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## Telesurgery: *Are They Operating in Singapore Yet?*

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Telemedicine, which involves the use of telecommunications technology to deliver healthcare services to patients and providers at a distance, has traditionally been more popular with countries of huge geographical distances where access to medical care for patients living in remote areas are scarce

### **TeleMedicine in Singapore**

However, telemedicine has also been proven itself to be viable in a land-scarce place such as Singapore. The National Healthcare Group (NHG), a major public healthcare provider in Singapore started a teleradiology project earlier in 2006 where X-rays are sent digitally to radiologists in India for reporting. The results are a cheaper and faster service in comparison to what the local resources can provide, in return, the local hospitals are contemplating on tendering for similar X-ray reading contracts proposed by hospitals in the U.S. and Canada.

Telesurgery (surgical procedures carried out at a distance enabled by advances in robotic and computer technology), another sub-discipline of telemedicine may soon be available at healthcare facilities in Singapore.

### **Robotics Surgery Systems**

The da Vinci Surgical System, a robotic surgery system from Intuitive Surgical is already widely available in various public and private hospitals for minimally invasive procedures.

Surgeons using the system performs the operation through a console located a few feet away from the patient where he/she is provided with an immerse view of the actual operating field in real-time three-dimension. The surgeon's hand movements at the console instrument are seamlessly translated into corresponding micro-movements of instruments positioned inside the patient with high precision and accuracy.

Patients operated through the da Vinci Surgical System usually experience less pain and bleeding and experience faster recovery as the surgery is less intrusive compared to open surgery. The overall surgical performance is enhanced as the surgeon is positioned comfortably throughout the operation to reduce fatigue and tremor in their hands.

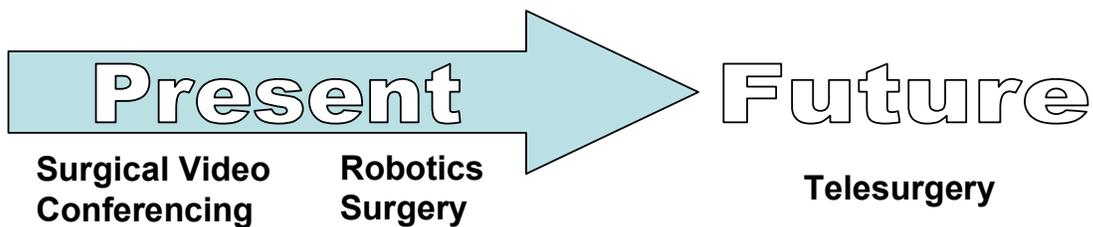
**‘Live’ Surgery Video Conferencing**

Other than robotic surgery, the Minimally Invasive Surgery Center of both the Gleneagles Hospital and the National University Hospital (NUH) also holds 'live' surgery video conferencing with overseas healthcare facilities for teaching purposes and to promote exchanges in the medical communications among the different countries.

Traditionally, transmission of medical images and live-video conferencing over the Internet has been plagued with costly software, equipment, and bandwidth only to produce low-quality images, audio, and video. To overcome these problems, NUH utilizes the Digital Video Transfer System technology (DVTS) to broadcast live surgery using high-speed bandwidth of at least 30 Mbps per line to ensure high-quality digital video.

Taking it further, the Singapore National Eye Centre (SNEC) hosted a live vitreoretinal surgery transmission from Japan in February. The doctors under training wore special 3D/three-dimensional viewing glasses, which enables them to see exactly what the operating surgeon sees through the microscope in true 3-dimension as opposed to the conventional 2-dimensional transmission. The improved visualization greatly enhances the doctor’s surgical training as they can now pick up knowledge and techniques obtainable only through a surgeon’s view through the microscope.

TeleSurgery is not limited to robotic surgery or providing training sessions over the Internet. In September 2001, the European Institute of Telesurgery in Strasbourg conducted a telesurgical operation where doctors in the U.S. performed a successful gall bladder removal from a patient in France by remotely operating a surgical robot arm. Such a procedure indicates that it is now possible for a surgeon to perform an operation on a patient anywhere in the world.



### **Conclusion**

Effective deployment of telesurgery can translate ultimately to a patient's benefits as medical and technological resources can be utilized to enhance patient care, while reducing the cost. The need for patients to travel physically to another healthcare facility can be reduced since teams of top surgeons from around the world could be assembled to perform an operation or provide consultation and second opinions through telesurgery.

With a worldwide shortage of medical expertise and rapid advancement in technology, it is only a matter of time where telesurgery becomes a common necessity for major healthcare facilities.

In Singapore's quest to establish itself as the regional medical hub, it may soon be necessary for the local healthcare facilities to start leveraging on Surgical Networking Systems in the bid to be number one

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