



New Marketplace Leadership Patient Engagement Care Redesign

RELENTLESS REINVENTION

Do Hospitals Still Make Sense? The Case for Decentralization of Health Care

Article · December 20, 2017

Jennifer L. Wiler, MD, MBA, Nir J. Harish, MD, MBA & Richard D. Zane, MD, FAAEM

University of Colorado School of Medicine; UCHHealth

Tufts University Medical School

From their humble origins as charitable almshouses for the poor and destitute who could not afford to receive care at home, hospitals have evolved into large, profitable, expensive, technology-laden institutions at the epicenter of the health care universe. Almost every community has at least one general centralized hospital, and most have more than one — with those that don't being considered “underserved” or “frontier” communities, and with the hospitals in such communities sometimes receiving the designation of “critical access.” But health care is changing. The exponential growth of digital and virtual health, the deployment of advanced technology deeper into the community, and the movement of higher-acuity care into the outpatient environment create opportunities to shift from a large, centralized health care system to a smaller, faster, more cost-effective one in which health care is more accessible, more affordable, more personal, and closer to home.

The Hospital as the “Hub”

Until recently, centralizing care around a hospital made sense. Without electronic health records (EHRs), it was nearly impossible for health care providers to understand care longitudinally or to coordinate care without bringing patients to one physical place where information could be organized with the use of archaic documentation management systems. Moreover, the hyper-

subspecialization of medicine and the frequent reliance on advanced technology such as imaging, lasers, and expensive chemotherapeutic, biologic, or immunologic agents requiring specialized real-time compounding necessitated a financial model that allowed the aggregation of high fixed costs.

The traditional delivery model of a hospital as the ‘hub’ of care, with a single centralized facility providing every facet of disease management and treatment, from specialized surgical cancer care to routine eye exams and chronic blood pressure management, should be questioned.”

In 2011, U.S. hospitals reported an estimated 49 million surgical procedures in adults and 136 million emergency department (ED) visits, with the rate of care utilization growing faster than population growth. As a result, in 2015 alone, U.S. hospitals hired 100,000 new employees. In a fee-for-service system that rewards hospitals for any care that is provided, there is no reason to limit offered services. But despite the proliferation of mega-hospitals (>1000 beds), capacity is not meeting the growing demand for services. Hospitals around the country are struggling to keep up, with admitted patients being treated in EDs while waiting for inpatient hospital beds to become available. Building bigger hospitals, although profitable in the fee-for-service environment, is not a viable option in financial risk-sharing models. The traditional delivery model of a hospital as the “hub” of care, with a single centralized facility providing every facet of disease management and treatment, from specialized surgical cancer care to routine eye exams and chronic blood pressure management, should be questioned. Furthermore, admission to a hospital can be dangerous, with 1 of every 25 hospitalized patients being expected to develop a hospital-associated infection, slightly worse than the risk profile of injury from bungee jumping.

The Role of Virtual Health and Remote Monitoring in the Decentralization of Care Delivery

There is good reason to seek out new ways of delivering care. In the not-too-distant future, health delivery systems will, and should, be paid for keeping people healthy and out of the hospital rather than for procedures and admissions. The economic framework of health care will be turned upside down, with profit being directed toward maintaining the health of populations rather than toward just thwarting illness. Surgical procedures, which represent the golden goose of profit for health care, may actually become an expense. It is challenging, if not impossible, for most large hospitals, with their high fixed costs, to morph into nimble, low-cost businesses. The delivery

models that will succeed are those that do not simply extend the reach of the hospital but begin to entirely replace the hospital as we know it.

In the not-too-distant future, health delivery systems will, and should, be paid for keeping people healthy and out of the hospital rather than for procedures and admissions.”

Today, remote monitoring, wearables, faster wireless communication devices, robust EHR platforms, virtual health visit capabilities, and, eventually, prescriptive intelligence, are making it less necessary for patients and physicians to always interact within the four walls of a hospital or clinic. Whereas such technology previously was reserved for the purpose of providing care in the most remote areas, an entire industry is increasingly leveraging the power of “mobile health” to connect patients with providers. For example, in Johns Hopkins’ Hospital at Home (HaH) program, patients are admitted to their own homes rather than to the hospital, and their care is managed through the use of advanced remote monitoring and telemedicine. Patients are only eligible for HaH if they are sick enough to require hospitalization. Patients are linked to the hospital through remote monitoring technology and receive daily visits from a physician and other caregivers (e.g., nurses, respiratory therapists, and physical therapists).

Electrocardiograms, x-rays, and ultrasounds can all be performed in the patient’s home with use of portable technologies. In a pilot study, the total costs of care were reduced by 19%, and only 2.5% of 323 patients had to be transferred into the hospital from home. Similarly, in the University of Colorado system, patients who otherwise would have to drive hundreds of miles for a routine postoperative evaluation are able to skip the long drive and visit with their surgeon virtually from the comfort of their own home, avoiding countless hours in a car and the resulting costs. Such home admission programs represent a radical shift from pulling patients *in*, to sending care *out*.

Community Paramedicine

Decentralization is also being achieved through the use of well-trained health care providers on wheels: paramedics and emergency medical technicians in ambulances. This ready-made army of mobile health clinics has been used to create a new category of care delivery known as community paramedicine. The Geisinger Health System in Pennsylvania calls its community paramedicine program the “Mobile Health Team” and recently completed a pilot program in which community paramedicine was used for patients with congestive heart failure (CHF). In this model, the team is activated when a patient with CHF is discharged from the ED. Community paramedics visit the

patient at home, perform a detailed assessment, reassess the patient's weight and condition, and, with remote physician direction, administer intravenous diuretics and other patient-centered care. Over a 1-year period, this pilot program prevented 42 potential admissions and 168 inpatient days among 704 patients, reduced ED visits for CHF by 50%, and reduced overall readmissions by 15%.

Such home admission programs represent a radical shift from pulling patients in, to sending care out.”

Similarly, at University of Colorado Health, we have instituted a mobile stroke unit (MSU) that is dispatched directly to patient homes in a specialized ambulance that is equipped with a small CT scanner, point-of-care testing capabilities, and virtual care access to a stroke specialist, thereby enabling rapid remote diagnosis and prehospital administration of thrombolytic therapy. While still early, data from other sites with similar units have shown that the time to thrombolysis is reduced by >50%, with no difference in adverse outcomes. Although outcome data are still pending, the single most important variable in acute stroke cases remains time to treatment with thrombolytic therapy. This ability to deliver specialized tertiary care virtually in a patients' driveway is changing the landscape of traditional care delivery models.

How Big Do Hospitals Need to Be?

More than 80% of unscheduled hospital admissions now originate in the ED, meaning that the ED is the gateway to the hospital system. With the growing capability of digital communication, EDs are being reimagined as process driven, self-sufficient, robust diagnostic and treatment centers that provide alternatives to inpatient hospitalization. ED-based observation units offer a rapid, reliable alternative to short-term hospitalization. By providing virtual specialty consultation and access to advanced imaging and therapeutics, these EDs are disrupting the very idea of the hospital.

As we enter this next step in the evolution of health care, it is worth remembering that hospitals were once a last resort for those who could not afford to receive care at home.”

Colorado also has seen the creation of “micro-hospitals.” Much like critical access facilities, these 20- to 30-bed facilities offer emergency care, short-stay hospitalization, critical care, and operative care in a compact lower-cost setting. Unlike traditional community hospitals, micro-hospitals rely heavily on virtual consultation and protocol-driven care for patients with specific care needs. Community-based virtual care and remote monitoring are leveraged to prevent the need for patients to return to the facility.

The Future of Out-of-Hospital Care

With the increasing pressure to create a health care system that is value oriented, patient centered, and lower cost, there is a need for safe alternatives to expensive hospital-based care. Just as decentralization has critically transformed other industries, such as computing — for example, IBM created the first personal computers to replace complex single-site mainframes, Apple subsequently designed powerful pocket computers, and the Amazon Echo Show could emerge as the newest home health care aid — the reorganization of health care is beginning to take form. As we enter this next step in the evolution of health care, it is worth remembering that hospitals were once a last resort for those who could not afford to receive care at home.

Let’s be clear: hospitals are not going away anytime soon, nor should they. We believe that, while hospitals will still serve a critical role as the underpinning of the care delivery system, inpatient care is not what the typical consumer needs. By de-linking the most essential and basic inpatient care from critical and complex care and by taking advantage of technology to reallocate resources into the community, patients’ homes, and the cloud, we can reimagine the pursuit of high-value care delivery.

Jennifer L. Wiler, MD, MBA

Professor and Executive Vice Chair, Department of Emergency Medicine, University of Colorado School of Medicine; Professor of Health Administration, University of Colorado School of Business; Executive Director, CARE Innovation Center, UCHealth

Nir J. Harish, MD, MBA

Clinical Assistant Professor, Tufts University Medical School

