The Netherlands has become a world leader in electronic health records. This case study tells the story of how NICTIZ (the Dutch National IT Institute for Healthcare) adopted a pragmatic, secure national information hub to promote information exchange among medical practitioners and address a steep rise in healthcare costs. The resulting system, Landelijk Punt (LSP), protects patient privacy and uses a series of standard interfaces to give healthcare providers access to complete patient histories - even if data is stored on different provider systems.
CSC Case Study - The Netherlands E-Health Story

The Netherlands, like Australia, is an educated country with good health outcomes, a mixed private-public health system driven by government policy and a strong sense of the individual in terms of issues of privacy and consent. In embracing e-health, the Netherlands has faced many of the same challenges as Australia. The Dutch solution to electronic health records has been pragmatic and evolutionary.

Issues of security, privacy and consent have been overcome. Citizens can see their records and see who else has accessed their records. Clinicians have smartcards to access all data they are required to use, and clinicians and their patients are now forming a new paradigm where there is shared responsibility for care and information. The Dutch model provides insights for Australia on approaches to realising e-health success.

A PATHWAY TO E-HEALTH - THE DUTCH EXPERIENCE

The Dutch Ministry of Health is upgrading information exchange among medical practitioners to improve the quality and reduce the cost of healthcare in the Netherlands. Team with CSC, the Ministry created a highly secure system that lets doctors share medical records without compromising the privacy of patients.

The system, Landelijk Schakelpunt (LSP), or the National Switch Point, pulls together records from multiple healthcare providers to create a more complete picture of past medical treatment.

THE DUTCH RESPONSE TO THE CHALLENGES OF HEALTHCARE IN THE 21ST CENTURY

This has been driven by one stark calculation: if the Netherlands is to maintain the current quality of healthcare provision for the next 20 years, 25 per cent of the Dutch population will have to be healthcare workers.

“This is impossible, it’s not going to happen,” notes Gert-Jan van Boven, director of NICTIZ (the Dutch National ICT Institute for Health). “If we want to have proper care in the future, it is a very important part of the solution.”

NICTIZ was set up in 2002, funded by all 26 umbrella organisations within the Dutch healthcare sector. Its purpose is to close the gap between what can be done with IT in healthcare, and what is actually being done.

NICTIZ faced a number of challenges:

- Fragmented healthcare delivery
- Private health suppliers are responsible for the provision of services and the Government Ministry for Health, Welfare and Sport is responsible for the accessibility and quality of the healthcare.

In common with many other countries, the existing healthcare provision NICTIZ inherited was fragmented and uneven – “we have brilliant solutions in tiny places,” notes van Boven – and in many cases electronic records did not exist.

NICTIZ is reinforced by scrambling communications when data is transferred. When NICTIZ set out to implement a national information system in the Netherlands, it faced a catch-22: “Sensitivity to national unique patient identifiers was understood that to deliver strong benefits from ICT, the fragmentation had to be eliminated and the information flow streamlined. As a first step, NICTIZ needed legislation to implement its plans for a nationwide solution.

A national unique patient identifier number was needed and a law was drafted to put that in place. This legislation was passed in June 2008 – having taken years to push through.

In the process, NICTIZ faced significant opposition on the grounds that it was too much of an invasion of privacy. The objections were not frivolous: the existence of comprehensive centralised records helped Nazis to round up Dutch Jews in World War II, leaving a bitter legacy.

While the patient number – known as the Citizen Services Number or BSN – has now been accepted, discussions continue on individual healthcare records – “and that is a good thing,” says van Boven. People are right to have concerns about privacy and information security.

“Right now, the healthcare provider is the keeper of the information and the patient has the right to see the information and to make decisions. Patients can remove information from the record and to some extent can decide who sees what and whether the information can be transferred to another healthcare provider – it can only be done with the consent of the patient.”

GERT-JAN VAN BOVEN, DIRECTOR OF NICTIZ

Also, NICTIZ fought for and won an opt-out system: as of November 2008 every Dutch household can refuse to be included in the system. NICTIZ felt that an opt-in model would take years to be adopted and in the interim the usefulness of the system would be compromised. Under the new opt-out system, it is expected that only around 0.2 per cent of citizens will choose not to participate.

Building bridges for healthcare institutions to adopt the new system

The next challenge was the healthcare institutions themselves: “It’s about persuading, building bridges, creating case studies and precedents so that people can begin to understand the benefits and choose to adopt the system,” van Boven observes.

Fortunately, NICTIZ has identified many clinical front-runners in ICT adoption: “We are just taking their work to the next level and they want that because they have a need for the information.”

Next came the legislative changes: pending a law being in place by September 2009, all doctors’ practices in the Netherlands will be required to have accessible electronic patient records available for the national system by January 1, 2010.

“EVERYONE HAS TO BE CONNECTED, AND THAT’S A BIG JOB, FOR SOME MORE THAN OTHERS, EACH PRACTICE WILL RECEIVE €5,000 FROM THE MINISTRY BUT, FOR LATE ADOPTERS, MEETING THE TIMELINE WILL BE DIFFICULT.”

GERT-JAN VAN BOVEN, DIRECTOR OF NICTIZ

THE LSP (LANDELIJK SCHAKELPUNT) SOLUTION – A NATIONAL SWITCH POINT AND SMART CARDS

Local medical clinics and other providers will be connecting to the LSP. Van Boven describes it as “a very pragmatic and a secure solution.” “If we had lots of money and control we could have thought about doing it another way, but we couldn’t raise the money for a single system and the information security watchdog wouldn’t allow us to keep one national database. It’s also impossible because of the investment everyone has already made; we would never be able to say, ‘Throw it all away and start again.’”

Instead, the Dutch created an interface and introduced the baseline standards of a well-managed care system, such as 24-hour access and robust information security.

The next element is the healthcare providers’ smartcard or UZI Pass – a card unique to each professional – which allows them to see the portion of the patient's medical record.
record that is relevant to their involvement in the patient’s care. It is a security aspect of the whole system, but additionally ensures that the system delivers information efficiently. An additional security feature is that the interface logs all the activity on a patient’s record, and patients can see who has accessed their record going back 15 years. For instance, a citizen can see if an individual has improperly accessed data and sue for breach of privacy.

The biggest technical challenge the designers of the LSP have overcome was actually a maintenance issue. If something went wrong, it was going to be difficult to identify any broken links in the chain and to determine who was responsible for the break, because the interface is so secure. The stringent information security policy means that not even systems managers can see all the data.

PATIENT PARTICIPATION IS A NEW PARADIGM
Some of the Dutch “front-runners” are already blazing the trail for the next iteration of ICT provision in healthcare. A significant trend is for patient participation, for instance, self-managed patients enter their own blood sugar levels or blood pressures. In theory, they can do this from anywhere and do not have to spend time travelling to and waiting in clinics. Prescriptions can be renewed remotely and dosage schedules can be downloaded from the internet. A model is emerging whereby both patients and clinicians take responsibility for the quality and correctness of the electronic record.

Van Boven acknowledges that of course not everyone is able to keep their own records in the right way, especially when they are ill. But it is a possibility in some areas and reflects a significant shift away from the paternalistic attitudes that used to prevail in medicine.

“I USED TO BE A PRACTISING DOCTOR AND THOUGHT IT WAS VERY SILLY FOR A PATIENT TO HAVE ACCESS TO THEIR RECORDS, BECAUSE I THOUGHT PEOPLE COULDN’T UNDERSTAND IT AND COULDN’T DO ANYTHING WITH IT. TIMES ARE CHANGING: A FAMOUS DUTCH CARDIOLOGIST NOW WRITES DIRECTLY TO PATIENTS AND SENDS A COPY OF THE LETTER TO THEIR LOCAL DOCTOR. IT USED TO BE THE OTHER WAY AROUND.” - GERT-JAN VAN BOVEN, DIRECTOR OF NICTIZ

NICTIZ also knows of a Dutch gynaecologist who gives fertility patients usernames and access to their record, including results. The value is that people are better informed, which has a therapeutic benefit. In addition, they come to consultations having had their results in advance. The outcome is a much more productive meeting. Also when patients see their own records, they can ask more pointed questions, review decisions and correct mistakes.

“This mental change is advisable and doctors will deal with it in a good way; all the people who have dealt with it already are very positive,” says van Boven. Future models of healthcare will, van Boven predicts, evolve towards more frequent and more flexible electronic contacts between patients and doctors. Patients might describe symptoms on line, get advised to take a specific test, and then on their first formal consultation with the doctor have the test results in hand to expedite treatment.

In future clinicians or even information systems could respond to ongoing online results, monitored remotely – leading to a more responsive, more preventative and better model of care.

“When they introduced the telephone in Holland, operators made the connections manually. People thought that when the system grew, it wouldn’t work, because it would require too many operators,” van Boven concludes. “Now we make the connections ourselves and it works. That’s going to happen with IT in healthcare. People will take more responsibility and make the connections themselves.

REDUcing ERRORS AND COSTS AND GAINING TRUST
LSP pulls together records from multiple healthcare providers to create a complete picture of a patient’s past medical treatment, allowing healthcare providers to exchange information, such as pathology records and safety information for prescription medication. By cutting out manual tasks, LSP reduces errors and cuts costs, and the wide access to information speeds up treatment.

Users and patients must voluntarily join the system for its benefits to be fully realised, so the system has a number of security features: a Java card authenticates physicians’ identities; neither LSP nor the doctors’ systems store retrieved files; and doctors can only see information that patients have previously granted them access to. And to address privacy concerns, patients can access a web portal that shows the organisations and locations where their information is kept, as well as a log of what information has been accessed, when and by whom.

FUTURE PLANS
The LSP is already providing patient summary records for locum doctors and medication records. Out of hours services are important because an increasing number of locum doctors were working within the Dutch health infrastructure with no information other than what the patient could tell them.

Next on line will be allergy records for patients and emergency care records for ambulance crews, then childcare records and pathology records – all within the next six months. From a systems point of view, this is “not a great deal of work” according to Schat. It is simply a case of building new messages and responses in applications and the LSP.

“LSP IS CRUCIAL TO ESTABLISHING THE SAFE, NATIONWIDE EXCHANGE OF UP-TO-DATE HEALTHCARE INFORMATION. CSC NOT ONLY DELIVERED LSP ON TIME, BUT PROVED TO BE A TRUE PARTNER IN THE FURTHER DEVELOPMENT AND IMPLEMENTATION OF LSP.” - ANIL JADOENATHMISIER, LSP OPERATION MANAGER FOR NICTIZ.