

## Technology-Enabled National Health Reform Focused on Patient Self-Care Promises US\$150 Million in Benefits

### Executive Summary

#### CUSTOMER NAME

Ministry of Health, Chile

#### INDUSTRY

Healthcare, Public Sector

#### BUSINESS CHALLENGES

- Reduce lengthy delays in access to healthcare
- Rising healthcare costs, driven mainly by the growing burden of chronic disease
- Urban and rural disparities in access to appropriate, timely care

#### SOLUTIONS

- Ambitious transformational targets underpinned by explicit service-level agreements for citizens
- Self-care healthcare model designed and implemented for early diagnosis and management of chronic illnesses
- Integration with Chile's national broadband initiative to aggregate demand across the public sector

#### BUSINESS RESULTS

- When fully implemented, Net Present Value is forecast at US\$150 million
- Service-level agreements for access to healthcare are being met
- A healthier population through increased awareness of lifestyle issues, such as diet and exercise

Faced with an aging population and a corresponding increase in chronic disease and its associated costs, Chile has responded with a unique strategy to deliver Connected Healthcare to its citizens. In order to “force the transformation from the inside” and to cope with changing health and care needs, a number of citizen service-level guarantees were approved by the Chilean congress. The challenge of meeting those levels has been the catalyst for creating a model centered on the healthcare consumer, using the *Network as a Platform* to better manage chronic conditions at lower costs.

#### BUSINESS CHALLENGES

Chilean citizens were increasingly dissatisfied at the lengthy wait for healthcare services at clinics and hospitals, and at being sent from one care center to another, with no visibility of the best place to go, the best time to visit, or if to go at all.

It had become clear that the infrastructure of Chile's hospitals, clinics, and their associated staffing levels did not have the capacity to provide timely and quality access to care required by the new and innovative healthcare law.

To compound matters, as people live longer, healthcare costs increase and are driven primarily by the increasing incidence of chronic diseases such as diabetes and hypertension (high blood pressure). This situation was further compounded by the fact that Chile is more than 2,880 miles (4,600 kilometers) long, leading to disparities in access to appropriate, timely care for urban and rural populations.



Prepared by  
Internet Business Solutions Group

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**Dr. Pedro Garcia, Minister of Health (2003–2006), Chile**

The country’s solution was audacious. In 2004, Chile’s legislature passed the AUGE (Acceso Universal con Garantías Explicitas) healthcare reform program. It translates as the Program of Explicit Care Guarantees and gives the entire population the right to timely healthcare access and financial protection against a specific set of chronic and acute conditions. In this way, the government established a set of service-level guarantees that, by law, has been the catalyst for a healthcare transformation. By spelling out the people’s rights explicitly and empowering Chilean citizens with knowledge, AUGE is helping drive forward the performance of health systems.

The government knew all too well that it would be impossible to allocate sufficient resources quickly enough to make any significant headway. It also recognized that the healthcare system had lost sight of the fact that the citizen (the patient) is the most important person. “We wanted to force the transformation from the inside with the AUGE program to create an environment where various elements of the healthcare system had to work more closely together—from primary care centers to hospitals; from managers to insurance companies—and to focus more keenly on the patient and to be more accountable,” explains Dr. Pedro Garcia, Chile’s Minister of Health.

## **SOLUTIONS**

Under the new healthcare law, hospitals and private institutions had to take care of patients with one of 40 diseases within a predetermined period of time, including diagnosis and treatment. Among those diseases were myocardial infarction (heart attack), hypertension, and diabetes. The number of AUGE diseases will be increased by law from 40 to 56 in 2007.

The Chilean government saw a strong role for information and communications technology (ICT) in supporting healthcare having engaged the ICT industry players early on with varying degrees of success. Broadband is recognized by the government of Chile as a major force for social inclusion and economic development, and there was a desire to connect all of Chile through a national broadband initiative called [Ruta 5D](#), the government’s national converged network. This project, given the go-ahead in 2004, is named after Route 5, the Pan-American Highway that traverses Chile from north to south, and will serve all parts of government. This would enable service delivery across the public sector, including healthcare, education, and government services through the use of Ruta 5D.

In order to explore the potential role of ICT, the Cisco® [Internet Business Solutions Group \(IBSG\)](#) was invited to review and help develop the Chilean Ministry of Health’s technology-enabled reform strategy. A number of IBSG-facilitated workshops were held with key decision makers and representatives of the National Healthcare and Public Health systems. They explored healthcare IT program best practices around the world and compared these examples with Chile’s existing infrastructure.

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**Dr. Pedro Garcia, Minister of Health (2003–2006), Chile**

A range of issues were identified, including:

- There were limited facilities to exchange timely information between healthcare applications
- Some applications had been developed locally, leading to difficulties with interoperability and software support
- There was no standardization on business and technology architectures such as HL7, the health communications standard messaging protocol

Dr. Garcia highlights the importance of creating a common platform for ICT and the Ministry’s partnership with [Cisco](#) “Cisco was able to share with us state-of-art technologies and best practices in use around the world. We decided that everything should be done using Web-based technology. Our plans included stimulating better interoperability across the entire system, which in turn depended on each part being able to share and access good quality information when they need it. The Connected Health strategy that we codeveloped with Cisco Internet Business Solutions Group then focused on ‘virtual services models’ focused on chronic disease patients.”

The workshops went on to develop a prioritized portfolio for both health services and public health, and a redefinition of the concept of “access to care” to a “virtual services strategy.” The key to that strategy was to promote early identification of those afflicted with chronic diseases, particularly diabetes and hypertension. The strategic business case developed by the Ministry of Health and Cisco IBSG identified a Net Present Value (NPV) of US\$150 million in cost and capital savings on provision of care for diabetes and hypertension alone—which was deemed very conservative indeed.

The Chilean Ministry of the Economy independently verified the analysis and the plan was given an immediate go-ahead by then President Ricardo Lagos as a national priority, with implementation scheduled in three phases.

**Phase one** comprises call center-based health information and care triage services provided by nurses and physicians (“Salud Responde”). The call center was launched December 2005 using an existing facility that handles inquires about FONASA, Chile’s healthcare insurance system. Spanish-language software from the government of Catalonia in Spain was employed to provide guided conversations aligned to the appropriate clinical protocols.

While phase one is complete, phases two and three are underway. **Phase two** focuses on the early identification of chronic conditions through community-based kiosks at popular locations, such as shopping malls, with diagnostic biomedical devices, such as a blood pressure cuff or a glucometer, to supply information to nurse-care managers. When fully implemented, care managers will be able to receive vital-sign information from medical devices and then contact those citizens whose data indicates emerging problems. They will also be able to monitor known diabetics and people with hypertension. Meanwhile, staff at outpatient clinics will forward critical chronic disease patient information to the care managers.

**Phase three** centers on home-based monitoring that sends information to and from nurse-care managers. While telemedicine is a well-established concept, the challenge has been to find a cost-effective solution, since current approaches used in more developed countries are too costly. The solution builds on an earlier pilot, run by the Ministry of Health with Chile's Catholic University, which proved the value of making outbound calls to a select group of diabetics. The new solution has the added advantage of being scalable, thereby increasing its overall impact.

Finally, a phased implementation of a national converged health backbone will connect 2,000 health delivery points nationally through Telefonica (connecting 100 percent of primary, secondary, and tertiary care facilities).

## **BUSINESS RESULTS**

By creating a remote-access strategy to healthcare, Chile is much better placed to meet the AUGE program's service-level agreements. More importantly, enabling patients to send essential data to care managers will dramatically reduce both the number and the duration of hospital stays and the emergency visits required to stabilize diabetic and hypertensive patients. For example, AUGE guarantees that a person entering a primary care center suspected of having a heart attack is diagnosed and treated within 30 minutes. The results of an ECG will typically be transmitted to a hospital-based specialist who will provide immediate advice on the next steps to be taken.

The "virtual services strategy" is taking pressure off existing clinics and staff resources, which in turn contributes to the NPV of \$150 million. Decreased demand on traditional inpatient and outpatient services, particularly costly emergency rooms and intensive care services, helps to avoid—or at least delay—the cost of providing more facilities of this type. The strategy not only reduces costs overall, it also provides a solution that is inherently scalable and creates a more easily managed and flexible investment model.

Dr. Garcia says ICT improves efficiencies and enables resources, such as equipment and specialists, and allocates them where they are most needed. For example, by providing an online appointment system, people don't have to waste time waiting in line at a hospital to schedule visits. An online system could also use the Internet to deliver training to doctors—for instance, doctors could get more training in the area of radiology to reduce the number of "unnecessary" X-rays taken.

Better access to advice and information will also lead to a healthier population because citizens are being empowered to take responsibility for their own health, particularly the chronic disease patients who are highly educated on their own conditions and, thus, particularly well suited to adopting online channels of healthcare delivery.

For Dr. Garcia, the shift of emphasis from treatment to healthcare is a significant aspect of Chile's reforms. "Doctors are normally trained to treat diseases and not to maintain a healthy population," he says. "It is the destiny of mankind to die, but we do not have to have so many people suffering from disease. In working to improve the health of all people in society, we are working more intelligently. For example, if a person has been diagnosed as diabetic, the emphasis should be on ensuring that the condition is properly managed to avoid complications."

The most important aspect of ICT in healthcare is the positive effect it has on people's lives. Dr. Garcia recalls a story of a father whose young son was being treated for cancer in a hospital 50 miles away. Unable to afford the time or the money for regular visits, the father was able to see and speak to his son each day via a Web cam in the village school—the only place with an Internet connection. "That father knows nothing about how the Internet works, but now he is the best advertisement possible for ICT," says Dr. Garcia. "Technology can not only improve the way we use resources and be a force for social inclusion, it can also make a very positive and real impact on people's lives."

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### HEALTHCARE REFORM

Another critical component of the Health Reform was the Health Authority Law that clearly separated the key roles and responsibilities of all the public and private actors in the Chilean health system assigning clear accountability to all in favor of the citizen at the center. For more information on these or any aspect of the Chilean Health Reform please refer to [www.minsal.cl](http://www.minsal.cl); [www.fonasa.cl](http://www.fonasa.cl); [www.isapresdechile.cl](http://www.isapresdechile.cl); [www.superintendenciasalud.cl](http://www.superintendenciasalud.cl).

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