

# **Health Services Assessment**

**Isabela Island, Galápagos, Ecuador**

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## **INTRODUCTION**

*Why was Dr. Podolsky sent to Isabela Island for this health services assessment?*

HealthCare Volunteers – a non-profit organization based out of Los Angeles, California, USA – sent Dr. Podolsky to Isabela Island. Mr. Jeff Frazier, who owns Casa de Rosada, asked HealthCare Volunteers to send an Emergency Physician to Isabela to complete an assessment of current health services on the island. It is an added benefit that Dr. Podolsky is also a specialist in quality improvement for health systems.

*What are the Dr. Podolsky's qualifications?*

Dr. Podolsky is an Emergency Physician from New York City, USA. In addition to his clinical training, he spent four years as a graduate student at the Center for Health Policy and Clinical Practice at Dartmouth College in Hanover, New Hampshire, USA. For more than ten years, he has worked with multiple organizations and hospital systems as a quality improvement specialist.

*What was the structure of Dr. Podolsky's visit to Isabela?*

Dr. Podolsky spent one week on Isabela from April 23-30, 2008. During this time, he directly observed patient care, evaluated equipment and supplies, and interviewed approximately twenty people (including physicians, nurses and staff, the Mayor, and community members). Additionally, he offered training in emergency procedures, including emergency ultrasound.

## **BACKGROUND**

### *Island Demographics*

Isabela is a small island within the Galapagos territory of Ecuador. In terms of landmass, it is the largest island in the Galapagos. However, of the four inhabited islands, it has the second smallest population. The last census listed 1,912 inhabitants on Isabela. The entire Galapagos has approximately 25,000 inhabitants, with most on Santa Cruz (main tourist port) and San Cristobal (seat of the Galapagos government). It is unclear the exact number of tourists who visit Isabela each year, though estimates are 2,000 people in 2007: however, with a projected 100% growth for 2008, which would place the projected figure at 4,000 people. According to the Mayor (Mr. Pablo Gordillo) this number is steadily growing.

## **OVERVIEW OF CURRENT HEALTH SERVICES**

### *Brief Summary*

Given the small number of local inhabitants it is a difficult challenge to appropriately allocate resources (personnel, equipment, and space) for health services. Many on the island, including health care personnel and municipal officials, would like full-time physician specialists. This is, though, cost-prohibitive for such a small population. Thus, a unique characteristic of Isabela is that patients do not have immediate access to specialty care services. Health services on Isabela are inevitably less than on the mainland, or a more populated island. However, the Health Ministry has attempted to improve those circumstances.

According to Health Ministry regulations, the population of Isabela warrants a “health center” classification – which would consist of a rural doctor and a small clinic. However, because of the unique characteristics of Isabela (i.e. remote island, inability of patients to pay for travel, etc.), the Health Ministry has classified it as a “subcenter.” This higher classification allows for a permanent doctor, plus a rural doctor, in addition to other resources that will help them provide basic primary care services. It is not intended to have lab capability, x-rays, ultrasound, or more invasive services.

Subcentro de Salud, No. 3 (henceforth, called the “subcenter”) is run by the local Director, Dr. Henry Farfan, who has been there for four years. He reports to Dr. Roberto Uribe on Santa Cruz, who in turn reports directly to the Ministry of Health in Quito, Ecuador. The Health Ministry finances nearly all operations – see details under “Financial.”

### *Personnel*

The subcenter consists of:

- two physicians (one is a rural resident, here for only one year at a time)
- two dentists (one is a rural resident, similar to the rural physician)
- a nurse (also, rural classification and only here for one year)
- two nurses assistants (one operates as the pharmacist)
- one health person (“Sanidad”)
- one maintenance person

### *Hours of Operation*

The subcenter is open as follows:

- Warm season: 7:30 am – 2:30 pm
- Cool season: 7:30 am – 12:30 pm, and 2:00 pm – 5:00 pm
- During “off” hours the subcenter physicians are available by phone, though generally they are found by knocking on the door of their home.

### *Statistics*

Clinic Visits:

- 60 per week
  - o Emergent: about 0-10 per week
- 40% Pediatric, 60% Adult
  - o Adult visits: 2/3 OB/GYN, 1/3 Internal Medicine

Number of Transfer:

- Mainland 5-10 per year
- Santa Cruz 5-10 per year

#### Top Pediatric Visits:

- Well-visit (check-up)
- Diarrhea
- Upper respiratory infection (URI)
- Dermatology (skin problem)
- Allergy

#### Top Adult Visits:

- Hypertension (high blood pressure)
- Diabetes (mainly Type 2, non-insulin dependent)
- Pharyngitis (sore throat)
- Pregnancy
- Otitis externa/media (ear infection, external/middle)
- Fractures (mainly from falling off horses)

#### Reasons for patient transfer to Santa Cruz or the mainland:

- Myocardial infarction (heart attack)
- Appendicitis
- Caesarian section
- Premature birth

#### Patient transfers that require a physician:

- CVA (stroke)
- Appendicitis
- Intravenous fluids running
- Very sick

\*\* Note: The statistics above are based solely on records provided by the subcenter. They do not include patients who leave Isabela for health care. After discussion with subcenter personnel, municipality representatives, and community members it is evident that the number leaving the island for health care may be quite large. However, there are no exact figures for this number.

## **PUBLIC HEALTH**

### Drinking Water

- Most prefer rainwater for drinking.
- Frequently above the limits for bacteria.

### Water Treatment Facility

- Purportedly dumped into sea.
- Potentially harming humans swimming in nearby waters, possibly sea-life, too.

### Street Sewers

- No sewers exist on town streets.
- This increases puddle formation and the risk for bacteria collection and mosquito growth.

### Mosquito Borne Illness

- No mosquito borne illness exist on Isabela
  - o However, Dengue Fever is on Santa Cruz, thus it is almost inevitable that it will be on Isabela soon.

### Sexually Transmitted Illness

- HIV and Syphilis are a current problem.
- Purportedly no Gonorrhea or Chlamydia, though doubtful.

### Teenage Pregnancy

- High rate, though no exact statistics available.

### Vaccinations

- Mandatory for children.
  - o BCG, DTaP, OPV, HBV.
- Elective for children in 2008.
  - o Rotavirus, Influenza
- Given at subcenter or school-based clinic.

- Elective for older adults in 2008.
  - o Pneumonia vaccine.

\*\*Municipal representatives did not confirm the water data above.

## **INFRASTRUCTURE**

### Physical Space

The physical space is quite large. And, it is currently undergoing a massive expansion to double the clinic space.

Currently, without the expansion, the clinic has the following:

- Waiting room
- Triage room
- Emergency room
- Obstetrics/delivery room
- Operating suite
- Two physician offices
- One dental office
- Pharmacy
- “Clean” supply room
- “Dirty” supply room

Once the expansion is complete, the clinic will expand by 8-10 additional rooms. Given the proximity to salt water (it is ocean-front property) the new space may be partially air-conditioned (though not currently in the financial plans).

At this time, it is unclear how the expansion space will function with the current clinic space. However, the Director of the subcenter is working with architects for this configuration.



### Equipment & Supplies

While equipment and supplies are plentiful, many are non-functional, expired, or cannot be used by current personnel.

During Dr. Podolsky's visit, for example, the following was found:

- EKG machine: does not print (and does not have a display screen).
- Operating Suite: no personnel trained in surgical procedures.
- X-ray machine: does not have the developing machine (it was lent to Santa Cruz 2-3 months ago), and no personnel is trained to use it.

In the past, for example, the following equipment failures occurred during a pediatric resuscitation:

- Oxygen tank: empty for an unknown time period.
- Incubator: one lent to Santa Cruz, the other on Isabela was non-functional.
- Endotracheal tube: expired, and unable to be flexed for intubation.

In addition to problematic equipment and supplies at the subcenter, the supplies purchased by patients are often not reliable. For example, a plaster splint was applied to an ankle injury that necessitated transfer for x-ray. However, after thirty minutes the plaster did not set. On further exploration of the materials, it was noted that they expired three years ago.

### Medications

The subcenter has a pharmacy, as well as a small stock of medicines within the "Emergency Room." However, like most hospitals in Ecuador, the patient and/or the patient's family must pay for these medicines.

## **PROCESSES OF CARE**

### Acute

All emergencies on the island are triaged by the subcenter, stabilized, and then sent to either Santa Cruz or the mainland (Guayaquil or Quito) on an as-needed basis.

While most “true” emergencies cannot be appropriately managed on the island, there are a few emergencies that should have additional training. (See “Critical Emergencies” in the “Suggestions for Improvement” section.)

### Chronic

All chronic care is provided by the subcenter. However, this is not optimal as key measures of chronic disease cannot be measured or obtained (i.e. diabetics cannot have Hemoglobin A1C counts done; heart patients cannot receive EKGs.)

### Preventive

All preventive care is provided by the subcenter, including vaccinations for children.

### Palliative

There are no palliative care options for people on the island, aside from treatment by the physicians at the subcenter.

## **SUBCENTER RELATIONSHIPS**

### Community

The subcenter strives to integrate itself among the community – both in terms of community outreach programs and by being centrally located on the town square. The physicians and staff are often consulted at their homes during non-clinic hours. This level of care provided by both physicians and staff gives a strong sense of commitment to the community served.

However, there is also a certain sense of distrust among community members and the subcenter. This comes from a variety of reasons:

1. Lack of functional equipment and basic medical supplies.
2. Poor patient outcomes (regardless of preventability).
3. Unpredictable availability of physicians (i.e. off-island for personal/business trips, eating, outdoors activities).
4. Misaligned expectations of the island inhabitants.
  - a. In other words, the population has expectations that far exceed the ability of the health center. Often, these expectations are equal to health centers found in major cities, not an island of two thousand people.

### Tourists

The subcenter has no formal relationship with tourists. There are no programs that directly reach out to tourists or tourism operators. Further, most tourists are usually directed away from the clinic by tourist guides. If a tourist requires medical attention, he or she generally goes to Santa Cruz or the mainland.

### Municipality

The subcenter has a minimal relationship with Municipality representatives. Further, this seems to be strained in recent months as the Mayor is publicly making plans to create a Municipality-run health center. While the Municipality makes occasional contributions to the subcenter (i.e. funded the operating suite), there is no on-going financial support. In part this stems from the lack of subcenter accountability for funds distributed and/or services rendered.

### Territory

The subcenter has a strong relationship with Santa Cruz, but this may be unidirectional. In other words, Isabela frequently contacts Santa Cruz for counsel, guidance, and financial help; however, it is unclear if Santa Cruz responds in a timely manner. Some of this may stem from a general lack of funds/resources, while some may stem from resource allocation to the island of Santa Cruz (as it has a larger population and thus a greater need for health resources).

### Health Ministry (Quito)

The subcenter has a minimal relationship with the Health Ministry in Quito. This relationship is generally through Santa Cruz; however, the Director of the subcenter may, on rare occasion, speak directly with Quito.

## **CULTURAL CONSIDERATIONS**

### Community

Many community members have been on Isabela for some time, though there is a recent influx of new members as the tourism industry has significantly increased on the island.

### Physicians

The subcenter Director is a native of the Galapagos – a requirement for holding the position. This puts him (or her) at a distinct advantage, as s/he understands the dynamics of such a remote island chain with limited resources and limited infrastructure.

## **FINANCIAL**

### Income

The subcenter receives most (~99%) of its income from the Ministry of Health. However, a very small portion is received by charging \$3- for a work required health physical. The exact amount received per month for this service is unclear, though probably about \$100-200.

### Expenses

The subcenter employs about ten people, as listed earlier. All personnel, building space, equipment, and supplies are paid directly by the Ministry of Health.

## **SPECIAL INITIATIVES & CIRCUMSTANCES**

### School Project

Dra. Dvorquez is working with the local school (Fray Agustin de Azkunaga) on the prevention of teenage pregnancies and sexually transmitted disease. Unfortunately, these classes are sporadic as they often conflict with clinic hours. (Of note, Dra. Dvorquez held a successful Congress around these issues during her time in the Galapagos. Please write her for details.)

### Vaccines

The subcenter, in conjunction with the local school (High School: Fray Agustin de Azkunaga; Primary School: Jacinto Gordillo y Cornelio Izquierdo), provides all vaccinations for school age children.

Adult vaccinations (i.e. pneumonia and influenza) are provided by the subcenter.

### Mayor's Proposal

The Mayor receives funding from the municipality, which is separate from the federal funding (provided to the Health Ministry). Community concern for improved health care has prompted him to launch an investigation into the creation of a Municipality run health center.

The main argument for a Municipality run health center is that it can more quickly and adequately respond to community needs. It does not need funding or approval from the Health Ministry or government in Santa Cruz or Quito.

The main argument against a Municipality run health center is that it dilutes community resources and increases "global" expenses. However, neither group (Municipal vs. Health Ministry) may be significantly impacted because of separate finances. However, in thinking about the best use of "global" funds for Isabela, it does not seem sensible.

## **SUMMARY OF FINDINGS**

Isabela is a remarkable island with a strong community interested in improving overall health. There is, however, a price to be paid for living in such paradise, and that comes in the form of resource allocation that mandates limited health services. In this case, there is only so much to be expected of an island inhabited by barely two thousand people. This being said, there are ample opportunities for improvement within the current system. Significant improvements can be made to positively impact the health of the island – without adding another dollar, thing, or person.

There is a fine balance between “it is the best we can do under the circumstances” versus “appropriate care for a small population size and unique characteristics of a remote island.” In other words, good is not good enough. Isabela has room for improvement within the current system and funding structure. And, the community is correct in asking for these improvements from the local medical community, the municipality, and the health ministry.

It is worth noting that many of the locals, and off-island homeowners, feel that increased specialty care should be available on Isabela. While people have strong feelings on this matter, the cost-benefit analysis argues against such specialty care. Further, in developed, industrialized nations one would not find specialty care for such a small, remote community. All this said, there might be “creative” ways to gain such specialty care – discussed in more detail below.

In addition, many community members sense a lack of adequate services for Emergency care and Obstetric/Gynecologic care. These two areas will be discussed in more detail below, as they warrant further investigation for improvement within the current system.

## **SUGGESTIONS FOR IMPROVEMENT**

### **“Bread and Butter” Cases**

There are two areas of health services that comprise nearly 80% of all visits to the subcenter: Pediatrics and Obstetrics/Gynecology. As such, the subcenter physicians should receive additional training in these two fields.

### **Preventive Health**

An island of 2,000 inhabitants is a manageable number for two physicians at the subcenter. It also creates a wonderful opportunity to provide expert preventive health for this population.

### **Critical Emergencies**

On Isabela, emergencies that require immediate intervention are both rare, and exceedingly life threatening. In other words, those things would likely kill you in an industrialized nation (like the U.S.A.), will certainly kill you on Isabela. There is nothing that can be done to prevent these rare instances.

However, there is one critical emergency that may necessitate treatment by medical personnel on the island because transport may be unavailable, too long, or financially not possible. The critical emergency that immediately comes to mind is a caesarean section. While it is rare that this would occur, it may save the life of both mother and unborn child. Any general physician on a remote island should probably be trained in such an emergency operation.

### **Partner With Municipality**

Trade funds for accountability, possibly in the form of a community board. It is clear that the Mayor and municipality want to be more responsive to the needs of the community; however, this may not be the best use of total resources. Instead, maybe the Mayor and municipality could set up specific funds (i.e. bandages, supplies, medicines) in exchange for increased accountability of the subcenter to meet the current needs of the island. Such accountability might come in the form of a “Community

Advisory Board,” possibly including external audits of finances and patient visits (numbers, acuity, etc.).

### **Specialty Care**

As a whole, the island does not have a population large enough to financially support full-time specialists. A population of 2,000 only has a handful of surgical emergencies a year, and maybe a few obstetrical emergencies. These numbers would not warrant these specialists.

There may be a weak argument that specialists in Pediatrics and Obstetrics/Gynecology are warranted. However, as mentioned above, it may be better to give additional training to the General Physicians at the subcenter. The argument is simple: As a parent, would you rather have a Pediatrician available 1-2 days a month (12-24 days per year)? Or, would it be better to give additional pediatric training to the physicians that work there 365-days per year?

### **Sell Operating Suite**

The Municipality, Subcenter, and Health Ministry had the best of intentions in creating a state-of-the-art operating suite. However, a simple case requires a minimum of four, highly trained, expensive personnel: a Surgeon, Anesthesiologist, Operating Nurse, and Scrub Technician. This does not include the additional equipment (i.e. sterilization, supplies, etc.) needed for operations. Given the population, it is hard to imagine that the operating suite will be used any time in the next 10-20 years. Thus, it makes the most sense to sell the equipment and use the proceeds for improving community health.

### **School-Based Preventive Health**

Dra. Dvorquez’s work in the local schools is a vital project to educate young people about teenage pregnancy and sexually transmitted illnesses. However, this opportunity is sometimes hampered because of work hour requirements at the subcenter. This could be resolved if the subcenter changed hours one day a week so that the morning was always free for school-based work.



### **Fund the Evacuation Process**

There are a few “true” emergencies that require immediate evacuation from the island. Unfortunately, the cost is tremendous to nearly all of the residents. One possible use for the funds from the sale of the operating suite equipment would be to create an “Evacuation Fund” for the poor.

### **Remember The Tourists**

Though few tourists visit the Subcenter, they are a potential source of income and resources. Many foreigners would likely contribute (time and/or money) to the health of Isabela, but they first must be aware of the need.

The subcenter could easily work with the Municipality and the National Park Service to create tourist-friendly health information.

### **Governing Board: Community Advisory Board**

Isabela is ideally suited for a “Community Advisory Board.” This might consist of the representatives from the general public (including business owners and guides), the municipality, and the subcenter. It might be a wonderful opportunity for subcenter physicians to better understand the health needs of the community, thus guiding future improvement. It might also offer accountability that could be exchanged for municipal funds to help the subcenter with supplies and other resources.

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