

Orthopedic Mission to Jinotega, Nicaragua August 2008

A Report

**Carried out under the auspices of Project Health for León
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Team Members

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Contacts in Jinotega

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The Location

Nicaragua is very poor as a result of the Sandinista war but seems to be recovering at a rapid pace with significant improvements noted each year when we return. Jinotega (the city of the mists) is located about 100 kilometers north of Managua, Nicaragua at an altitude of about 1,000 meters. The drive from Managua now takes about two and a half hours, the first half on a portion of the Pan American Highway that is in good condition but the second half on a twisting mountain road. This road was still under repair during this trip and portions of it were badly potholed. Instead of the shortcut that we took in past years, we again went through Matagalpa.

Like other tropical cities at higher altitudes Jinotega has a very pleasant climate year round. The weather was pleasant during this, our third trip in the August rainy season, but it didn't actually rain very much. Jinotega is placed in a small valley in the coffee growing mountains and has a population of about 120,000 people. We stay three blocks away from the hospital in the Hotel Café, a very nice facility which is very clean and has

a fine restaurant. It even has Wi-Fi for laptops now! We went out to several other nice restaurants during our stay and they also provided good food. The tap water is apparently treated but we had a few people with diarrhea again. No one got seriously sick (however most of us were taking daily Doxycycline for Malaria and diarrhea prevention).

The Facility

The hospital is in the middle of the city and moderately old with large multibed wards in narrow wings for ventilation. There are some “private” wards with private rooms for patients with insurance but none of our patients this year were in them.

The operating theater has three rooms, of which they kindly allow us the use of the two largest. The third was mostly used for C-sections during our stay. Much of their equipment is in poor condition. Sterile practice is unusual to our way of thinking, as they place great emphasis on not leaving the OR in scrubs, but allow people in the OR with noses (and often mouths) out of their (cloth) masks. They are not careful about the sterile field and gowns and drapes often have perforations. There are many flies and other insects in the OR. They do not use sterile waterproof barriers on their back tables or surgical field. Circulators and Anesthesia Technicians (who provide the anesthesia) often leave the rooms for extended periods of time.

The fluoroscope Donated by Project Health for Leon was still broken and so we were back to guessing about alignment and pin/screw placement for the procedures we performed this year in the OR. We removed the motherboard and brought it back in hopes that changing the battery and RAM and reinstalling the software in January might restore its function.

The Schedule

We traveled all day Saturday arriving in the evening.
We held clinic from 8 to 3 on Sunday
We operated from 7:30 to 3-5 on Monday – Thursday.
Friday we did one case.
We left for Managua Friday afternoon and flew out on Saturday at 7AM.

The Patients

We saw about 80 patients in the clinic on Sunday with about 10 more “consults” during the week between surgical cases. Many of the patients had conditions that were untreatable or that we did not have the expertise to treat. This year we saw 9 patients that we believed we could help significantly with surgery but did not have time on the schedule to do.

We performed 33 operations that are listed in the table below.

Room	Monday	Tuesday	Wednesday	Thursday	Friday
A1	Diego Rableto Villaneueva DM 71 M	Jose Vargas DM 65M	Leopoldo Jarquia Aleman DM 78M	Tere Palacios DM 38F	Rosibel Rivera Zemora LB 17F
Info	R Total knee replacement	L total knee replacement	Right Total Knee replacement severe Varus	Left Total Knee Replacement	Tibial Non Union – revise alignment fixator
A2	Maria Gonzalez Lopez 26 F	Dayana Rizo Cruz RS 5 f	Hazel Hernandez, CR 20F	Ivan Herrera Gutierrez LD 7M	?
Info	L Machete fx radius and extensor tendon laceration	Cerebral palsy Bilateral Adductor, Hamstring and Achilles tendon lengthening	Rheumatoid arthritis, fuse wrist	Left Fibular Osteotomy	Amputation of small finger due to rope injury
A3	Jose Bismark Silva CR 19 M	Victor Picado Cruz DM 29M	Santos Guadalupe Chavarria CR 23M	Jancen Perez Lago LB 21F	
Info	L open scaphoid & tendons secondary to machete	Arthroscopy Right Knee	Left grade 4 ac repair	Fibrous Dysplasia Varus Osteotomy Left Distal Femur	
A4	Alex Ruid Blandon DM 24M	Ernesto Castillo DM 26M		Norman Lopez Zeledon DM 26M	
Info	R knee arthroscopy	Left ACL reconstruction		Right ACL reconstruction	
B1	Ricardo Daniel Avera LD 5M	Walter Guillen Chavarria CR 9M	Neri Mercedes Lopez RS 13M	Henry Roca Hernandez CR 19M	
Info	R lateral condyle fx nonunion	Cerebral Palsy Right hand Tendon Transfer, FCR to Extensors, TAL	Polydactly Bilateral Feet excise 6th toes	Right Distal Radius Osteotomy	
B2	Daniel Hidalgo LD 66M	Fany Castilblanco LD 64F	Arlin Martinez Centena LD 42M	Alba Almansa CR ?F	
Info	R high tibial osteotomy	R Intertrochanteric hip fracture fixation	Right Tibial Non Union - ORIF Graft	Right ORIF Radius Ulna Non Union	
B3	Milagros Rivera Mairena LD 8F	Angela Gonzales CR/RS 19F	Rosibel Rivera Zemora LB 17F	Edugine Lopez Aguilar CR 55	
info	L proximal femoral osteotomy	Multiple flexor tendon lacerations with machete zone 2, patellar tendon	Tibial Non Union - Compression Fixator	EPL Tendon Repair Poss EIP Transfer	
B4	Perfecto Lomza Previa LD 42F	Benencio Hernandez LD/CR 67M	Paula Zeledon Herrera LB 45F	Dennis Ortiz LD/CR 46M	
Info	R humeral nonunion ORIF graft	Left High tibial osteotomy	Right Distal Femur Non Union - ORIF	Left Radio Ulnar Non Union-One Bone Forearm - ORIF	

We had no known complications on this trip but did have to take Rosibel Rivera Zamora to readjust her Ilizarov fixator for inadequate bone contact on Friday.

The Equipment

We took approximately 600 pounds of tools, supplies, equipment and implants with us, which we left in Jinotega.

Results from the previous year's surgery

We saw several patients from the previous year's surgery.

Rosibel Rivera LD	17	apply Ilizarov for bone transport	Patient's bone transport was successful in filling in her bone defect in her tibia but she had a nonunion at the docking site so we applied a new Ilizarov for compression of the nonunion.
Ubania Reyes LD	11	R recurrent Coxa Vara	Had R intertrochanteric osteotomies multiple times. This led to the difficult decision excise the femoral neck nonunion and do a valgus osteotomy through the femoral neck despite the risks to the blood supply of the femoral head. She was well healed and was ambulating well but was noted to have significant scoliosis
Arlin Martinez Centena	42	Nonunion tibia R	Developed post op plate infection and plate was removed leading to persistent nonunion. We replated and grafted this trip.
Ivan Herrera Gutierrez	7	Severe clubfoot	Developed recurrent varus and equinus so we shortened fibula and resected bone and cartilage in anterior tibiocalcaneal region to render foot plantigrade again.
Frances Zeladon Ramiriez	15	Dysplastic hip – shelf procedure	Doing very well and x-ray showed center edge angle of about 25 degrees
Selleni Lopez	8	Achilles tendon lengthening	Walking much better
Milagros Rivera	9	Spina bifida with hip subluxation post bilateral proximal femoral osteotomies	Right side well located but Left recurring so revised to increase varus

Overall

We all had a wonderful time with gracious hosts, believe we did some good for the people of Nicaragua and are ready to go back next year.

NEXT YEAR

Equipment to take

- 3.2 and 2.5mm drill bits
- Steinman pins and K-wires
- pliers, wire cutters, out of chrome cobalt so they will tolerate autoclaving
- pin/bolt cutters
- videotapes or books (in Spanish if possible) that demonstrate
 1. sterile technique, how to setup the back table and drape the patient
 2. AO technique
 3. Campbell's

Equipment to invent

- Autoclavable impervious drapes for back table and "U" drapes for patient limbs
 - Tarps?
 - Plastic sheeting?