and can get home sooner afterward. The high quality of care delivered at the new facility is reflected in the fact that the hospital now performs almost 40 percent more conventional and ambulatory procedures than it did before, yet it has seen no increase in its low postoperative mortality rate.

An important caveat must be kept in mind when alternative care approaches, such as urgent care clinics and one-day surgery centers, are being considered. These approaches do not lower the overall demand for health services; they simply transfer demand from high-cost to low-cost settings. There is even the risk that they could increase overall demand (for example, if it becomes easier for patients to access care locally or if hospitals decide to admit more patients).

As a result, these approaches will lower costs only if they replace equivalent hospital services. If they duplicate those services, costs will rise. This outcome may be appropriate when demand is increasing, as was the case with the Portuguese hospital. But if the goal is to reduce costs by lowering demand, the alternative care approaches must be coupled with decreases in the supply of expensive hospital services.

Reducing supply

Efforts to reduce the supply of hospital services are often highly contentious and thus extremely difficult to implement. Any health system that wants to reduce supply must therefore have a carefully thought-through plan for how it intends to achieve that goal, as well as a strategy for winning over (potentially legitimate) public and clinical concerns regarding the proposed changes.

Health system leaders will need to have a deep understanding of the services required now and in the future, how those services can best be provided, and how far patients should have to travel for treatment. Ultimately, their recommendations will have to be translated into bed numbers. Unfortunately, there is no agreed-on standard of how many beds per 1,000 population a health system should have, and bed numbers vary widely between countries (Exhibit 4). In each country, the extent to which reductions can be made is likely to vary, depending on the structure of its health system and what its current bed numbers are.

Closing or redeploying capacity

Once a health system has determined its bed-number target, it must decide how beds can be eliminated. The most direct way to decrease

Exhibit 4

Bed numbers are dropping but still differ by country.

Beds¹ per 1,000 population

	2000	2003	2007 ²	Change ² 2000–07
Japan	9.6	8.5	8.2	-15
Germany	6.4	6.1	5.7	-11
France	4.1	3.8	3.6	-12
Italy	4.1	3.5	3.1	-24
United States	2.9	2.8	2.7	-7
United Kingdom	3.0	3.0	2.6	-13
Spain	2.8	2.6	2.5	-11
Sweden	2.4	2.2	2.1	-12

¹Note that the definition of acute care beds has varied over time.

²Except Spain and the United States, 2006.

Source: Organisation for Economic Co-operation and Development HealthStat



capacity and remove the associated costs is to close hospitals, but this option is by far the most difficult one for most health systems to implement, given that it directly affects access to care and other issues local communities care deeply about. In many countries, even the rumor of a hospital closure can be enough to prompt protests.

Other options are available if hospitals cannot be closed. A UK hospital, for example, achieved overhead savings by shutting several wards on weekends. It altered its admission procedures so that most elective patients arrive early in the week and are discharged by Friday. (Any patient not ready to go home on Friday is transferred to a regular ward.) This strategy enabled the hospital to avoid staffing those wards, often at overtime rates, on weekends. If replicated in a good number of hospitals, the strategy could enable a health system to lower its hospital spending significantly.

Wards can also be reconfigured to reduce acute care capacity in favor of geriatric care, outpatient-surgery care, rehabilitation, or other services. Indeed, many alternative care approaches, including one-day surgery centers, could be provided within a hospital's existing infrastructure, as long as they are set up in such a way that they do not have to carry a high proportion of the hospital's fixed costs.

In some cases, entire hospitals can be converted to other purposes. A region in Germany converted several expensive and underutilized rural hospitals into primary care facilities that offer a few acute beds. A UK hospital was reconfigured to become a lower-cost retirement care center for the elderly. This type of conversion is possible even in health systems with private providers. Japan has used tax incentives and regulatory changes to encourage the con-

version of some small private hospitals to long-term care facilities.

Redeploying space can provide a significant cost advantage without the negative consequences of hospital closures. It is therefore more likely to be acceptable to local communities. It may not, however, give all health systems the savings they need.

Winning over the opposition

Even when there are strong arguments for reducing the supply of hospital services, local stakeholders are often fiercely resistant. Before this spring's UK general election, for example, 367 parliamentary candidates were asked to specify which policies they prioritized; more than one-third mentioned stopping the closure of local hospital services.⁷ When asked if they would support the closure of an emergency department in their constituency if the service were clinically unsafe, only 44 percent said yes.

The reasons for resistance are many. Access to care is an important concern. Research has shown that unless patients have severe conditions such as cancer, most of them would rather receive care close to home. Local communities also often have strong emotional ties to their hospitals, may be worried about job cuts, and may not believe that the promised new, compensatory services will ever materialize.

Any proposals to reduce hospital supply must therefore be developed carefully. The key elements are a comprehensive, independent needs assessment and a detailed set of recommendations for change, both of which should be based on the best data available and local input. Clinicians must take the lead in this effort; otherwise, it is highly unlikely they can be persuaded to support the recommendations. The proposed

⁷Sally Gainsbury, "Election 2010: Halting hospital closures top priority for would-be MPs," *Health Service Journal*, May 5, 2010.



changes should make clear how and where care will be provided under the new model, what new services will be offered, whether long journeys will sometimes be necessary, and what contingencies are in place should problems arise.

Improving care quality is the argument that is most likely to convince patients and, especially, clinicians of the need for change, and without clinicians' support, there is little chance that community opposition can be surmounted. There is compelling evidence that complex conditions should be managed at scale: clinical teams must see a sufficient volume of patients that they can build and sustain expertise. This argues strongly for centralizing complex services into fewer hospitals to improve quality.

However, arguments based on quality of care need to be deployed skillfully. Few countries have sufficient data to gauge the performance of their hospitals effectively. Furthermore, some communities may claim that their hospital's poor care quality is evidence that greater investment is needed, not that their hospital should close.

Despite the obstacles, success is possible. After the reunification of East and West Germany, Berlin had significant, unnecessary hospital overcapacity and extremely high costs. After considerable discussion and debate, the city government managed to persuade the electorate that capacity should be reduced. Over the next ten years, Berlin was able to make the needed reductions—and in the process the operational effectiveness of its remaining hospitals increased

so substantially that the facilities were able to lower their prices. Anecdotal evidence indicates that quality of care also improved.⁸



Many, perhaps most, health systems today would like to lower their spending on hospital services. Across-the-board cuts, however, could put patient care at risk. Health systems can better achieve savings by determining how they can reduce the demand for and supply of hospital services. They may not need or want to avail themselves of all of the approaches we identified, but they must accept that significant savings cannot be obtained without supply reductions. And those reductions will not occur unless community opposition to service reconfiguration can be overcome.○

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The authors would like to thank Sofia Fernandez, who provided invaluable assistance as this article was developed.

⁸Formal mechanisms for measuring hospital quality were not introduced in Germany until 2006.