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Voxiva's Social Responsibility Initiatives

*This case was written by **Jaya D.Sangtani**, under the direction of **Vivek Gupta**, IBS Center for Management Research. It was compiled from published sources, and is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation.*

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Voxiva's Social Responsibility Initiatives

*"Voxiva is at its core focused on solving big public problems so that the company's financial success and humanitarian success are one and the same."*¹

- Paul Meyer, CEO and Co-Founder of Voxiva.

*"By deploying a low-cost phone-based technology that extends Internet-like functions and information to poor and rural communities in the developing world, we believe Voxiva represents a great model for the successful use of ICTs (information and communication technologies) for development goals."*²

- Paul Meyer, CEO and Co-Founder of Voxiva.

INTRODUCTION

In August 2002, Nancy Marcos (Marcos), a nurse in a public hospital in San Vicente de Canete, a village in Peru, was shocked when she noticed that a patient had symptoms of measles. This was because there had not been a single case of measles in Peru for nearly nine years. Fortunately for Marcos, there was help at hand. All she had to do was dial a toll-free number immediately and, using a pilot program set up by Voxiva³, enter codes corresponding to the diagnosis. She then had to leave a message that would be instantly disseminated by both voicemail and a color-coded Internet tracking system. The system, 'Alerta' immediately warned the Peruvian Ministry of Health and doctors in surrounding areas of the incidence of measles. If this case had occurred a year earlier, Marcos would have had to prepare a report on it and send it to the Ministry of Health. She would then have had to wait for their response.

Since most of the rural areas in Peru lacked Internet access, employees in hospitals often had to rely on paper medical reports that took weeks to get to the health ministry in Lima, Peru's capital. With action not being taken on time, and medical treatment from the health ministry being delayed, the disease spread to a large number of people. However, this situation changed completely after Voxiva entered Peru in 2001 and introduced 'Alerta,' a system that enabled the doctors and nurses based in villages of Peru to use public telephones to send medical reports and also ask questions and get answers using voice mail boxes.

For this innovative initiative, Paul Meyer, Co-founder, President & CEO of Voxiva, received the 2003 Technology in the Service of Humanity award instituted by the *Technology Review* magazine.⁴ Meyer was chosen from among the 2003 TR 100⁵, a group selected from the world's

¹ Jonathen Weisberg, "How does a Mouse Roar," www.law.yale.edu, 2005.

² Sarah Parkes, "Bridging the Digital Divide," www.businessweek.com, October 14, 2003.

³ Voxiva is a voice and data solutions provider that develops easy-to-use phone and web-based solutions. The company aims to provide ICTs based services to improve health, safety, and well being of people.

⁴ *Technology Review* delivers information about emerging technologies on the verge of commercialization.

⁵ *Technology Review* chooses 100 young businessmen with notable achievements in transforming technology in industries such as biotechnology, computing, energy, medicine, manufacturing, nanotechnology, telecommunications, and transportation.

top innovators in technology and business. Accepting the award, Meyer said, "The thing I find important is the desire to find big problems and try to solve them. I encourage people to look at the developing world to solve big problems, where one can have a much greater impact."⁶

Voxiva's innovative health solutions were used in several countries across the world to detect disease outbreaks, monitor patients, and track critical supplies for agencies such as the Food and Drug Administration (FDA), the US Department of Defense (DoD), the US Agency for International Development, the World Bank, Peru's Ministry of Health, Iraq's Ministry of Health, and the Washington DC, San Diego, and California Departments of Public Health.

BACKGROUND NOTE

Headquartered in Washington DC, Voxiva was founded in March 2001. Its aim was to create a technology platform that could be used by anyone, regardless of the communication devices available. The idea to establish a firm that would provide solutions for public health occurred to Meyer when he was working with the Markle Foundation.⁷ Meyer's work involved the use of technology in humanitarian emergencies and promoting the spread of Internet-based technologies in the developing world. He felt that too much importance was being given to computers and the Internet to provide tech-based health solutions in spite of their high maintenance costs. According to Meyer, "People were so focused on the Internet that they forgot how many phones there are in the world."⁸

Voxiva's initial investors included Markle Foundation and Ben & Jerry Ice Cream, which contributed US \$500,000 and \$250,000 respectively. Initially, Voxiva's efforts were directed primarily toward offering health care solutions but it gradually began to provide other services such as public safety solutions and e-government solutions.

Voxiva's public health applications could be accessed from any phone as well as through the Internet. It allowed hospital employees to use any phone (mobile or landline) or any computer connected to the Internet to report information on any disease outbreaks and important supply stocks. Health officials received the information immediately and could respond to the problem by providing their feedback through Voxiva's applications. The company's public health applications included Disease Surveillance, Critical Supply Monitoring, Immunization Monitoring, School Health Surveillance, and Public Health Preparedness.

Voxiva's health solutions were being used in Peru, where it helped the Ministry of Health to monitor disease reports, handle pharmaceutical orders, disseminate information, send lab reports and provide health care officials with a means to communicate among themselves.

VOXIVA IN PERU

Voxiva deployed its first disease surveillance system 'Alerta' for the Ministry of Health of Peru to help it track a disease outbreak and respond immediately. This project was sponsored by World Bank's Infodev⁹ program with a grant of \$250,000. Voxiva chose Peru to deploy its technology

⁶ Lee Eun J, Report from ETC: The Young and the Innovative, www.technologyreview.com, October 01, 2003.

⁷ Founded in 1927, New York based Markle Foundation uses ICTs to address critical public needs especially in the areas on health and security.

⁸ Jennifer Reingold, Harnessing the Net, One Phone at a Time, Fast Company, Issue 75, October 2003.

⁹ Managed by the World Bank, Infodev (The Information for Development Program) was created in 1995. It provides grants to the projects that use ICTs to fight poverty and find innovative ways that would lead to economic and social development particularly in developing countries.

because first, Peru had developed a strong paper-based disease surveillance system in 1991 after the country had suffered one of its worst cholera outbreaks. There were 6000 health clinics across the country that reported the disease outbreak. The previous disease surveillance system collected weekly disease reports from every rural health clinic across the country. Since these reports were collected on paper, they were recompiled at each level (Refer to Exhibit I for a chart on flow of information). It would take weeks or sometimes months for the report to reach the Ministry of Health. Naturally, it would by then be too late for the Ministry to respond. The health ministry also faced the difficulty of providing quick feedback to health officials in the clinics.

The advantage with Peru was that it had a relatively high teledensity – 3 million phones for 30 million people -- and its telecom infrastructure had a wider reach in the rural areas. Explaining the rationale for implementing the 'Alerta' system in Peru, Meyer said, "There are many, many organizations that have basically the same fundamental problem, which is that they've got this network of people spread out all over a country, out into rural areas. They need to collect information from them; they need to interact with them. We thought that we should think about how we can solve that problem leveraging what's there. And if people have broadband Internet connections, great, they can use those. But if someone's got to walk five kilometers to a pay phone in a village, that's okay too."¹⁰

Together with the Peruvian Department of Health and a local telephone company Telefonica¹¹, Voxiva developed the Alerta platform using the existing telephone lines and Internet servers. The main objective of Alerta was to provide a system for communications between the rural health workers and health officials in areas without Internet access and without making any investments in new hardware. The solution included a website for authorized users, data entry, and a database¹² that stored data submitted by both phone and the Web (Refer to Exhibit II for a picture on communication channels of Alerta).

Rural health workers could provide information about the disease outbreak using any kind of phone – land-based, cell phone, or a community pay phone¹³ -- in real time. They could also go to Voxiva's website and submit the information online if the Internet was available. The information received through the Internet or on the phone was entered into Voxiva's servers directly. On the other end of the information chain, doctors and health officials in Lima could access the data received by using either the phone or a computer connected to the Internet. The health officials could export data to various programs for analysis and presentations including online maps using a Geographic Information System.¹⁴ Even if the health officials were not in their respective offices, they could get the notification via SMS. This helped the health officials respond to an outbreak immediately.

Voxiva also trained rural health workers to use the system. The health workers were given a PIN and access card with codes for different diseases they needed to report (Refer to Exhibit III for details on Alerta User Cards). If the health workers wanted to use a phone, they had to dial a toll free number and simply follow the instructions on the access card and enter the information about diseases. These users also had voicemail accounts in which they could record a message about the patient's condition or listen to a message with up-dated medical advice. While using the Internet,

¹⁰ Weisberg, Jonathen, "How does a Mouse Roar," www.law.yale.edu, 2005.

¹¹ Number One Telecommunication Company in Latin America.

¹² Collection of data arranged for ease and speed of search and retrieval.

¹³ A telephone that requires immediate payment for operation, either by a coin or credit card.

¹⁴ A computer system capable of assembling, storing, manipulating, and displaying geographically referenced information in a data identified according to locations.

the users would have to log on to the company's website and follow the instructions on the access card or a simple voice prompted menu and enter the information about the disease. The users could also attach additional information on separate voice files.

The system was operational 24 hours a day, 7 days a week. When specific diseases were reported, the system generated emergency notifications via e-mail, voicemail, pager, and text messages. Commenting on the user-friendliness of the system, Meyer said, "You don't even really have to be literate to use the system. If people have a computer, great. If people have nothing more than a pay phone in a village, it is ok."¹⁵ Thus, the system was not only simple; it also helped health officials to respond immediately.

Voxiva used simple technology that was inexpensive. Commenting on Alerta's rural focus, Meyer said, "When thinking about how to help the poor, people need to think less about individual technologies, and more about the solutions that are most appropriate for each particular situation."¹⁶ By January 2005, Alerta had been implemented in 76 health facilities located in Cañete-Yauyos¹⁷ and Chilca-Mala¹⁸ zones. Voxiva planned to further expand the project from 76 to 188 health centers. Since its implementation in January 2002, Alerta had reported 40,000 cases.

THE BENEFITS

Rural citizens, health workers, and officials benefited greatly from Alerta. A team from San Marcos University¹⁹ performed an external evaluation of the system. They found that when compared to the traditional paper-based system, Alerta saved time, increased accuracy, allowed automatic consolidation, and immediate access to data. It increased disease reporting threefold and its costs of operations were 40% lower than the paper-based system.

According to the study, the use of voicemail for communication was 7.8 times cheaper as compared to written communication. The system was accessible even from the most isolated regions in Peru. It allowed rapid flow of information and allowed the health ministry to quickly respond to any situation. According to Meyer, "If you're a minister of health and you're used to getting disease outbreak reports two months late, you don't actually have to do anything. Now all of a sudden you get a text message saying, 'Three minutes ago, four different clinics reported cholera.' You've actually got to respond."²⁰ Since the data was entered by the users themselves, it was mostly accurate. Commenting on its benefits, a rural health worker said, "The Voxiva system is saving me lots of time for improving quality and decreasing the hours spent on the process."²¹ The system also reduced the information collection problems and information was available at multiple levels simultaneously. Dr. Jaime Levano, a health official, stated, "We can see the information instantaneously, now everyone is informed about a case and the disease and the appropriate measures can be taken according to the case. It is truly an important benefit and it could help eradicate diseases."²²

¹⁵ Bergstein, Brian, "Tech Company Helps Monitor Disease Outbreaks," www.usatoday.com, August 03, 2004.

¹⁶ Foroohar, Rana, New new things, *Newsweek*, January 28, 2005.

¹⁷ A province located approximately 140 km south of Lima.

¹⁸ A province located approximately 80 km south of Lima.

¹⁹ Situated in the capital city of Lima, Peru, it is the oldest university in South America.

²⁰ Weisberg, Jonathen, "How does a Mouse Roar," www.law.yale.edu, 2005.

²¹ Cesar Falconi, Alerta Administrator, Chilca Mala District, Voxiva – A Voice Portal for Health, www.sustainableicts.org.

²² Voxiva – A Voice Portal for Health, www.sustainableicts.org.

ALERTA DISAMAR

In October 2002, the Peruvian Navy deployed Alerta after some Peruvian soldiers from the El Alamo naval base on the Columbian border contracted a drug-resistant form of malaria. Because of the remote location of the naval base, the response to the malaria outbreak was slow. Eventually, three soldiers required emergency evacuation to Lima for treatment. The health officials investigated the outbreak and recommended that the Navy develop a disease surveillance system which would allow for quick response from the health authorities in case of emergency situations. Based on this recommendation and with the support of the US Navy's Global Emerging Infections Surveillance and Response System (GEISRS)²³, Voxiva, the Peruvian Navy, and NMRCDC²⁴ implemented 'Alerta DISAMAR,' its pilot disease surveillance program.

Voxiva placed its computers within a high-security Peruvian military complex. Alerta covered nationally-mandated reportable diseases of military relevance (Refer to Exhibit IV for details of diseases under surveillance). Common illnesses were reported once a week -- every Monday -- and all other ailments were notified individually, often on the day they occurred. Cases of individual notification could be reported as either probable or confirmed. Their status was monitored until the initial diagnosis was confirmed or discarded using laboratory methods. All health care providers in the reporting units (physicians, nurses, and technical staff) were trained on the notification procedures and diagnostic criteria were reviewed and standardized.

Cases were reported either over the Internet or on the telephone using a toll-free number (Refer to Exhibit V for data flow on Alerta). Areas that did not have access to the phone or the Internet used radio relays to send the information to facilities with better connectivity. Alerta sent real-time e-mail and text messages automatically to mobile devices to alert key personnel about the occurrence of certain diseases. Additionally, the system was programmed to send weekly reports to all notifying units and supervisors. The Alerta DISAMAR Operating Center (ADOC) was located at NMRCDC and permanently monitored reporting coverage, data quality, and disease incidence. A steering committee with personnel from the Peruvian Navy, NMRCDC, and Voxiva met weekly to review these issues. If cases were notified incorrectly or inconsistently, the ADOC immediately contacted reporting units and together they assessed the problem and made all necessary adjustments.

In December 2003, 15 months after Alerta DISMAR was implemented, a report²⁵ on it was presented by a scientist from Peru. Commenting on the importance of the project, the report stated, "The impact of surveillance systems such as Alerta should not be measured exclusively in terms of number of reported cases or detected outbreaks. These systems mainly build important bridges between and within institutions and develop organization mechanisms for confronting health emergencies. Alerta has become a validated model for near real time disease surveillance in developing countries."

²³ GEIS is designed to strengthen the prevention of, surveillance of, and response to infectious diseases that are a threat to military personnel and families, reduce medical readiness, or present a risk to the US national security.

²⁴ The Naval Medical Research Center Detachment (NMRCDC) was established to identify infectious disease threats of military relevance in Peru and surrounding countries in the South American region, and to determine the most effective means to assess, monitor, diagnose, prevent, and treat these diseases to minimize their impact on the war fighter's operational capabilities.

²⁵ Alerta DISAMAR: December 04, 2003.

CITIZEN'S ALERT – VOXIVA'S PUBLIC SAFETY SOLUTION

Voxiva also offered solutions in other verticals such as public safety and e-governance. In 2003, the company deployed its second application in Lima known as 'Citizen's Alert' – a crime reporting system. Citizen's Alert was developed primarily to enhance the public safety system in Peru. This system was designed to allow citizens to report crime electronically to police in real time. Citizens could report the crime using the phone or the Internet. Besides the normal function of reporting a crime, the system had modern analytic tools that allowed the officials to easily track areas and evaluate trends. The system's mapping technology aided the safety officials in tracking the area from where the crime had been reported and sending the police officials located nearby to the crime site. The police officials could also use the system and communicate with their personnel. They could also track how their resources were being used. All the citizens' reports and dispatched incidents were collected in a central database for specialized analysis by the police officials.

Commenting on the benefits of the system, Mayor Fernando Andrade of Miraflores²⁶ said, "Earlier 80 percent of neighbors did not report crimes for fear or lack of confidence in authorities. Today, that has changed. Now neighbors are getting used to reporting robberies, assaults, accidents, suspicious vehicles, and noises."²⁷ The system promoted citizens' participation in the prevention of crime. On December 04, 2003, Voxiva was honored with the, 'Corporate Excellence in Social and Environmental Responsibility Award'²⁸ for deploying this system.

Voxiva also provided e-government services in Peru. Any citizen could notify the government of street light outages, uncollected trash, vandalism, and other issues using a dial-up number to complain. All calls entered a database monitored by a municipal employee who filtered and delegated calls to the appropriate city agency or authority. This system was employed in Miraflores district.

THE ROAD AHEAD

Voxiva had used the existing telecommunication infrastructure in rural areas of Peru. The company had proved that it was not necessary to have PCs everywhere to establish an information system. Summing up his learnings from Voxiva's social responsibility initiatives, Meyer said, "I've learned that there are a lot more phones in the world than computers. Moreover, phones don't require literacy. If the developing world is to benefit from applications that address information flow problems in key sectors like health and education, we need to look beyond just the Internet and PCs. If applications can be extended to every computer and every phone in the developing world, then we will have the reach to make a real difference in solving critical problems there."²⁹ Having deployed its system in Peru, Voxiva also went ahead to offer technology solutions in other developing countries like India³⁰, Iraq³¹, and those in Africa.

²⁶ Miraflores is a district in Lima, Peru, where the system was initially employed.

²⁷ Voxiva Honored for Excellence in Social Responsibility, www.voxiva.net, December 14, 2003.

²⁸ This award is given by Peru 2021, an organization created in 1994. It was established with a mission to create a more prosperous nation through corporate and private sector commitment to social responsibility.

²⁹ "Wireless Internet Opportunity for Developing Countries" Conference at UN Headquarters, www.worldbank.org, June 26, 2003.

³⁰ In March 2004, Voxiva deployed its disease surveillance system for Japanese encephalitis – a disabling and often fatal mosquito-spread disease that mostly strikes children under the age of 15 in Asian countries. The disease kills one-third of those infected and causes severe disabilities in half of those who survive. This system was deployed in the state of Andhra Pradesh, India.

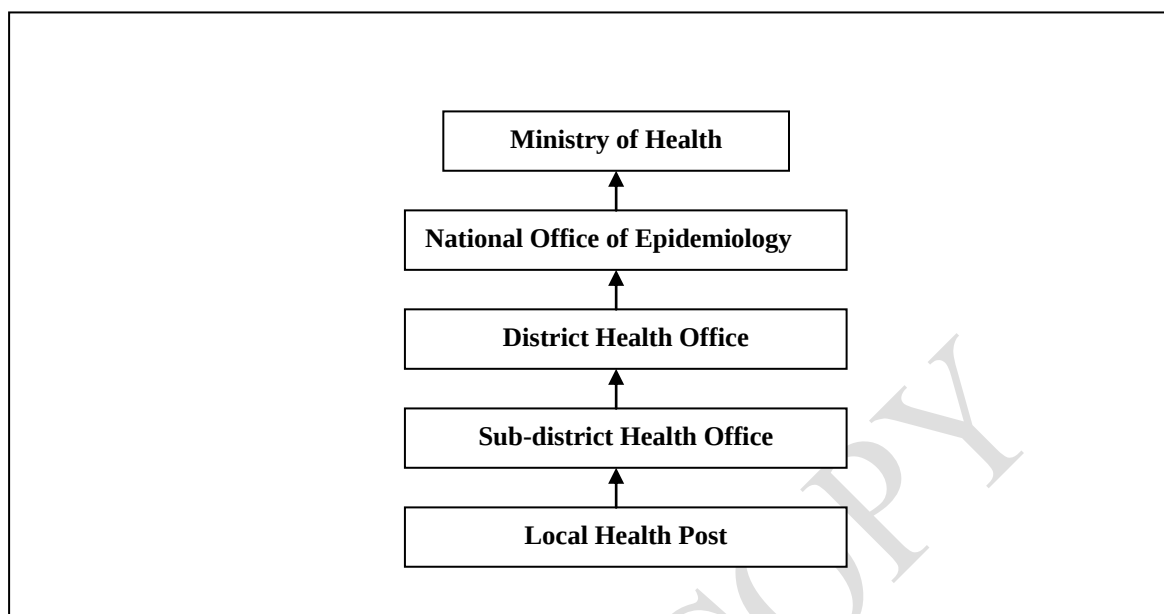
Voxiva had existed till then more because of its social capital; its initial funding for Alerta came from the World Bank. The company had gained many clients because of its social ventures. According to Meyer, "It's actually easier if you could appeal to more than people's financial interests and produce something with great social value."³² But Meyer knew that in the long run, social capital alone would not be enough if the company had to sustain itself. He therefore expected Voxiva to make a profit on every project so that the company could finance its expansion with its own funds rather than that of the donors. Meyer wanted to make Voxiva a public company in the next few years. Commenting on this, Meyer said, "This is not a Robin Hood model. We plan on becoming a really big, profitable company, but obviously a company still focused on making the world a better place."³³

³¹ In January 2004, Voxiva deployed the Alerta system, named 'Smart.' It was a national disease surveillance system deployed in postwar Iraq.

³² Bergstein Brian, "Tech Company Helps Monitor Disease Outbreaks," www.usatoday.com, August 03, 2004.

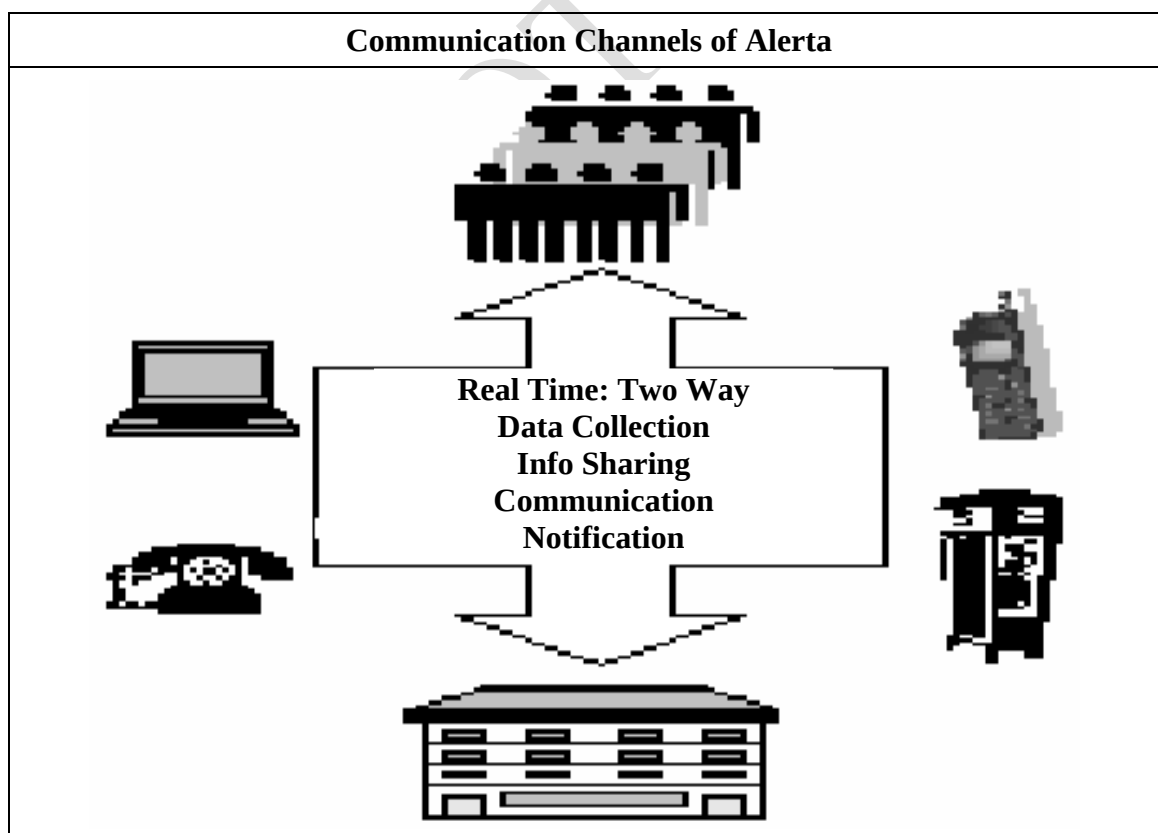
³³ Lee, Eun J, Report from ETC: The Young and the Innovative, www.technologyreview.com, October 01, 2003.

Exhibit I
Flow of Information



Compiled from Various Sources.

Exhibit II
Communication Channels of Alerta



Adapted from www.voxiva.net.

Exhibit III

Alerta User Cards																																																															
Call 1-800-555-5555 Menu Voice Mail Press 1 Case Report Press 2 Update Profile Press 3 Operator Press 0 Case Report To File Report Press 2 Enter Notification Code If Negative Report Press 999 • Is the report from your district? • What is the date of onset? • Enter the age of the patient. • Enter patient sex. • What is current status of the case? • Would you like to add a voice message with additional information? Voxiva Inc. 1250 24th St, NW. Ste. Washington, DC. info@voxiva.net, www.voxiva.net.	<table> <tr> <td>Acute Diarrhea</td> <td>001</td> </tr> <tr> <td>AFO</td> <td>803</td> </tr> <tr> <td>ARI</td> <td>002</td> </tr> <tr> <td>Bartonellosis</td> <td>449</td> </tr> <tr> <td>Chagas Disease</td> <td>57</td> </tr> <tr> <td>Cholera</td> <td>00</td> </tr> <tr> <td>Congenital Rubella</td> <td>06</td> </tr> <tr> <td>Congenital Syphilis</td> <td>500</td> </tr> <tr> <td>Cutaneous Leishmaniasis</td> <td>551</td> </tr> <tr> <td>Dengue</td> <td>90</td> </tr> <tr> <td>Diphtheria</td> <td>369</td> </tr> <tr> <td>Disasters</td> <td>911</td> </tr> <tr> <td>Hemorrhagic Dengue</td> <td>91</td> </tr> <tr> <td>Hepatitis</td> <td>16</td> </tr> <tr> <td>HIV/AIDS</td> <td>240</td> </tr> <tr> <td>Human rabies</td> <td>820</td> </tr> <tr> <td>Malaria Falciparum</td> <td>50</td> </tr> <tr> <td>Malaria Vivax</td> <td>51</td> </tr> <tr> <td>Maternity Death</td> <td>96</td> </tr> <tr> <td>Measles</td> <td>59</td> </tr> <tr> <td>Meningococcal Meningitis</td> <td>390</td> </tr> <tr> <td>Neonatal Tetanus</td> <td>33</td> </tr> <tr> <td>Plague</td> <td>209</td> </tr> <tr> <td>Pneumonia</td> <td>18</td> </tr> <tr> <td>Rubella</td> <td>06</td> </tr> <tr> <td>Snakebite</td> <td>20</td> </tr> <tr> <td>Tetanus</td> <td>35</td> </tr> <tr> <td>Tuberculosis</td> <td>10</td> </tr> <tr> <td>Typhus Fever</td> <td>750</td> </tr> <tr> <td>Whooping Cough</td> <td>379</td> </tr> <tr> <td>Yellow Fever</td> <td>950</td> </tr> </table> Notification Codes	Acute Diarrhea	001	AFO	803	ARI	002	Bartonellosis	449	Chagas Disease	57	Cholera	00	Congenital Rubella	06	Congenital Syphilis	500	Cutaneous Leishmaniasis	551	Dengue	90	Diphtheria	369	Disasters	911	Hemorrhagic Dengue	91	Hepatitis	16	HIV/AIDS	240	Human rabies	820	Malaria Falciparum	50	Malaria Vivax	51	Maternity Death	96	Measles	59	Meningococcal Meningitis	390	Neonatal Tetanus	33	Plague	209	Pneumonia	18	Rubella	06	Snakebite	20	Tetanus	35	Tuberculosis	10	Typhus Fever	750	Whooping Cough	379	Yellow Fever	950
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Adapted from www.voxiva.net.

Exhibit IV
Diseases under Surveillance

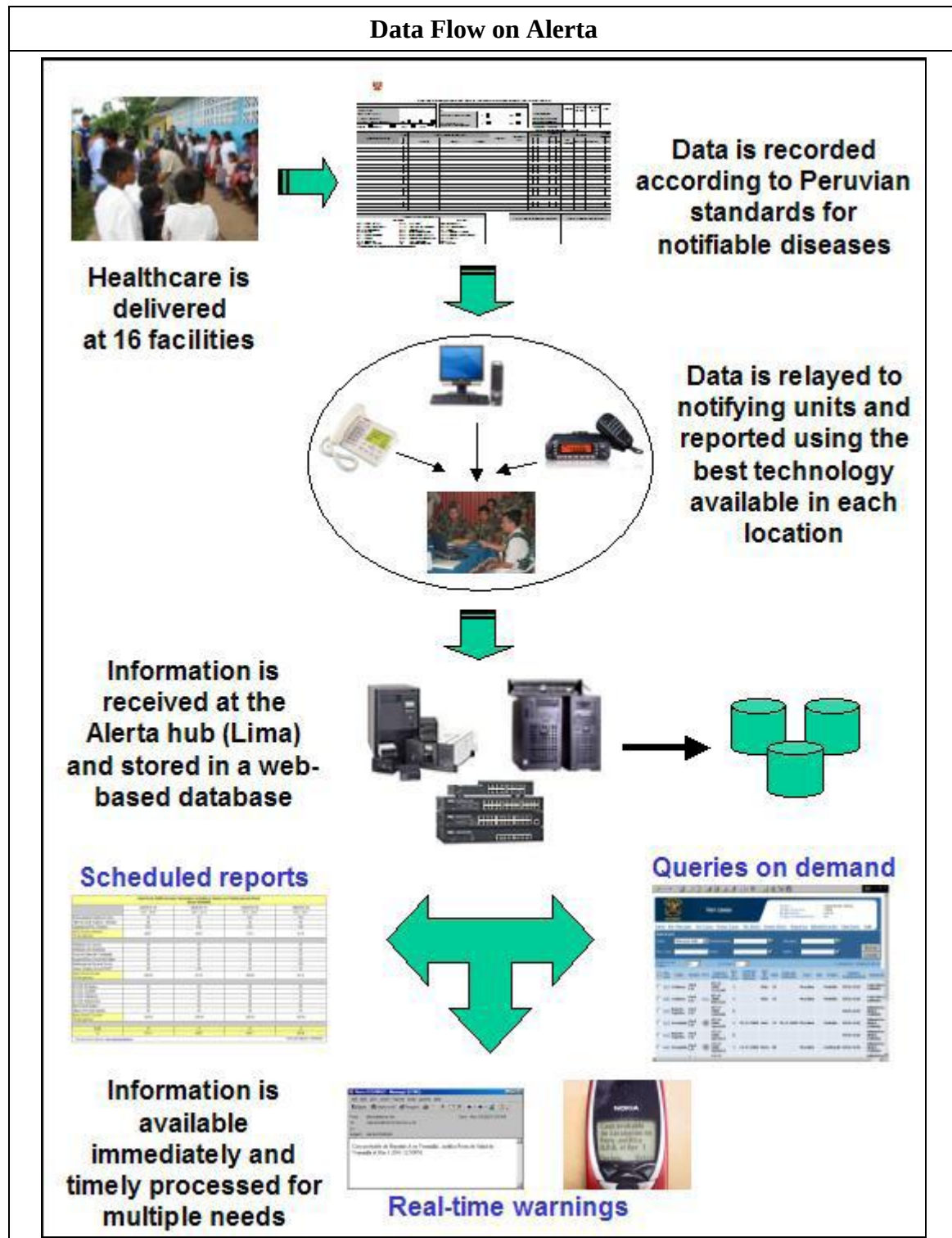
Individual		
Bartonellosis	Diphtheria	Mucosal Leishmaniasis
Whooping cough	Yellow fever	Meningococcal meningitis
Brucella	Typhoid fever	Rubella
Chagas disease	Hepatitis A	Epidermis typhus
Hemorrhagic dengue	Hepatitis B	SARS
Tuberculosis meningitis	Snake accidents	AIDS
Cutaneous Leishmaniasis	HIV	Congenital rubella
Falciparum malaria	Plague	Measles
Vivax malaria	Flaccid acute paralysis	Pulmonary tuberculosis
Mixed malaria	Human rabies	Tetanus
Congenital syphilis		

Collective	
Cholera	Asthma/OAD
Acute respiratory infection	Acute diarrhea disease
Pneumonia	

Special	
Other	Maternal death
Natural disasters	No cases to report

Source: www.abtassociates.com.

Exhibit V



Source: www.voxiva.net.

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