

# Health Services Assessment

Santa Cruz Island, Galápagos, Ecuador

A photograph of a red stethoscope and a red pen resting on a white piece of paper. The word "Rec" is written in cursive on the paper. The background is a blue and white geometric pattern.

Rec

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Rec

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## Introduction

### **Why did Kristin Wunker assess the health services at the hospital on Santa Cruz Island?**

Kristin Wunker contacted HealthCare Volunteer- a non-profit organization based out of Los Angeles, California, USA- in hopes of providing medical services in the Galapagos. HealthCare Volunteer was able to establish her at Hospital Cantonal Republica Del Ecuador based in Santa Cruz Island, Galapagos, Ecuador. While on Santa Cruz, Neilesh Patel, D.D.S. and Jeff Frazier, from HealthCare Volunteer, asked Ms. Wunker to provide the organization with insight on the health care at the hospital.

### **What are Kristin Wunker's qualifications?**

Kristin Wunker graduated with masters in medical science, and became nationally certified as a physician assistant in September 2009- a few months prior to her visit to Santa Cruz. She has experience as an Emergency Medical Technician.

### **What was the structure of Kristin Wunker's visit to Santa Cruz?**

Ms. Wunker spent 5 weeks on Santa Cruz, from November 16 to December 18th, 2009. During this time, she worked 24 hour shifts alongside physicians in the emergency department, of Hospital Cantonal Republica Del Ecuador. She directly assessed and treated patients, directly observed patient care, assessed the equipment and supplies available, interviewed doctors and nurses in the hospital, as well as collaborated with other volunteers on the island to obtain information on the health and well-being of the inhabitants on the island.

## Background

### Island Demographics

Santa Cruz Island is considered to be one of the 15 major islands in the Galapagos archipelago and is one of the five inhabited islands. The 381 square miles of the island do not make it the largest island in the archipelago; but, most residents of the Galapagos reside on the island, mainly in the town of Puerto Ayora. The island is estimated to have 8000 residents. However, the amount of tourists, volunteers, researchers and temporary workers at the Charles Darwin Center on the island are not accounted for in the amount of people known to live on the island and the number is constantly changing.

The port in the town of Puerto Ayora is the main tourist port for the islands, with the majority of tourist cruises originating from Santa Cruz. An estimated 60,000 tourists visit the Galapagos each year; the amount visiting Santa Cruz is not known but the majority are said to visit the island at some point during their trip to the Galapagos.

Unfortunately, most of the money spent by the tourists go to the large companies owning the cruise boats and not to the local inhabitants of the island. The volunteers and researchers temporarily staying on the island do aid the local community in many ways including staying with host families, renting an apartment or staying at a hostel, and eating at restaurants on the island rather than on cruise boats as do many tourists.

## Overview of Current Health Services

### Brief Summary

The only hospital on the island is in the heart of Puerto Ayora at the intersection of the two main roads on the island and across from the port. The Hospital Cantonal Republica Del Ecuador is staffed by the government. The majority of the doctors and nurses work in the hospital for one year during what is known as the “rural year”. This rural year is an obligation for all doctors that have attended medical school in Ecuador. Ecuador’s government pays the tuition for medical students; in turn, the students have to practice in a rural setting during their first year after graduating from medical school. The doctors begin practicing in September. One year after practicing in the rural setting, they move to a permanent location to practice medicine and a new set of doctors come in to practice at the rural placement. Since the Galapagos are on the list of rural settings for the doctors to practice, every year doctors leave and new doctors come to the island. This constant change of practitioners makes stabilizing the methods of, and improving, the hospital difficult. However, some of the doctors working in the clinic are non-rural doctors and do not have to leave after the first year of work.

Hospital Cantonal Republica Del Ecuador, on Santa Cruz Island, is the main health center for the residents, volunteers, temporary workers, and tourists of Santa Cruz Island, Isabela Island, and Floreana Island of the Galapagos. Isabela Island and Floreana Island are less populated and do not have hospital or emergency services. Both islands are a two hour boat ride from Santa Cruz. All emergent patients from these islands travel to Santa Cruz Island for treatment.

### Personnel

The hospital consists of:

- Five (5) general physicians in control of the emergency department, the inpatients, surgical room, and delivery room
- Two (2) general physicians
- One (1) gynecologist
- Two (2) obstetricians (one rural doctor and one permanent doctor)
- Two (2) pediatricians work in the lower level of the hospital in doctors’ offices/clinics.

- One (1) surgeon, however, during my time in the Galapagos, she was forced to leave because the hospital administration did not complete the necessary papers to renew her visa needed to stay in the Galapagos. She spent two and a half months working as the only surgeon on the island. As of December 2009, there is no surgeon, and all patients from Santa Cruz Island and from Isabella Island in need of a surgery, aside from gynecologic surgeries, must be transferred to the main land.
- One (1) anesthesiologist- when not in surgery, she is to attend to the emergency room Monday through Friday for 8 hours per day
- One (1) anesthesiologist technician
- Seven (7) nurses (in their rural year, and with 4 years of schooling) work in the emergency department and inpatient care
- Five (5) nurse assistants (with 3 months of schooling) work in the emergency department and inpatient care (On the mainland they are only to act as helpers. But on the Galapagos, with few workers, they function in the same way as the nurses with the 4 years of schooling.)
- One (1) nurse and one nursing assistant work in the consultant area/ doctors offices
- One (1) nurse administrator (in charge of distributing vaccinations, and medicines)
- One (1) laboratory technician- works 8 hours Monday through Friday
- Two (2) maintenance workers
- One (1) laundry person (with the use of one laundry machine, much of the laundry, bed sheets, surgical scrubs, etc., is hand washed)
- Five (5) administrators:
  - One (1) engineer in control of making a budget
  - One (1) countrador in control of expenses and keeping on budget
  - One (1) human resource personal
  - One (1) secretary
  - One (1) director
- One (1) x-ray technician (recently graduated from high school. She has no training in taking x-rays. Often the x-rays are too poor in quality to make a proper diagnosis)
- Zero (0) radiologists- there are no reports for the x-rays. The doctor that ordered the x-ray reads the film.

## Hours of Operation

Emergency Department is open 24 hours a day, 7 days a week.

Clinic is open for 8 hours Monday through Friday, 8:00 AM- 4:00 PM.

One pediatric physician and one internal medicine physician work in the morning, a second pediatric physician and a second internal physician work in the afternoon.

The gynecologist works four (4) hours in the morning on Mondays, Wednesdays and Fridays in the hospital. Tuesdays and Thursdays he performs cesarean sections, and other gynecological surgeries.

The permanent obstetrician works 4 hours in the morning Monday through Friday.

The rural obstetrician works 4 hours in the afternoon and performs/is on-call for all the deliveries.

The two pediatricians alternate week's on-call.

Visiting hours are 7:00-8:00 AM, and 6:00-8:00 PM; although the rules are poorly implemented.

## Statistics

### Clinic Visits

- 560 patients per week
- 160 pediatric, 160 adult, 160 obstetric, 80 gynecologic visits each week
- About 80 per week per doctor.

### Number of Visits to the Emergency Room

Between 17 and 38 patients come to the ER over a 24 hour period- with an average of 22 patients arriving in the ER for treatment each day. This number pertains to the patients in need of direct care from a physician; it does not include the patients that come in on a daily basis for wound cleaning, nor does it include antibiotics administered through shots; i.e. care given by nurses. This number is typically between 5 and 15 patients a day.

### Number of Transfers

- On average one emergency patient every 15 days.

### **Top Reasons for Transfers to the Mainland**

- Compound fractures
- Premature births
- Complicated pregnancies
- In need of a blood transfusion

### **Most Common Pediatric Visits to the Emergency Room**

- Fever
- Diarrhea
- Lacerations
- Flu-like symptoms
- Asthma

### **Most Common Adult Visits to the Emergency Room**

- Diarrhea
- Vomiting
- Flu-like symptoms
- Lacerations/ Trauma
- Hypertensive Crisis
- Labor
- Emergency surgery (cholecystitis, appendicitis)

### **Patient Space in the Emergency Room**

- Three beds separated by curtains
- One chair for interviewing the patient
- One waiting room/ entrance hall

### **Number of Hospital Beds**

- Fourteen (14)
- Zero (0) isolated rooms
- Three (3) private rooms- although private here consists of a room without a door and the walls do not go up to the ceiling- they are about 6 feet high. The three private rooms share a hallway bathroom. These private rooms also function as the



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hospital's isolation rooms when a patient is at high risk for serious illness or is thought to have a contagious illness.

## Public Health

### Drinking Water

All drinking water is supplied by four companies. The tap water is known to have high amounts of bacteria, particularly e-coli. The tap water is not to be used for drinking, cooking, or when brushing one's teeth. However, rain water is often used for drinking and cooking, after having been boiled.

### Water Treatment Facility

- There is no water treatment facility for the island
- The bathroom to a home is built over a latrine. The latrine is to be lined with rocks to help filter the waste. The waste then gets absorbed by the surrounding soil and eventually becomes tap water. Tap water is used for cleaning dishes and the home; however, bottled water is commonly used by the locals when brushing one's teeth and for cooking.
- There are four (4) water companies on the island that clean and bottle water to purchase for drinking.

### Street Sewers

- No sewers exist with the streets.
- The water runs until it reaches the ocean or soil

### Mosquito Borne Illness

Dengue Fever exists on Santa Cruz. The hospital stores pesticide that is sprayed around the island to kill mosquitoes to prevent the spread of dengue fever.

### Sexually Transmitted Illness

Syphilis, HIV, and herpes are current problems. Gonorrhea has been reported but is not common.

A separate government-run clinic draws blood to be tested. The blood is sent to the mainland to be tested.

Chlamydia and gonorrhea are tested during a woman's annual exam.

## Pregnancy

There is a high percentage of women on the island who are pregnant (although an actual number is not known). Abstinence and contraceptive use are poorly promoted on the island. Abortions are illegal in Ecuador.

An average of five (5) births a week occurs in the hospital.

Teenage pregnancy: a high rate, although no exact statistics are available.

## Vaccinations

- Given at birth: BCG, HepB
- Children Vaccinations: OPV, Rotavirus, Pentavalente, Influenza, DPT, SRP, Varicela, FA, DT
- The vaccinations are given in the physician offices at the hospital.
- Elective for adults in 2009: influenza, pneumonia, and polio

## Infectious Disease

Tuberculosis is known to occur on the island and mainland. As of December 2009, one resident in the Galapagos has tuberculosis and lives in his home on the island.

## Infrastructure

### Physical Space

The hospital has two floors. The first floor is divided into two parts: the emergency area and medical specialist offices and exam rooms. The corridor connecting these two parts houses the pharmacy, two restrooms, and an open area used to triage patients going to see a specialist. The second floor is also divided into two parts. One staircase leads to administrative offices. Another staircase leads to inpatient rooms, one operating room and one delivery room, as well as the surgical supply room.

### Equipment and Supplies

- Two (2) EKG machines. One of them is out of paper for many months and is not used. Both machines are in the consulatario (specialist offices). No EKG machine exists in the emergency room.
- One (1) X-ray machine- the x-ray technician only works Monday through Friday, 8 AM -12 PM. So, if needed, a patient has to wait for the technician to be at work between 8 AM and 12 PM during a weekday.
- Six (6) Oxygen tanks. Three (3) oxygen tanks are supplied through the wall in the emergency department
- One (1) Incubator
- Four (4) Respiratory support machines. Two of them were purchased in September 2009, the other two were purchased in November 2009. However, the hospital does not have space to have four machines running at the same time. A patient in need of a respirator is treated in the emergency department. There are three (3) beds in the emergency department. One doctor knows how to operate the machinery.
- Blood bank- there is no blood available for transfusions on the island.
- Laboratory- performs basic tests: hemoglobin, CBC, RBC, WBC. Anemia is a common ailment on the island. The laboratory does not run tests to assess the anemia, so every anemia is treated with iron.
- Sterile gloves- there is always a low supply of sterile gloves, so workers often avoid using them- reserving them for surgeries and deliveries.
- One (1) Echogram- (non transvaginal)

- Three (3) Monitors. One has been broken for at least four (4) months. So there are two working monitors.
- One (1) Ambulance- The ambulance is in non-working condition for patient transfer. It sits in the driveway/walkway of the hospital. People in emergent need of care are brought to the hospital via taxi or in the bed of a police pick-up truck.
- Hand Soap- Two bars of soap are provided in the hospital; one at the physician sink in the emergency department and another at the physician sink in the scrub room. Soap is not provided in the restrooms of the hospital. One anti-bacterial hand gel is provided in the emergency department for clinician use.
- Toilet Paper- Toilet paper is not provided in the hospital. Patients, visitors, and workers need to bring their own paper for their personal use.
- Tape and band aids- The hospital does not have band aids. To cover a wound of any size, gauze and tape are used. There is usually one or two rolls of tape available for use.
- Syringes, medication, 0.9% Normal Saline- Some are supplied in the emergency department. Frequently the patient or a friend of the patient is asked to walk across the street to a 24 hour pharmacy to purchase the supplies for use.

## Medications

The hospital has a pharmacy, as well as a small stock of medicines within the emergency department. When a prescription from the hospital is provided, the medicines from the hospital pharmacy, as well as the use of the medicines from the emergency room's supply shelf, are free of charge. However, a friend or family member accompanying the patient often must walk across the street to purchase the medical supplies needed to treat the patient. Some of the supplies that need to be purchased include bags of saline for an IV, casting material, antibiotics and syringes for liquid antibiotic administration.

The lack of supplies in the hospital leads to delayed patient care, to a back up of patients waiting to be seen while a patient waits for his friend or family member to go across the street to purchase the supplies requested by the physician, and often obtaining the incorrect supply or incorrect form of the needed supply (e.g. tablets instead of liquid medicine, ace bandages instead of plaster material).

## Processes of Care

### Acute

The emergency room often functions as a general practice clinic, with many non-emergent cases coming in each day; some of the non-emergent and quite popular cases include a pediatric stomach ache, a common headache, and daily wound cleaning. However, true emergencies do arrive in the hospital on a daily basis as well.

Most emergencies can be treated in the hospital; although, life threatening emergencies need to be transferred to the mainland. When an emergent patient needs to be transferred, the patient has to wait for the next available plane. There are three (3) flights flying out of Santa Cruz to the mainland each day. If the accident occurs in the evening, the patient won't be exported until mid morning the next day with the next available plane.

### Chronic

The fourteen (14) beds in the hospital are specifically used for long-term inpatient care. However, the limited resources available make treating many patients difficult. For example, there are four respiratory machines but only one person knows how to use the machines. Also, the laboratory is open from 7:30 AM – 4:30 PM Monday-Friday. So, labs must be processed during this time.

Diabetes is sometimes tested at the hospital- the hospital often runs out of glucose sticks. In September, thirty (30) glucose sticks were given for use. In November, sixty (60) were given. By mid-December, the hospital ran out of glucose monitoring sticks and does not know when more will arrive.

### Preventive

The hospital does provide annual exams, gynecological exams, and vaccinations.

### Palliative

Medicine is provided free of charge from the hospital with a prescription from a hospital doctor. Most people on the island prefer to come to the emergency room for common ailments, treating the emergency department as a walk-in clinic. Once they receive a



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prescription, they go to the hospital pharmacist to receive free medicine. The other pharmacies on the island don't require a prescription; but, do charge a fee for the medicine.

## Summary of Findings

Santa Cruz Island in the Galapagos is the most populated island in the Galapagos archipelago. With one hospital for the 8,000 residents, the daily tourists, and volunteers and researchers and only five doctors covering the emergency room and the inpatient unit, the hospital is in short supply of practitioners. The hospital is also often in short supply of equipment and gloves.

Room for improvement does exist in the hospital. And many locals feel that the health care on the island needs to improve. The community should unite to request better care, more practitioners, and better sanitary conditions. For now, many residence travels to the mainland for their annual physicals, knowing the care on the mainland is better than the care on the island. However, care on the island is prompt and low cost, making it convenient and affordable for the local community.

Various medical conditions are treated in the hospital daily. Wound cleaning, laceration closure, treating flu-like illnesses, and the delivery of a new-born are common activities in the hospital. Many non-Spanish speaking tourists also come into the hospital on a daily basis to be treated for a range of conditions including travelers' diarrhea, an animal bite, or a fractured bone. The staff is knowledgeable and dependable who use their resources wisely and make the best of what they have.

## Suggestions for Improvement

### Supplies

A count of the inventory should always be known. Whether using a paper format to check off supplies when used or installing a computer scanner, some method for inventory collection and use should be implemented. Better inventory count will aid in ordering supplies in advance which will prevent the lack of supplies when needed.

### Education

Educational seminars should be held to inform the locals of several matters.

- **Preventive Health:**  
Locals know little about proper diet and exercise. As a result, diabetes and hypertension are prevalent, yet little is done to prevent or treat the diseases.

The locals could be taught of a way to prevent the spread of bacteria while washing dishes- for example, dunk the dishes in a pot of boiling water after having rinsed them with tap water- also the importance of hand washing and the presence of soap at all the sinks in the hospital.

- **Sex Education:**  
Some schools offer a class in human health. In this class, sexual education is to take place. However, many professors are mis-informed and often teach myths, not facts. Providing teachers with correct information and suggestions on how to teach the locals (both students and parents) would be useful.

### Health Screenings

A high percentage of hypertension and diabetes is said to exist on the islands. Offering blood pressure checks and checking glucose levels could benefit the local community and bring awareness to their health condition, and the importance of diet and exercise.



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## Hours of Operation

While the emergency room operates 24 hours a day, 7 days a week, radiology does not. When someone injures a bone on a Friday evening, they have to wait until Monday morning to receive an x-ray to assess for a fracture. Having an additional x-ray technician to work during the weekends and on-call in the evenings would provide better care to the patients. Also, training the current person who takes the x-rays in radiology will help provide the doctors with better x-rays to read.



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