

Accelerating e-Health and Telemedicine

John Paul II Hospital, Poland improves quality and efficiency of services, enabling telediagnosics and surgical video transmissions.

Customer Name: John Paul II Hospital

Industry: Healthcare

Location: Poland

Number of Employees: 1500

Business Impact

- More cost-effective and safer processes
- Improved access to medical information
- Faster patient diagnosis, treatment, and recovery



Case Study

Business Challenge

John Paul II Hospital is one of Poland's largest and most advanced healthcare institutions. It is an award-winning center of excellence for cardiovascular, thoracosurgery, and respiratory treatments, and prides itself on being one of the country's best-equipped hospitals with the highest qualified medical personnel.

The hospital complex in Krakow comprises 17 buildings, (with four more being built and more staff to be recruited), 550 beds, and 14 round-the-clock medical care units, including seven clinical departments. Each year, the hospital treats about 100,000 patients: providing 70,000 ambulatory consultations, 60,000 imaging examinations and tests, 2500 open-heart operations, 1000 pacemaker implants, and 5 heart transplantations.

Using technology to digitize medical processes and streamline workflows is central to the hospital's vision for the future. However, these ambitions were being delayed by an aging IT infrastructure that had reached capacity and could no longer support bandwidth-intensive applications, such as video conferencing and picture archiving and communications system (PACS).

"Our campus network had simply become outdated," says Anna Prokop-Staszecka, general manager for John Paul II Hospital. "We needed a platform that could not only integrate all of our communications and healthcare applications into one system, but also intelligently deliver this information to the point it was needed, when it was needed."

Collaboration was another very important requirement. The hospital's cardiosurgery, angiosurgery, and transplantology units provide remote consultations for 15 partner healthcare organizations. This time-consuming and unsecured process relied on downloading patient information at night in small segments (to make it unreadable by unauthorized viewers) and then discussing it by phone during consultations.

Finding a network architecture that would enable multimedia communications (text, voice, and high-definition video) was therefore essential. "We wanted to make the process more efficient and interactive by creating the possibility for more doctors from more locations to join the consultations in real-time," says Prokop-Staszecka.

Solution and Results

To achieve its vision for 21st century medical care, John Paul II Hospital implemented a [Cisco® Medical-Grade Network \(MGN\)](#), a network foundation specifically designed to accelerate e-healthcare adoption, while transforming patient care and operational effectiveness.

The solution comprises Cisco Catalyst® 6509-E, 3750, and 2960G Series Switches, and 60 Cisco Aironet® 1142 dual-band access points located throughout all wards and administrative buildings of the hospital.

"Our Cisco network will help us to deliver a safer, higher quality level of care to even more patients. With less chance of duplication, we expect to see significant reductions in diagnosis, treatment, and recovery times."

Anna Prokop-Staszecka
General Manager, John Paul II Hospital

Accelerating e-Health and Telemedicine

Continued



Case Study

This highly secure wired and wireless communication infrastructure helps to reduce the circulation of paper documents and optimize the handling of patients. Electronic authentication safeguards medical data and helps to eliminate manual errors. The system also enables staff to order medical tests, medicines and treatments, book operation theatre rooms, book outpatients visits, and manage the demand for medical equipment.

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The MGN supports about 95 percent of the hospital’s medical and administrative processes. These critical applications range from patient registration, lab results and diagnostics, and operating suites through to medicine procurement and documentation, discharge statements, National Health settlements, and waiting list databases. Other key applications integrated with the MGN include PACS (for mammography, densitometry, and echocardiographs) and TeraRecon (a 2D/3D diagnostic imaging solution).

“Doctors and medical teams have instant access to patient records, including high-quality diagnostic images, such as X-ray, computer tomography, magnetic resonance, and ultrasound, as well as laboratory test results, anywhere on the hospital campus,” says Prokop-Staszecka.

Also, because the infrastructure supports real-time audio and video, the hospital can advance its plans for telemedicine. As well as reducing the time and costs associated with patient transportation, this new mode of communication presents exciting opportunities to develop remote radiology diagnosis and heart-monitoring services, and to broadcast live surgical operations for education and training purposes.

The first video session supported by the campus infrastructure was transmitted directly from the operating theatre in December 2010 during the conference “Modern Techniques of Endoscopy in Diseases of the Lungs.” The connection was built using a local area network between a Cisco TelePresence® C90 video conferencing codec installed in the endoscopy laboratory.

Participants watched the live broadcast of an endobronchial valve implantation and heard the comments of the doctors performing the surgery. This type of video transmission offers instant access to high-definition pictures from the operating theatre, and allows doctors located in other buildings to provide expert advice during an operation.

“In the coming year, we plan to further develop the network and migrate to a unified communications system”, says Prokop-Staszecka. “We also plan the expansion of telemedicine services and cooperation with experts from outside the hospital using video conferencing technology.”

Other future projects could include using the Cisco wireless network to trial radio-frequency identification (RFID) technology and location-based services, for example, to keep track of assets, or to look up a person’s location on a PC screen.



For More Information

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To learn more about Cisco Collaboration Strategies, please go [here](#)