Critical Care Tower: Improving the Healthcare of Children for the Future

July 6, 2005

Sr. Luis Gamboa
President CHCRF
Children's Hospital Costa Rica Foundation
P.O. Box 730-1150 La Uruca
San José, Costa Rica

Dear Sr. Gamboa:

First of all, we would like to thank you for giving us an opportunity to work with you and the Foundation. We feel that this project will have a great positive impact on the lives of the children, not only in Costa Rica, but in all of Central America. We are excited by the work we have done for the hospital and by the positive results we achieved. You provided us with a unique experience and we feel fortunate to have participated in it.

Enclosed is our final document entitled "Critical Care Tower: Improving the Health of Children for the Future." It describes the methods we have devised to gather useful information pertaining to the funding of the hospital and the impact the new Tower will have on the community. It also includes the results we have achieved and the recommendations we have made.

Thank you very much for sponsoring this project and for giving us an opportunity to change the lives of others, which has offered us a sense of personal satisfaction.

Sincerely yours,

Bethany Corliss

Rachelle Horwitz

Taryn Mroczkowski

Report Submitted to:

Susan Vernon-Gerstenfeld and Arthur Gerstenfeld

Costa Rica, Project Center

By

Bethany Corliss _____

Rachelle Horwitz _____

Taryn Mroczkowski _____

In Cooperation With

Luis Gamboa, President of the Children's Hospital Costa Rica Foundation

Children's Hospital Costa Rica Foundation

HOSPITAL NACIONAL DE NIÑOS

July 6, 2005

ABSTRACT

The Children's Hospital Costa Rica Foundation (CHCRF), the organization for which we worked, is raising more than $22 million to fund the construction and equipment for the new Critical Care Tower in the Hospital Nacional de Niños in Costa Rica. A Critical Care Tower is necessary because currently, the Hospital Nacional de Niños is overcrowded and lacks crucial equipment. The goal of this project was to assist the CHCRF in improving the quality and quantity of healthcare provided to children. Our objectives were to prepare a list of potential funders; write a business case, which will serve as a blueprint for brochures; make recommendations for the brochure, which included devising methods of breaking down the Tower's total cost; and defining the social implications of improved health care as a result of the new Critical Care Tower.

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Executive Summary: Rachelle Horwitz

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EXECUTIVE SUMMARY

The goal of this project was to aid the CHCRF in its quest to improve the quality and quantity of healthcare provided to children. Our objectives were to compile a list of potential donors, write a business case, make recommendations for the creation of a brochure, and define the social implications that will result from the construction of the Tower. The list of potential donors is comprised of foundations and corporations that could potentially fund the construction of and equipment for the Critical Care Tower. Our business case contains information about the CHCRF and the Hospital Nacional de Niños, and will serve as a blueprint for the future creation of brochures. The brochure should include important facts from the business and different methods of breaking down the costs of the Tower. The social implications reveal the long-term effects of the construction of the Tower, and can be used to prove that donating to the CHCRF is a worthwhile investment.

To create the list of potential donors, we utilized five main resources to identify foundations and corporations in the United States. These resources included the *Encyclopedia of Associations*, the Foundation Center database, the Foundation Center website (www.fdncenter.org), other websites that provided names of foundations and corporations, and a list of members of the American Chamber of Commerce. To determine the foundations and corporations that appeared in our preliminary list, we included those that focused on children, health, buildings, hospitals, Latin America, or Costa Rica. We then identified the top foundations and corporations by conducting in depth research about each potential donor from our preliminary list. A potential donor appeared on our high-priority list if it donated money internationally, specifically in

Costa Rica, to causes that benefited children by improving their health, or the construction of buildings.

After researching 148 foundations and corporations, we identified the top three corporations and the top eight foundations. The top three corporations included Dole, Merrill Lynch, and Pfizer. The top eight foundations were the Bristol-Myers Squibb Foundation, Bill and Melinda Gates Foundation, W.K. Kellogg Foundation, Levi Strauss Foundation, Mattel Children's Foundation, Ronald McDonald House Charities, the Samuel Foundation, and Teammates for Kids. Each of these foundations and corporations has an international focus on children's health, and many have donated millions of dollars to children's hospitals in various countries.

The business case that we wrote includes the mission of the CHCRF, its goals and objectives, the needs and history of the hospital, a description of the project, and the primary contacts. We conducted interviews with hospital staff, architects, and families of patients to obtain much of this information. Members of the hospital staff included Mauricio Rosas from Finances, Dr. Julio Jaen from the Radiology Department, Dr. Marco Vargas from the Trauma Ward, Dr. Ramon Rivera from the Intensive Care Unit, and Dr. Carlos Sirí from the Burn Unit. Each doctor provided us with detailed information about his specific department, including its current state and its projected form in the new Tower. All four doctors informed us that their departments are overcrowded and lacking equipment. To illustrate the predicament with overcrowding, Dr. Rivera, a pediatric surgeon in the Intensive Care Unit (ICU), stated that the ICU contains only two isolation rooms. If those two rooms are occupied, the doctors are forced to leave beds empty surrounding the patient in order to provide the needed

segregation. The proposed Critical Care Tower will alleviate the aforementioned problems with more spacious rooms, and updated equipment, including an MRI machine, CAT Scan machine, and Nuclear Medicine. In addition to these improvements, the Critical Care Tower will also have a heliport on the roof in order to quickly receive patients by air.

We recommend that the CHCRF use our business case as a blueprint for the creation of brochures since some of the information in the business case is impertinent to particular potential donors. The brochures may vary slightly according to the general themes to which the potential donors tend to give. The business case can also be used as a reference for CHCRF representatives during interviews with potential donors in an attempt to convince them to donate to the CHCRF.

We also recommend that the brochure be sent to each potential donor in order to introduce the CHCRF and the Hospital de Niños to each potential donor. The brochure should be concise and be presented in a creative, attractive manner, containing the emblem and official colors of the CHCRF. Additionally, it should include pictures of patients to show the faces of people who will benefit from the project. Specifically, the brochure will include a brief history of the Hospital Nacional de Niños and the CHCRF, the needs of the hospital, the hospital's plans for the Critical Care Tower, the benefits of the construction of the Tower, the breakdown of the total cost of the Tower using our recommendations, and contact information of the CHCRF.

Information from architects and doctors helped us to make recommendations for the cost breakdown that will be included in the brochure. The architect provided us with information about the cost of the infrastructure of the building, stating that the

construction costs would be $16 million. The doctors gave us information about the cost of the equipment in their departments. After we added the sums from the architect and the costs from the doctors, we determined that the total cost of the Critical Care Tower will be more than $22 million. This is significantly higher than the original projected cost of between $15 million and $18 million.

We devised methods that can be used to break the total cost of the Tower into smaller units. It is necessary to divide the total cost into smaller units because potential donors are more likely to donate if they are choosing from a variety of funding options, rather than donating an arbitrary sum of money to an unstructured funding program. Some examples of methods of breaking down the total cost are breaking it into the cost of each floor as mandated by the architect; the cost of an individual department, such as the Burn Unit; and the cost per square foot. We believe that if the CHCRF follows our recommendations, it will be successful in raising the funds for the construction and equipment for the Critical Care Tower.

The social implications of this project are manifold. One social implication is that the children of Costa Rica will receive better quality care. As a result, they will become healthier and lead more productive lives than they would have if they had not received that level of healthcare. In addition to the Critical Care Tower having a tremendous positive impact on the children of Costa Rica, it will also positively affect the CCSS, the entire Costa Rican population, the children and their families in Central American countries, and businesses and medical professionals from other parts of the world. The CCSS will benefit from the construction of the Tower because the improved Hospital Nacional de Niños will add to the CCSS's assets. Children and families in other Central

American countries will be positively affected because they will have a state-of-the-art children's hospital that is relatively near them. Costa Rica's economy will become stronger as a result of the construction of the Tower. If a company based outside of Costa Rica is considering expanding to another country, it will look for stability and other positive characteristics of a country. The new companies will provide employment opportunities for Costa Ricans, we well as increased trade opportunities for both Costa Rica and the countries of the business' origin, therefore helping Costa Rica's economy.

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CHAPTER ONE: INTRODUCTION

This report was prepared by members of Worcester Polytechnic Institute Costa Rica Project Center. The relationship of the Center to the Children's Hospital Costa Rica Foundation and the relevance of the topic to the Children's Hospital Costa Rica Foundation are presented in Appendix A.

Many children in the world suffer from different illnesses. The health of children is important because it affects their growth and development in physical, emotional, and cognitive aspects. Healthy children grow to become productive adults. This increases the country's gross domestic product (GDP) (The World Bank Group, 2005), which is an indicator of a good economy.

There are some conditions that affect only children, and children's hospitals provide the specialized care needed to treat these ailments (All Children Need Children's Hospitals, 2001). For these reasons, hospitals that cater specifically to children are essential. For example, Kathryn Diana Castañeda, a five year old from Guanacaste, has been diagnosed with leukemia. Before coming to the Hospital Nacional de Niños, Kathryn sought care at the hospital in Liberia. The doctors at the hospital in Liberia believed that Kathryn was suffering from a virus and that her condition was not serious. Kathryn's father was skeptical of this diagnosis, so he brought her to a private clinic, where she was referred to the Hospital Nacional de Niños in Costa Rica, and received specialized care. Her father feels that Kathryn is alive today because she was cared for by doctors who are experts in treating children (Castañeda, personal communication, June 14, 2005) (See Appendix O).

As previously mentioned, there is a hospital in Costa Rica that is devoted to children's health care. The Hospital Nacional de Niños has all of the same departments

as a high quality children's hospital in the United States. However, as observed in our tours of the hospital, many of the departments contain extremely small, overcrowded rooms and outdated equipment. Some of the departments lack specific pieces of equipment that are crucial to making the Hospital Nacional de Niños comparable to hospitals in the United States. Since the facilities and technologies in a hospital limit the care that doctors can provide, these shortcomings diminish the quantity and quality of services of the hospital. As a result, the hospital plans to construct an addition that will provide more extensive care to children with severe conditions.

The proposed Critical Care Tower will contain different specialties on each floor, increase both the number of beds and the size of the rooms in each unit, and improve diagnostic and treatment capabilities by offering more technologically advanced equipment. This venture is extremely important to Costa Rica and the surrounding countries because the Critical Care Tower will provide improved healthcare to children in need. However, before the Tower can be built, money must be raised to fund the project.

Although it has an independent administration, the Hospital Nacional de Niños is managed and funded by a branch of the government. However, this branch does not have sufficient funds to make these plans a reality. Fortunately, the Children's Hospital Costa Rica Foundation (CHCRF) is in existence to provide additional funds to The Children's Hospital (See Appendix A). The goal of the CHCRF is to find the means necessary to construct the Tower. Our goal was to aid the Children's Hospital Costa Rica Foundation in its quest to improve the quality and quantity of health care provided to children. We achieved this goal through four main objectives.

Our first objective was to compile a list of foundations and corporations in the United States that may have an interest in donating money to the construction of the Critical Care Tower or in providing equipment. We searched through a variety of different websites and databases in order to identify and research potential donors.

Our second objective was to write a business case, which provides vital information to the potential donors about the hospital and its projected Tower. This business case is the blueprint for future proposals. It begins with a mission statement, then gives a brief history of the hospital along with the current condition, needs, and plans for the future, and concludes with information on how to make a donation.

Our third objective was to design a brochure, which will be distributed to potential donors in order to persuade them to donate money or equipment. The brochure includes information on the history of the hospital, the current state of the Hospital Nacional de Niños, the proposed Critical Care Tower and the cost breakdown of the Tower, and the long-term societal benefits as a result of the construction of the Critical Care Tower.

Our final objective was to consider the social implications of the construction of the Critical Care Tower. These social implications include the long-term impact of the Critical Care Tower on Costa Rica, Central America, and other countries throughout the world. The possibility of being involved in such positive outcomes may entice potential donors to fund the construction of the new Tower.

CHAPTER TWO: BACKGROUND

This background section covers four fundamental areas of our project: the policies of Costa Rica that affect its healthcare, the benefits of improving children's health, a comparison of children's hospitals in the United States with the Hospital Nacional de Niños in Costa Rica, and the funding for the Tower.

Describing Costa Rica's economy, education, and healthcare provided background for our project. Revealing the benefits of improved healthcare for children, such as an improved economy, was crucial because it demonstrated the importance of this project. Information about the funding of the Tower was necessary since the majority of the funds must be provided by organizations and companies in the United States.

IMPACT OF ECONOMIC AND EDUCATIONAL CONDITIONS ON HEALTHCARE

Costa Rica has the highest gross domestic product (GDP) of all Central American countries. This, in addition to a lack of military spending, allows the Costa Rican government to allocate more funds to improving healthcare and education, compared to other Central American countries' governments. Costa Rica's healthcare is the reason that the country has a high life expectancy. However, the country is still encountering problems with its healthcare, such as long lines in hospitals and pharmacies, and also outdated equipment.

Economy and Expenditures

Costa Rica has a very low GDP per capita, (http://www.cia.gov/cia/publications/factbook/rankorder/2004rank.html) in comparison to developed countries such at the U.S., Canada, Australia, France, and the United Kingdom. GDP is a measure of the total value of the goods and services in a country's economy (http://encarta.msn.com/encyclopedia_761588125/Gross_Domestic_Product.html), and often embodies the strength of an economy. Table 1 shows that Costa Rica's GDP per capita is more similar to that of less developed countries such as Panama and Belize (http://www.cia.gov/cia/publications/factbook/rankorder/2004rank.html). A strong economy is usually associated with a healthy population, and the health of a population is often measured by average life expectancy. Examination of Tables 1 and 2 corroborates the claim that developed countries generally have higher GDPs per capita and higher average life expectancies than developing countries. Costa Rica is an exception to the trend that countries with lower GDPs per capita have lower average life expectancies. Although its GDP per capita is significantly lower than that of developed countries, it has an average life expectancy that is comparable to that of the United States (http://www.cia.gov/cia/publications/factbook/rankorder/2102rank.html).

A recent decline in child mortality and in the number of infectious diseases, and an increase in the availability of drinkable water are the reasons that Costa Rica has been able to achieve a life expectancy that is equal to that of the U.S. Because the CCSS has been focusing on preventative measures since 1941, many infectious diseases, including diarrhea and parasitic infections, have become less common

(http://www.isp.msu.edu/clacs/conf-papers03/soboka.pdf). For example, in the Hospital Nacional de Niños, the leading diagnoses for out-patients in 1966 were gastroenteritis and colitis, and worm infestations. By 2003, these were no longer the most common diagnoses for out-patients. Instead, the most common ailments were respiratory infections and traumas or venomous wounds (Legado para un pueblo: 40 años de la niñez).

Table 1: Gross Domestic Product Per Capita (2004 estimates)

Country	GDP per capita (Intl$)
Luxembourg	58,900
US	40,100
Norway	40,000
Hong Kong	34,200
Canada	31,500
Australia	30,700
United Kingdom	29,600
Japan	29,400
France	28,700
Germany	28,700
Costa Rica	9,600
Panama	6,900
Belize	6,500
El Salvador	4,900
Guatemala	4,200
Honduras	2,800
Nicaragua	2,300

CIA, (2005). Rank Order – GDP – per capita. Retrieved June 15, 2005, from the CIA World Factbook Web site: http://www.cia.gov/cia/publications/factbook/rankorder/2004rank.html

Table 2: Life Expectancy from Birth (2005 estimate)

Country	Life expectancy (years)
Singapore	82
Japan	81
Sweden	80
Australia	80
Canada	80
France	80
United Kingdom	78
U.S.	77
Costa Rica	77
Panama	72
El Salvador	71
Nicaragua	70
Belize	67
Honduras	66
Guatemala	65

CIA, (2005). Rank Order – Life expectancy at birth. Retrieved June 15, 2005, from the CIA World Factbook Web site: http://www.cia.gov/cia/publications/factbook/rankorder/2102rank.html

Costa Rica's distribution of spending is related to its high average life expectancy. In 2003, it spent only 0.4 percent of its GDP on defense (http://www.cia.gov/cia/publications/factbook/print/cs.html), while in 2001, it spent Intl$562 per capita on health (http://www.who.int/countries/cri/en/). Compared to those of other Central American countries, such as Nicaragua, whose military and health expenditures are both low for Central America, Costa Rica's defense spending is low while its healthcare spending is high. For example, Nicaragua spent 0.7 percent of its

GDP on defense in 2004 (http://www.cia.gov/cia/publications/factbook/print/nu.html) and only Intl$206 per capita on health in 2002 (http://www.who.int/countries/nic/en/) (See Appendix B for explanation of Intl$).

Education

Costa Rica's relatively high GDP and lack of a military is also a reason that it has one of the best educational systems in Central America. Education comprises 6 percent of its GDP (http://www.unesco.org/education/efa/know_sharing/grassroots_stories/costa_rica.shtml), or 28 percent of the National Budget, a feat that would be impossible if the country supported a military (http://www.travelexcellence.com/education.htm). As a result, Costa Rica has not only one of the best educational systems, but also the highest literacy rate in Central America. In the year 2000, Costa Rica's literacy rate was 95.2 percent for citizens older than nine years of age. In addition to having a high literacy rate, Costa Rica requires that its children attend school through the age of fourteen (Rachowiecki, 2002).

Literate individuals are able to understand health conditions and precautions more easily than less literate individuals (http://www.clinicaltrials.gov/ct/gui/show/NCT00023205), resulting in more sanitary environments and impeding the spread of preventable diseases (http://www.unicef.org/sowc99/sowc99e.pdf). Also, a high literacy rate is often linked to a low infant mortality rate. Kerala, a poor region in southern India, enjoys a 100 percent literacy rate and the lowest infant mortality rate in the developing world. Costa Rica's high literacy rate allows the vast majority of its citizens to access material pertaining to

healthcare, therefore leading to a healthier population in comparison to other nations in the region (http://www.unicef.org/sowc99/sowc99e.pdf).

Average Life Expectancy and Child Mortality in Costa Rica

Table 2 shows that Costa Rica has the highest average life expectancy of all Central American countries (http://www.who.int/countries/cri/en/). The life expectancies of citizens of other Central American countries are very low compared to the average life expectancy in the United States, which can be used as a baseline for comparison. Table 3 shows that Costa Rica also has a low child mortality rate: 12 per 1000 for males and 10 per 1000 for females (http://www.who.int/countries/cri/en/), which is extremely low compared to the child mortality rates of other Central American countries. The child mortality rates in those countries are very high compared to the child mortality rate in the United States (http://www.who.int/countries/usa/en/).

Table 3: Child Mortality Rate (2002)

Country	Male (per 1000)	Female (per 1000)
Canada	6	5
US	9	7
Costa Rica	12	10
Panama	25	21
El Salvador	36	34
Nicaragua	38	32
Honduras	44	42
Belize	44	34
Guatemala	57	50

World Health Organization, (2001). Core health indicators: Child mortality. Retrieved Mar. 24, 2005, from World Health Organization Web site: http://www3.who.int/whosis/country/compare.cfm?country=CRI&indicator=MortChildMale,MortChildFemale&language=english.

Structure of the CCSS

The healthcare system in Costa Rica is mostly state-sponsored (Wilson, 1998). The Caja Costarricense de Seguro Social (CCSS) has been responsible for universalized health care and social security since the 1970's. As a result, the percentage of Costa Ricans with state-sponsored health care programs increased dramatically, from below 39 percent in 1970 to over 84 percent in 1979 (Wilson, 1998).

Health insurance is required for workers and pensioners, and the government provides health insurance for the poor. Statistics show that employers pay 9.25 percent of their wages and workers pay 5.50 percent of their wages in order to obtain health insurance. These insurance rates show that wealthy Costa Ricans pay more for insurance than poor Costa Ricans. Eighty percent of Costa Ricans are insured by the CCSS, and 10

percent of the remaining 20 percent are insured through the State, provided that those 10 percent are below the poverty line. The other 10 percent can request public healthcare when needed and they can pay for the service directly (http://www.lachsr.org/documents/healthsystemprofileofcostarica-EN.pdf).

In addition to a public health sector in Costa Rica, there is a growing private sector. However, the private sector remains relatively small (Wilson, 1998), since there are only four private hospitals in the country. These hospitals generally have better equipment and service, and they are used mainly by wealthier Costa Ricans (J. Jaen, personal communication, May 25, 2005).

Problems with the CCSS

The CCSS has been facing issues with funding, and consequently with the quality and quantity of its services. Since 1941, when the CCSS was founded, it has been attempting to expand its coverage while also improving its services (Fonseca, 1991). However, there are several problems with the current health system, which include long lines for pharmacies in hospitals and clinics, and long waiting lists for diagnostic tests and surgery (http://cep.cl/UNRISD/References/Ref_Costa_Rica/Mary_Clark_Costa_Rica.doc). To alleviate these problems, the government set up Basic Teams for Integrated Health Care (EBAIS). Each EBAIS serves approximately four thousand people with a doctor, a nurse, and a primary health care technician. Since the EBAIS system has been implemented, the lines to visit a doctor and receive medication have somewhat decreased (http://www.icas.net/icasweb/docs/assessing.pdf). However, the system still requires

improvement because the lines remain long. Patients from the Área de Salud de Mora, a medical center in the South Central Region (http://www.ccss.sa.cr/actuarial/incu9905.htm), must wait between four and five hours in order to receive medication from the pharmacy, and there are only two technical workers in the clínica de Ciudad Colón for 25,000 insured citizens (http://www.nacion.com/ln_ee/2005/junio/03/sucesos3.html). The causes of these problems in hospitals and EBAIS centers are the increased cost of healthcare, corruption within the CCSS, and a presence of Nicaraguans who also use the free healthcare.

The cost of healthcare in Costa Rica has risen as a result of an increased number of elderly patients and a larger number of more expensive medical equipment. Because Costa Rica has been able to eradicate many infectious diseases, the diseases that hospitals are currently treating are similar to those that are found in developed countries and affect elderly citizens. These afflictions require more expensive equipment, longer hospital stays, and more extensive rehabilitation programs. The CCSS was unable to raise funds as quickly as healthcare costs were rising, especially after the economic recession in the 1980's (http://cep.cl/UNRISD/References/Ref_Costa_Rica/Mary_Clark_Costa_Rica.doc).

Corruption is also a dilemma within the CCSS. In April of 2002, former president of the CCSS, Rafael Angel Calderon, resigned after the public learned that he had been renting the house, at discounted rates, of a financial executive from a medical equipment supplier for the CCSS. In June of 2002, it was disclosed that Calderon had encouraged the Legislative Assembly to spend $39.5 million on medical equipment, because in

return, Calderon would receive $9.2 million from the medical equipment company (http://www.state.gov/g/drl/rls/hrrpt/2004/41755.htm).

Additionally, the presence of Nicaraguan immigrants has contributed to inadequate funds in the CCSS. Since healthcare in every public hospital is subsidized by taxes, healthcare is free to patients of public hospitals. The public hospitals have a policy of caring for every patient, and because of this policy, the public hospitals are unable to deny care for any individual, regardless of whether the patient pays taxes (http://cep.cl/UNRISD/References/Ref_Costa_Rica/Mary_Clark_Costa_Rica.doc). Because of this policy, a large number of Nicaraguan immigrants use the public hospitals; 30 percent of the patients at the Hospital Nacional de Niños are immigrants (Dr. Vargas, personal communication, May 26, 2005).

The Quality of Drinking Water in Costa Rica

The mass availability of safe drinking water in Costa Rica prevents water-borne illnesses. By 1996, the majority of Costa Ricans, 96 percent, had access to safe drinking water, a large percentage for Central America. For instance, 64 percent of Guatemalans currently have access to safe drinking water, and the figure is even lower for Nicaraguans, at 53 percent (Wilson, 1998). Examples of contaminants that commonly cause illnesses are bacteria, lead, disinfectants, and nitrates and nitrites. Certain types of bacteria, particularly *E. coli O157:H7*, cause abdominal cramps and diarrhea. Additionally, in the elderly and children under the age of five, the bacteria can cause a fatal condition called hemolytic uremic syndrome, which results in the destruction of red blood cells and kidney failure (http://www.epa.gov/safewater/healthcare/pdfs/booklet_healthcarevideo_suppliement.pdf).

BENEFITS OF THE IMPROVED HEALTH OF CHILDREN

The positive results of improving health care, and thus the health of a population, are manifold. Health has a direct effect on the quality of life an individual can experience. The health of children influences their physical development, particularly that of the brain. The cognitive abilities of individuals greatly impact their educational achievements and productivity. As a result, improved health of an entire population affects that population's economy (The World Bank Group, 2005).

Health Related Quality of Life

The World Health Organization defines health as "a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity" (Glossary, 2000). Although demographics can be used to quantify the health of a population in general, the health-related quality of life must also be assessed on an individual basis. While methods of determining quality of life vary, they generally focus on the same aspects of existence. The main topics judged include a person's physical and social well-being, moods and emotions, self-perception, and social skills. The quality of life a person experiences decreases when one or more of these components of the person's well-being is compromised (The KIDSCREEN Group, 2001). Thus, injury and disease are common detriments to quality of life. Specifically in childhood, if a medical condition is either left untreated, or has long term consequences, the afflicted person will face poor quality of life for an extended period of time. Preventing and remedying disease and injury in the form of institutionalized health care therefore increases the ability of a person to lead a productive life.

Importance of Cognitive Development

Children's health directly affects their ability to learn (Saunders 2004). The United States Surgeon General mandates that injury, poor nutrition, infection, and exposure to toxins adversely influence the biological development of children's central nervous systems. The consequences of such ill health can be noticed in the children's thinking, feeling, and behavior (Surgeon General, 1999). If children are not able to think properly, their ability to learn is hindered. The ability to learn, in turn, affects how well they can be educated.

Education allows children to score higher on intelligence tests, and therefore to grow into more economically productive adults. The World Bank Group's Early Childhood Development programs illustrate this point. These programs provide high-quality educational services and care to children in need. Children participating in these programs score higher on intelligence tests and grow into adults with greater earning potential, compared to children educated under lesser standards. In addition to becoming economically self-reliant, these adults, as a group, contribute to their nation's economic success (The World Bank Group, 2005). Thus, children's health maximizes their cognitive development and educational accomplishments, giving the children an opportunity to grow into productive adults.

Health Indicators and Gross Domestic Product

In addition to proving that healthy children become productive adults, demographics also show that the overall health of a population directly corresponds to its economic success. Healthy nations are often characterized by long life expectancy and

low child mortality rate (Mora 2000). Tables 1, 3, and 4 contain the gross domestic product (GDP) per capita, child mortality rate, and life expectancy from birth, respectively, to allow comparison among the Central American countries as well as with the United States and Canada. The data shows that countries with a high life expectancy and low child mortality, such as the United States, Canada, and Costa Rica, also have the highest GDP per capita of all the tabulated countries. Since the United States and Canada have demographics that relate a better health and economy than Costa Rica, it is evident that Costa Rica has not yet reached its maximum potential.

Table 4: Life Expectancy from Birth (2005 estimate)

Country	Life expectancy (years)
Australia	80
Canada	80
U.S.	77
Costa Rica	77
Panama	72
El Salvador	71
Nicaragua	70
Belize	67
Honduras	66
Guatemala	65

CIA, (2005). Rank Order – Life expectancy at birth. Retrieved June 15, 2005, from the CIA World Factbook Web site: http://www.cia.gov/cia/publications/factbook/rankorder/2102rank.html

The relationship between the health indicators and economic productivity has been further developed into a macroeconomic model (See Appendix C for details on this model). Bloom et al use this model to provide evidence developed using statistics that the GDP of a country is dependant on its life expectancy. The model mandates that for every year the life expectancy increases, the resultant GDP grows an additional four percent. This model demonstrates the increased health of a population results in greater economic productivity (2001).

CHILDREN'S HOSPITALS

In order to provide the best healthcare available for children, there are many children's hospitals all over the world. Although the United States has seventy children's

hospitals, this is unique as other countries do not contain as many. Costa Rica has one hospital specializing in pediatrics. The hospital has developed over the years, but is still striving for improvement.

Children's Hospitals in the United States

In 2004, U.S. News ranked all of the Children's Hospitals in the United States. Based solely on reputation, the Children's Hospital of Philadelphia is known as the best hospital specializing in pediatrics in the United States (http://pediatrics.about.com/gi/dynamic/offsite.htm?zi=1/XJ&sdn=pediatrics&zu=http%3A%2F%2Fwww.usnews.com%2Fusnews%2Fhealth%2Fhosptl%2Frankings%2Fspecreppedi.htm). In addition, a survey in 2005 for *Child Magazine* voted the Children's Hospital of Philadelphia the best pediatric hospital in the nation for the third year in a row (http://www.chop.edu/about_chop/child_mag/index.shtml). *Child Magazine* spent eight months to determine the highest-ranking hospital. Starting with 144 hospitals that are members of the National Association of Children's Hospitals and Related Institutions (NACHRI), the magazine created a survey with 167 questions. These questions pertained to survival rates for childhood cancers, heart surgeries, organ transplants, staff qualifications, nurse-to-patient ratios, availability of playrooms, and family services.

The Children's Hospital of Philadelphia has several units that are the best in the world. Four divisions were ranked first in the nation: the Cardiac Center, neonatology, oncology, and the orthopedics division. Emergency medicine was ranked fourth (http://www.chop.edu/about_chop/child_mag/).

Even though the Children's Hospital of Philadelphia is the highest-ranking

pediatric hospital in the United States, it is planning to increase in size. Because there are 750,000 visits to the hospital every year and the demand is increasing, a five-year expansion plan has been proposed. There will be four areas of expansion: the construction of a new Tower, a major expansion on the west side of the hospital, an extension of the Research Center, and the construction of a 450,000 square-foot building. The new Tower will expand the hospital's bed capacity; the expansion on the west side will include more operating rooms, laboratories, and a new pediatric imaging center; and the 450,000 square-foot building will expand the capacity for research and ambulatory care. The new Tower is estimated to cost $650 million and it will add a total of 1.2 million additional square feet (http://www.prnewswire.com/cgi-bin/micro_stories.pl?ACCT=159681&TICK=CHOP&STORY=/www/story/05-22-2001/0001499082&EDATE=May%2B22,%2B2001).

Hospital Nacional de Niños in Costa Rica

Dr. Carlos Sáenz Herrera founded the Hospital Nacional de Niños in 1964. In the 1950's, over 2,000 children were left with severe physical disabilities from a polio virus. Dr. Herrera, who was head of the pediatrics section at the Main Hospital in San José, wanted to expand the Pediatric Ward at the hospital. Realizing that only the expansion of the hospital would not be sufficient, Dr. Herrera decided to start funding for a new children's hospital. NCHA, National Children's Hospital Association, was founded to provide the necessary support for the children's hospital in Costa Rica (http://www.chcrf.org/national.htm).

Figure 1: Illustration of the current National Children's Hospital Costa Rica

(http://www.netsalud.sa.cr/ach/hospital.htm)

Currently, the Children's Hospital faces a dilemma: its capacity is too small and the equipment is outdated. Its diagnostic capability is outdated, and its treatment capacity does not match the needs of Costa Rica's growing population. Also, the hospital is not large enough to have separate units for treating various conditions. This is not optimal because children with similar conditions who are grouped together would receive more specialized care. The solution to these problems is to create a new Critical Care Tower to specialize in the needs of the children, and to provide adequate space and equipment for these types of circumstances.

FUNDRAISING

Background

Fundraising is an organized activity in which an organization solicits money from the public. Examples of fundraising activities include car washes and the selling of goods whose profits benefit the organization. The importance of fundraising is that it generates an influx of money that an organization would otherwise not be able to obtain (http://envision.ca/templates/resources.asp?ID=791).

The Fundraising Cycle

The process of fundraising is a thirteen-step cycle, beginning with an organization providing reasons for why a potential donor should donate money, and ending with the organization soliciting the gift. The steps that give reason for donating are creating a needs statement, defining objectives, and selecting fundraising strategies. Then, the organization must identify potential donors, create a fundraising plan, and assemble a communication plan. These are the steps in which our group is directly involved. After a communication plan is produced, the organization solicits the donation (Seiler).

The Search for Appropriate Donors

Donors nearly always belong to one of two groups: those who are personally enthused by an organization, or those who not personally touched by an organization, but rather are impressed by an organization's cause and/or deeds. Individual donors can be categorized under either group. Foundations and corporations fall under the latter group, although it is possible for the grant-writers to be personally touched by an organization.

The most likely donors are members of the board of directors and individuals who have directly benefited from an organization's services. Hospitals usually include former patients on their list of potential donors. Educational institutions often designate alumni as high priority (Poderis).

Funding for Children's Health

Funding for children's health has grown significantly in recent years. Between 1999 and 2003, funding for children's health rose 54 percent, from $390 million to $600 million, resulting in children's health funding increasing from 20 percent to 22 percent of all health grants (Lawrence, 2005). This increase in funding affects our project because the Children's Hospital Costa Rica Foundation will be more likely to receive more money now than it would have been able to receive in the past.

Critical Care Tower

The Critical Care Tower will cost roughly $18 million. Two-thirds of the $18 million will be used for the physical construction of the hospital, and the remaining one-third will be spent on medical equipment (Luis Gamboa, personal communication, March 30, 2005). To raise money for the Critical Care Tower, the CHCRF has constructed an amusement park. However, the amusement park will not provide sufficient funds for the Tower. The CHCRF will need large corporations and foundations to donate money. The foundation intends that United States will provide the majority of these donors.

Amusement Park

The amusement park in San José, the Parque de Diversiones, was built specifically for the children's hospital. It generates about $250,000 to $300,000 per year, and the hospital itself receives between 25 percent and 35 percent of the profit. The remainder of the profit is used for improvements on the park.

CHAPTER THREE: METHODOLOGY

The goal of this project was to aid the Children's Hospital Costa Rica Foundation (CHCRF) in providing better healthcare for children. First, we compiled an extensive list of potential donors to provide the funds for the Tower and its contents. Next, we created a business case, which includes the research on the hospital and information about societal benefits that will result from building the Tower. Finally, we made recommendations that will be used for the creation of a brochure.

COMPILING A LIST OF DONORS

The estimated cost of $18 million for the new Tower includes the construction of the actual Tower and the medical equipment inside. The CHCRF has been seeking donors to contribute to this sum, in the form of either money or equipment. The CHCRF plans on receiving the majority of the funds for this project from the United States because American corporations and foundations are more inclined to donate than those in Costa Rica. However, we also included American companies that have satellite bases in Costa Rica. These companies may be interested in contributing since they will be aiding their own community.

We used several different resources to determine which companies and foundations would be likely to donate to this cause (See Appendix D). The *Encyclopedia of Associations* served as a basis for our preliminary research. Some of the key words that we searched in the *Encyclopedia of Associations* were "children's health" and "hospitals." Most of the associations that we found by searching with these key words were groups of individuals who shared a common interest. As a result, few of the

foundations and corporations on our prioritized list originated from the *Encyclopedia of Associations*.

We also searched the Foundation Center Database, which is a tool for researching foundations that made or received grants prior to the year 2000. Our search criteria included words that were applicable to our project, such as "children," "health," "hospitals," "buildings," "Costa Rica," "Central America," and "Latin America." We entered several combinations of keywords such as those described above, and we found a total of fifty-one foundations from this program.

The Internet was valuable in our research. It provided lists of the top foundations and corporations that made grants in the past year. All of these resources helped us to identify numerous possibilities. We also used the Internet to seek details about the specific foundations and corporations. This then allowed us to decide which foundations or corporations would be interested in donating. We considered many factors when evaluating each foundation and corporation. First, we ascertained which foundations and corporations grant money internationally or, more specifically, to Latin America or Costa Rica. We then narrowed this list down to companies that have interests in children, health, or medicine. These steps helped us create our preliminary list. In order to determine which foundations and corporations would be a top priority, we examined their history of funding to find any cases similar to that of the CHCRF. In addition to this, we looked at their annual reports to learn about theirs funding capability. Finally, we ensured that the CHCRF's case did not fall under any of the restrictions or limitations set forth by the foundations and corporations.

We also investigated the hospital's past history of funding. We worked under the assumption that past donors may be likely to donate more money or equipment toward the new Tower. Claudio Solís, an administrator at the hospital, provided us with a booklet published by the hospital. It summarizes the past forty years of the hospital's existence, and also contains a list of associations and individuals that have information about the hospitals previous sources of funds.

After completing all of these steps, we compiled a list of possible donors. We created an organizational checklist to be completed for each potential donor (See Appendix P for the checklist). This checklist contained information such as the name of the company, its website, contact information, its interests of the types of programs it funds, and other guidelines for applying for a grant. We have gathered the detailed information of all of the potential donors in a binder. The checklist serves as a summarizing cover page for the information about each foundation and corporation in our binder. as a summary of the details.

DEVELOPING A BUSINESS CASE

A business case organizes an organization's ideas into a logical format and describes the importance of an investment in the organization' cause. Our case includes the mission of the CHCRF, its goals and objectives, the needs and history of the hospital, an exact description of the project, the estimated value of the new Tower, the primary contacts, and a means of donating. The business case will be used as a blueprint for the creation of a brochure. It will also serve as a reference for CHCRF representatives during interviews with potential donors. We discussed how we would obtain information

needed for the business case and decided to interview doctors for their expertise and families for their stories and opinions.

We obtained the necessary information by interviewing hospital staff regarding the history of the hospital and the impact of the new Tower on the general population and on children. We interviewed Mauricio Rosas, finance administrator, about the current state of the hospital's financial affairs. We then created and implemented a questionnaire for the head doctors in the four main departments that will be in the new Tower (See Appendix Q for the questionnaire). The questionnaire consists of questions about the current state of their individual departments and the impact of the new Tower on the services they will be able to provide We also spoke with Assistant Specialist in Radiology, Dr. Julio Jaen; Pediatric Surgeon, Dr. Marco Vargas from the Trauma Ward; Pediatric Surgeon, Dr. Ramon Rivera, from the Intensive Care Unit; and Pediatric Surgeon, Dr. Carlos Sirí, from the Burn Unit. Each doctor provided us with detailed information about his specific department. Each doctor also gave us an in-depth tour of his department, showing us the department's condition and describing the areas in which they lack. In additional interviews with Dr. Vargas, Dr. Rivera, Dr. Sirí, and the head of Pediatrics and Emergency Medicine, Dr. Hernán Rodriguez, we discussed the costs of the equipment for each of the doctors' floors.

During one of our visits to the hospital, we met with the social service department, which made a list of the departments that will be located in the new Tower. On June 14, 2005, two volunteers brought us to each of these departments and selected at random a family for us question. These departments were the Emergency Room, Orthopedics, the Pharmacy, the Laboratory, Physical Therapy, the Burn Unit, the

Intensive Care Unit, and the Outpatient and Inpatient divisions. The volunteers introduced our project to each family and received its consent to an interview. In some cases, the family also agreed to be photographed.

We asked each family to describe their experience at the hospital and its perception of the care. Unlike in our interviews with the doctors, we did not use a standardized questionnaire with the families. These interviews were not as formal as those with the doctors, and since each family's situation was different, we asked them more questions based on their initial responses.

FORMULATING RECOMMENDATIONS FOR THE BROCHURE

We discussed the contents and the purpose of a brochure with Ann Lundquist, an expert in non-profit management. However, due to time constraints, we were unable to actually produce a brochure. Instead, based on the information we gathered, we were able to formulate recommendations to the CHCRF concerning the creation of a brochure.

Cost Breakdown

In order to present the cost of the Tower in an attractive manner, the total cost was divided into subunits that are within the spending ranges of our donors. We interviewed the architect who designed the Tower to gain information pertaining to the cost of the physical building. We also interviewed the head doctors of the departments represented in the new Tower to discuss the cost of the equipment that they hope will be included. We considered these costs when thinking of different ways in which the total cost of the Tower can be divided into subunits. The breakdown of the total cost will be included in the brochure.

DEFINING SOCIAL IMPLICATIONS

While gathering and analyzing information about the hospital and its plans, we considered the possible social implications the construction of this tower may have. The information in our Background Chapter served as a basis on which we could begin our thinking. But upon completion of our research on the hospital's situation and Costa Rican society, we were able to envision more ways in which the tower could shape the future.

CHAPTER FOUR: RESULTS AND ANALYSIS

After researching over one hundred foundations and corporations, we formulated a list of potential donors who may be interested in contributing to the new Tower. In order persuade these donors, we conducted interviews with hospital staff and families to gather information about the current condition of the hospital.

FOUNDATIONS AND COPORATIONS

The *Encyclopedia of Associations*, the Foundation Center database, the Foundation Center websites, other websites, and the American Chamber of Commerce, provided us with hundreds of names of foundations and corporations. After exploring these resources, we compiled a preliminary list of 148 potential donors who may be interested in donating to the CHCRF. We also formed a high-priority list of eleven potential donors, which are very likely to donate money to the CHCRF.

Preliminary List

After conducting extensive research, we compiled a list of 148 foundations and corporations. Each of these potential donors has an interest in one or more of the following: general health, hospitals, children, and international relief (See Appendix E for complete list of potential donors).

High-Priority Lists

Reanalyzing each of the foundations and corporations allowed us to reduce the original list of 148 possible donors to eight high-priority foundations (See Table 5) and three high-priority corporations (See Table 6). The foundations and corporations on these lists promote children's health internationally, international building projects, or both. If a foundation or corporation appeared to match these criteria but had a restriction

that applied to our project, we eliminated it from our list. For example, some foundations do not donate to hospitals, whereas others only give money to religiously-affiliated organizations.

We considered our top eight foundations to be excellent fits. The list includes Bristol-Myers Squibb Foundation, Bill and Melinda Gates Foundation, W.K. Kellogg Foundation, Levi Strauss and Co., Mattel Children's Foundation, the Ronald McDonald House Charities, the Samuel Foundation, and Teammates for Kids.

The Bristol-Myers Squibb Foundation supports programs that improve the healthcare infrastructure of developing countries. It has branches in Costa Rica and it made an $87,000 grant to the Robert Wood Johnson University Hospital in New Jersey, which shows that this foundation has an interest in hospitals.

The Bill and Melinda Gates Foundation has a very large budget. Since 1994, it has donated $4,158,877,795 to improve global health. A portion of this money was used for global health technology and administration, along with infectious diseases. It also has a significant interest in the well-being of children.

The W.K. Kellogg Foundation grants money to Latin America, and its main focuses are children and health. In past years, the foundation has donated money to hospital and other medical centers worldwide.

Levi Strauss and Co. promotes children, health, and human services. They have made several donations in Latin America. In 2003, they donated over $3.6 million worldwide.

In 1998, the Mattel Children's Foundation donated to the California Children's Hospital in Tijuana, Mexico. It also has given $25 million to the Mattel Children's Hospital at UCLA.

The Ronald McDonald House funds internationally to programs that benefit children and have measurable results. It has donated $400 million since it was founded in 1974.

The Samuel Foundation is also located in Costa Rica. It funds internationally to programs that promote children's health. In Costa Rica, is has helped a hospital in San Isidro de Generalwith its air conditioning, medical equipment, and Intensive Care Unit.

Lastly, the Teammates for Kids Foundation is mainly interested in children's health. Over many years, it has donated so several children's hospitals worldwide.

Table 5: Top Eight Foundations

Name	**Reason for Inclusion on the List**
Bristol-Myers Squibb Foundation	-Donates to hospitals, health/medicine-related causes, projects in Costa Rica -Interested in healthcare infrastructure for developing countries
Bill and Melinda Gates Foundation	-Donates to health/medicine-related causes, programs that benefit children, and international projects -Has the largest asset size and total giving for 2003 -Since 1994, has donated $4,158,887,795 to global health programs
W.K. Kellogg Foundation	-Donates to health/medicine-related causes, programs that benefit children, and international projects, including those in Costa Rica -Focuses on Latin America, healthcare, and youth
Levi Strauss Foundation	-Donates to health-related causes, programs that benefit children, and international projects, including those in Costa Rica -Focus on healthy development of children in Costa Rica
Mattel Children's Foundation	-Donates to health/medicine-related causes, programs that benefit children, and international projects -Funded the children's hospital in Tijuana, Mexico -Donated $6 million to the Mattel Children's Hospital of UCLA; has donated a total of $25 million to that hospital
Ronald McDonald House Charities	-Funds internationally to programs that affect children, require funding, and have measurable results -Has donated $400 million since it was founded
Samuel Foundation	-Donates money internationally to health-related causes, programs that benefit children, projects in Costa Rica, and building -Has an office in Costa Rica
Teammates for Kids	-Interested in children's health internationally -Funds hospitals internationally

We also considered our top three corporations to be excellent fits. These corporations are Dole, Merrill Lynch, and Pfizer, which all have locations in Costa Rica. Dole also has a charitable contributions program, which donates money to hospitals. Merrill Lynch grants money to hospitals around the world and specifically has funded part of the Children's Hospital in Canada. Pfizer focuses on global health, and it has

donated money to health-related causes internationally, including Costa Rica. Additionally, it funds building projects, and it has helped medical clinics worldwide.

Table 6: Top Three Corporations

Name	Reason for Inclusion on the List
Dole	-Has a charitable contributions program, which donates money to hospitals -Has a branch in Costa Rica
Merrill Lynch	-Gives international grants to health-related causes, hospitals, and programs that benefit children -Gave to a children's hospital in Canada -Closest office is in Mexico
Pfizer	-Focus is on global health -Donates money to health-related causes internationally, including Costa Rica, and to building projects -Has a branch in Costa Rica -Has helped medical clinics internationally

INTERVIEWS

We held several interviews with doctors, hospital administrators, and families. The interviews with the doctors provided us with details about the condition of the hospital and the equipment within it. The families shared their opinions about the Hospital Nacional de Niños, as well as their experiences.

Needs of the Hospital

The doctors gave us facts about the condition of their departments. Based on the current situation, they gave us insight pertaining to what the hospital was lacking.

Technology

Although technology has progressed since the hospital's opening in 1964, the hospital still contains some of the original equipment. The rest of the equipment in the hospital has not been upgraded as often as it should be. For example, the Radiology

Department uses a twenty-one year old X-ray machine for the majority of its diagnoses. The shock room, the room that accepts patients arriving to the hospital by ambulance, contains an ultrasound that is used for general trauma, although it was designed to be used specifically for cardiac diagnostics. The hospital lacks an MRI machine, CAT Scan machine, and Nuclear Medicine. In order to receive an MRI, service must be ordered from a private hospital and paid for by the budget of the Hospital Nacional de Niños. As a result, an average of only three hundred children are able to receive an MRI yearly. The hospital has use of a CAT Scan and Nuclear Medicine from its neighbor, San Juan de Dios, for only a few hours on weekdays. The hospital must decide who receives the treatment and prioritize the order in which the patients are treated (J. Jaen, personal communication, May 25, 2005) (See interview, Appendix I).

Lack of Efficiency

In addition to lacking crucial equipment, the hospital is overcrowded. Most of the space is used for purposes other than those for which it was designed. The majority of the rooms are cramped with the current equipment, and rooms are too small to install new machines. This is the case in the Radiology Department: there are four small rooms off a short hallway adjacent to a congested waiting area (J. Jaen, personal communication, May 25, 2005). There is barely enough room for the machine alone, not to mention the patients, doctor, and family,. The shock room in the Trauma Ward, originally intended to receive one patient, contains two beds in which patients are treated (M. Vargas, personal communication, May 26, 2005) (See Appendix H). The Intensive Care Unit (ICU) has only two isolation rooms and if those rooms are occupied, the doctors are forced to leave beds empty in order to segregate the patient in need. The intermediate care ward receives

patients who are well enough to leave the ICU. The rooms in this ward were designed to fit two beds each, but instead contain six due to overcrowding (R. Rivera, personal communication, May 24, 2005) (See Appendix G).

Current Fundraising

In general, the different departments of the hospital do not coordinate their fundraising efforts when they request additional equipment outside the CCSS. Each department has its own association that seeks funds for itself. Therefore, different departments seek different companies to supply the necessary equipment. As a result, equipment manufactured by different brands is often not compatible with one another. Thus, when patients are transferred between departments, the equipment must be changed, and then discarded.

The lack of communication also impedes the hospital from raising funds efficiently. Currently, more than one department approaches a certain company to supply equipment and machines at different times. Companies prefer to be approached by their clients with a long term plan for future donations rather than being sought out every time new funds are needed (H. Rodriguez, personal communication, June 21, 2005).

Case Histories

The interviews with nine families provided us with positive opinions about the hospital and added hope for the future. During the interviews, the families gave us their perspectives on the hospital. Although the conditions of each patient were very different, they all agreed that the care that they received at the Hospital Nacional de Niños was "excellent." Two of the children had been seen at their local hospitals, but were misdiagnosed. After correctly diagnosing these two children, the Hospital Nacional de

Niños properly treated them according to their needs. The nine parents of children who had been treated at the Hospital Nacional de Niños also agreed that children require different care from adults. Because of this, the parents brought their children to the Hospital Nacional de Niños to receive specialized care.

The mother of Yorly, a fifteen year old girl born with a defect in her spinal column, realized that the hospital has many needs. Yorly's mother informed us that despite the lack of resources, the doctors have been able to provide all of the necessary treatments that Yorly's condition demands. Children also appreciate what their doctors do for them. Carla, a five year old girl who suffered from severe burns because of an accident involving cooking oil, adores her doctor. Whenever she sees him on television, she beams and proclaims to her siblings, "There's my Dr. Sirí!" Both the parents and the children believe that when they come to the Hospital Nacional de Niños, every patient receives the best possible care (See Appendix O for complete transcripts of the interviews).

Conclusion

Despite its structural limitations, the hospital has provided its patients with well-trained doctors, professional staff, and superb care. The doctors have studied and trained not only in Costa Rica, but also in other parts of the world such as the United States and Europe. The doctors' wish is to have updated equipment to provide better treatment.

Plans for the New Tower

After providing us with background about his own department, each doctor described to us the form that his department will take in the new Tower.

Radiology

In comparison to the current unit hospital, the unit in the new Tower will be significantly better. The Radiology Department will have bigger rooms that will be able to accommodate new pieces of equipment. The X-ray and ultrasound machines will be replaced, and the hospital will gain possession of new CAT Scan and MRI machines, and also be able to perform techniques in Nuclear Medicine. Therefore, the other public hospitals will no longer have to share these technologies with the Hospital Nacional de Niños. The expansion of the Radiology Department will help to eliminate the waiting time. When these improvements are made, the diagnostic capability of the Hospital Nacional de Niños will surpass that of any other hospital in the CCSS (J. Jaen, personal communication, May 25, 2005). (See Appendix I)

Trauma

The new Emergency Room will contain two separate shock rooms with one bed in each. These will be used for walk-in patients or for patients traveling in ambulances. To receive the patients arriving by helicopter, there will also be a third shock room in the trauma ward on the fifth floor. This will decrease the time between the arrival of patients by helicopter and treatment. The new rooms will have up-to-date equipment that will replace the current monitors and machines that are approximately fifteen years old. The Trauma Ward will also have its own operating rooms. These operating rooms will be beneficial because, at present, if a trauma patient needs immediate surgery and all of the general operating rooms are occupied, the surgery must be performed in the Emergency Room, which does not offer the most optimal environment. Along with the new services

for patients, there will also be better amenities for family of the patients (J. Vargas, personal communication, May 26, 2005). (Appendix H)

Intensive Care

Several major changes will be made in the ICU. The new Tower will contain ten isolation rooms as opposed to the two that the unit has now. These extra rooms will decrease the spread of infectious diseases within the department. Patients in the ICU often need several life support machines and monitors functioning simultaneously, and currently, there are not enough electrical outlets to consistently satisfy this need. For this reason, the entire Tower will be built with a reliable electrical infrastructure. The new ICU will meet the required standards pertaining to the design of the rooms and the resources available in the unit as a whole (R. Rivera, personal communication, May 24, 2005). (Appendix G).

Burn Unit

Another major part of the Tower will be dedicated to treating burn victims. The doctors in the Burn Unit hope that the newly constructed department will be well-known for its expertise and treatment and will serve as a hub for the patients in the surrounding region. The ward will be comprised of rooms physically larger than those in the current Burn Unit. Some of these new rooms will act as the units' own operating rooms. They will provide the necessary environment to allow for major skin grafts, which are not possible in the current hospital. Another section of the unit will be dedicated to rehabilitation, which will offer an increased number of beds and new services. Some of these rooms will isolate individual patients, since burn patients have a higher probability

than the general hospital patient of contracting infectious diseases (C. Sirí, personal communication, May 27, 2005). (See Appendix F)

Cost Breakdown

In the interviews with Dr. Rodriguez, Dr. Sirí, Dr. Rivera, and Dr. Vargas, we received information pertaining to the costs of equipment that their departments will need in the new Tower. They each provided us with a table that included the names of equipment and machines, the quantity of each, the cost of each, and a grand total cost for their unit (See Appendices J, K, L, M, Nfor costs of equipment).

Luis Chasí, the architect at Consida Arquitectura has drawn plans for the layout out of each floor of the Critical Care Tower (See Table 7). He measured the area of each department in square meters and in square feet based on the proposed design of the Tower. He had previously determined an average value for each unit of area which includes the cost of the actual structure, the electrical infrastructure, and the plumbing. Any built-in equipment or other special features, such as special light fixtures or oxygen valves, needed by the individual departments, are included in the equipment list of each department. Using this value, the architect has estimated the cost of each department in the Tower. The architect then combined the costs of departments that share a floor to determine the value of each individual floor. He then calculated the total cost of the Tower by adding the costs of each floor. The architect estimated the construction of the Tower to cost nearly sixteen million dollars. The CHCRF had originally informed us that the entire project, which includes the building and the equipment, was projected to cost $18 million. The actual cost of the Tower alone as approximated by the architects is almost equal to the original value of the entire project. In addition, through the interview

with the architect, we discovered that the most recent plans include a new eighth floor. However, it has not yet been determined what will be located on this floor.

Table 7: Cost of Infrastructure of Critical Care Tower

CRITICAL CARE TOWER, HOSPITAL NACIONAL DE NIÑOS

NAME OF AREA	M²	FT²	$	TOTAL FLOOR $
BASEMENT				
RADIOLOGY	1721	18517.96	$2,065,200.00	
EMERGENCY	138	1484.88	$165,600.00	
				$2,230,800.00
FIRST FLOOR				
OUT PATIENT	643	6918.68	$771,600.00	
EMERGENCY	1637	17614.12	$1,964,400.00	
PHARMACY	233	2507.08	$279,600.00	
LABORATORY	261	2808.36	$313,200.00	
				$3,328,800.00
SECOND FLOOR				
ORTHOPEDICS	540	5810.4	$648,000.00	
CLINICS	589	6337.64	$706,800.00	
				$1,354,800.00
THIRD FLOOR				
SURGURY	1323	14235.48	$1,587,600.00	
				$1,587,600.00
FOURTH FLOOR				
INTENSIVE CARE UNIT	1150	12374	$1,380,000.00	
				$1,380,000.00
FIFTH FLOOR				
PHYSICAL THERAPY	447	4809.72	$536,400.00	
TRAUMA	679	7306.04	$814,800.00	
				$1,351,200.00
SIXTH FLOOR				
BURN UNIT	1127	12126.52	$1,352,400.00	
				$1,352,400.00
SEVENTH FLOOR				
CENTRAL SERVICE	525	5649	$630,000.00	
TO BE DETERMINED	601	6466.76	$721,200.00	
				$1,351,200.00
EIGHTH FLOOR				
SOCIAL WORK	555	5971.8	$666,000.00	
TO BE DETERMINED	386	4153.36	$463,200.00	
				$1,129,200.00
ROOF				
HELIPAD	588	6326.88	$705,600.00	
				$705,600.00
TOTAL	**13143**	**141418.7**		**$15,771,600.00**

Source: Consida Arquitectura

The CHCRF had also informed us that one-third of the total value of the project would likely account for the cost of the equipment that will be included in the hospital. Based on the original estimate of $18 million for the entire project, $6 million of this would absorb the cost of the equipment. After consulting key doctors, we found that the equipment that will be present on the first floor, in the ICU, and in the Burn Unit have an estimated value more that $5 million (See Table 8). However, the actual costs of equipment of these floors is higher than the value we have calculated since the prices of some of the equipment is currently unknown. After gathering the costs from the first floor, ICU, and Burn Unit, and taking into consideration the cost of equipment and units that are missing, we believe that the total cost of the equipment will be higher than the projected $6 million. However, if it remains true that one-third of the total project will cover the equipment, then according to the architect's estimate of $16 million for the construction, the equipment would cost $8 million.

Table 8: Estimated costs of equipment for the Critical Care Tower

Section	**Cost of Equipment**
Reception and Emergency Room	$ 751,128
ICU	$ 2,071,600
Burn Unit	$ 248,115
Trauma Unit	$ 429,617
Surgery Ward	$ 2,365,500
Pharmacy	TBD
Orthopedics Department	TBD
Radiology Department	TBD
TOTAL	**$ 5,865,960**

Source: Doctors of Hospital Nacional de Niños

Combining all of the costs that we have receieved for each floor including equipment, the total cost is nearly $22 million. This value is significantly higher than their original estimate of $18 million. However, the total cost of the tower will be even larger than $22 million after the cost of the equipment in the Pharmacy, Orthopedics and Radiology Departments, along with the is determined.

CHAPTER FIVE: CONCLUSION

After conducting preliminary research about Costa Rica and analyzing our interviews, we have agreed that it is imperative that the Hospital Nacional de Niños in Costa Rica build a new Critical Care Tower.

After interviewing several doctors and families, we noticed that the two groups have different opinions about the condition of the hospital. The doctors have been trained and worked in several different hospitals worldwide, which makes them experts in their fields. Therefore, they know the extent of the possibilities in medicine and technology, and are aware of the numerous ways in which the hospital can be improved.

All of the families believed that they were receiving the best possible care. However, their opinion is biased due to their lack of expertise in health care. Since the general public views the hospital's care as excellent, the administration hopes that the planned improvements will make the Hospital Nacional de Niños comparable to a state-of-the-art hospital in the United States. Even though our sample size was relatively small to represent the entire population, it provided anecdotal evidence of satisfaction, and it gave us stories that can be used to help persuade potential donors.

After we thoroughly researched foundations and corporations, we found that there were many that were interested in donating to programs that promote the health and well-being of children. However, other factors such as the geographical location of the program significantly reduced our options. There were a numerous foundations and corporations whose interests matched hospital's situation, yet their programs restricted these American entities from funding internationally. Overall, we were still able to identify eight foundations and three corporations as top priorities. The hospital's

situation directly corresponds with the interest of each top-priority foundation and corporation, and is not associated with their programs' restrictions.

CHAPTER SIX: RECOMMENDATIONS

After analyzing all of our results, we were able to make recommendations to the Hospital Nacional de Niños, and to the CHCRF. We feel that through following these recommendations, both the Hospital Nacional de Niños, and the CHCRF will improve their respected situations.

DIVISION OF COSTS

Having gathered the various costs from the construction of the Tower and the equipment that it will contain, we realized that a potential donor may be more likely to contribute to specific entities in the Tower, rather than giving a general donation. Donors prefer to know exactly how their money will be used. Knowing this, we have created many different ways to break down the total cost into smaller units that will provide several practical options for potential donors. We suggest that the CHCRF use a combination of some or all of these methods of dividing the costs, to provide options for potential donors. These methods of dividing the costs are:

- The cost of each floor as mandated by the architect
- The cost of the equipment per floor
- The cost of equipment manufactured by a certain company. For example, all of the stretcher beds could comprise one package and be advertised to companies such as *Stryker*.
- The cost of a specific department, such as Radiology or the Burn Unit.
- The cost of the combination of two or more similar departments. For example, the Emergency Room and the Trauma Ward could be advertised as one package because they serve a similar pupose.

- Divide the cost of the construction of the Tower by the total number of square feet to estimate the cost of a square foot of the Tower
- Divide the cost of the construction of a certain floor by the number of square feet on that floor to estimate the cost of a square foot of that floor
- Divide the cost of the equipment for the whole Tower by the total number of square feet to estimate the cost of equipment per square foot of the Tower
- Divide the cost of the equipment for a certain floor by the number of square feet on that floor to estimate the cost of equipment per square foot of that floor
- Divide the total cost of the building by the projected number of children who will be treated in one year. This will give a monetary value to the cost of the treatment of one child who will be treated in the Tower.
- Divide the total cost of a particular department by the projected number of children who will be treated in one year in that department. This will give a monetary value to the cost of the treatment of one child in the particular department. This method and the previous one will remind the donors of the purpose of the project: to save the lives of children.

We recommend that the CHCRF gather the rest of the cost information pertaining to the equipment so they have a better estimate of the actual cost of the project. The CHCRF may also want to increase that estimate by a certain percentage to account for inflation and any costs that might unexpectedly appear. Had we been able to acquire the costs for all of the equipment needed in the entire Tower, we could have organized the

information into a complete list containing the total number of each piece of equipment needed and the total cost for the whole Tower.

BUSINESS CASE AND BROCHURE

We wrote the business case to provide information about the hospital and the CHCRF to potential donors (See Appendix R). When representatives of the CHCRF conduct interviews and meetings with the potential donors to convince them to donate, the CHCRF representatives should use this document as a reference for specific facts about the Hospital Nacional de Niños and the CHCRF. Another reason for the development of the business case was to serve as a basis for the brochure. Because the business case contains so much information, we recommend that the CHCRF use the most vital details from it to create the brochure. The brochure should be sent to each foundation and corporation in consideration to introduce the CHCRF and Hospital Nacional de Niños to them. The brochure should be a concise document presented in a creative manner to catch the eye using the emblem and official colors of the CHCRF. It should include pictures of children inside the hospital to give meaning to the project. Specifically, the following information should be included in an effective brochure:

- Brief history of the Children's Hospital and CHCRF
- Needs of the Hospital
- The Hospital's plans for the future, namely the Critical Care Tower
- Benefits of the construction of the Tower
- Breakdown of the total cost of the Tower using the recommendations above
- CHCRF's contact information

During our visits to the hospital, we found opportunities for the hospital to improve its communication among departments. We noticed that the departments fail to communicate with each other when they are trying to raise money for their own needs.

To address this issue, we recommend that a committee be formed to unite the hospital. This committee would discuss the needs of every department and create a prioritized list of what the hospital needs as a whole. The committee would also consider the dates when the machines would need to be replaced, and create a timeline for requesting donations and purchasing the new machines. Lastly, the committee could approach companies to donate equipment with a long term plan rather than several individual requests. If the hospital implemented these recommendations, the amount of waste would be reduced because the equipment would be compatible among units.

TELECOMMUNICATIONS

Telecommunications has become an increasing popular and useful practice among hospitals around the world. For example, through telecommunications, doctors are able to communicate with each other through live broadcasts in which sounds and images are transmitted. Using this technology, doctors can hold informative conferences and also provide assistance during medical procedures. Telecommunications is used instead of doctors traveling to physically be present at another hospital. This could be very beneficial to the Hospital Nacional de Niños.

We recommend that the Hospital Nacional de Niños consider dedicating a portion of the new building to telecommunications. If implemented, the Hospital would be able to communicate with other hospitals from around the world. There are numerous Children's Hospitals that have much to offer to Hospital Nacional de Niños. From these hospitals, the Hospital Nacional de Niños will be able to gain valuable information that will improve their practices. Likewise, the Hospital Nacional de Niños would be able to

contribute its knowledge with the less developed hospitals within Central America, assuming that these hospitals would eventually adapt telecommunications systems as well. Figures 2 and 3 visually represent interconnection between possible hospitals as a result of telecommunications.

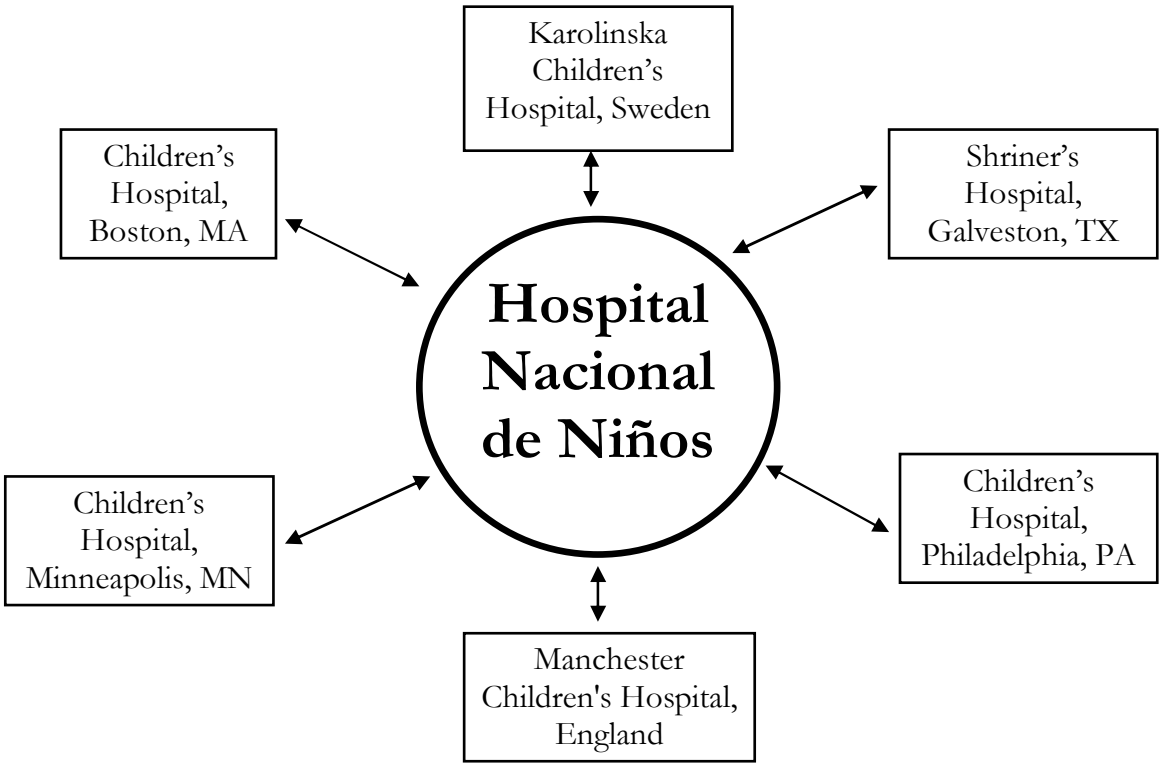

Figure 2: Telecommunications Around the World

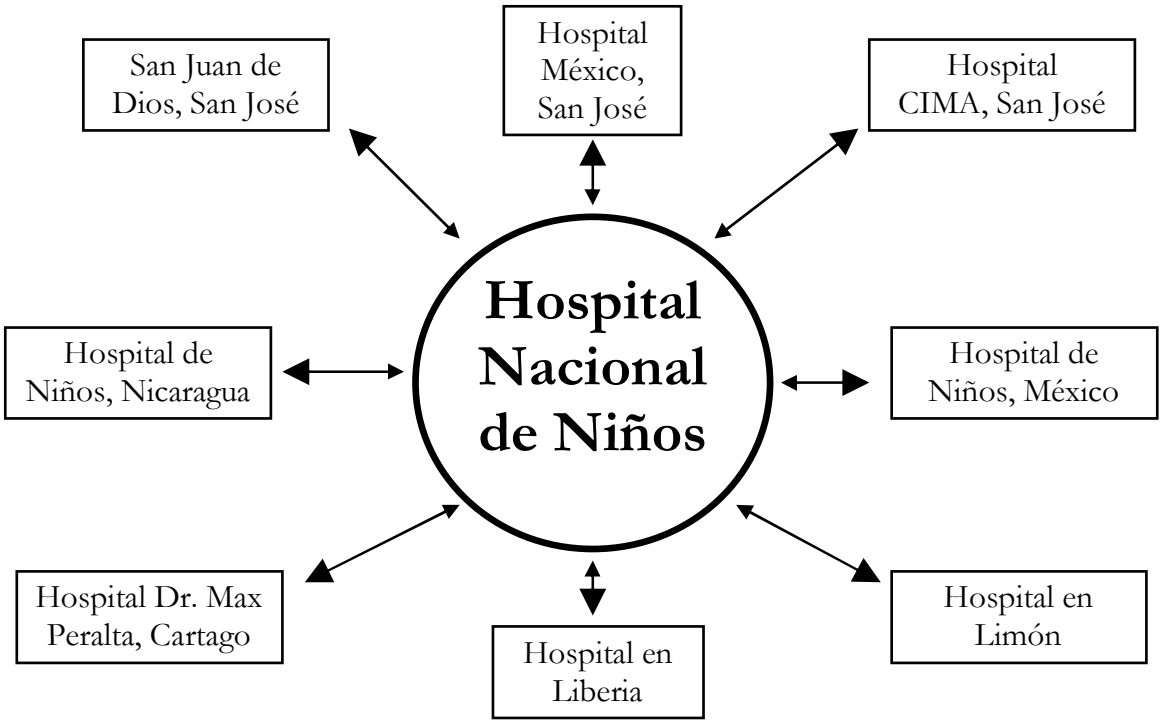

Figure 3: Telecommunications within Central America

CHAPTER SEVEN: SOCIAL IMPLICATIONS

The goal of this project was to was to aid The Children's Hospital Costa Rica Foundation in their quest to improve the quality and quantity of health care provided to children. The immediate way in which this would be implemented is through the addition of the Critical Care Tower to the Hospital Nacional de Niños. If this goal becomes a reality, there will be several long term impacts on various levels of society. First of all, the children of Costa Rica, the population for whom the tower was designed, will receive better quality and more extensive care. As a result, they will become healthier and lead more productive lives than if they had not received such specialized care. However, the children of Costa Rica are not the only ones that will reap benefits from the tower. The CCSS, the whole population of Costa Rica, the children and their families in surrounding countries, and businesses and medical professionals from other parts of the world will also be affected. Although the tower was probably not designed with these specific groups in mind, we feel that they will still benefit from the addition of the new tower.

The CCSS is very important to the way that Costa Rican society operates. Since it provides universal and free health care, it decreases the differences between the upper and lower class. As seen in other developing countries, the tension between classes is often the root of problems of the country, such as violence and war. Because 20 percent of Costa Rica is considered to be in poverty, the role of the CCSS is crucial in providing this portion of the population with free healthcare, so that they can receive medical attention despite their social status. However, the CCSS has recently been declining (See Chapter Two). If it continues to decline, or eventually fails, the gap between the rich and

the poor will increase. The poorer people will remain sick because they will not be able to receive healthcare. If this occurs, Costa Rica will no longer be unique in comparison to every other Central American country with respect to the factors that characterize Costa Rica as a developed nation. AS a result, Costa Rica may start to acquire problems similar to those of its neighbors. The deterioration of the CCSS would harm Costa Rica's economy as well. If people are not healthy, then they will not be able to work efficiently. This will not only make the individuals poorer, but it will also be detrimental to the nation's economy. In addition, the countries that do business with Costa Rica will suffer as well. All of these factors may lead to a downward spiral of the regression of Costa Rica.

The Caja Costarricense de Seguro Social will benefit greatly from the construction of the tower. The improved Hospital Nacional de Niños will add to the assets of the CCSS. The doctors of the Hospital predict that if their wishes are made a reality through the construction of the tower, then the Hospital Nacional de Niños will be more comparable to the top children's hospitals in the United States. If this hospital stands out as exceptional, families from other Latin American countries may travel far distances so their children can receive the specialized and state of the art care. Currently, the hospital has a policy that they treat every child who seeks their care. For example, children from Nicaragua, who make up 30 percent of the patients treated at the Hospital Nacional de Niños, receive treatment although they do not pay the taxes that support the CCSS of Costa Rica. This large percentage of patients is one of the factors negatively affecting the financial state of the CCSS. However, if many children start coming to the hospital from outside of Costa Rica, the CCSS's situation will become increasingly

worse. The CCSS will have to find a way to effectively deal with this issue of foreign patients. Even though it is generous of Costa Rica to reach out to so many children and improve their health and lives, if they do not adapt to the potential increase in foreign demand, Costa Rica will suffer.

Not only will the health care improve with the construction of the tower, but so will the country's economics. If a company based outside of Costa Rica is looking to expand to other parts of the world, it will consider many factors concerning the society and economy of potential satellite locations. Companies look for stability and other positive attributes in a country to which they are considering to move. Knowing that there is a hospital that will provide specialized health care to the children of their employees, may be a deciding factor to make them choose Costa Rica opposed to another country. Having quality health care for children in general will help build a healthy generation of future employees. The arrival of new businesses in Costa Rica will increase trade opportunities for both Costa Rica and the countries of the business' origin.

With state-of-the-art equipment and an increased capacity, the Hospital will have all of the capabilities necessary to treat most ailments. As a result, the Hospital will be able to conduct medicine according to what are universally considered "best practices." Best practice can be defined as treatment that has been ascertained optimal after evaluating the possible results of the treatment (http://en.wikipedia.org/wiki/Best_practices). A hospital that boasts such superior abilities would certainly stand out as a beacon among the surrounding medical facilities. Thus, it will be called upon to share its knowledge of "best practices" with less proficient hospitals.

The expansion of the hospital will demand an increase in staff. Since the new tower will offer many high-technology treatments, the new opportunities provided by these improvements may entice many students to study pediatrics and practice at the Hospital Nacional de Niños. Students may choose to attend the University of Costa Rica in San Jose to study medicine because of its close proximity to the Hospital Nacional de Niños. Not only will the hospital attract new local staff for immediate and future needs, but also, doctors from around the world may want to work at the Hospital Nacional de Niños. Since this project will have such a positive impact on the society of Costa Rica and possibly the surrounding countries, the improved hospital with its state-of-the-art tower may act as an incentive for doctors to start a career at this hospital. Outside influence on the Hospital Nacional de Niños may lead to the formation of partnerships with other hospitals and medical schools. For example, students in medical schools in the United States involved in such a partnership may chose to continue their training or serve time as volunteers at the Hospital Nacional de Niños rather than in a local hospital. In such alliances, both parties benefit from the other's expertise.

However, adjustments would be necessary to enable these practices to be implemented. The staff in the new tower will need to be trained in the ways of the best practices. They will have to become experts at using the new equipment and at carrying out new procedures that will be possible as a result of the improvements to the Hospital. Best practices will demand the development of programs which will help disseminate the Hospital's wealth of information. One example of this type of program may be a traveling clinic. This clinic could travel to different hospitals in Costa Rica to treat patients using best practices and to show other doctors how to practice using superior

methods. Also, the Hospital Nacional de Niños may hold seminars in which doctors from other hospitals can learn about the better practices in medicine.

In these ways the Hospital Nacional de Niños might help to make the world more interconnected. Costa Rica and other countries will rely on each other in areas related to economics and healthcare. If the tower is a success as planned, and all of these positive benefits are actualized, Costa Rica will sett an example to the surrounding developing Latin American countries. Costa Rica's history shows how it has progressed over the recent years. It also shows that it is possible for another developing nation to follow in its footsteps.

APPENDICES

APPENDIX A: CHCRF DETAIL

The Children's Hospital Costa Rica Foundation (CHCRF) is an organization whose main objective is to raise money to fund the Hospital Nacional de Niños. The CHCRF was founded by the National Children's Hospital Association of Costa Rica. This foundation and the Hospital Nacional de Niños were created as a result of the poliomyelitis epidemic that spread through Costa Rica in the 1950s. The existing hospitals during the epidemic were incapable of providing treatment to the overwhelming number of children affected by the virus. Dr. Carlos Sáenz Herrera, Head of the Pediatrics Ward of the Hospital San Juan de Dios, initially suggested that his ward be expanded to house the infected children. However, he soon realized that an expansion of his ward would not be sufficient to accommodate all of the children. It would be necessary to construct a separate hospital, the Hospital Nacional de Niños, specifically dedicated to the care of children (chcrf.org). In 1954, Dr. Sáenz and Dr. Roberto Ortiz Brenes together created the National Children's Hospital Association to raise awareness about the need for a children's hospital and to raise funds for its construction (http://www.parquediversiones.com/ig.asp).

The current situation in Costa Rica presents a need for a new Critical Care Tower, which will be materialized as a seven-story tower. The current children's hospital does not have the capacity to hold the number of children that they can take in, nor are there separate sections to house children with different afflictions. The new Tower will have more rooms and separate wings for children with a variety of diseases.

The main benefactors of the foundation are both individuals and corporations. Another source of income is the Parque de Diversiones, which also entertains children by offering a multitude of rides and attractions. The Parque de Diversiones produces US$250,000 to US$300,000 profit per year, with 25 percent to 35 percent of the proceeds benefiting the hospital. The remaining money is reinvested in the park (www.chcrf.org).

The hierarchy of the Foundation is comprised of a Board of Directors, Officers, and an Advisory Committee, all members of whom are volunteers. Luis Gamboa, our liaison, is the President, a Founding Director, and a Board Member. Manuel González is the Vice President and a Founding Director. Gonzalo González is the Treasurer and a Founding Director. The founding directors are depicted in Figure 1 (www.chcrf.org). We are also working closely with Ann Lundquist, who will continue our project after we leave Costa Rica.

Figure 2: Gonzalo González, Luis Gamboa, and Manuel González

APPENDIX B: INTERNATIONAL DOLLAR

The International dollar (Intl $) is a hypothetical unit of currency that is calculated by taking international exchange rates into account. The International dollar has the same purchasing power parity as the United States dollar (http://www.answers.com/main/ntquery?method=4&dsid=2222&dekey=Purchasing+power+parity&gwp=8&curtab=2222_1). For example, consider a fictional country whose unit of currency is X$. Assume that generic basket of goods that costs U.S.$500 and X$20000 in the fictional country, and that milk costs X$100. If one wanted to determine the number of International dollars that the milk costs, the calculation would be 100*(500/20000) = Intl$2.50.

APPENDIX C: MACROECONOMIC MODEL

The following macroeconomic model was derived by Bloom et al, who used it to calculate the rate at which gross domestic product grows as a result of increased life expectancy. Life expectancy, in this case, is used as a measure of the level of health in a population.

$$\Delta y_{it} = \Delta a_t + \alpha \Delta k_{it} + \beta \Delta l_{it} + \phi_1 \Delta s_{it} + \phi_2 \Delta exp_{it} + \phi_3 \Delta exp_{it}^2 + \phi_4 \Delta h_{it}$$

$$+ (1 - \rho)(a_{i,t-1} + \alpha k_{i,t-1} + \beta l_{i,t-1} + \phi_1 s_{1,t-1} + \phi_2 exp_{i,t-1} + \phi_3 exp_{i,t-1}^2 + \phi_4 h_{i,t-1} - y_{i,t}) + \varepsilon_{it}$$

All of the parameters in the model are estimated so the model is applicable in a variety of situations. Variables and key vocabulary are defined as follows:

Δ = change in the variable over time, the final value minus the initial value

t = time in years

t-1 accounts for lag time in results

i indicates the country for which the data is taken

y = log of the total gross domestic product (GDP)

a = log of the total factor productivity (TFP), a product from a source which is neither labor nor capital (Government of Newfoundland and Labrador)

k = log of the physical capital

capital: cash or goods used to generate income (investorwords.com); the "goods" are physical capital

l = log of the labor force, total number of people employed or seeking employment (investorwords.com)

s = log of the average amount of schooling of the population, in years

exp = average amount of experience, in years

exp^2 = average amount of experience, in years, squared; each worker's experience is squared before the average is calculated

h = log of the life expectancy, in years

$1 - \rho$ = the rate at which all TFP converge to the world's TFP

α, β, ϕ_1, ϕ_2, ϕ_3, ϕ_4, are proportionality constants that are determined by the specific data. In this case, Bloom et al uses data from a panel of countries between 1960 and 1990 to calculate his results.

APPENDIX D: RESOURCES USED TO IDENTIFY POTENTIAL DONORS

We searched five main sources to find potential donors. These include the *Encyclopedia of Associations*, the Foundation Center database, the Foundation Center website, other websites that provided names of foundations and corporations, and a list of members of the American Chamber of Commerce. Although we found the majority of our potential donors from these resources, we were introduced to a small number by word-of-mouth.

Encyclopedia of Associations

The *Encyclopedia of Associations* is a collection of three volumes of books that provide a list and description of all associations in the U.S. It also contains an index, where the researcher searches for a key word. The index provides a list of associations that are related to the key word and their article numbers. The researcher then finds the article number in the three volumes and encounters a description of the association.

The Foundation Center Database

The Foundation Center Database is a computer program that contains approximately fifty thousand foundations through the year 2000. It contains several boxes where we entered keywords. Some of these boxes include the grantmaker's geographic focus, grantmaker's name, field of interest, and grantmaker's location.

The Foundation Center Website

The Foundation Center website, www.fdncenter.org, lists the top fifty or one hundred foundations and corporations in several categories. The lists that we searched were the Top U.S. Foundations by Asset Size, Top U.S. Foundations by Total Giving, Top Corporate Grantmakers by Asset Size, and Top Corporate Grantmakers by Total

Giving. Each list began with the single foundation or corporation that had the largest asset size or total giving, and continued with the other foundations or corporations in decreasing order. The list provided the names of each foundation or corporation, the asset size or total giving of each, the location of each, and the websites of the majority. We clicked on the link to the website of each foundation or corporation and searched the website. If the Foundation Center website did not provide a link to a foundation's or corporation's website, we researched the foundation or corporation by utilizing Google.

Other Websites

Besides the Foundation Center website, we found that other useful websites were http://www.fundersonline.org/, http://dmoz.org/Society/Philanthropy/Grants/Grant-Making_Foundations/Children/, www.activistcash.com, and www.fundsnetservices.com. Some of these websites allowed us to type key words, such as "children" or "health," and returned foundations and corporations that matched the criteria. Other websites provided a list of descriptions of dozens of foundations and corporations. Since we searched these other websites after utilizing the other resources, we found that many of the foundations and corporations listed on these websites were duplicates of potential donors that we had already researched.

American Chamber of Commerce

The American Chamber of Commerce provided us with a list of thirty-eight American corporations that have branches in Costa Rica. We typed the name of the corporation into Google and searched the website of each corporation. Although we found that many corporations would be unlikely to support the Children's Hospital because they focused on education or sustainable development, we printed information

about each corporation. It is possible that members of the CHCRF have connections with corporations, and therefore can convince a corporation to donate money, even though the corporation might not normally donate to a cause such as the Children's Hospital.

Word of Mouth

We included some foundations and corporations in our list because other individuals had informed us of their existence. Another possibility was that we had previously known about a particular foundation or corporation. If we heard about a foundation or corporation through word of mouth, we typed the name of the potential donor into Google and conducted research through websites.

APPENDIX E: COMPLETE LIST OF POTENTIAL DONORS

Foundation Center Website
(http://fdncenter.org/research/trends_analysis/top50giving.html)

Abbott Laboratories
Alcoa Foundation (also in FCD with Health AND International)
Annenberg Foundation
Bristol-Myers Squibb Foundation
ExxonMobil Foundation
Ford Foundation
Ford Motor Company Fund
Bill and Melinda Gates Foundation
General Motors Foundation
IBM
Intel
WK Kellogg Foundation
Levi Strauss & Co. Corporate Giving Program
Lilly Foundation
John D. and Catherine T. MacArthur Foundation
Merck Company
Merrill Lynch
Gordon and Betty Moore Foundation
Open Society Institute
The David and Lucille Packard Foundations (also in FCD with Latin America)
PepsiCo Foundation
Pew Charitable Trusts
Pfizer
Procter & Gamble Company Corporate Giving Program

Foundation Center Database

Search: Fields of Interest: Central America
J. Homer Butler Foundation
Child Health Foundation (Google? Child Health Foundation. May be old)
Children's Haven Inc.
Compton Foundation, Inc.
Plumstock Fund
Public Welfare Foundation Inc.

Search: Fields of Interest: Costa Rica
HB Fuller Community Affairs Program

Search: Fields of Interest: Latin America
Daniele Agostino Foundation, Inc.
American Express Philanthropic Program
Atkinson Foundation
BHP Copper Corporate Giving Program
Blue Oak Foundation
Cabot Corporate Giving Program
Cooper Industries, Inc. Corporate Giving Program
Charles Delmar Foundation
Exposition Foundation, Inc.
Exxon Corporate Corporation Contributions Program
Frees Foundation
Goldsbury Foundation
International Foundation
The David and Lucille Packard Foundations (also in FCW)
Wagner Foundation Ltd.

Search: Fields of Interest: Health AND Geographic Focus: International
Alcoa Foundation (also on FCW)
Jennifer Altman Foundation
ARCO Chemical Company Contributions Program
AT&T Foundation
Bankers Trust New York Corporation Contributions Program
Brothers International Corporation Contribution Program
Campbell Soup Company Giving Program
Chase Manhattan Corporate Social Responsibility Program
Citibank/Citicorp Corporate Contributions Program
Colgate Palmolive Corporate Giving Program
Nathan Cummings Foundation, Inc.
John Deere Corporate Giving Program
Dominion Resources, Inc. Corporate Giving Program
Kodak Company Corporate Contributions Program
Eaton Corporate Contributions Program
Johnson & Johnson Corporate Giving Program
Medtronic Company
Oryx Energy Company Corporate Contributions
Pioneer HiBred International Inc. Foundation
Rockwell International Corporation Contributions Program
Dorothea Haus Ross Foundation
SAS Institute Inc. Corporate Giving Program
Silva Casa Stiftung Trust
JW Thompson Company Contributions Program
Timken Foundation of Canton

United Healthcare Corporation Contribution Program

Search: Fields of Interest: Health care, infants
Zaleski Family Foundation

Search: Grantmaker Name:
Charles Stewart Mott Foundation
Rockefeller Foundation

Encyclopedia of Associations
A.L. Mailman Family Foundation
American Women's Hospitals Service Committee of AMWA
Angelcare
Association for Healthcare Philanthropy
Association of Maternal and Child Health Programs
Bethany Christian Services International
Child Health Foundation
Children Inc.
Christian Children's Fund
National Association of Children's Hospitals and Related Institutions
Save the Children
Shriner's Hospital for Children
Society for Adolescent Medicine
United Nations Children's Fund
US Fund for UNICET
Variety Clubs International
Zero to Three

www.activistcash.com
Hasbro Charitable Trust
Hasbro Children's Foundation
Mattel Children's Foundation
The May Department Stores Company
Teammates for Kids Foundation

http://dmoz.org/Society/Philanthropy/Grants/Grant-Making_Foundations/Children/
Laulhere Mauri Cherese Foundation

www.fundersonline.org
Robert and Helwig Samuel Foundation

Fundsnet
(www.fundsnetservices.com/childfou.htm)
Baxter International Foundation

(www.fundsnetservices.com/internat.htm)
Brother's Brother Foundation
Glimmer of Hope Foundation

(http://www.fundsnetservices.com/foundm.htm)
Dennis Martinez Foundation

Word of Mouth
Amber Monell Foundation
Conrad Hilton Foundation
Dana Foundation
Kresge Foundation
Medical Benevolence Foundation
Shell Oil Company Foundation
Ronald McDonald House Charities

American Chamber of Commerce
3M
American Airlines
Bridgestone-Firestone
Bristol-Myers Squibb
Century 21
Chiquita
Cisco
Clarion
Coca-Cola
Delmonte
Deloitte and Touche
Delta Airlines
DHL
Dole
Ericsson
Ernst and Young
FedEx
GE
Gillette

GlaxoSmithKline
Kimberly Clark
Kraft
LL Bean
Lucent Technologies
Marriott
McDonald's
Microsoft
Novartis
Oracle
Payless
PriceWaterhouseCoopers
Scotiabank
Siemens
Sykes
Unisys
United Airlines
UPS
Verizon

TOTAL: 148 Foundations and Corporations

APPENDIX F: INTERVIEW WITH DR. SIRÍ, BURN UNIT

Dr. Carlos Sirí is the Head Pediatric Surgeon of the Burn Unit. He studied medicine in. We interviewed him on May 27, 2005 using the questionnaire in Appendix P.

The causes of burns in Costa Rica are similar to those of the United States and other developed countries. The main causes of burns are touching a hot object, fire, electricity, chemicals, and hot liquids at home, usually located in kitchen.

The original Burn Unit was created in 1985 in an area that is not specifically designed for this use. Currently**,** the staff consists of four specialists including Dr. Sirí, three plastic surgeons, two general practitioners, one head nurse, five auxiliary nurses, one anesthesiologist, and one secretary. Staff will need to be increased after the completion of the new unit in the Tower. The CCSS will regulate this expansion.

The new Burn Unit will be housed in one area, increasing both the quality and efficiency of care. It will contain its own specialized equipment and facilities, rather than share them as it does now. Specifically, the new unit will have its own Specialized Operating Room, which will reduce the wait time from three days to one, and enable the doctors to perform more skin grafts. The unit will also have an increased capacity of isolated rooms and beds. Currently, the unit has two isolated rooms, but the unit in the new Tower will have eight. The unit will be able to help more children because it will contain twenty-six regular beds in comparison to the twelve it has now. Since all of the equipment necessary for treatment will be centralized in one unit, the patients will not be transported throughout the hospital. This will reduce the risk of infectious diseases, which is crucial since burn patients are susceptible to these illnesses due to their open

wounds. The goal is build a new burn unit that will be able to provide the same care as the Shriner's Hospitals in the Untied States.

The Burn Unit receives an average of two new burn patients every day, and Dr. Sirí does not predict that this statistic will change with the building of the new Tower. Approximately 350 patients are treated per year, and many of these are treated as outpatients. Fifteen percent of the patients have serious burns. If patients cannot be treated at the Hospital Nacional de Niños because of their severe burns, they are sent to the Shriner's Hospital in Galveston, Texas. The treatment there is free; however, the family and hospital must pay approximately $20 thousand for transportation costs. Sometimes, fundraisers are held to help raise money for the family to travel.

APPENDIX G: INTERVIEW WITH DR. RIVERA, ICU

Dr. Ramon Rivera is the Head Pediatric Surgeon of the Intensive Care Unit. He studied in Melborne, Australia. We interviewed him on May 24, 2005 using the questionnaire in Appendix P.

The ICU at the Hospital Nacional de Niños has been in existence since the hospital opened in 1964. The unit accepts more that 1,200 children annually. The most common pathologies are post-cardiac surgery, pneumonia, and post-operation patients from orthopedics, neurology, and trauma. The unit was not designed for the intensive care. Thus, it is over crowded, and the infrastructure including the electrical supply is inadequate for the patients' needs. There are only two isolation rooms, and when more patients need isolation, the unit is forced to leave unoccupied beds beside those patients. Also, there is no waiting area for the families of the patients to stay.

The ICU's electrical infrastructure is insufficient because of the lack of electrical outlets, large amount of time for the generator to turn on, and possibility for equipment to burn. Although the national standard for electrical outlets is thirty per bed, the ICU has only twelve per bed. If a power failure occurs in the hospital, the emergency generator requires between ten and fifteen seconds before it turns on. In this period of time, the staff must manually pump air into the lungs of the patients. Equipment burn-outs are possible because the electrical installations are old, and as a result, power surges can cause such equipment burn-outs.

In addition to an insufficient electrical infrastructure, the ICU also has a lack of equipment, and some of the equipment that it possesses is outdated. According to the national standards, each bed in an ICU should contain three oxygen tanks, vacuums, and

air vents. The ICU at the Hospital Nacional de Niños does not fulfill this national standard because the existing unit has two oxygen tanks, three vacuums, and one air vent. Of the existing equipment, some is twenty years old, even though it should be replaced after ten years.

The capacity of the ICU is also an issue. There is normally an 85 percent occupancy rate, but during the rainy season, the occupancy sometimes reaches 115 percent. To accommodate this increased demand, the ICU's capacity in the Critical Care Tower will increase from ten beds to twenty-four beds. Because Dr. Rivera foresees a 15 percent increase in the number of patients in the ICU, this larger number of beds will be essential.

Other problems that the ICU currently faces are an inadequate amount of storage space and a lack of a waiting room for families. Currently, restrooms meant for patients in the ICU are being used for storage. The new ICU in the Critical Care Tower will have sufficient storage space. Additionally, the new ICU will contain a waiting room designed for families of patients, where the families will be able to rest, eat, and watch TV, among other activities.

The unit will not offer new services, treatment, or increased staff. Although the staff of the ICU should be increased when the new unit is functioning, the CCSS has a policy to avoid increasing the number of staff. Despite these inabilities, the care that the ICU will be able to provide will be vastly improved once the previously mentioned needs are met.

APPENDIX H: INTERVIEW WITH DR. VARGAS, TRAUMA

Dr. Marco Vargus is the Head Pediatric Surgeon of the Trauma Ward. He studied medicine in Israel. We interviewed him on May 26, 2005, using the questionnaire in Appendix P.

The Trauma Ward in the Hospital Nacional de Niños was the first trauma unit in the country with centralized systems. However, the ward itself has not been updated regularly since its opening. The machines are an average of 15 years old, and the ultrasound that the ward uses was designed for cardiology. Yet, the doctors use the equipment to their maximum capabilities to provide the services needed.

In addition to the dated supplies, the Trauma Ward is also lacking in space. The unit does not have its own surgery room, so if every general operating room is full, the doctors are forced to operate in the emergency room. Space is also a concern in the shock room, which receives patients arriving by ambulance. The shock room was originally intended for one bed, but due to the number of children the emergency room received, another bed was added to the shock room.

In the new Tower, the Trauma Ward will have its own operating room. There will be two shock rooms with one bed in each located on the first floor to receive patients by ambulance, and one shock room on the fifth floor to receive patients arriving on the roof by helicopter. All of the space utilized by the Trauma Ward will contain updated equipment.

In general, the Trauma Ward treats about 120 children per month. During school vacations, this average influx of patients increases by about thirty children per month.

Nonetheless, Dr. Vargus does not predict that these numbers will increase with the construction of the new unit.

Seventeen percent of the total number of children in the Trauma Ward are treated for severe trauma. Unfortunately, ten of these children die annually. Ninety percent of the children that die suffer from severe head trauma, and most die within the first forty-eight hours of being admitted.

APPENDIX I: INTERVIEW WITH DR. JAEN, RADIOLOGY

Dr. Julio Jaen is the Assistant Specialist in Radiology of the Intensive Care Unit. His qualifications are BLANK. We interviewed him on May 25, 2005, using the questionnaire in Appendix P.

The Radiology Department is one of the original departments from when the hospital was first built forty-one years ago. The majority of the equipment had been purchased from the United States. Because the department is so old, the rooms are too old to fit new equipment. For this reason, the main X-ray machine is twenty-one years old. In February, 2005, they replaced a twelve year old ultrasound.

Three radiologists and seventeen technicians work in the department, and there are a total of four X-ray machines and one ultrasound. The department lacks a CAT Scan machine and Nuclear Medicine, and in order to receive this treatment, the children are sent to San Juan de Dios Hospital between seven and eleven in the morning. Neither the Radiology Department, nor any hospital in the CCSS, possesses an MRI machine. If a child needs an MRI, the services are bought from a private hospital using money from the CCSS's budget.

Three more radiologists and twelve more technicians will be needed to accommodate the expansion of the department in the new Tower. The new department will include an MRI machine, a CAT Scan machine, new X-ray machines, and the necessary equipment for Nuclear Medicine techniques. The rooms of the department have been designed to contain the bigger and more modern equipment. Additionally, the department will be accompanied by a larger waiting room.

On average the Radiology Department diagnoses more than seven thousand patients per year. Approximately eight hundred of these use the ultrasound machine, while three hundred use the CAT Scan machine. Patients wait up to one hour for these services. The services that will be available in the new Tower are predicted to decrease the wait time by 50 percent.

APPENDIX J: COSTS OF BURN UNIT

Equipment Name	**Amount**	**Cost/unit US$**	**Total cost US$**
Beds	20	2,500	50,000
Mesas de puente	20	300	6,000
Night stand	20	150	3,000
gigantes (porta sueros)	20	150	3,000
Pediatric scales	2	200	400
Adult scales	2	200	400
Sofas for family and friends of the patient	13	200	2,600
Chairs for family and friends of the patient	7	30	210
Chairs with *rodines* for staff	10	60	600
8-person table for conference room	1	800	800
Chairs without *rodines* for staff	10	80	800
Oxygen flowmeters	25	1,000	25,000
EKG, PA monitors	8	2,000	16,000
Portable PA, temperature y oxygen monitors	3	1,000	3,000
Macrovolume infusion pumps	10	1,000	10,000
Syringe infusion pumps	5	500	2,500
Defibrillator	1	6,000	6,000
Ccarro de paro	1	1,500	1,500
Juegos de ceiling lamps for surgery	3	TBD	
Air cushions with variable pressure	3	2,800	8,400
Ceiling heat lamps	6	TBD	
Mobile heat lamps	2	TBD	
Camilla para operating room	1	10,000	10,000
Anestesia machines	3	20,000	60,000
Autoclave 2 tanks for the burn patient's bathroom	1	3,500	3,500

May table (to hold instruments)	7	200	1,400
Treatment carts	10	200	2,000
Lamp with flexible stand	8	50	400
Desks	2	100	200
Stretchers for physical exams	5	250	1,250
Transportation stretchers	3	350	1,050
Pediatric wheelchairs	5	250	1,250
Dermatomos eléctricos tipo Zimmer	2	6,000	12,000
Bancos exploratorios	12	50	600
Aspirators	4	500	2,000
Biological water filters	2	500	1,000
Strecher for stairs	7	25	175
Computers	6	800	4,800
Printers	4	100	400
Refrigerator for medicine	1	300	300
Refrigerator for food	1	500	500
Television	8	300	2,400
Medicine transport cart	1	300	300
Portable room *de juegos*	1	1,500	1,500
Typewriters	1	150	150
Microwaves	2	125	250
Portable pails for the operating room	6	50	300
Emergency lights	6	30	180
TOTAL			**248,115**

APPENDIX K: COSTS OF ICU

Medical equipment for the new ICU at the Critical Care Tower

	Amount	Cost/unit US$	Total cost US$
Vital signs monitor (*)	24	25,000	600,000
Vital signs central	3	25,000	75,000
ICU bed adult type electric	8	8,000	64,000
ICU bed children electric	10	8,000	80,000
Open infant warmer	10	10,000	100,000
Volumetric infusion pump	36	1,200	43,200
Syringe infusion pump	60	1,200	72,000
Non invasive blood pressure monitor	5	1,200	6,000
Ultrasound (cardiac/general)	1	60,000	60,000
Portable X ray machine	1	30,000	30,000
X ray scanner + view software	1	50,000	50,000
X ray viewing center	4	20,000	80,000
Hyper-Hypothermia Unit	10	8,000	80,000
Vacuum wall units	100	500	50,000
Oxygen flowmeters	80	200	16,000
Oxygen flowmeters 0.1-2 L/min	20	300	6,000
Mechanical ventilators	26	18,000	468,000
High frequency oscilator	5	20,000	100,000
Regular computers+ printer	12	1,200	14,400
Ice machine	1	5,000	5,000
X ray viewing screen	10	100	1,000
Regular TV monitors 21 inches	15	200	3,000
Hemofiltration/dyalisis machine	1	30,000	30,000
Refrigerator 12 foot	6	500	3,000

Close circuit TV, VHS, DVD	1	25,000	25,000
Comunication central/peripherals	1	10,000	10,000
Grand total US$			**2,071,600**

(*) The vital sign monitor must be modular, must include heart rate, respiratory rate, temperature,

3 invasive blood pressures, capnography, Screen with 6 curves and 4 digital displays

Oxygen saturation, optional EEG, evoked potentials, muscle relaxant monitor

APPENDIX L: COSTS OF TRAUMA WARD

AREA OF REHABILITATION

Equipment	**Amount**	**Total Cost US$**
Transport Stretcher to carry: -Vital Signs Monitor -Medical Satchel -Transport Ventilator	2	8,686
Portable Vital Signs Monitor with Printer	2	12,000
Transport Ventilator	3	
Vital Signs monitors fixed to the wall	2	12,000
Surgical Ceiling Lamps	2	
Fluid Incubator	2	2,950
Portable Ultrasound similar to (Sonosite Titon)	1	50,000
Diagnostic Equipment: -Otoscope -Ophthalmoscope	2	680
Trays with Instruments for Washing "Peritoneal"	2	
Trays with Instruments for Positioning "Sondas Torácicas"	2	
Laringoscopioos with "juego de hoja de intubacíon" - *Endotraqueal* tubes -Manuel recessitators *(*Ambo Type*)*	3	240
Trays with Instruments for surgical aerial tracts	3	
Trays with instruments for accessing the central veins	3	
Trays for instruments for *proedimientos* older (sutures)	4	64
-Fiberscope for difficult intubacíon - Rigid Férulas of back radio transparencies with holdings for the head (size p/3)	1	15,000
Philadelphia Collars	20	360
Traction Féulas of pediatrics inferior extreme	2	420

Traction Féulas of standard inferior extreme	2	
Small digital strong box	1	425
UPS Units	4	640
Wash hands with activation by foot	3	
Vacuum cleaners on the wall	4	2,400
Mobile vacuum cleaner	1	
Cylinders of portable oxygen	4	504
Negatoscòpios	2	714
Mobile Shelves	4	420
Equipment for portable X-ray	1	
Heaters for intravenous fluids	2	
Defibrillator with monitor and Battery	1	
Juego de mask laringe	1	
Juego para fax trac	1	
Masks with reservoir	15	
Medicine infusion bombs	8	8,400
Bombs of infusion for volumetric solutions	15	
Nebulizer	1	64 (doc.) 190(hosp.)
Mobile lamps for exploration	2	
Electro cardiology	1	2,000
Trays with instruments for *Toracotomía*	2	
Oxímetro of pulse	4	6,000
Capnografo	1	7,400

AREA OF CONFINED PATIENTS

Equipment	**Amount**	**Total Cost US$**
Electronic hospitable stretchers to change position (5 of these stretchers with possibility to weigh the patients)	12	51,152

Wall aspiration units	12	72,000 c/u
Portable aspiration units	3	1,800
Mattresses for variable flow pressures for ulcer prevention	1	
Mattresses to heat patients	5	
Teams of unemployment (cars of unemployment)	1	
Televisions	8	5,080
Telephones	21	672
Intercommunicators	2	320
Portable communication equipment	4	1,480

ADMINISTRATIVE AREA

Equipment	**Amount**	**Total Cost US$**
Computers	**7**	
Printers	**7**	1,190
UPS Units	**7**	1,330
Multimedia projector	1	2,105
Television	4	1,680
Screen for projection	1	145
Conference table to hold 12 people	1	
Chairs for the table	12	900

MEDICINE AREA

Equipment	**Amount**	**Total Cost US$**
Refrigerators	2	840
Microwaves	2	380
Reclining chairs for parents	12	504

EQUIPMENT FOR THE EMERGENCY ROOM

Equipment	**Amount**	**Total Cost US$**
Stretchers for Trauma -Vital Signs Monitor -Medicine briefcase -Transportation Ventilator	4	17,384
Stretchers for Sutures	4	
Play Steps	4	
Portable Ventilators	1	12,630
Defibrillator with monitor and battery	1	
Equipos de Laringoscopio completos	3	
Pediatric neck braces (all sizes)	30	
Complete suction teams of the wall	4	
Complete teams of portable suction	2	
Pipes Endotraqueales for all the measures		
Laryngeal mask all the measures		11 des 464 re
Mask and Team for FAST TRACK (pediatric and of adults)		50 des 464 re

NASOCANULAS VENTRY AND MASKS WITH RESERVOIR

Equipment	**Amount**	**Total Cost US$**
Cánulas Orales (Mayo?)		1.70
Portable Oxygen Tanks	2	148
Pulse *Oximetros*	4	8,420
Monitors for arterial pressure	4	12,640
Central Station for Continuous Monitoring		
Monitors for Patients	4	

Thermometers		
Bombs for micro infusion	8	
Bombs of volumetric infusion	8	
Nebulizors		65 doc 190 hos
Complete teams for Gastric wash		
Sondas Nasograstricas y Orogastricas		
Urinary catheters and *Sondas Foley*		
Catéteres Intraoseos		
Sets for Punción Lumbar		
Exploration Lamps	4	20,000
Surgical Lamps	4	26,000
Strong Digital Box		
Children and Adult Scales		
Anoscópios	2	
Diagnostic Teams	2	
Portable Ultrasound		45,000
Electro cardiology		
Radio equipment to communicate externally (ambulances and paramedics)		
Complete teams for sutures		
Surgical teams complete for: -Toracotomía -Traqueotomía		
Invasive procedures		
Surgical teams complete for washing *peritoneal* and others	3	
Capnografo	1	7,400
Sondas Tórax all the numbers		
Threads to suture all the numbers and closes (nylon, *crómicos,* and vicryl)		

Teams and Catheters for Central way		
Teams and Catheters for Peripheral ways		
Complete teams for personal protection		
Negatoscópios	4	
Boards with complete equipment for the immobilization of patients	4	
Férulas of immobilization		
Fibroscopios for difficult *intubacíon*	2	64
Furniture for paperwork		
Masks for *resucitacíon* (ambu)	10	800
Telephones for internal communication	4	104
Thermal mattresses	4	
Incubators for serum	2	
Equipment for transporting blood and *hemoderivados*		
Complete portable teams for *resucitacíon*	3	
Autoclave	1	5,500
Teams for portable communication	4	
Trays for instruments for smaller procedures	30	
Férulas of Pediatric Traction	2	370
Féulas of Standard Traction	2	410
Rigid Férulas	4	168 child 192 adult
TOTAL COST OF TRAUMA WARD		429,617

APPENDIX M: COSTS OF FIRST FLOOR

Equipment Name	Amount	Cost/unit US$	Total cost US$
Defibrillator	1	7,500	7,500
Portable Prescription Equipment	1	25,000	25,000
Ultrasound	1	35,000	35,000
Monitor Center (includes 8 monitors)	1	160,000	160,000
Monitors with ECG, respiration, noninvasive arterial pressure, and pulse	6	20,000	120,000
Monitors with ECG, respiration, noninvasive arterial pressure, pulse, and *capnografia*	4	20,000	80,000
Ventilators for children < 10 kg	2	25,000	50,000
Ventilators for children > 10 kg	2	25,000	50,000
Heat radiating lamps	10	4,000	40,000
Computers	12	1,000	12,000
Diagnostic Equipment	24	120	2,880
Strykers brand Stretcher Beds	24	5,000	120,000
Electrocardiograph	1	5,000	5,000
Infusion Pumps	24	1,000	24,000
Refrigerators for Medicine	1	200	200
Refrigerators for Food	1	200	200
Oxygen Monitor	2	1,000	2,000
Pediatric *Romana*	2	100	200
Cart to Transport Food	1	TBD	
Liquid Warmer	1	TBD	
Portable Aspirator	2	420	840
Medicine Cabinet		TBD	
Emergency Trolley (Code Cart)	1	1,000	1,000
Radiograph Viewer	6	550	3,300
Telephone and Radio Communications System	1	TBD	

Procedures Lamp	4	TBD	
Television	6	TBD	
Pulse Meter	4	3,000	12,000
Romana Platform		TBD	
Total Cost			**751,120**

APPENDIX N: COSTS FOR SURGERY WARD

Equipment	Amount	Cost/unit US$	Total Cost US$
Vapor sterilizer	4		
Lavamanos sinks with soap dispensers	3		
Surgical lamps *cieliticas* with video camera incorporated	7	25,000	175,000
Operation tables with electric controls and respective accessories	4	75,000	300,000
Special operation tables (orthopedics, neurosurgery, and general surgery)	3		
Gabinete for *calentamiento de* solutions	3	12,000	36,000
Gabinete for *calentamiento de* ropa (*sabanas)*	3	7,000	21,000
Mobile unit for cooling and heating sterile liquids	3	14,000	42,000
Units for hypo/hyperthermia (*colchon* thermic)	10	15,000	150,000
Heaters for fluids *parenterales*	5	7,500	37,500
Quick infusers with solution heaters	4		
Unit for *flujo laminar*	3	125,000	375,000
Air conditioning for *quirofano*	4	35,000	140,000
Washers for large instruments	2	17,000	34,000
Washer for ultrasound instruments	1	12,000	12,000
Mobile surgical lamps	2		
Surgical microscopes	1		
Video assisted surgery unit	1	150,000	150,000
Electrocauterios	7	27,000	189,000
Bisturi harmonic	1	45,000	45,000
Ultrasound aspirator	2	75,000	150,000
Stretchers for transporting patients	10		
Autotransfusion unit	1		
Anesthesia machines with monitors with vital signs modules incorporated, with monitors of blood pressure, EKG, *capogrfia*, oxygen saturation, module for temperature control and noninvasive arterial control	7		
Spectrometer for detection of changes in intracranial oxygenation	2	75,000	150,000
Modular console for *almacenamiento en quirofano*	12	12,000	144,000
Transport cart for clean and sterile materials	4	4,500	18,000
Porta palanganas	7		
Table for *media luna*	7		
May table	14		
Auxiliary table	7		
Medical gases in the wall, compressed air, vaccumm with aspirator (*2 tomas por quirofano*)	14		
Computer terminal *por quirofano*	7	1,000	7,000

Computer server for the nurses' station	1		
Communication system between the *quirofanos* and office	1		
Portable X-ray machine (*arco en C*)	1	40,000	40,000
Surgical ultrasound	1	150,000	150,000
Nd-YAG laser Unit	1		
Total			**2,365,500**

APPENDIX O: FAMILY INTERVIEWS

On June 14, 2005, we interviewed nine families of children who had been treated at the Children's Hospital. The families were from different areas of Costa Rica, and each child was treated at a different unit of the hospital. These units include the Emergency Room, Orthopedics, Intensive Care/Trauma, Unit 1: External Consulting, Physical Therapy, the pharmacy, the laboratory, Medicina 3, and the Burn Unit.

Emergency Room: Myra Hernandez, Mother of Myra Hernandez

Mrs. Myra Hernandez and three year old Myra Hernandez are from San José. They were in the Emergency Room of the Hospital Nacional de Niños because Myra fell off of a chair. When Myra came to the hospital, the doctors performed X-rays and a CT scan on her, and nothing appeared to be broken or unusual. However, Myra continued vomiting, so the doctors observed her in the emergency area the night before this interview. The doctors expected that Myra would return home shortly after this interview because she did not vomit after eating a breakfast of bread, coffee, and papaya.

Mrs. Hernandez informed us that that she has been to the Hospital Nacional de Niños many times, as she has seven children, and that the service at the Hospital Nacional de Niños is always good. She stated, "They treat everybody with or without insurance. They take care of everything. The hospital staff is specialized in treating children. It is a good hospital. People come from other countries to be treated here. Gracias a Dios we have this hospital." However, Mrs. Hernandez asserted that the Children's Hospital lacked equipment, such as the CT scan; Myra received her CT scan at San Juan de Dios. Because of this inconvenience, Mrs. Hernandez would strongly urge a potential donor to fund the hospital.

Orthopedics: Gisenia, Mother of Carlos

Gisenia and her son, twelve yearold Carlos, live in San José. Carlos formerly had a tumor in his left foot, but at the time of the interview, he was suffering from hip problems. Before his operation two years ago, the doctors utilized special diagnostics to identify his affliction, even though they believed that a reappearance of the tumor caused his hip problems. He stayed in the hospital for one week because of his operation. Now, doctors re-evaluate Carlos's situation every three months. Carlos and his mother describe the hospital's service as "excellent." Carlos has had contact with many doctors, and they have always treated him well.

Intensive Care/Trauma: Deyner Azofeifa Chaves, Father of Deyner Morgan Jimenez

Deyner Azofeifa Chaves and his seven year old son, Deyner Morgan Jimenez, are from Siquirres. After slipping and falling, Deyner Morgan Jimenez was hit by a truck. First, he was taken to a clinic, but he was then transferred to the hospital in Guapiles, and later to the Hospital Nacional de Niños on May 26. Only his mother accompanied him in the ambulance because only one person other than the patient is allowed on the ambulance. His father followed in the bus.

At the Hospital Nacional de Niños, Deyner Morgan Jimenez spent three days in the ICU, but he has no recollection of those three days. The accident caused severe damage to his left arm and foot, and the doctors were concerned about saving his foot. However, the doctors created a foot and reconstructed his arm by using skin and muscle from his leg.

Deyner Azofeifa Chaves was grateful to the staff at the Hospital Nacional de Niños. He described the hospital as "excellent" and was impressed with the treatment that the children, including his son, have received. While his son was in the ICU, a staff member was constantly taking care of him.

Unidad 1: Consulta Externa: Alejandra Castillo, Mother of Kyara Castillo

Alejandra Castillo and her six year old daughter, Kyara, are from Cartago/Tres Rios. Three days before the interview, Kyara was vomiting and suffering from a fever, so Mrs. Castillo and Kyara obtained medicine from the Children's Hospital. However, Kyara still felt ill at the time of the interview. Mrs. Castillo and Kyara waited for a short period of time, between an hour and an hour-and-a-half, before a "good" doctor talked to them. Mrs. Castillo stated that there were several problems with the EBAIS in Cartago.

Physical Therapy: Maria Lidia Pizarro Nayarrette, Mother of Yorly Paola Pizarro

Maria Lidia Pizarro Nayarrette and her fifteen year old daughter, Yorly Paola Pizarro, are from San José. Because Yorly was born with a defect in her spinal column, she uses a wheelchair and comes to the hospital every six months. Doctors have operated on Yorly four times. Some of these operations included inserting bars into her spinal column and operating on a kidney. Mrs. Pizarro and Yorly were in the hospital because Yorly might have needed another operation.

Mrs. Pizarro is satisfied with the hospital's service; her nineteen year old son is paralyzed and has also received "good" treatment. She acknowledged that the hospital lacks many resources, but stated that the doctors have not been limited by this predicament.

Pharmacy: Marcela, Mother of Sebastian

Marcela and her nine-month-old son, Sebastian, are from San José. Since two months before the interview, Sebastian had been suffering from chronic constipation; he would cry excessively when he would try to defecate. Marcela brought Sebastian to the hospital, where doctors performed several tests on him, including blood tests and X-rays. Marcela was impressed that the doctors carried out numerous tests before diagnosing Sebastian. In three months, Sebastian has another appointment with a doctor.

At the interview, Marcela was waiting in the pharmacy for the medicine, and she had been waiting for one hour. The average waiting time at the pharmacy is an hour and a half.

Laboratory: Milagro, Mother of Fiorela

Fiorela had been experiencing abdominal cramping. Her mother brought her to the hospital to determine whether the cramps were the beginning of menstruation or a more serious affliction. Doctors had taken blood and urine samples, and an hour after the interview, the doctors would have the results.

Milagro asserted that the hospital is "excellent" and that the quality of care is the same as that of a private institution. She added that although Fiorela is terrified of needles, the nurses are patient and compassionate. She also stated that the hospital is excellent for caring for children because "whether they are from here or from there, they are still children."

Medicina 3: Father of Kathryn Diana Castañeda

The day of the interview was Kathryn's fifth birthday. Her father said, "I did not want to see her like this on her birthday, filled with needles. We should be home celebrating." Kathryn, who lives in Guanacaste, has been diagnosed with leukemia. She has been in the Hospital Nacional de Niños for three months because her blood count has been low.

Before arriving at the Hospital Nacional de Niños, Kathryn was "diagnosed" at the hospital in Liberia. Doctors at the hospital in Liberia diagnose Kathryn with a virus after observing the blue spots, or coagulated blood, and assured Kathryn's family that her condition was not serious. Kathryn's father was skeptical of this diagnosis, so he brought her to a private clinic, which referred her to the Hospital Nacional de Niños. He stated that if he had waited one more day to bring her to the private clinic, and then to the Hospital Nacional de Niños, he would have been burying her instead of celebrating her fifth birthday.

Kathryn's father said that the Hospital Nacional de Niños is a "very nice place," and that the doctors sincerely care about the patients; they provide the patients with everything they need. He is staying at the albergue with his wife.

Burn Unit: Carla Bonilla, Mother of Melanie

Carla Bonilla and five year old Melanie are from Limón. Four years ago, an accident with kitchen oil left Melanie severely burned. Before coming to the Hospital Nacional de Niños Melanie sought care at the hospital in Limón, where doctors told her mother that the wound was superficial. Ten days later, Mrs. Bonilla was certain that Melanie's wound was infected. She said, "The hospitals in the provinces are not prepared to handle these things."

At the interview, a large bump on Melanie's head was visible. Since the burn, Melanie has had three skin grafts and eight operations. She and her mother come to the Hospital Nacional de Niños every week in order for the doctors to fill Melanie's head with liquid. The doctors will perform another operation to attempt to grow hair over the part of Melanie's head that has remained damaged. In addition to her head injury, Melanie has a scar on her face that the doctors will attempt to conceal.

Although Melanie was shy, she mentioned the name of her doctor: Dr. Sirí. Mrs. Bonilla informed us that Melanie adores Dr. Sirí; when Melanie sees him on the television, she shows her siblings, grins, and proclaims, "There's my Dr. Sirí!"

APPENDIX P: FUNDRAISING CHECKLIST

Priority
___ __ Primary
_____ Secondary

Name:

Contact info:
- Website
- phone
- address
- program officer / contact information
- closest office / contact information

Foundation or Corporation?

Focus

Priority
- Health/medical
- Children
- International/Costa Rica
- Building

Notes (fill in as needed)

Supporting info; (check if have)

____ Application deadlines

_____ Application process

____ $$$ Amount

____ Board of directors, etc.

____ Previously funded projects

____ Annual report or other

APPENDIX Q: INTERVIEW QUESTIONNAIRE

Hospital Nacional de Niños – Preguntas para la Entrevista

Children's Hospital Foundation Interview Questions

Nombre y Apellido del doctor / *Name of doctor:*
Titulo / *Title:*
Área del Hospital / *Area of Hospital:*

1) ¿Podría e darnos una visión general del impacto que el nuevo edificio del Hospital Nacional de Niños tendría en su área específica de trabajo? ¿Cuál considera que sería el beneficio más grande de este nuevo edificio en su area específica de trabajo? *Could you provide a brief overview of the impact of the new Children's Hospital building on your area? What is the greatest benefit to your area?*

2) ¿ Cuáles areas o servicios de su departamento van a mejorar con el edificio nuevo? *Which specific areas or services of your unit will be improved?*

3) Con el nuevo edificio es posible que en su departamento se introduzcan algunas áreas o servicios nuevos. ¿Podría mencionar cuales serían? ¿ Cuáles areas o servicios de su departamento van a ser nuevos con el edificio nuevo? *Which specific areas or services of your unit will be new?*

4) ¿Cuántos pacientes por mes en promedio reciben tratamiento en su área? Cuál podría ser el incremento con el nuevo edificio? *How many children does your area currently treat in a month? How many more will your area be able to treat with the new building?*

5) ¿Cuánto y qué tipo de equipo tiene su unidad actualmente? ¿Cuánto y qué tipo de equipo requerirá su unidad en el nuevo edificio? *How much and what kinds of*

equipment does your unit currently have? How much and what kind of equipment will you need for your unit in the new building?

6) ¿Cuánto tiempo tienen que esperar los pacientes que requieren cirugía o tratamiento en su departamento? ¿Cómo cambiará esto con el edificio nuevo? *How long is the waiting list for treatment or surgery in your area? How will this be improved with the new buiding?*

7) ¿Cuáles son los tiempos de hospitalización promedio según tipo de caso.? *What are the statistics on turn-over times for each case that you encounter?*

8) ¿Cómo maneja el Hospital actualmente los casos de pacientes terminales? ¿Cómo cambiará esto con el edificio nuevo? *How does the hospital currently deal with children who are terminally ill? How will this change with the new building?*

9) Quisiéramos entrevistar algunas familias de niños que son pacientes del Hospital. ¿Nos puede sugerir algunas familias que podrían aceptar ser entrevistadas? *We would like to interview families of children who have been helped by the hospital. Do you have any names of families who would be willing to be interviewed?*

APPENDIX R: BUSINESS CASE

MISSION STATEMENT

The purpose of the Children's Hospital Costa Rica Foundation (CHCRF) is to strengthen the health care services provided by the Costa Rica Children's National Hospital, thus helping children become healthier and productive citizens.

NEEDS STATEMENT

Children are not "little adults" therefore they must be treated differently. This is especially true when it comes to their medical attention. The Costa Rica Children's

National Hospital attempts to provide this special care, however they are faced with many limitations. The CHCRF is dedicated to assisting the hospital financially to improve its services. Caring for the nation's youth will help the children to grow into healthier and productive citizens.

Caja Costarricense Seguro Social

Costa Rica provides national health care gratis for anyone in need. The citizens pay taxes to make this universal health care possible. The Caja Costarricense Seguro Social (CCSS) governs all of the public hospitals and controls the distribution of money among them. Eighty percent of Costa Ricans are insured by the CCSS, the services are not limited to the citizens of Costa Rica. There are many immigrants and tourists that take advantage of the free health care. For example, thirty percent of the patients at the Children's Hospital are children of Nicaragua. Because everyone who receives treatment from this hospital does not pay the taxes, the CCSS is on a tight budget and is not able to cater to the hospitals every need in order to update its services. Each public hospital receives a portion of this budget annually for its own dealings and usually only receives half of what they ask for. Larger pieces of equipment do not often fit within the hospitals small budget. In turn the hospital must wait until the CCSS decides to give it to them. Fifteen years ago the Children's Hospital requested a CAT Scan and the CCSS has agreed to provide this machine in the new tower. Many of the general public hospitals throughout Costa Rica are unable to provide the medical attention that a child needs. If a doctor at one of these other hospitals does not want to treat a sick or injured child, the child will be sent to the Children's Hospital. Thus the Children's Hospital is a hub for child care across the nation.

Changing Needs

In 1964 the National Children's Hospital was founded by Dr. Carlos Sáenz Herrera. When it opened many of the diseases the hospital treated were typical to a developing country. The children were inflicted with Gastroenteritis and Colitis, parasites, malnutrition, and diarrhea. As time progressed, Costa Rica developed as a country. With the improvement of living conditions along with the universal health care the occurrences of these preventable afflictions started to diminish. As these phased out, more modern infirmities such as respiratory infection, problems with the digestive systems, and trauma, became more prominent. However, the traditional illnesses common to poorer nations have started to reappear in more cases due to the influx of Nicaraguan immigrants.

Technology

Although technology has progressed since its opening, some of the equipment is as old as the building and the rest of it has not upgraded as often as it should be. For example, the radiology department uses a twenty-one year old X-ray machine for the majority of its diagnoses. The ultrasound that is used by the "shock room" was designed to be used specifically for cardiology but is in fact used for general trauma. The hospital lacks a MRI, CAT Scan, and Nuclear Medicine. In order to receive an MRI the service must be ordered from a private hospital and paid for by the children's hospitals budget. On average only 300 children are able to receive an MRI yearly. The hospital has use of a CAT Scan and Nuclear Medicine from its neighbor, San Juan de Dios, for only a few hours a day. The hospital must decide who receives the treatment and prioritize the order in which the patients are treated.

Lack of Efficiency

In addition to not having some equipment, the hospital is overcrowded. Most of the space was not designed for its present use. A large portion of the rooms are cramped with the present equipment and are too small to replace the old with new machines. This is the case in the Radiology Department: there are four small rooms off a short hallway adjacent to a congested waiting area. There is barely enough room for the machine alone, never mind the patients, doctor and family. The "shock room" in the trauma originally intended to receive one patient, contains two active beds. In the Intensive Care Unit (ICU) only has two isolation rooms. If those rooms are full, they are forced to leave empty beds surrounding the patient in order to provide the necessary segregation. The intermediate care ward receives patients who are well enough to leave the ICU. It is made up of rooms that would normally fit two beds comfortably, but contain six "nearly touching" beds.

Case History

On June 14, 2005, we interviewed nine families of children who had been treated at the Children's Hospital. The families were from different areas of Costa Rica, and each child was treated at a different unit of the hospital. These units include the Emergency Room, Orthopedics, Intensive Care/Trauma, Unit 1: External Consulting, Physical Therapy, the pharmacy, the laboratory, Medicina 3, and the Burn Unit.

Emergency Room: Myra Hernandez, Mother of Myra Hernandez

Mrs. Myra Hernandez and three year old Myra Hernandez are from San José. They were in the Emergency Room of the Hospital Nacional de Niños because Myra fell off of a chair. When Myra came to the hospital, the doctors performed X-rays and a CT

scan on her, and nothing appeared to be broken or unusual. However, Myra continued vomiting, so the doctors observed her in the emergency area the night before this interview. The doctors expected that Myra would return home shortly after this interview because she did not vomit after eating a breakfast of bread, coffee, and papaya.

Mrs. Hernandez informed us that that she has been to the Hospital Nacional de Niños many times, as she has seven children, and that the service at the Hospital Nacional de Niños is always good. She stated, "They treat everybody with or without insurance. They take care of everything. The hospital staff is specialized in treating children. It is a good hospital. People come from other countries to be treated here. Gracias a Dios we have this hospital." However, Mrs. Hernandez asserted that the Children's Hospital lacked equipment, such as the CT scan; Myra received her CT scan at San Juan de Dios. Because of this inconvenience, Mrs. Hernandez would strongly urge a potential donor to fund the hospital.

Orthopedics: Gisenia, Mother of Carlos

Gisenia and her son, twelve year old Carlos, live in San José. Carlos formerly had a tumor in his left foot, but at the time of the interview, he was suffering from hip problems. Before his operation two years ago, the doctors utilized special diagnostics to identify his affliction, even though they believed that a reappearance of the tumor caused his hip problems. He stayed in the hospital for one week because of his operation. Now, doctors re-evaluate Carlos's situation every three months. Carlos and his mother describe the hospital's service as "excellent." Carlos has had contact with many doctors, and they have always treated him well.

Intensive Care/Trauma: Deyner Azofeifa Chaves, Father of Deyner Morgan Jimenez

Deyner Azofeifa Chaves and his seven year old son, Deyner Morgan Jimenez, are from Siquirres. After slipping and falling, Deyner Morgan Jimenez was hit by a truck. First, he was taken to a clinic, but he was then transferred to the hospital in Guapiles, and later to the Hospital Nacional de Niños on May 26. Only his mother accompanied him in the ambulance because only one person other than the patient is allowed on the ambulance. His father followed in the bus.

At the Hospital Nacional de Niños, Deyner Morgan Jimenez spent three days in the ICU, but he has no recollection of those three days. The accident caused severe damage to his left arm and foot, and the doctors were concerned about saving his foot. However, the doctors created a foot and reconstructed his arm by using skin and muscle from his leg.

Deyner Azofeifa Chaves was grateful to the staff at the Hospital Nacional de Niños. He described the hospital as "excellent" and was impressed with the treatment that the children, including his son, have received. While his son was in the ICU, a staff member was constantly taking care of him.

Unidad 1: Consulta Externa: Alejandra Castillo, Mother of Kyara Castillo

Alejandra Castillo and her six year old daughter, Kyara, are from Cartago/Tres Rios. Three days before the interview, Kyara was vomiting and suffering from a fever, so Mrs. Castillo and Kyara obtained medicine from the Children's Hospital. However, Kyara still felt ill at the time of the interview. Mrs. Castillo and Kyara waited for a short

period of time, between an hour and an hour-and-a-half, before a "good" doctor talked to them. Mrs. Castillo stated that there were several problems with the EBAIS in Cartago.

Physical Therapy: Maria Lidia Pizarro Nayarrette, Mother of Yorly Paola Pizarro

Maria Lidia Pizarro Nayarrette and her fifteen year old daughter, Yorly Paola Pizarro, are from San José. Because Yorly was born with a defect in her spinal column, she uses a wheelchair and comes to the hospital every six months. Doctors have operated on Yorly four times. Some of these operations included inserting bars into her spinal column and operating on a kidney. Mrs. Pizarro and Yorly were in the hospital because Yorly might have needed another operation.

Mrs. Pizarro is satisfied with the hospital's service; her nineteen year old son is paralyzed and has also received "good" treatment. She acknowledged that the hospital lacks many resources, but stated that the doctors have not been limited by this predicament.

Pharmacy: Marcela, Mother of Sebastian

Marcela and her nine-month-old son, Sebastian, are from San José. Since two months before the interview, Sebastian had been suffering from chronic constipation; he would cry excessively when he would try to defecate. Marcela brought Sebastian to the hospital, where doctors performed several tests on him, including blood tests and X-rays. Marcela was impressed that the doctors carried out numerous tests before diagnosing Sebastian. In three months, Sebastian has another appointment with a doctor.

At the interview, Marcela was waiting in the pharmacy for the medicine, and she had been waiting for one hour. The average waiting time at the pharmacy is an hour and a half.

Laboratory: Milagro, Mother of Fiorela

Fiorela had been experiencing abdominal cramping. Her mother brought her to the hospital to determine whether the cramps were the beginning of menstruation or a more serious affliction. Doctors had taken blood and urine samples, and an hour after the interview, the doctors would have the results.

Milagro asserted that the hospital is "excellent" and that the quality of care is the same as that of a private institution. She added that although Fiorela is terrified of needles, the nurses are patient and compassionate. She also stated that the hospital is excellent for caring for children because "whether they are from here or from there, they are still children."

Medicina 3: Father of Kathryn Diana Castañeda

The day of the interview was Kathryn's fifth birthday. Her father said, "I did not want to see her like this on her birthday, filled with needles. We should be home celebrating." Kathryn, who lives in Guanacaste, has been diagnosed with leukemia. She has been in the Hospital Nacional de Niños for three months because her blood count has been low.

Before arriving at the Hospital Nacional de Niños, Kathryn was "diagnosed" at the hospital in Liberia. Doctors at the hospital in Liberia diagnose Kathryn with a virus after observing the blue spots, or coagulated blood, and assured Kathryn's family that her condition was not serious. Kathryn's father was skeptical of this diagnosis, so he brought

her to a private clinic, which referred her to the Hospital Nacional de Niños. He stated that if he had waited one more day to bring her to the private clinic, and then to the Hospital Nacional de Niños, he would have been burying her instead of celebrating her fifth birthday.

Kathryn's father said that the Hospital Nacional de Niños is a "very nice place," and that the doctors sincerely care about the patients; they provide the patients with everything they need. He is staying at the albergue with his wife.

Burn Unit: Carla Bonilla, Mother of Melanie

Carla Bonilla and five year old Melanie are from Limón. Four years ago, an accident with kitchen oil left Melanie severely burned. Before coming to the Hospital Nacional de Niños Melanie sought care at the hospital in Limón, where doctors told her mother that the wound was superficial. Ten days later, Mrs. Bonilla was certain that Melanie's wound was infected. She said, "The hospitals in the provinces are not prepared to handle these things."

At the interview, a large bump on Melanie's head was visible. Since the burn, Melanie has had three skin grafts and eight operations. She and her mother come to the Hospital Nacional de Niños every week in order for the doctors to fill Melanie's head with liquid. The doctors will perform another operation to attempt to grow hair over the part of Melanie's head that has remained damaged. In addition to her head injury, Melanie has a scar on her face that the doctors will attempt to conceal.

Although Melanie was shy, she mentioned the name of her doctor: Dr. Sirí. Mrs. Bonilla informed us that Melanie adores Dr. Sirí; when Melanie sees him on the television, she shows her siblings, grins, and proclaims, "There's my Dr. Sirí!"

Despite these structural limitations, the hospital has provided its patients with well-trained doctors and professional staff. They have studied and trained not only in Costa Rica but also in other parts of the world such as the United States and Europe. However, they still must adapt to sub par conditions of the hospital and its equipment. These conditions restrict the level that their expertise can be benefited from. They do the best with the tools that they have, but they are not the most optimal conditions. The doctors and staff care about all of the patients and truly want the best for them.

GOAL

The goal of this project is to find sources of income to enable the hospital to build a new Critical Care Tower. The hospital needs a separate entity to provide these funds because the CCSS does not have a large enough budget to fund for this addition. The new tower will not only include services the hospital cannot presently offer, but will also enhance its current abilities. This will allow the hospital to adapt to the change in technology and needs of the children. Since the services provided by the Costa Rica Children's National Hospital are free for all children, the expansion will allow more children to receive a higher quality health care.

OBJECTIVES

The projected Critical Care Tower will be an expansion of several of the departments currently in the hospital. In general, each department will receive more square footage, which will be turned into larger rooms that will be stocked with brand new equipment. The new critical care tower will be seven stories tall with a heliport on the roof to transport patients. Each floor will provide a different service. The basement will be used for the Radiology Department. It will also house the Central Sterilization

Unit, the Pharmacy stock room and the Clinical Record Room. Located on the first floor will be the outpatient waiting area, the Pharmacy, and the Emergency Room. The second floor will specialize in orthopedics, and contain many consulting rooms. The third floor is designated for surgery. The Pediatric Intensive Care Unit will be situated on the fourth floor. The fifth floor will include the Pediatric Trauma Unit, along with a Physiotherapy Unit. The sixth floor will accommodate all burn victims and will also have its own operating room. Storage rooms, offices, and conference rooms will be located on the seventh floor.

Radiology

In comparison to the present hospital, the units in the new tower will be significantly better. The Radiology Department will have bigger rooms that will be able to accommodate new pieces of equipment. Some of these will be replacement of the X-ray and ultrasound machines, along with a new CAT Scan, Nuclear Medicine, and MRI, so they will no longer have to share these with other hospitals. The expansion of this department will help to eliminate the waiting time.

Trauma

As for the new Emergency Room, it will contain two separate "shock rooms" with one bed in each. These will be used for walk-in patients or for patients traveling in ambulances. To receive the patients arriving by helicopter, there will also be a third shock room in the trauma ward on the fifth floor. This will decrease the time between arrival and treatment. These new rooms will have up to date equipment which will replace the present monitors and machines that are about fifteen years old. The trauma ward will also have its own operating rooms. This will be beneficial because presently if

a trauma patient needs immediate surgery and all of the general operating rooms are occupied, the surgery must be done in the Emergency Room, which does not present the most optimal environment. Along with these new services for patients, there will also be better amenities for family of the patients.

Intensive Care

The ICU will have several major changes. There will be ten isolation rooms opposed to the two that they have now. This will decrease the spread of infectious disease within the hospital. The entire tower will be built with a sound electrical infrastructure which is especially important in the ICU because the patients tend to need several life support machines and monitors. Currently there are not enough electrical outlets to always satisfy this need. The new ICU will meet the required standards pertaining to the design of the rooms and the resources available in the unit as a whole.

Burn Unit

Another major part of the tower will be dedicated to treating burn victims. The goal of recreating the burn unit in this new location is that it will become a regional hub for its expertise. The ward will be made up of larger rooms, some of which will act as the units own operating rooms. They will provide the necessary environment to allow for major skin graphs which are not possible in the current hospital. Another section of the unit will be dedicated to rehabilitation which will offer an increased number of beds and new services. Some of these rooms will be isolated, since there is such a high risk of infectious diseases through burn patients.

ORGANIZATION DETAIL

The Children's Hospital Costa Rica Foundation (CHCRF) is an organization whose main objective is to raise money to fund the development and improvement of the Hospital Nacional de Niños, (National Children's Hospital). The CHCRF is a non-profit organization, and it receives tax deductible donations from both individuals and corporations. The association also developed the "Dr. Roberto Ortiz Brenes" Amusement Park, named for the man who played a key role in its establishment. Not only does the park serve to entertain children, but it also provides a source of income that supports the hospital. The park produces US$250,000 to US$300,000 profit per year, twenty-five to thirty percent of which benefits the hospital. The remaining money is reinvested in the park.

The Children's Hospital Costa Rica Foundation is governed by a Board of Directors, Officers, and an Advisory Committee, all members of which are volunteers. Luis Gamboa is the President, a Founding Director, and a Board Member. Manuel González is the Vice President and a Founding Director. Gonzalo González is the Treasurer and a Founding Director.

Officers

Luis Gamboa: President/CEO

Manuel González: Vice President

Gonzolo González: Secretary

Lucía Uribe: Assistant Secretary

Mario Catarinella: Treasurer/COO

Advisory committee

Raul Lobo: Associate Professor, Department of Chemical Engineering

Gena Romano: Euntrepeneur, Nellie Bly Park, Brooklyn, NY

Dr. Rodolfo Hernández: Director, Costa Rica Children's National Hospital

Rodolfo Silva: Costa Rica Former Embassador to the US

John Graff: Chairman IAAPA Former President CEO and Counsel

Rene Aziz: President, Grupo Mágico Internacional, Mexico

Barbara Thompson: Blackpool Pleasure Beach, England

Hon. Vinicio E. Madrigal, MD: Board of Regents, Uniform Services University

Glenda Umaña: Journalist CNN, Atlanta, US

Contact Information

730-1150 La Uruca, San José, Costa Rica

info@CHCRF.org

Phone: (506) 290-4410

Fax: (506) 231-6529

HISTORY

The CHCRF was founded by the National Children's Hospital Association of Costa Rica. This foundation, as well as the National Children's Hospital, was born as a result of the poliomyelitis epidemic that spread through Costa Rica in the 1950s. The existing hospitals during the epidemic were not capable of providing treatment to the overwhelming number of children affected by the virus. Dr. Carlos Sáenz Herrera, Head of the Pediatrics Ward of the Hospital San Juan de Dios, initially suggested that his ward be expanded to house the infected children. However, he soon realized that an expansion of his ward would not be sufficient to accommodate all of the children. It would be necessary to construct a separate hospital, the National Children's Hospital, specifically

dedicated to the care of children (chcrf.org). In 1954, Dr. Sáenz and Dr. Roberto Ortiz Brenes together created the National Children's Hospital Association to raise awareness about the need for a children's hospital and to raise funds for its construction.

The National Children's Hospital is a specialized facility that focuses on the unique needs of children. It provides diagnoses and treatment to children of various ages who are suffering from a multitude of ailments. The hospital currently has a functioning intensive care unit. However, this department houses children with a variety of different health issues. The CHCRF plans to build a Critical Care Tower as an addition to the hospital. This new tower will include seven floors, each devoted to specialized treatment of similar conditions. It will be stocked with state-of-the-art equipment, and will also increase the capacity of the hospital, improving both the quality and quantity of care provided.

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