

telemedicine treatment for spinal cord injuries

Spinal cord injuries and disorders are among the most expensive medical conditions to treat. A large part of the cost arises from the need to travel to hospitals where specialized treatment is available. Costs of traveling include taking time off from work, transportation, hotel accommodations, and being away from family and caregivers. An additional problem for many spinal cord patients is that, with no ability to sense pain in the lower parts of their bodies, long periods of travel can aggravate or cause new health problems due to non-movement or uneven pressure from poor posture.

Doctors Graham Creasey and Chester Ho at the Louis Stokes Cleveland VA Medical Center are investigating the use of telemedicine to reduce the need for long-distance travel.

Rather than try to put monitoring equipment in patients' homes, as is the

focus of many telemedicine programs, the VA is investing in

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more sophisticated equipment to be located in satellite hospitals, allowing patients to visit a nearby medical center and still be examined by specialists from the more distant hospital. The arrangement is ideally suited for the Veterans Administration health system, which is organized in a hub and spoke arrangement with the most specialized treatment available from the central hub in each region.

The setup includes a two-screen display, which allows

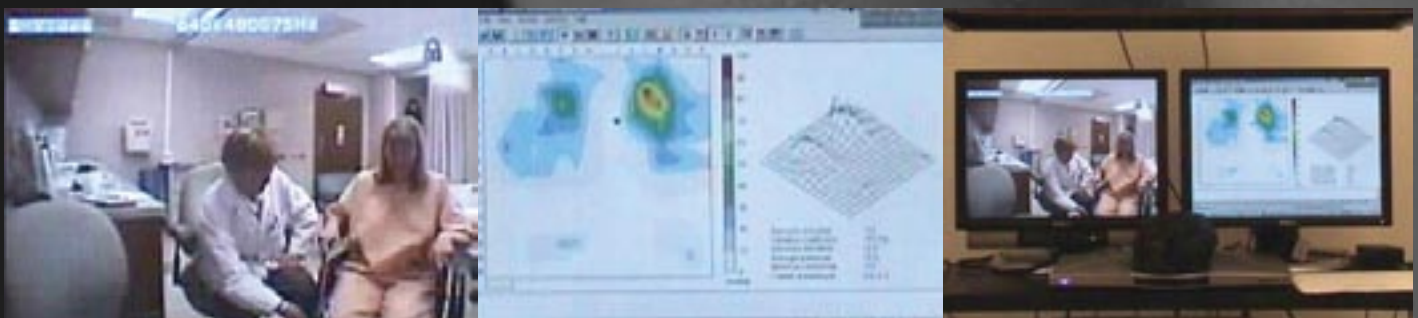
doctors and patients to see each other continually on one screen, with medical records, X-rays, test results, and other patient data available for viewing on the other screen. Doctors can control the cameras at either end, zooming in to examine a wound or changing camera orientation to see other people in the room.

The system was set up using commercially available equipment, and can interface with a variety of devices, requiring only

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an IP address for connectivity. It is compact and mobile enough to be readily moved to a patient's room within a hospital. With a high-speed intranet connecting all of the VA Medical Centers, not a single new wire had to be laid to make the setup operational. The VA has kept all medical records in electronic form for many years, making them readily accessible from any location in the system. This capability also means that a lot of data is available to be shared for research.

One of the anticipated benefits is the development of a greater sense of teamwork among doctors at different sites. Doctors can consult with each other and share data more readily than they can by phone, leading to more frequent contact between colleagues who might otherwise see each other only at occasional conferences.



A dual screen allows doctors to communicate with patients while viewing data at the same time; in this case the graph shows pressure distribution on a wheelchair cushion. Doctors can identify risks of injury from poor posture, and prescribe a seating system that maximizes comfort and safety.