



ANYTIME, ANYPLACE DELIVERY IN HEALTH CARE

Traditionally, health care has focused on treating symptoms and their underlying medical problems in specialized environments such as doctors' offices, clinics, and hospitals. However, recent changes in the health and health care landscape are expanding the delivery of health care into new settings. Specifically, the rise of consumer-directed care, an aging population causing a shift in emphasis from the episodic treatment of acute health problems to the ongoing management of chronic conditions, and new technologies are driving the delivery of health care toward an anytime, anyplace model. In-store clinics and mobile health applications are the leading edge of this new wave.

This is one in a series of Health Horizons **Signals**: Quick-hit forecasts of big-picture topics designed to stimulate long-term strategic thinking. Consider these early alerts to shifts in the marketplace, important innovations, unexpected challenges, and new opportunities. Each **Signal** includes both an overview of pertinent data and an expert interview, and is intended to point to emerging trends likely to be important over the next decade and beyond.

GLOBAL HEALTH

HEALTH HORIZONS PROGRAM

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THE DRIVERS

Three trends are driving the shift to anytime, anyplace health delivery.

First, is the rise of consumer-directed care. Driven by the burden of their increasing share of costs as well as their frustration with the inconvenience and quality of care, many patients are looking for care outside the traditional system, as part of a broader health economy. They seek greater convenience and are demanding more and more that care be available when and where they want it.

Second, the aging of the population is shifting emphasis from the episodic treatment of acute health problems to the ongoing management of chronic conditions. More than 125 million Americans—42 percent of the population—have at least one chronic health condition, and the cost of care for people with chronic conditions accounts for more than 80 percent of the \$1.4 trillion in U.S. health care expenditures. The ability to continuously monitor an individual's health status can facilitate more effective care than episodic encounters, and can potentially reduce the cost of chronic care.

Finally, new technologies are making it possible to deliver sophisticated care in a wider variety of settings. The development of small, inexpensive, and highly accurate sensors makes it possible to conduct many medical tests outside clinical labs, for example. Software-based expert systems are enabling non-physicians to accurately diagnose and treat many common medical problems, at great cost savings. And electronic health records make it easier to deliver care anytime, anywhere.

IN-STORE CLINICS

Located within larger retail operations such as drugstores or supermarkets, in-store medical clinics offer a limited menu of general services. These clinics are typically staffed by a nurse practitioner under physician supervision. This model is not without precedent. In much of the developing world, pharmacies are traditionally the first point of consumer contact with the health care system.

The first in-store clinic was opened in Minneapolis in 2000 by a company now known as Minute-Clinic, the leading provider in the field. New competitors, including The Little Clinic, RediClinic and Take Care Health Systems, have since entered the market. More than 100 clinics have been opened in drugstores and supermarkets, and plans have been announced to launch at least one thousand additional in-store clinics in the next 12 months. Major retailers such as Wal-Mart, Target, Walgreens, Kroger, and CVS have hosted clinics in their stores.

For routine services such as immunizations, check-ups, simple infections, and wound care, these in-store clinics are generally more convenient and less expensive than traditional alternatives such as urgent care doctors or emergency rooms.

MOBILE HEALTH APPLICATIONS

As care shifts away from clinical settings, new wireless applications are expanding the ability to provide patients with access to health care services and health-related information. This development is enabled by the dramatic growth in the number and capabilities of mobile phones. Globally, more than 2.5 billion mobile phones are in use and there are several mobile health applications already in place (table 7).

In the 1990s, the PC became a pervasive platform for the development of a wide range of applications. Now, mobile phones provide a platform for a variety of innovative applications, including many for health care. Smart phones make it possible for the patient to capture, store, and process data locally before that information is sent to a health care provider. Mobile phones also enable e-health applications, such as photography, email, Web access, and text messaging.

FORECAST: ANYTIME, ANYPLACE HEALTH CARE

In the near term, innovations such as in-store clinics and mobile health applications will provide new channels for providers to extend access to health care beyond traditional settings. These new applications are early manifestations of a more fundamental shift in traditional health care. In an anytime, anyplace world, traditional providers will continue to be important players, but they won't be the only players and won't always deliver care in the traditional way. Instead, they are likely to become just one source of information and care in a larger, more complex health ecology. In this future, the individual is at the center, meeting her needs with a variety of competing providers and services, both inside and outside the traditional health care system.

—Richard Adler



Dr. Milstein is the Medical Director of the Pacific Business Group on Health and the U.S. Health Care Thought Leader at Mercer Human Resource Consulting. He cofounded both the Leapfrog Group and the Consumer-Purchaser Disclosure Project and is a Commissioner at the Medicare Payment Advisory Commission (MedPAC). He is nationally known for his efforts to reduce the cost and improve the quality of health care.

Q | You've recently been developing innovative ways to deliver health care. What is driving this work?

The primary driver is the crisis in the affordability of health insurance. About ten years after World War II, per capita health care spending began growing in this country at a much greater rate than the economy. The average premium for the Federal Employee Health Benefits Plan is a reasonable indicator of how much health insurance costs have risen. In 1960, it took about 15 percent of a minimum wage worker's income to pay for that plan for a family of four. As of 2006, it takes one hundred percent. As a result, more and more Americans can no longer afford health insurance. In our design work, we've focused on a single question: What changes, in how health care is delivered, would most profoundly reduce total health insurance spending?

Q | One of the new models you've been working on is the "Video Visit Booth." What is the goal and how does it operate?

The goal of the Video Visit Booth is to take routine ambulatory care—something you wouldn't want to wait four or five days for an opening in your doctor's calendar to get treated—and focus on the subset of those problems a physician could treat just as well using high-resolution, two-way video. In essence, the Video Visit Booth supports anything a good physician can confidently diagnose without a hands-on physical examination.

Q | Do you have a sense of what percent of the typical primary care physician's caseload that would cover?

In the opinion of a couple of board-certified internists, about half of all ambulatory care outside of inpatient and hospital care could be handled by good quality two-way video as long as a technician is on site to do things like applying electro-cardiogram leads, drawing blood, and taking temperature and blood pressure. In most states, it takes about two weeks to get certified to do these things.

Q | How do you compare the Video Visit Booth to in-store clinics?

There are a few fundamental differences between this model and the retail clinic model. First, we tried to build a model that would draw on expensive personnel such as nurse practitioners and physicians only for a very limited time and just when the patient needs them. We're not paying for their downtime—since they don't need to be



on site, they can be paged when they're needed. Second, by utilizing a physician, a Video Visit Booth can handle a span of clinical problems five or six times greater than a nurse practitioner. Third, and most importantly, there is a bias in our culture toward feeling more confident if a medical problem is handled by a physician as opposed to a nurse. You get that additional level of confidence from the Video Visit Booth.

Q | The second concept you've been working on is something called the A-ICU. Could you explain what this is?

The "Ambulatory Intensive Care Unit," or A-ICU, is based on the following reasoning: the economics of health care are such that 20 percent of people are spending 80 percent of the dollars. If we want to profoundly impact health insurance, we have to develop much more cost-effective ways of treating that 20 percent.

Q | What differentiates this approach from existing models?

The A-ICU is tailored exclusively to the needs of very high risk people who are not in the hospital. It is designed around three fundamental changes. The first addresses the fact that most people who are at high risk are not successful at self-management. The most economical solutions—those with high rates of success in getting people to execute self-management plans—use community health workers or medical assistants. These people don't necessarily have extensive medical training, but they are emotionally intelligent, from the same community as the patients, and able to go to the patient's house and work with them.

The second element is to make a visit to the doctor a blend of an Indy 500 pit stop and great customer service. We have tried to design an interaction that finds the "sweet spot" between emotional meaningfulness to the patient and an absolutely minimal use of the physician's relatively expensive time for tasks that other people with good training can do just as well.

The third element is simply cost-benefit analysis. Today, when most primary care physicians make a referral, they pick a specialist whom they like or know, whom they went to school with, or who's in the same office suite as they are. They don't have a clue as to which physician is number one in the community with respect to quality and cost. We want to make sure that when you see a specialist, it's one in the top 10 percent.

Q | How big a role do you see for technology, particularly information technology, in the future of health care delivery?

Technology is the central nervous system of both of our models. Health care is not much more than an iterative cycle of information gathering, information analysis, planned development, and planned execution. Each of those steps can be much faster, with

much more fidelity to current scientific evidence, if it is supported by a good electronic information platform. You need a good electronic health record to assist with the assessment process, then to assist with developing the treatment plan—and then to serve as a platform for workflow.

The second big technology opportunity has to do with remote monitoring devices. Today, we rely on patients' intuiting when they need care, making phone calls, coming in to see the doctor, periodically. When you think about how quickly and how subtly human physiology can change, it's clear that there's a role for cost-effective remote patient monitoring devices.

Last, but not least, is technology for doctor-patient communication. Mediated contacts with providers, whether by phone, Web, or video, can vastly improve the efficiency with which expensive resources are delivered.

Q | In general, where do you see innovation coming from in health care? What is going to be the most important source of innovation in health care?

Most health care deliverers today are missing the knowledge base needed for rapid innovation—especially in the portability or efficiency of health care. In the near term, advances will come from the relatively small set of institutions that understand industrial engineering—or what some people would call "systems engineering" or "management science." Real innovation will come from places like Partners HealthCare in Boston, Intermountain Healthcare in Salt Lake City, Virginia Mason Medical Center in Seattle—places that are putting the full force of industrial engineering to the task of rethinking how health care can be delivered better, faster, cheaper.

Q | In the long run, do you think that the current health care system can be kept viable through significant but incremental change? Or do you see the need for more far-reaching and fundamental change? If so, where do you think the biggest changes are going to happen?

The big question for me is whether the incumbents, who are incredibly powerful, will permit progress as fast as it might otherwise happen. The customers' need is for profound redesign, ASAP. But will the incumbents, whose revenue streams and everyday work habits would have to be grossly disrupted, tolerate this progress? As much as the doctors and hospitals may resist these disruptive innovations, the fact that nobody wants to pay for care for the lower 20 percent of the American income distribution is going to force their hands. Initially, these innovations may be limited to the poor. But once they catch on, they will be difficult to stop.

DETAILS

IN-STORE CLINICS OFFER CONVENIENCE AND COST SAVINGS

In the last few years, several companies have opened medical clinics inside drugstores, discount stores, and supermarkets such as Walgreens, Target, Wal-Mart, and Kroger. As of mid-2006, the four leading in-store clinic providers—MinuteClinic, Take Care, RediClinic, and The Little Clinic—were operating more than a hundred clinics in stores in 15 states, and had announced plans for opening as many as one thousand additional clinics over the next 12 months. In July 2006, the emerging importance of in-store clinics was elevated when CVS announced that it was acquiring MinuteClinic.

The appeal of in-store clinics is two-fold: their services are typically less expensive and more convenient than traditional health care providers'. And their offerings usually include a menu of preventive care ("stay well") and treatment ("get well") services for a limited range of routine health problems. Initially, in-store clinics did not accept insurance payments, which meant that the out-of-pocket cost to consumers was often higher than other alternatives, even though the cost of treatment was lower. But most of these clinics are now accepting insurance payments.

INTEREST IN USING IN-STORE CLINICS

Although, to date, few Americans have had an opportunity to use an in-store clinic, survey data suggest that many Americans are open to the idea. A 2005 survey done for the *Wall Street Journal* found that 41 percent of adults said they would be "very" or "somewhat" likely to use an in-store clinic for basic medical services.¹

The same survey found that a majority of adults agreed that such clinics can provide a fast and easy way to get basic medical services, and that they can provide a cost-effective solution for people who can't afford conventional care. Nevertheless, a majority also expressed concern about the qualifications of non-physician staff and about the possibility that some health problems might not be accurately diagnosed at in-store clinics.

1 | MinuteClinic Menu of Services and Prices

Treatments & Services (Most services \$49–\$59 or an insurance co-pay)		Vaccines (Price range \$25–\$110)
Allergies	Athlete's foot	DTaP (diphtheria, tetanus, pertussis)
Bladder infections	Cold sores	Flu (seasonal)
Bronchitis	Deer tick bites	Hepatitis A&B
Ear infections	Impetigo	IPV (Polio)
Pink eye & styes	Minor burns & rashes	Meningitis
Sinus infections	Minor sunburn	MMR (measles, mumps, rubella)
Strep throat	Poison ivy	Pneumonia (seasonal)
Chlamydia	Ringworm	Td (tetanus, diphtheria)
Flu diagnosis	Swimmer's itch	
Mononucleosis	Wart removal	
Pregnancy testing		
Swimmer's ear		

Source: MinuteClinic

2 | Cost Comparison: Sore Throat Diagnosis and Treatment

Site	Retail Cost	Hours*
Primary care office	\$109	1.5
Urgent care	\$125	2–3
Emergency room	\$405	2–4
MinuteClinic	\$62	0.5

* Note: Time includes filling prescription.

Source: Minnesota Council on Health Plans, BCBS Minnesota, MinuteClinic.

3 | Interest in Using an In-Store Clinic

	Very likely	Somewhat likely	Not very likely	Not at all likely
How likely would you be to use a health clinic in a pharmacy or retail store if you or someone in your immediate family needed basic medical services like a flu shot, a strep throat test, or a sports physical?	10%	31%	32%	27%

Source: Wall Street Journal/Harris Poll, October 2005.



4 | Attitudes Toward In-Store Clinics

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Not Sure
Health clinics at retail stores can provide low-cost basic services to people who otherwise might not be able to afford care.	33%	41%	4%	10%	12%
I would be worried about the qualifications of the staff that provides care in a health clinic not run by MDs.	35%	36%	1%	16%	8%
I would be worried that serious medical problems might not be accurately diagnosed by someone working in a health clinic in a retail store or pharmacy.	35%	40%	4%	13%	9%

Source: Wall Street Journal/Harris Poll, October 2005.

MOBILE PHONES CREATING A NEW PLATFORM FOR HEALTH CARE

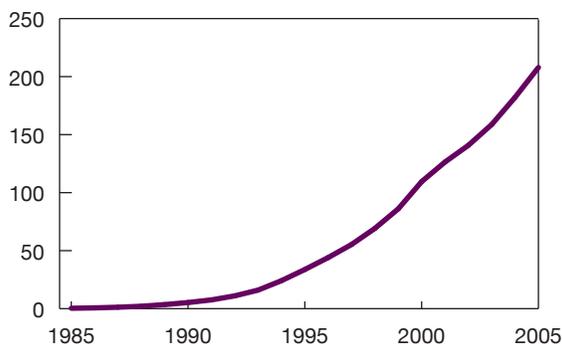
In just two decades, the mobile phone has gone from being an expensive and relatively rare novelty to a ubiquitous communications option. More than 70 percent of Americans adults now use mobile phones. Mobile phones in use in the United States (207 million) now outnumber landlines (176 million).

Mobile phone penetration is even higher in many other countries. In several countries, including Italy, Sweden, Singapore, and Taiwan, mobile phone penetration is greater than one hundred percent. In China, over four hundred million people have mobile phones, more than the entire U.S. population of three hundred million. Over the next decade, as hundreds of millions of people get mobile phones in China and India, the mobile phone will become a pervasive platform for delivering care and health information in those countries as well.

In many developing countries, the mobile phone is the first telephone to reach most residents. In remote, rural parts of these countries, the mobile phone is the first direct link to the outside world. Although mobile phones were not initially designed for use in health care, they provide a new means of connecting millions of people with health care.

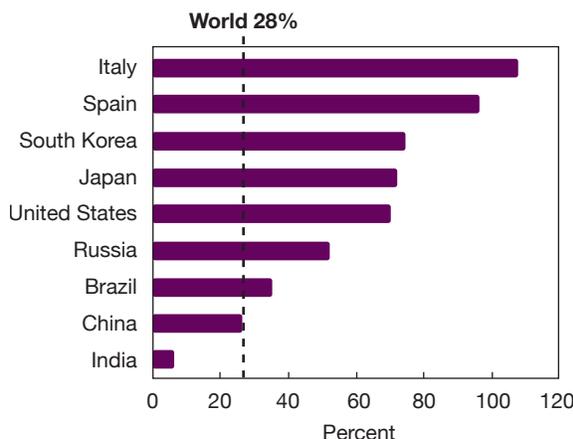
5 | U.S. Mobile Phone Growth, 1985–2005

Millions of subscribers



Source: CTIA, Wireless Industry Survey, 2006.

6 | Global Mobile Phone Penetration



Source: CIA Factbook, 2005.

7 | Mobile Health Devices

<p>ICE First medical record access</p>		<p>ICE First allows users to store and manage emergency medical information and contact numbers on their mobile phone. Users can upload emergency contact numbers and medical information for themselves and up to ten dependents. The software, including one year of online storage, is available for under ten dollars.</p>
<p>MyFoodPhone food monitoring service</p>		<p>This camera phone/food-journaling service links individuals with nutrition coaches and advisors. Users can take pictures of meals with any camera phone and email those pictures from the phone to a personal, Web-based food journal to receive feedback from nutritionists. Users can also track weight, exercise, calories burned, blood pressure, and glucose level. Sprint is marketing this service in the United States for \$9.95 per month.</p>
<p>LG KP8400/Heathpia glucose monitor phone</p>		<p>This LG cell phone includes a glucose monitor. Users place a paper test strip into a sensor that is built into the phone's battery pack. They place a drop of blood on the end of the strip and then get a reading from the phone. The reading can be uploaded to an online database for later retrieval and review. This phone is available in South Korea.</p>
<p>CardioNet ambulatory cardiac monitor</p>		<p>This sensor, worn under clothing on a pendant or belt clip, automatically detects and transmits abnormal heart rhythms to the CardioNet monitoring center. Physicians receive telemetry reports from the monitoring center and use the data to make diagnoses and treatment decisions.</p>
<p>Cylos DR-T wireless pacemaker</p>		<p>The Cylos DR-T is wireless pacemaker produced by German device manufacturer, Biotronik. This device automatically signals a patient's physician if signs of arrhythmia are detected or if the device begins to malfunction. The first Cylos pacemaker was implanted at the Fuqua Heart Center, in Atlanta, in January 2006.</p>
<p>SenseWear vital signs monitor</p>		<p>The SenseWear armband includes an accelerometer that records body movement, a sensor that detects changes in skin temperature, and a sensor that measures changes in the electroconductivity of the skin. Data can be stored for up to seven days and then uploaded to a secure Web site. This device is intended for use in disease management, sleep management, and sports/fitness monitoring.</p>
<p>3G Doctor virtual medical consultations</p>		<p>British-based 3G Doctor plans a late-2006 launch of a service that will enable patients to consult with a doctor by means of a two-way teleconference using a 3G phone that supports live streaming video.</p>



ADDITIONAL READING

Health Care in the Express Lane: The Emergence of Retail Clinics (Mary Kate Scott, California HealthCare Foundation, July 2006). This report describes the emergence of in-store clinics and examines their impact on health care delivery. Online at www.chcf.org/documents/policy/HealthCareInTheExpressLaneRetailClinics.pdf.

On the Move: The Role of Cellular Communications in American Life (Department of Communication Studies, University of Michigan, May 2006). Report of a national survey on uses of and attitudes toward mobile phones. Online at <http://cms.lsa.umich.edu/UofM/Content/comm/document/CommStudiesReportAll.pdf>.

RETAIL CLINICS

MinuteClinic www.minuteclinic.com

RediClinic www.rediclinic.com

Take Care Health Systems www.takecarehealth.com

The Little Clinic www.thelittleclinic.com

MOBILE HEALTH APPLICATIONS

ICE First www.icefirst.com

MyFoodPhone www.myfoodphone.com

LG KP8400 www.healthpia.us

CardioNet www.cardionet.com

Cylos DR-T www.biotronik.com

SenseWear www.bodymedia.com

3G Doctor www.3gdoctor.com

Full Interview with Dr. Arnold Milstein is available at blogger.iftf.org/health.

For more information on this topic, contact: **Rod Falcon, Director, Health Horizons**, rfalcon@iftf.org

ENDNOTES

¹ "Many Americans Open to Care at Retail-Based Health Clinics," The Wall Street Journal Online, October 26, 2005. Online at: http://online.wsj.com/public/article/SB113015745805977478-1ANvU47uZ7aM9d4Yfz0DGgcMGDI_20061025.html?mod=tff_main_tff_top.

