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# The Doctor Will See You Now. Please Log On.

By **MILT FREUDENHEIM**

ONE day last summer, Charlie Martin felt a sharp pain in his lower back. But he couldn't jump into his car and rush to the doctor's office or the emergency room: Mr. Martin, a crane operator, was working on an [oil](#) rig in the South China Sea off Malaysia.

He could, though, get in touch with a doctor thousands of miles away, via two-way video. Using an electronic stethoscope that a paramedic on the rig held in place, Dr. Oscar W. Boultinghouse, an emergency medicine physician in Houston, listened to Mr. Martin's heart.

"The extreme pain strongly suggested a kidney stone," Dr. Boultinghouse said later. A [urinalysis](#) on the rig confirmed the diagnosis, and Mr. Martin flew to his home in Mississippi for treatment.

Mr. Martin, 32, is now back at work on the same rig, the Courageous, leased by [Shell Oil](#). He says he is grateful he could discuss his pain by video with the doctor. "It's a lot better than trying to describe it on a phone," Mr. Martin says.

Dr. Boultinghouse and two colleagues — Michael J. Davis and Glenn G. Hammack— run [NuPhysicia](#), a start-up company they spun out from the [University of Texas](#) in 2007 that specializes in face-to-face telemedicine, connecting doctors and patients by two-way video.

Spurred by health care trends and technological advances, telemedicine is growing into a mainstream industry. A fifth of Americans live in places where primary care physicians are scarce, according to [government statistics](#). That need is converging with advances that include lower costs for video-conferencing equipment, more high-speed communications links by satellite, and greater ability to work securely and dependably over the Internet.

"The technology has improved to the point where the experience of both the doctor and patient are close to the same as in-person visits, and in some cases better," says Dr. Kaveh Safavi, head of global health care for [Cisco Systems](#), which is supporting trials of its own high-

definition video version of telemedicine in California, Colorado and New Mexico.

The interactive telemedicine business has been growing by almost 10 percent annually, to more than \$500 million in revenue in North America this year, according to [Datamonitor](#), the market research firm. It is part of the \$3.9 billion telemedicine category that includes monitoring devices in homes and hundreds of health care applications for smartphones.

Christine Chang, a health care technology analyst at Datamonitor's Ovum unit, says telemedicine will allow doctors to take better care of larger numbers of patients. "Some patients will be seen by teleconferencing, some will send questions by e-mail, others will be monitored" using digitized data on symptoms or indicators like glucose levels, she says.

Eventually, she predicts, "one patient a day might come into a doctor's office, in person."

Although telemedicine has been around for years, it is gaining traction as never before. [Medicare](#), [Medicaid](#) and other government health programs have been reimbursing doctors and [hospitals](#) that provide care remotely to rural and underserved areas. Now a growing number of big insurance companies, like the [UnitedHealth Group](#) and several Blue Cross plans, are starting to market interactive video to large employers. The new federal health care law provides \$1 billion a year to study telemedicine and other innovations.

With the expansion of reimbursement, Americans are on the brink of "a gold rush of new investment in telemedicine," says Dr. Bernard A. Harris Jr., managing partner at [Vesalius Ventures](#), a [venture capital](#) firm based in Houston. He has worked on telemedicine projects since he helped build medical systems for [NASA](#) during his days as an astronaut in the 1990s.

Face-to-face telemedicine technology can be as elaborate as a high-definition video system, like Cisco's, that can cost up to hundreds of thousands of dollars. Or it can be as simple as the Webcams available on many laptops.

NuPhysicia uses equipment in the middle of that range — standard videoconferencing hookups made by [Polycom](#), a video conferencing company based in Pleasanton, Calif. Analysts say the setup may cost \$30,000 to \$45,000 at the patient's end — with a suitcase or cart containing scopes and other special equipment — plus a setup for the doctor that costs far less.

Telemedicine has its skeptics. State regulators at the Texas Medical Board have raised concerns that doctors might miss an opportunity to pick up subtle medical indicators when they cannot touch a patient. And while it does not oppose telemedicine, the [American](#)

[Academy of Family Physicians](#) says patients should keep in contact with a primary physician who can keep tabs on their health needs, whether in the virtual or the real world.

“Telemedicine can improve access to care in remote sites and rural areas,” says Dr. Lori J. Heim, the academy’s president. “But not all visits will take place between a patient and their primary-care doctor.”

Dr. Boultinghouse dismisses such concerns. “In today’s world, the physical exam plays less and less of a role,” he says. “We live in the age of imaging.”

ON the rig *Courageous*, Mr. Martin is part of a crew of 100. Travis G. Fitts Jr., vice president for human resources, health, safety and environment at Scorpion Offshore, which owns the rig, says that examining a worker via two-way video can be far cheaper in a remote location than flying him to a hospital by helicopter at \$10,000 a trip.

Some rigs have saved \$500,000 or more a year, according to NuPhysicia, which has [contracts with 19 oil rigs](#) around the world, including one off Iraq. Dr. Boultinghouse says the Deepwater Horizon drilling disaster in the Gulf of Mexico may slow or block new drilling in United States waters, driving the rigs to more remote locations and adding to demand for telemedicine.

NuPhysicia also offers video medical services to land-based employers with 500 or more workers at a site. The camera connection is an alternative to an employer’s on-site clinics, typically staffed by a nurse or a physician assistant.

Mustang Cat, a Houston-based distributor that sells and services [Caterpillar](#) tractors and other earth-moving equipment, signed on with NuPhysicia last year. “We’ve seen the benefit,” says Kurt Hanson, general counsel at Mustang, a family-owned company. Instead of taking a half-day or more off to consult a doctor, workers can get medical advice on the company’s premises.

NuPhysicia’s business grew out of work that its founders did for the state of Texas. Mr. Hammack, NuPhysicia’s president, is a former assistant vice president of the [University of Texas Medical Branch at Galveston](#), where he led development of the state’s pioneering telemedicine program in state prisons from the mid-1990s to 2007. Dr. Davis is a cardiologist.

Working with Dr. Boultinghouse, Dr. Davis and other university doctors conducted more than 600,000 video visits with inmates. Significant improvement was seen in inmates’ health, including measures of [blood pressure](#) and [cholesterol](#), according to a [2004 report on the](#)

[system](#) in the Journal of the American Medical Association.

In March, California officials released a [report](#) they had ordered from NuPhysicia with a plan for making over their state's prison health care. The makeover would build on the Texas example by expanding existing telemedicine and electronic medical record systems and putting the [University of California](#) in charge.

California spends more than \$40 a day per inmate for health care, including expenses for guards who accompany them on visits to outside doctors. NuPhysicia says that this cost is more than four times the rate in Texas and Georgia, and almost triple that of New Jersey, where telemedicine is used for [mental health](#) care and some medical specialties.

“Telemedicine makes total sense in prisons,” says Christopher Kosseff, a senior vice president and head of correctional health care at the [University of Medicine and Dentistry of New Jersey](#). “It’s a wonderful way of providing ready access to specialty health care while maintaining public safety.”

Georgia state prisons save an average of \$500 in transportation costs and officers’ pay each time a prisoner can be treated by telemedicine, says Dr. Edward Bailey, medical director of Georgia correctional health care.

With data supplied by the California Department of Corrections and Rehabilitation, which commissioned the report, NuPhysicia says the recommendations could save the state \$1.2 billion a year in prisoners’ health care costs.

Gov. [Arnold Schwarzenegger](#) wants the university regents and the State Legislature to approve the prison health makeover. After lawsuits on behalf of inmates, federal courts appointed a receiver in 2006 to run prison medical services. (The state now runs dental and mental health services, with court monitoring.) Officials hope that by putting university doctors in charge of prison health, they can persuade the courts to return control to the state.

“We’re going to use the best technology in the world to solve one of our worst problems — the key is telemedicine,” the governor said.

WITHOUT the blessing of insurers, telemedicine could never gain traction in the broader population. But many of the nation’s biggest insurers are showing growing interest in reimbursing doctors for face-to-face video consulting.

Starting in June, the UnitedHealth Group plans to reimburse doctors at [Centura Health](#), a Colorado hospital system, for using Cisco advanced video to serve UnitedHealth’s members at

several clinics. And the insurer plans a national rollout of telemedicine programs, including video-equipped booths in retail clinics in pharmacies and big-box stores, as well as in clinics at large companies.

“The tide is turning on reimbursement,” says Dr. James Woodburn, vice president and medical director for telehealth at UnitedHealth.

Both UnitedHealth and WellPoint, which owns 14 Blue Cross plans, are trying lower-cost Internet Webcam technology, available on many off-the-shelf laptops, as well as advanced video.

UnitedHealth and Blue Cross plans in Hawaii, Minnesota and western New York are using a Webcam service provided by [American Well](#), a company based in Boston. And large self-insured employers like [Delta Air Lines](#) and [Medtronic](#), a Blue Cross Blue Shield customer in Minneapolis, are beginning to sign up.

Delta will offer Webcam consultations with UnitedHealth’s doctor network to more than 10,000 Minnesota plan members on July 1, says Lynn Zonakis, Delta’s managing director of health strategy and resources. Within 18 months, Webcam access will be offered nationally to more than 100,000 Delta plan members.

Dr. Roy Schoenberg, C.E.O. of American Well, says his Webcam service is “in a completely different domain” than Cisco’s or [Polycom](#)’s. “Over the last two years, we are beginning to see a side branch of telemedicine that some call online care,” he says. “It connects doctors with patients at home or in their workplace.”

Doctors “are not going to pay hundreds of thousands of dollars for equipment, so we have to rely on lower tech,” he adds. The medical records are stored on secure Web servers behind multiple firewalls, and the servers are audited twice a year by [I.B.M.](#) and other outside computer security companies, Dr. Schoenberg says.

In Hawaii, more than 2,000 Blue Cross plan members used Webcams to consult doctors last year, says Laura Lott, a spokeswoman for the Hawaii Medical Service Association. Minnesota Blue Cross and Blue Shield started a similar Webcam service across the state last November.

Doctors who use the higher-tech video conferencing technology say that Webcam images are less clear, and that Webcams cannot accommodate electronic scopes or provide the zoom-in features available in video conferencing. “If they are not using commercial-grade video conferencing gear, the quality will be much lower,” says Vanessa L. McLaughlin, a

telemedicine consultant in Vancouver, Wash.

Last month, Charlie Martin, the crane operator, was back in the infirmary of the Courageous for an eye checkup. In Houston, his face filled the big screen in NuPhysicia's office.

After an exchange of greetings, Chris Derrick, the paramedic on the oil rig, attached an ophthalmological scanner to a scope, pointed it at Mr. Martin's eye, and zoomed in.

"Freeze that," Dr. Boultinghouse ordered, as a close-up of the eye loomed on the screen. "His eyes have been bothering him. It may be from the wind up there on the crane."