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IDEO'S DESIGN CURE

Can it fix our sick health-care system?

By Christopher Hawthorne

The IDEO CURE

When ailing health-care providers turned to design's best-known consultants, the fix they got was more informational than architectural.

The San Francisco office of the design firm IDEO, in a remodeled pier in the shadow of the Bay Bridge, combines the antic energy and artfully disheveled look of an Internet start-up with the steady atmosphere of a company that's already proven its staying power. The employees aren't the Puma-clad 23-year-olds that staffed so many dotcoms, but there aren't a whole lot of men wearing ties either. Near the front desk there's a wall of shelves set aside for staffers to display little objects of personal importance—a Joseph Cornell–meets–Tom Peters exercise in collective creativity. If we have a vision of what bureaucracy looks like, this office is carefully arranged to represent its opposite.

Sitting by tall windows that reveal a shimmering expanse of San Francisco Bay, the last things that come to mind are architectural spaces that don't work or people who are not well. But here, and in the company's seven other offices around the world, designers are tackling what has to rank among the most stubborn design problems of the day: reshaping the environments where Americans receive their health care—or wait endlessly to receive it, as the case may be. IDEO (pronounced "eye-dee-oh") has helped develop products for the medical industry for years. But recently a number of clients, including two large hospitals in the Midwest, have been asking IDEO for much broader advice about the patient experience as a whole.

To put it mildly, the spaces of American health care—hospitals, dentists' offices, and the like—are not known for accomplished design. When Tom Kelley, IDEO's general manager and brother of company cofounder David Kelley, went on the radio program *Fresh Air* last year to promote his book *The Art of Innovation*, he listed for host Terry Gross a handful of things whose design has "been bad so long that you don't even really think about them." He mentioned irons ("The state of the art for deciding whether your steam iron is hot or not is to put your tender fingers onto the

DEPAUL HEALTH CENTER

After seeing IDEO's shopping cart overhaul (right) on *Nightline*, DePaul Health Center's C.E.O. solicited IDEO to help improve the Missouri hospital's facilities. The team traveled through DePaul from check-in to check-out and analyzed the journey (see their map on the next two pages). The questions they had in the waiting room (opposite page, top) and treatment (opposite page, bottom) room are just some examples of typical patient confusion.

MOBILE DENTAL UNIT

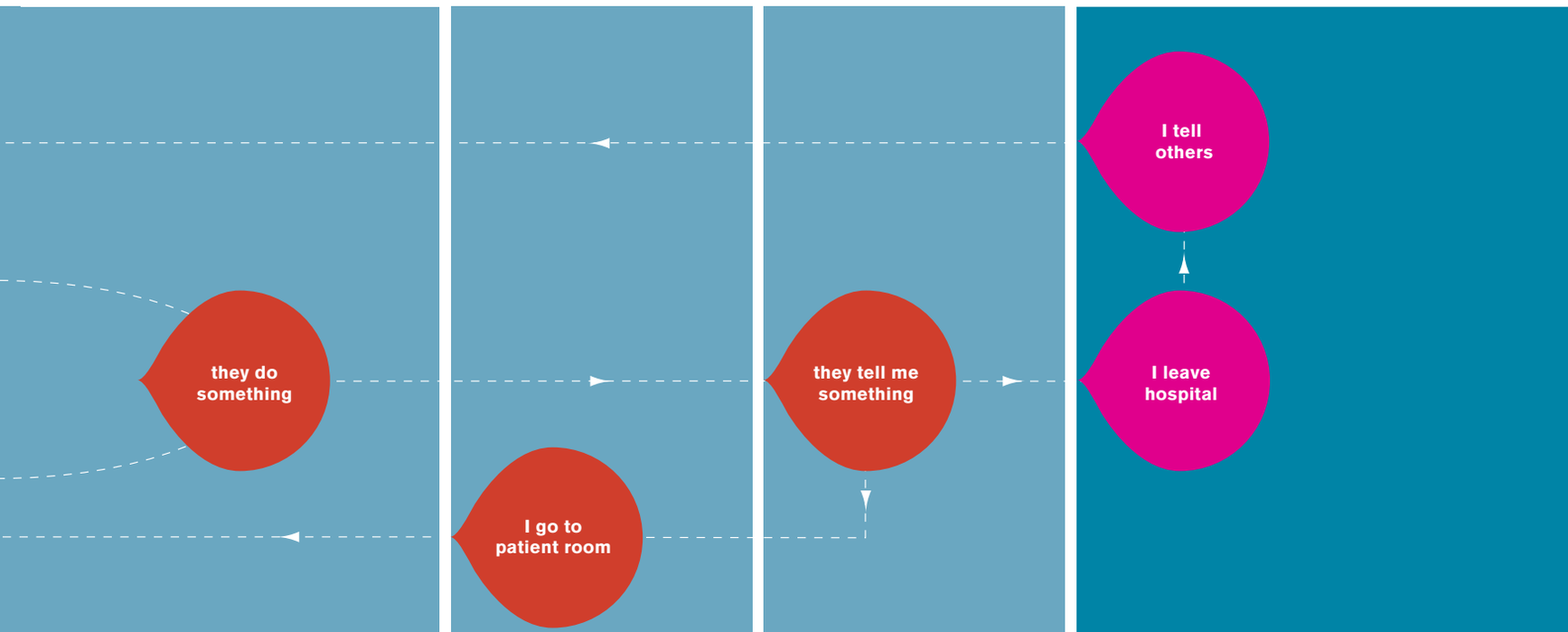
OnSite's mobile dental offices bring services directly to customers in places such as corporate parking lots. The redesign that IDEO proposed streamlines the reception area, giving dental patients more comfort and privacy.

This page, bottom: Steven Moeder. All other images, both page, courtesy IDEO

Patient Journey Framework

The patient journey framework, populated by questions for each stage, suggested opportunities for the system to translate itself for the patient.

Illustration by IDEO



- What is that?
- How long will I wait?
- How serious is the problem?
- Where's my stuff?
- Can I afford this?
- When will ___ happen?
- How long will this take?
- Is everything according to schedule?

- Where will we put them?
- Are there existing health issues I should know about?
- Who's next?
- Who is this (about family)?
- Are they allowed?
- What have they been asked?
- Where have they been?

- Where is everything?
- What is wrong with me?
- When will ___ happen?
- Where is my staff?
- How will they find me?
- What have you found out so far?
- Who are they?
- Why are they here?

- Who is this (about family)?
- Are they allowed?
- Is this serious (call light)?
- Can it wait?
- Where did they go?
- Has the doctor (nurse) been here?
- Are there new treatment orders?
- Who's next?

- How much is this going to cost?
- Am I better?
- Can I leave?

- When will the bed be free?
- Where did they go?
- How will they get home?

- What help do I need to get better?
- Do I need to come back?
- How can I stay healthy?
- What are the prolonged costs?

- Will they be back?

Place of Waiting

Waiting is a primary part of the patient experience, and it occurs at virtually every point in the patient journey. Some of the ideas developed for the waiting room below are place specific, some apply to the issue of waiting throughout the DePaul system.

Valet Parking
This service allows for easy arrival when it really matters.

Local Hospital Tour
Tours while the patient is healthy can inform future patients of the kind of treatment and facilities they will have available at the hospital. It is an important step in allowing the patient to understand the appropriate way to enter the facility.

Frequent Flyer Cards
Return patients' needs, preferences, and rewards are acknowledged automatically upon registration.

Patient Journey Punch Card
Carried by the patient and updated by staff, the punch card allows for a simple, graphic way for the patient to know where they've been and what is coming next.

A. Urgency Cards
Color-coded and time-stamped, the cards allow patients to flag their symptoms and keep track of the time spent waiting.

B. Self-Diagnostic Posters
A quick glance allows the patient to understand the urgency of his symptoms and, consequently, his place in the emergency room queue.

C. Self-Registration
Replacing unmanned registration windows with a mobile cart allows registration to occur based on place in the emergency room queue. This can be replaced with self-registration.

D. Managed Views
Live feed into the Emergency Room allows for the waiting patient to get a sense of the degree of activity. Alternately, shrouded glimpses of activity with status thermometer can give a more controlled vision of activity levels.

E. Patient Hotline
Patient Hotline allows for instant connection to staff who can act as a systems translator. All mediated staff interactions happen through the phone because it is a familiar interface.

Simple Self-Treatment
Vending machines dispense aspirin, bandages, etc. and allow patients to give themselves simple remedies to alleviate discomfort while waiting.

Place of Practice

Places of practice, like the radiology suite below, are dedicated to facilitating the staff's most efficient and best work for the patient. While primarily serving system goals, there are numerous simple opportunities for important translation to occur which can greatly impact the patient experience.

A. Patient Garment with Information Badges
Additive badges allow the staff to get a brief history of the patient visually.

B. Information-Transfer Doorway
A place for a simple log of patient interactions, patient photos, and useful tools facilitate the doorway as a translation zone. Eventually information transfer can happen wirelessly.

C. Patient Hotline
See E., above right.

D. Patient Manuals
Customized patient manuals which track the patient journey based on the specific illness can allow for the possibility of in-depth information at any point.

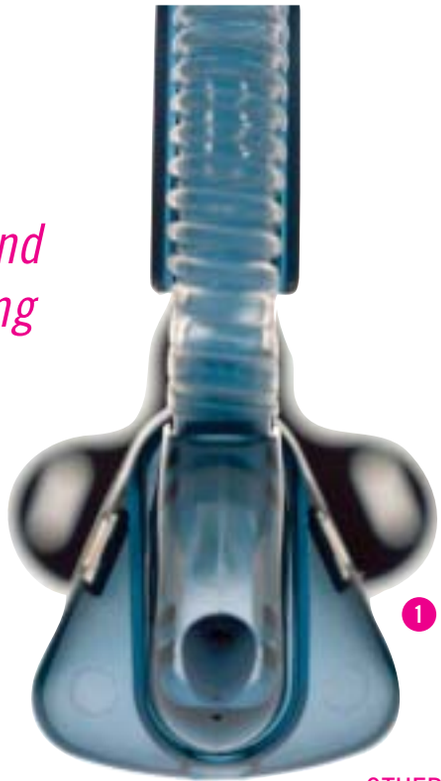
Modal Diversion
Patients have automatic control over simple things in their environment—everything from important information to personal soundtrack accompanies the patients on their journey.

Patient Journey Punch Card
See above.

Staff Cross-Training
Anyone coming in contact with the patient has the minimum knowledge necessary to answer simple questions and help in basic matters.

This page, courtesy IDEO. Opposite page: bottom right, Rick English; all others, Steven Moeder

Do we really want doctors and hospital administrators going around reciting IDEO maxims like "Encourage wild ideas" or "Fail often to succeed sooner"?



IDEO's solutions (opposite page) for DePaul included ways to track a patient's journey and provide him with precise information along the way.

metal…to see if it's scalding") and airline tickets ("There's all sorts of codes and 17-digit numbers on there"). When he got to "hospital waiting rooms," no such amusing details were necessary. The three-word phrase was enough to provoke an unpleasant mental image of stiff chairs, painfully out-of-date color schemes, and long delays spent scanning dog-eared *People* magazines.

The problem isn't restricted to waiting rooms, of course. Nor is it solely architectural. Hospitals have become so overwhelmed by staffing shortages and financial pressures—and so distracted by the demands of implementing new equipment and technical systems—that they haven't been able to concentrate on patient care in a broad or innovative way. "Over the last fifteen years, hospitals have invested enormously in technology," says Tad Simons, who directs IDEO's health-care operations, which now account for about a quarter of its business. And although that investment has paid dividends in terms of the level of treatment, he says, "hospitals have very little to show for it in terms of the quality of patient care. They're trying to rediscover what health care is all about: the relationship with the patient."

That's where IDEO suggests it can step in and help. The company cites its focus on user-centered design, which has driven IDEO's reinvention of products from cell phones to toothpaste dispensers, and the intense research and brainstorming sessions it's known for at the beginning of a job. It seems fairly clear that the provision of health care needs to be reevaluated from the ground up and from the patient's point of view. Effecting that kind of thorough reinvention and perspectival shift has helped IDEO earn its reputation as one of the most celebrated design firms in the world.

But there's no getting around the fact that there's a culture clash inherent in this expansion of IDEO's business. In its own design work for clients like Steelcase and Palm, and in the workshops on innovation it holds for other companies, IDEO champions a unique mixture of highly subjective research, wild brainstorming, and an ethos of shameless—even juvenile—rule-breaking. In his book Tom Kelley describes "rubber-band wars and squirt-gun skirmishes" in the IDEO offices. He compares the work environment there to "hanging out with your friends on summer break" and lauds "the Zen-like inspiration of not doing anything at all."

Could the contrast between that attitude and the hyperrationality of traditional Western medicine be any clearer? On one side is a design firm suggesting breezily that companies "shoot the bad ideas first," on the other the Hippocratic oath's promise to "do no harm." The public may love the fact

OTHER PROJECTS

The Mallinckrodt Breeze (2000; image 1), headgear for treating sleep apnea, is small and comfortable enough not to disrupt slumber. The pocketsize pre-filled Lilly Insulin Pen (1998; image 2) measures injections in precise doses and preserves remaining insulin for up to one month unrefrigerated. HealtheTech's BodyGem (2001; image 3) can determine a person's resting metabolic rate in less than ten minutes. The Heartstream ForeRunner (1997; image 4) is smaller, easier to use, and more affordable than traditional defibrillators.

Kidney transporter
for Organ Recovery System

Diego surgical system
for Gyrus ENT

New heart and vascular center
for Memorial Health Systems

S500 blood measurement system
for 3M CDI

Gripper toothbrush
for Oral-B

The IDEO Cure

that IDEO is helping executives at Polaroid or Samsung loosen up as a means of producing better consumer electronics. But is that the kind of attitude we want from our hospitals? Do we really want doctors and hospital administrators going around reciting IDEO maxims like "Encourage wild ideas" or "Fail often to succeed sooner"? Not if it's your grandfather's triple bypass they're talking about, that's for sure.

Like several recent commissions, IDEO's first foray into broad-based hospital design arrived courtesy of Ted Koppel. Early in 1999 producers from ABC's *Nightline* approached IDEO about appearing in a show on innovation. They wanted to see if IDEO could completely redesign something familiar in five days, with its cameras there to record the action at the company's Palo Alto headquarters. The producers chose the shopping cart.

For IDEO the challenge presented a great, if somewhat harried, opportunity to put its much vaunted process on display—to show off what Tom Kelley calls "instant anthropology." The team assembled for the job reflected IDEO's long-standing interest in hiring smart people from disciplines not always associated with design. In addition to engineers and product designers, the crew included employees with backgrounds in linguistics, business administration, and biology.

The team unveiled its shopping cart at nine o'clock on a Friday morning—exactly 96 hours after it had begun. The new cart looked like a traditional one crossed with a sports car; it featured a sleek canted steel frame, cup holders, and several small detachable baskets instead of a single oversize wire one. It moved sideways as easily as forward and backward. It even had a scanner, allowing shoppers to swipe their own credit card, read the bar code on each of their items, and bypass checkout lines altogether.

Though the cart had been dramatically reinvented, the point was not the design itself as much as IDEO's approach to problem-solving and teamwork. IDEO defines itself as a consulting firm for the world of design. "We're not actually experts in any given area," David Kelley told the ABC cameras, the sleeves of his denim shirt rolled up past the elbows. "We're experts in how you design stuff. So we don't care if you bring us a toothbrush, a toothpaste tube, a tractor, a space shuttle, a chair. It's all the same to us—we want to figure out how to innovate by using our process and applying it."

All of IDEO's projects, from table saws to Prada dressing rooms, follow the same five-part process. First there's a decidedly subjective research period that privileges interviews and firsthand observation over hard data. "It's possible to observe yourself as you do something," Tom Kelley told Gross, "but we think it's better to watch people as they do things, because you watch with fresh eyes. Especially if you have a cognitive psychologist with you."

Next the data produced by that observation are synthesized into manageable form. Then there is a series of brainstorming sessions, followed by a cycle of prototyping and refinement, and finally implementation. The company is religious about the five-step approach in part because, as one designer puts it, it allows a multidisciplinary team to communicate using "a common language we can all understand and refer back to."

The date of the *Nightline* broadcast was February 9, 1999. The dot-com revolution was then in full swing, and old-line companies were being made—by the stock market as well as by the media—to feel like corporate dinosaurs. For the anxious leaders of those companies, IDEO's *Nightline* appearance was pure catnip. Here was a young, flexible company located in the heart of Silicon Valley putting the process of imagination and innovation on display—and doing it with verve and style.

Among those tantalized by the show was Robert Porter, president and chief executive of SSM DePaul Health Center, a Catholic hospital in Bridgeton, Missouri. Founded in 1828, DePaul has 450 beds and 1,300 full-time employees. It's located about 20 miles northwest of downtown St. Louis—and about a million miles from the Silicon Valley symbolized by IDEO.

Like many health-care providers, DePaul found itself at a critical juncture at the close of the twentieth century. Severe staffing shortages, particularly among nurses, and a rapidly aging population meant hospitals everywhere were overwhelmed. "Health care is a field going through tremendous turmoil, with demographics and technology changing at an incredibly rapid pace," Porter says. "Our workplace is like a battleground. In a world of too few resources, it becomes a question of who can get the greatest share."

On the other hand, new technologies and emerging approaches to patient care mean that a wide range of services can be provided in smaller facilities away from huge hospitals or even, in the near future, at home. To cite just one example, the rise of minimally invasive surgery—in which doctors use small incisions and miniature video cameras called laparoscopes to guide their work—has profound implications for hospitals and how we think of them. It's now possible to have even major surgery relatively quickly and easily, and without long recovery periods. Last year, according to one study, fully one-third of all surgeries in the United States (or about 1.7 million) were of the minimally invasive variety.

But more advanced equipment and new kinds of treatment haven't always translated into better care. As IDEO cofounder Bill Moggridge says, "If you look at the way technology advances, it almost always sacrifices the user at the cutting edge." Whether it's on a VCR or a Web-enabled cell phone, "the most advanced features are kind to

Innovation strategy
for Texas Health Resources

Stifneck® Select extrication collar
for Laerdal Medical

Dermagraft® dermal regrowth product
for Advanced Tissue Sciences

AirTouch Air Abrasive
for Midwest Dental

3000PB teeth-whitening system
for BriteSmile

The IDEO Cure

electronics but cruel to the user." When it comes to consumer goods, there are always early adapters willing to put up with the annoyances of the newest technology and help popularize it, Moggridge says. But doctors and patients don't have the luxury or the patience to fiddle around that way; the products they pick up have to be free of complicated or intimidating features.

On a trip to the West Coast after the *Nightline* show, Porter stopped off at IDEO's headquarters, where he met with Simons in a conversation that stretched nearly four hours. In 2001 the company sent to DePaul a four-person team led by Fred Dust, a 34-year-old designer with an undergraduate degree in art and an architecture degree from UC Berkeley.

"First," Dust says, "we wanted to go through the process of being patients and not let anybody know. We had the hospital's legal staff prepare a letter we could pull out if anybody tried to do any real medical work on us." But when Dust introduced the idea to his IDEO team, he recalls, "They turned white. They looked terrified. I was like, 'Maybe this isn't such a great idea.'"

Instead the designers learned about DePaul as much more explicit observers, videotaping and photographing the spaces of the hospital and rolling through the halls in wheelchairs with their pens and pads ready. Later on they took employees—everyone from nurses and doctors to the hospital's resident chaplain—through brainstorming sessions before deciding what could feasibly be changed, given cost constraints and tight staffing issues. They built mock-ups of the emergency room and other spaces, and plastered them with Post-Its suggesting improvements.

"One of the biggest challenges was convincing [administrators and staff] that they're already making changes," Dust says of spontaneous practices uncovered during the observation process. "Often the best ideas are just done once in some room on the seventh floor, and nobody else notices them. Our work was about making those changes systemwide—suggesting that they should be shared and not hidden away. By formalizing that process, you give it relevance within the system."

The IDEO team eventually concluded that for hospitals like DePaul customer service and information management are fundamental elements of high-quality care rather than luxuries. Patients in American hospitals may be getting the most advanced medical treatment in the world—but like diners at a five-star French restaurant with aloof waiters, they are often left paradoxically unhappy with a world-class experience.

According to Tom Kelley, for example, "In the emergency room, what you really lack is information. What you really want to know is: when am I going to see a doctor, where am I on the waiting list, what's the next step in my process, how serious is this?" Getting that information to the patients can be as valuable as buying the fanciest piece of medical equipment on the market, given that there is a proven connection between a patient's mental sense of well-being and his calculable health.

Nearly all of IDEO's suggestions for the hospital concentrate on making the patient's journey easier and more understandable; very few addressed medical equipment or architectural space. The proposals include adding monitors to the emergency room so patients know where they rank on the waiting list; installing whole walls of dry-erase boards in spots where outdated hospital information used to be written so patients' relatives can turn them into huge get-well cards; keeping information booths staffed at all times or scrapping them altogether so patients' hopes of having questions answered aren't routinely dashed; adding valet parking at emergency-room entrances; asking patients to evaluate their symptoms or condition using subjective language instead of cold numerical rankings such as "Rate your pain on a scale of one to ten"; and giving patients Velcro patches that tell hospital employees which phases of the treatment process they've already been through, in an effort to avoid repeated nerve-racking questions that suggest to patients that they're getting lost in the process.

These changes—many of which were straightforward enough for DePaul to make them immediately—may seem merely cosmetic. Dust calls them "commonsense based"; Porter prefers "pragmatic." Some of that has to do with DePaul's limited budget. But those involved say it was also a matter of making a deep-seated commitment to change. Porter says that by helping to address patients' psychosocial and physical experiences, IDEO's work aims to turn DePaul into "a healing place where information flows freely." What IDEO has given DePaul, he says, "is a blueprint for redesigning the entire patient journey that we can return to as we have access to more capital."

Some of IDEO's other health-care projects are significantly more ambitious, at least architecturally. For Memorial Hospital in South Bend, Indiana, for example, the company is working to bring all cardiac services together in a single new wing. (The complexities of that project, Dust says, make it more akin to urban planning than architecture: "We're basically going to write guidelines for the building the way you would for a city.") And for a start-up mobile dental service called OnSite, IDEO produced a wholesale redesign of the company's cramped but technologically advanced offices in late 2001, suggesting everything from a better e-mail reservation system to more stable stairways leading out of the vehicles, to guide patients still a little woozy from anesthetic.

However, it's the relatively modest DePaul project that seems symbolic of how IDEO can expand in health care: service-based improvements. "I get asked all the time at conferences what the hospital

building of the future is going to look like," Dust says. "And my answer is always the same: maybe it's better not to think of it in terms of a building." In the coming years more and more health-care services will be provided in locations away from the traditional medical-center behemoth. And though that may worry some in the medical field, it means fresh opportunities for the design profession.

The DePaul job also shows why IDEO and its health-care clients appear to be less worried about a culture clash than you might guess. A couple of the firm's suggestions for DePaul do seem a bit excessive—like the valet parking at the emergency-room entrance, which is a service most of us associate with leisure activities, not life-and-death procedures. But IDEO is careful to wall off the ambitious brainstorming sessions at the beginning of a project and move incrementally through an increasingly scientific approach to design. "It's always possible to go too far," Dust concedes. So IDEO tries carefully to balance left-brain and right-brain thinking. Porter describes their style as one of "systematic creativity."

That combination of a freewheeling approach to generating ideas and a regimented process for applying them is almost perfectly geared to appeal to hospital leaders like Porter, who tend to be highly rational and cautious but also desperate, given the state of the health-care industry, for new ideas. So, too, does the notion that systemic change can begin with modest design improvements. IDEO's suggestions for DePaul were both precise—helping assuage any worries about out-of-control creative types—and limited in scope, to fit a harried and cash-strapped industry. One way to think about their prescriptions is as the design-world equivalent of minimally invasive surgery: though the physical intrusion is small, the process can tackle serious—even life-threatening—problems. And the patient is back on his feet remarkably quickly. **www.metropolismag.com**

www.ideo.com

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