

# Smart Health and Telstra delivers fast broadband image transfers

## Introduction

A new innovation in health information management technology has paved the way for more rapid and secure transmission of medical diagnostic imaging, such as Angiograms, between healthcare practitioners, hospitals and specialists.

With support from Telstra, Smart Health has implemented a secure, user friendly and cost effective technology solution to send urgent x-rays and other medical images electronically via broadband as opposed to having them mailed, bussed, taxied or couriered to a specialist.

This means that within approximately half an hour, a patient's Angiogram can be in front of a cardiac surgeon for expert consultation, regardless of whether the patient and specialist are situated 20 kilometres, 200 kilometres or 2,000 kilometres apart.



## Challenge

Smart Health is a specialist Australian healthcare information management solution provider. The company develops software solutions to electronically manage patient health records to streamline treatment processes, reduce test duplication and automate interactions between patients, healthcare providers and payer organisations.

Since 2000, Smart Health has delivered its technology to healthcare providers in Australia, and is currently providing electronic health records to more than 4,000 patients.

Smart Health's Managing Director, Peter Flower said until recently, the Smart Health system enabled healthcare professionals to transfer patient histories but did not support large images as part of the patient information.

"We were approached by a number of healthcare practitioners who wanted Smart Health expanded to support Angiograms and other large image files", Mr Flower said.

Previously, an angiogram was taken of the patient at a regional hospital and burnt on a CD-ROM. A cardiologist at the hospital would then view the image on a computer screen. If they wanted a second specialist opinion by a cardiac surgeon, they would then have to physically transfer the CD-ROM to the surgeon in Sydney.

If the response required were urgent it would be sent to the hospital via taxi or courier, otherwise it would be sent by post or bus etc, delaying the response by days. If an urgent request were made after hours, the surgeon would need to drive to the hospital to view the angiogram.

"This process is both time consuming and can put the patient's life at risk," Mr Flower said.

## Electronic Data Records – Background

Information circulated amongst health industry professionals today is typically limited to "one to one" communication such as phone calls, faxes, letters and emails. The Internet enables patient centric records to be developed, where information is provided online by many healthcare providers. This is particularly important for the elderly and the chronically ill who are large users of healthcare services. Today patient information is typically centralised at the healthcare practice rather than being centralised from the patient.

Patient centric information, in the form of Electronic Data Records are available anywhere the internet can be accessed, and can reduce costs, duplication and patient risk. Furthermore, it facilitates teamwork between healthcare service providers across the sector, and improves productivity and quality record keeping.

Mr Flower said a secure and cost effective national electronic health record system is integral to improving efficient and effective communication between healthcare providers.

"Storing patient information electronically can save patient lives. It means healthcare providers can access important patient histories to ensure effective treatment is prescribed, particularly in emergency situations when timing is critical.

"Understandably security and patient consent to reveal medical histories are important issues for patients and this is an area that we are strongly committed to. Our technology complies with Commonwealth Government security standards, delivering privacy and security for patients and the health industry," Mr Flower said.

## About Secure Token Technology

Central to Smart Health's transmission of medical images is secure token technology. Patients are provided with a token or card that acts as the security key to unlock their records stored on a server located in a high security, centralised hosting centre.

These 'keys' provide immediate and secure access to clinical information previously recorded by healthcare peers such as radiologists, specialists and GPs.

In addition to being able to view patient information, the Smart Health solution enables doctors to update a patients' on-line history by providing consultation summary notes (from their practice software) and by importing reports from diagnostic services.

An important concern for patients is security. Smart Health has introduced a unique consent management process that gives patients more control over who has access to their clinical information.

"The use of a "Clinical Record Access Card" allows the patient to authorise consent, once this has been given, information can be accessed. The patient can revoke consent at any time.



“The patient consent model has been approved by a number of government departments including the Commonwealth Department of Veterans’ Affairs that represent a large number of Smart Health patients and the Victorian Department of Human Services through Bayside Health,” Mr Flower said. Healthcare providers also use secure tokens to provide identification and encryption over the Internet. The Commonwealth Government, through the Health eSignature Authority (HeSA), provides this infrastructure under full subsidy to all Australian healthcare providers. These Commonwealth tools are now fully integrated into Smart Health, giving healthcare providers with HeSA cards access to Smart Health, including secure, encrypted information over broadband.

“The system provides a simple to use, low cost and secure way for the essential sharing of clinical information, by bringing together user needs, security technologies with the capabilities of the Internet,” Mr Flower said.

## Solution

Smart Health approached Telstra for support to enhance its technology to meet the needs of the coronary care community. Many of the existing 4,000 patients on the Smart Health system have coronary problems.

In 2002, Smart Health received a grant from the Telstra Broadband Fund, which supports the development of new and innovative technologies that will encourage the uptake of broadband in Australia.

Beginning February 2003, Smart Health set about upgrading the technology to include the transfer of medical images, which involved installing Telstra broadband into hospitals, GP’s surgeries and cardiac surgeon’s homes and practices in Sydney and the central coast.



As a result of the upgrade, the Smart Health solution enables any hospital or diagnostic service connected to Smart Health, to upload clinical information safely and securely.

“Instead of physically transporting the images which take time and money, the image that was burnt onto a CD-ROM is inserted into the client’s PC. The operator then logs onto Smart Health, requests a file upload, and sends it to a central server in our secure data centre.

“The surgeon, whether at home or in the hospital, logs into Smart Health and downloads the file. As this technology is hosted in a central server, it means the recipient can be located anywhere they have access to the Smart Health technology.

“This service transports images together with patient health records, enabling more efficient and accurate diagnosis by consulting doctors and specialists”, Mr Flower said.

An enhanced functionality of Smart Health’s solution includes guaranteed image data integrity to ensure the files were transferred unchanged.

Telstra Business and Government Managing Director, Government and State Sales, Mr Tony Henshaw, said Telstra is committed to working with the healthcare community to help bring the benefits of broadband technology to GPs, specialists and hospitals nationally.

“The large file sizes associated with imaging such as Angiograms meant broadband communication is the only viable option to electronically transfer these images in timeframes that meet users’ requirements.

“The use of broadband communications has the potential to significantly improve the quality of healthcare and safety for critically ill cardiac and other patients,” Mr Henshaw said.

## Benefits

Mr Flower said the main benefits of the delivery of diagnostic images via Smart Health were that it was extremely cost effective, could significantly cut the timeframe for patients to receive a specialist opinion and had a greater level of security.

“The potential for improvements in patient safety and information privacy are immense,” he said.

“For example if an Angiogram was sent by traditional methods from the Central Coast of NSW to Sydney, the minimum delivery time would be, around two hours at a cost of approximately \$200.

“Using Smart Health, a surgeon could be viewing the Angiogram online within half an hour from the image being captured and have provided his opinion back to his local practitioner. The patient, if necessary, could be on the operating table with the surgeon present within two hours,” Mr Flower said.

Angiograms that need to be sent after hours can be delivered to a surgeon’s home, so that if a response is required at 2 am in the morning, the surgeon does not need to drive to the hospital.

“We are now providing in-practice and in-home connectivity for some of Australia’s leading Cardio Thoracic Surgeons and Cardiologists,” Mr Flower said.

In addition to being cost effective, the guaranteed data integrity and privacy means the image will only be received by authorised doctors.

“The medical image is uploaded to a database that is secured to the Commonwealth Government’s Gatekeeper Standards”, Mr Flower said.

Applications such as Smart Health let healthcare providers get on with providing healthcare by reducing the need to chase information, arrange transport and prepare duplicate copies of images.

“By providing swift and secure transportation of Angiograms, doctors are better placed to act quickly in treating patients, which could save lives,” Mr Flower said.

