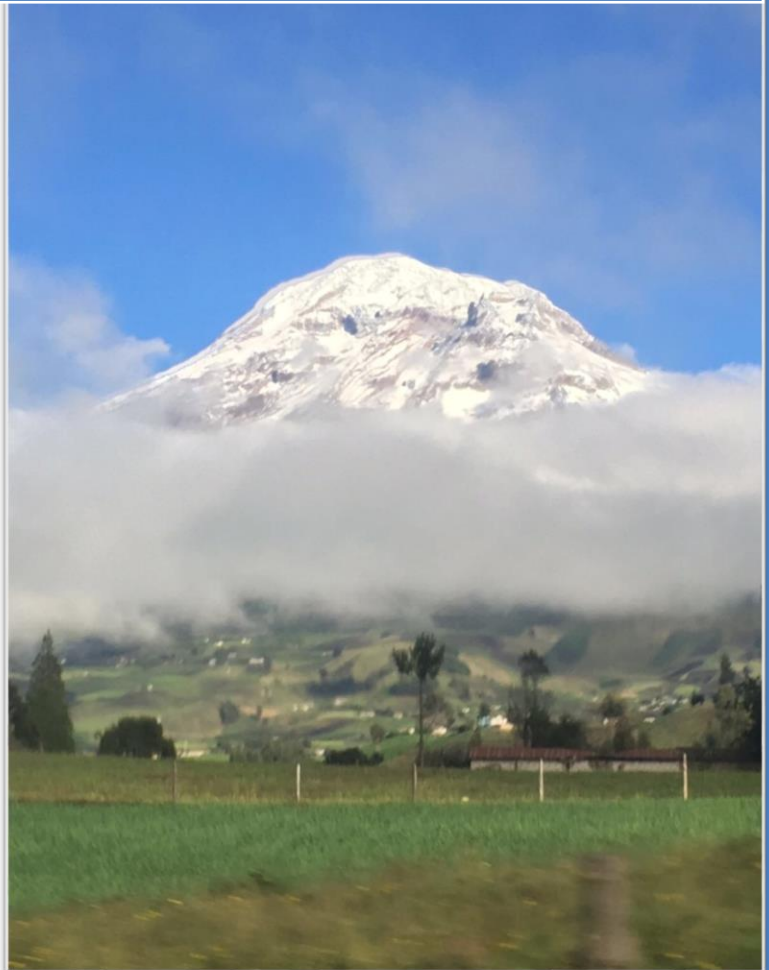




Ecuador, 2017



*The Healing Hands Foundation is a non-profit organization committed to providing medical, dental, and surgical care to people in need around the world.*

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## The Foundation

The Healing Hands Foundation (THHF) is a non-profit organization founded in 2007 that provides medical services to children and adults around the world. The THHF mission is to provide high quality surgical care to children with complex congenital malformations in areas lacking resources and expertise. The medical staff of THHF has decades of combined experience, and its doctors, dentists and nurses have practiced medicine in countries around the world, including Ecuador, Colombia, Guatemala, Panama, Dominican Republic, Laos and Sierra Leone. 75% of THHF volunteers return to participate in more than one mission, with a core group committed to yearly missions in Ecuador and Guatemala.



Riobamba Volunteers 2017

## Riobamba Medical Mission Summary

In March 2017, The Healing Hands Foundation (THHF) visited Ecuador to provide surgical and medical care for people in the central highlands. Patients traveled several hours to



receive care at the Hospital de la Brigada de Caballería No. 11 de Galápagos located on a military base in Riobamba. During the 5 days of service, the medical team performed 56 procedures on 49 patients ranging in age from 7 weeks to 86 years. The most common surgeries performed included repair of microtia, cryptotic or other ear deformities, mass resections and scar revisions, septoplasties and septorhinoplasties.

## Medical Volunteers

Thirty-seven THHF volunteers traveled from five states for the 2017 Riobamba mission. Working with staff at the Hospital de Brigada Galapagos and local volunteers who provided logistical support, we were able to provide pre-op, anesthesia, surgical, post-op, and non-medical support services to patients across the area.

Volunteer Role	Number of Volunteers	Volunteer Role	Number of Volunteers
Plastic Surgeon	3	Pediatric ER Nurse	1
Plastic Surgery Assistant	1	Nurse Assistant	1
Medical Student	1	Pediatric Anesthesiologist	1
Pediatrician	1	CRNA	4
Nurse Practitioner	1	Videographer/Photographer	1
OR Nurse	4	Executive Director	1
PACU Nurse	1	Translator	6
Scrub Tech	2	Other volunteers	4
PACU-NICU Nurse	1		

Table 1: Medical Volunteers

## Picture of Health in Ecuador

Ecuador had a period of economic stabilization in the early 2000s, during which unemployment and poverty rates improved. However, Ecuador has seen an economic slowdown since 2014, magnified by the impact of the 2016 earthquake. The Ministry of Health aims to coordinate the currently fragmented health care system into a public delivery model with universal access and prevention as a priority. There are still healthcare disparities in the region. By providing quality medical care to at-risk populations in rural areas, the Healing Hands foundation can heal the world, one child at a time.



According to a report<sup>1</sup> by the Pan American Health Organization, connections to the public water supply were available in 77% of households, as of 2010. However, access to clean water was estimated at less than 50% for indigenous populations. Also in 2010, half of Ecuador's households had access to the public sewage system, although availability disproportionately favored the urban areas. Only 15% of rural areas benefited from improved sanitation facilities.

Given the importance of ranching and agriculture to the economy, it is not surprising that approximately 43% of Ecuador's population resides in these underserved rural areas. Riobamba is an important agricultural hub for the Central Andes highlands that surround it. It is also home to the second largest concentration of Quechua people. The realities of poverty, lack of access to clean water and inadequate sanitation systems are felt by the rural and indigenous communities surrounding Riobamba.



Congenital abnormalities and prematurity are among the leading causes of death for children under the age of 5, according to the World Health Organization 2013 report.<sup>2</sup> Microtia is the most common congenital malformation in Ecuador, occurring 17.4/100,000 births.

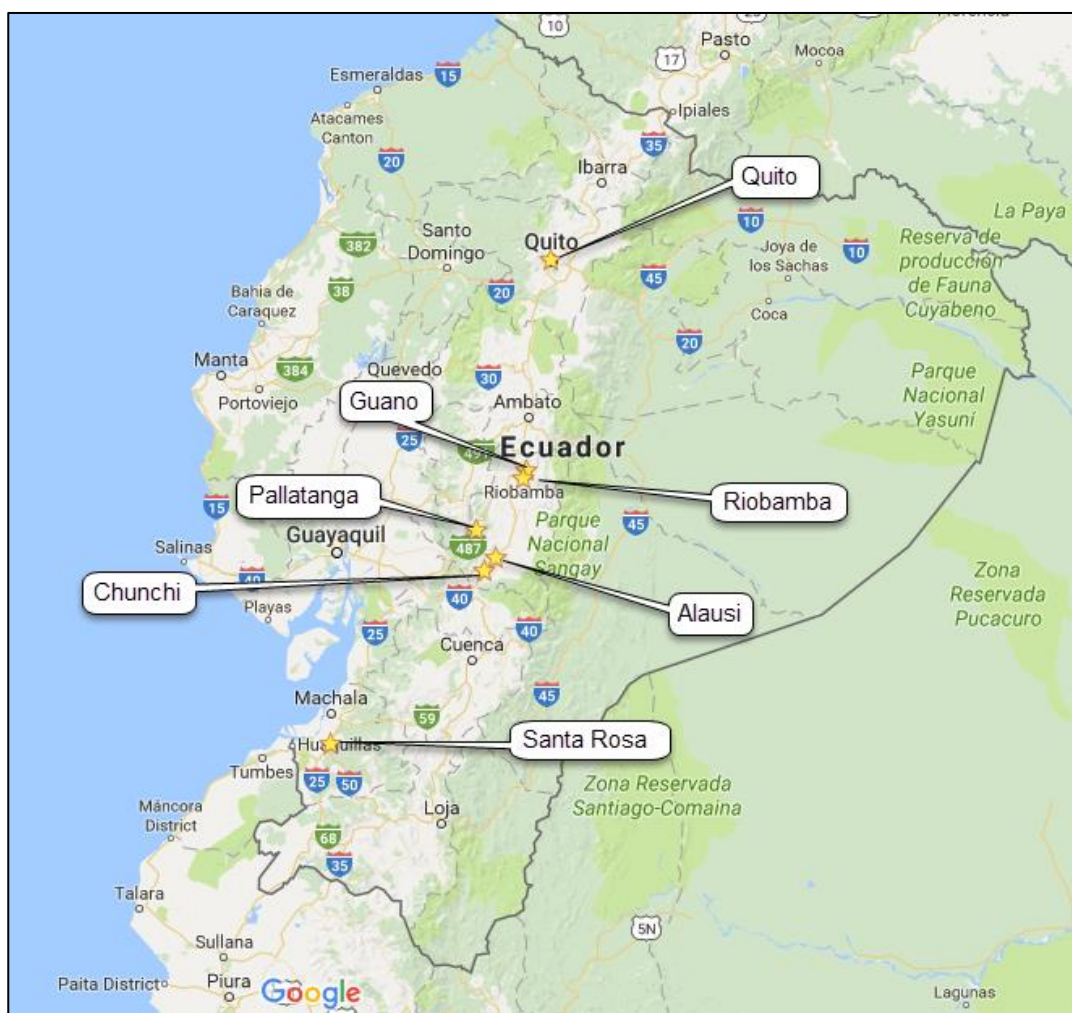
It is estimated that a quarter of Ecuador's children are malnourished, with higher rates among the indigenous people. The prevalence of malnutrition in Riobamba's province is over 50%. Dietary risk is the second leading contributor to disease burden in the country. The prevalence of dental caries for school-aged children was estimated at over 75% in 1996.

### Providing Quality Care

Patients traveled across Ecuador to seek care from THHF volunteers. Although the majority of patients served during this trip reside in Riobamba or nearby Guano, thirty percent live three or more hours from the hospital. The average trip duration was 1.49 hours. One patient made a nine hour trip from Santa Rosa. Because Riobamba is an agricultural trading hub, there is good road infrastructure. However, many patients made the trip to the hospital by bus and returned home with their families the same day.

<sup>1</sup> Pan American Health Organization (PAHO). Health in the Americas 2012. Washington, D.C., United States: Pan American Health Organization (PAHO), 2012.

<sup>2</sup> Country Statistics and Global Health Estimates by WHO and UN partners, Global Health Observatory. Last updated: January 2015.



City	Number of Patients	Duration of travel to Riobamba (one way)
Riobamba	17	5-30 minutes
Guano	14	20-40 minutes
Chunchi	12	3-4 hours
Quito	2	3-4 hours
Alausi	1	2.5 hours
Pallatanga	1	2 hours
Sawin	1	30 minutes
Santa Rosa	1	9 hours

Table 2: Patient Travel

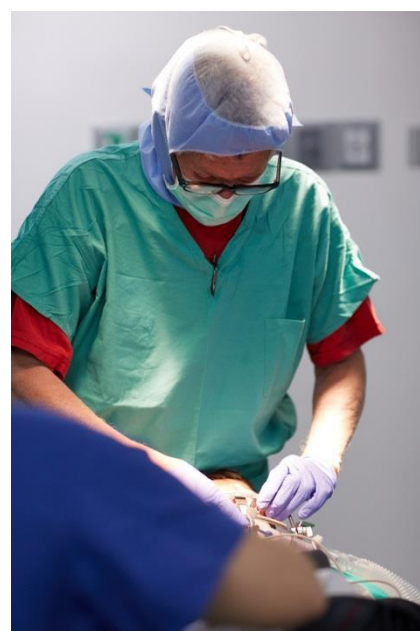


85 patients were evaluated during the triage trip to Ecuador. During the Riobamba mission, 49 patients received a total of 56 surgeries. 11 of these patients required overnight care following surgery.

11 patients did not receive planned services, due to failure to appear, ineligibility because of illness or because they declined surgery. These patients are not included in this analysis.

There were 31 males and 18 females between the ages of 7 weeks and 86 years. Fifty-seven percent (n=28) of the patients were children under 18 years of age.

Table 3 shows the categorization of surgical procedures performed during the Riobamba mission. Congenital abnormalities of the face were the most common reason for surgical intervention. Figure 2 provides additional information on these cases.

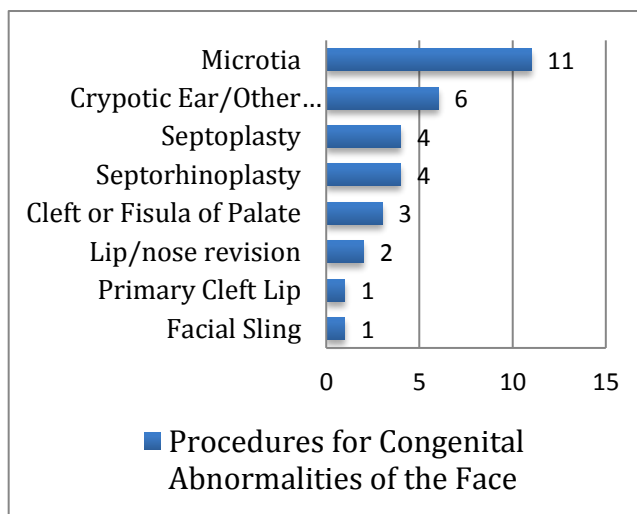


Type and Number of Surgeries	
Congenital abnormality of face/ears	31
Congenital abnormality of hands/feet	4
Hernias	3
Mass/growth removal	7
Scar Release/Reduction	7
Other	4

Table 3: Type and number of surgeries

23 patients receiving surgery during this mission were recommended to return next year for the next stage of treatment. 10 patients were evaluated during the mission and will return next year to receive care.

Figure 1: Facial Procedures



The THHF medical team feels privileged to have met and provided care to the 2017 Riobamba Mission patients.

## Dental Mission Summary

It is evident that the incidence of decay is very high among the attended population. Lack of proper oral hygiene, high sugar/carbohydrate diet, the lack of access to dental care due to finances and lack of dental care preventive education has resulted in the incidence of dental decay to reach epidemic proportions.



The rampant incident of decay in each child requires several dental visits to accomplish comprehensive care. Our goal during this mission was to eliminate the most health threatening condition such as infected teeth, restoration of the permanent dentition to prevent infection w/ early loss of permanent dentition and preventive care consisting of prophylaxis (dental cleaning), tooth surface sealants and fluoride applications. The Dental team performed 1,142 dental procedures on 302 patients during the Riobamba Mission. Pain medication was prescribed to all extraction patients (118) and antibiotics were given to approximately 28 patients. Patient/Parent education on proper diet and preventive care was also provided.



## Dental Volunteers

THHF volunteer dentists and assistants joined forces with local volunteers to care for patients who arrived by the busload to receive dental services. Together, this team had seventeen members. The volunteers were grateful to have the use of three dental operatories, one portable unit and a Sterilization/ Instrumentation room at the Military Hospital Brigada Galapagos.

Volunteer Role	Number of THHF Volunteers	Number of Local Volunteers
Dentist	1	8
Dental Assistant	2	
Dental Translator		1
Dental Volunteer		5

Table 4: Dental Volunteers

## Dental Procedures

Over five full consecutive days, the dental team performed an average of 3 procedures per patient, including cleaning, fluoride, extractions, restoration, sealants, dentures and X-rays. The number of procedures by category is available in Figure 3. Patients ranged in age from 2-15 years of age. Most patients were young school children, approximately 4-6 years of age, transported by bus as a classroom, often accompanied by their teacher.

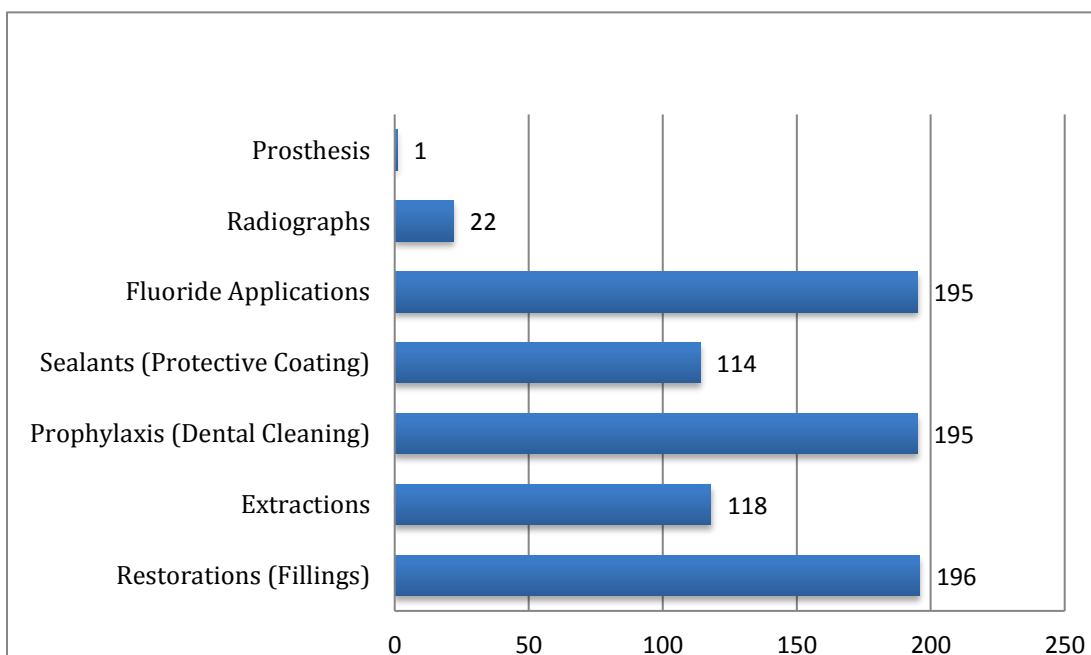


Figure 2: Type and Number of Dental Procedures

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**Photography credit to Andres Hernandez**