Sustainability:
Heart Care International
A 17-Year Experience

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Founder and Chairman
Heart Care International

Surgeon-in-Chief
Professor and Chairman
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Heart Care International

• Not-for Profit
  – Tax exempt 501(c)3
  – Board of Directors
  – Private philanthropy
  – Corporate support for some supplies
  – HCI pays team airfare, in-country travel and meals
Heart Care International
17 Year Experience

• Vision
  – Train local physicians, nurses and technicians to become independent caregivers
  – Provide cardiac services to indigent children and young adults in developing countries
Heart Care International

• 5 year commitment to each country

• Site selection
  – Site visit by Chairman, Executive Director and key Team Captains

• Medical team captains assess if goals are realistic

• Simultaneously evaluate government, hospital administrative and medical leadership support
Guatemala City, Guatemala
October 1994

- **45 medical staff members from several institutions:**
  - Columbia
  - Mt. Sinai (NYC)
  - Yale
  - Parkland
  - Emory

- **3 week trip**
  - Diagnostic
  - Surgical
  - Transition

- Selected site had no open heart surgery program
- **10,000 pounds of equipment shipped**
Guatemala Mission
October 1994

Team Members (48)

- Cardiologists: 4
- Perfusionists: 4
- Surgeons: 3
- Physician Assistants: 4
- Anesthesiologists: 4
- Respiratory/Terapists: 1
- PICU Nurses: 18
- Admin/Logistics: 3
- OR Nurses: 7

* Coverage 24hrs/7days during trip
Guatemala Mission
October 1994

• Total Patients Screened 70 / 5 d
• Patients Catheterized 13 / 3 d
• Patients Operated 25 / 6 d
• Deaths 3
  Post-Operative 2
  Post-Anesthetic 1
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<thead>
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<th>Op</th>
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<td>TriAtr s/p Fontan</td>
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Guatemala Mission - October 1994

25 Surgeries Total

- Complete Repair: 24
- Open Heart: 17
- Closed Heart: 8
- Palliative: 1
Pre-Operative Patient Demographics

Age: $5.7 \pm 4.8$ yr
Range: 3 mos to 19 yrs

Growth Percentiles
- Ht < 5%: 56%
- Wt < 5%: 48%

• 3/4 of patients from the mountains (> 1 mile above sea level)

• Other health problems: Lice, Scabies, Eczema, Dental Caries, Asthma, Seizures, Cachexia, T.B.
Guatemala Mission - October 1994

• Lessons Learned From First HCI Mission
  – Results supportive of project continuation
  – Focus on curable lesions
  – Challenge of “Acute Need” children
  – Importance of a Transition team
  – Importance of a Contract with host team
Heart Care International

- Total Patients Screened: 315
- Total Operations: 220*
- Deaths:
  - Post-Operative: 5
  - Post-Discharge: 2

2 post discharge recorded, but follow-up largely incomplete

¾ of patients live remotely
### HCI In-hospital Mortality Data Compiled for Guatemala (n=302)

<table>
<thead>
<tr>
<th>Category</th>
<th>In Hospital Deaths(/100):</th>
<th>Avg LOS (d):</th>
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<tr>
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*Navedo-Rivera AT, WS Schechter, D Jordan, M Galantowicz and RE Michler
In-hospital Mortality for Volunteer Pediatric Cardiac Surgery Missions in Guatemala
ASA Meeting Abstracts, A-1291, October 2000*
Heart Care International

• Lasting Legacy of HCI in Guatemala
  • Helped Dr. Aldo Castaneda
    – Creation of UNICAR
  • HCI was a financial contributor to UNICAR
• Continued contact for two-way education/training
Santo Domingo, Dominican Republic

• Dominican Republic (1999-2004)
• La Plaza de la Salud, CEDIMAT
• 267 surgical procedures on 245 patients
  – TOF > 25%, VSD, ASD, PDA, AV canal, Coarct
  – Dr. Freddy Madera: US Board Certified
  – Creation of Heart Care Dominica
  – Program performing independent surgery since 2008, and teaching other Caribbean centers
Lessons Learned

- The second 5 years - Dominican Republic
  - US trained physician from the region
  - Executive Director role for host country
  - Strong local non medical partners
  - Smaller trips, lesion specific
San Salvador, El Salvador

- 150 Surgeries since 2005-2008 in 159 patients
  - 6 in hospital mortalities
  - VSD, TOF, ASD, Coarct, TAPVR, AV Canal
  - Average weight 7.7 Kg ± 4.1 Kg (4.0 Kg-42kg)
  - Age range one month to 17 years
  - 48% of children <10% Ht
  - 52% of children <10% Wt
El Salvador

- Two trips: goals and timing
  - Smaller teaching trips
    - Lesion specific
    - Focus on ES staff
  - Larger volume trips requested by ES physicians and Sana Mi Corazon
    - One room for ES staff with local primary surgeon
    - One room for HCI staff with ES first assistance
El Salvador-Bloom Hospital

- Bloom Hospital will treat any child at anytime from El Salvador and parts of Honduras
  - Resources quite scarce for their already busy programs
  - ICU
    - Dengue
    - Malaria
  - Surgeons reimbursement precludes dedicating full time to pediatrics
  - Anesthesia, perfusion have same conflict
Benjamin Bloom Hospital since 2005

Surgical team: Drs. Martinez, Martinez, Gamero

Cardiology in house: Drs. Velado and Fernandez

US and ES governmental support
  – President Jaimie Saca
  – Ambassadors Barclay and Glazer
Heart Care International

Sana Mi Corazon

Fundraising

Social support for families

Established criteria with government and hospital administrators in conjunction with HCI goals for independent program
El Salvador

- HCI integral in hospital development and allocation of resources, “Consultants”
  - Executive Director
  - Identification and training of anesthesiologist in Mexico through HCI scholarship
- Establishment of ICU nursing curriculum and training program for ICU nurses independent of missions
Lima, Peru

- Hospital del Nino
- 2 trips completed in 2011
- 27 surgeries
- 6 Cath procedures ASD closures/coarctations
- 3 surgeons, 1 anesthesiologist, 2 perfusionists
- Scholarships for surgeon and ICU nurse
# Heart Care International
## 17 Year Experience

<table>
<thead>
<tr>
<th>Country</th>
<th>Initial Year</th>
<th>Heart Operations</th>
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<tbody>
<tr>
<td>Guatemala</td>
<td>1994</td>
<td>220</td>
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<tr>
<td>Dominican Republic</td>
<td>1999</td>
<td>287</td>
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<td>El Salvador</td>
<td>2005</td>
<td>125</td>
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<tr>
<td>Peru</td>
<td>2011</td>
<td>27</td>
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Heart Care International
17 Year Experience

- Total Patients Screened >1,100
- Patients Catheterized >300
- Patients Operated >650
Lessons Learned

First 5 years - Guatemala

- High volume, longer missions have limitations
- Communication between missions
- Biomedical support
  - Backup electricity, oxygen supply

Without surgical programs may not be specifics of surgical care
Lessons Learned

• All trips focus primarily on teaching regardless of volume
• Local surgeons performing or assisting on all cases
• ASD, VSD, TOF, PDA, Coarct, SubAS
• Surgical missions limited to one week
• Medical personnel stay one week following surgery
Sustainability:
Heart Care International

• Site Selection
  – Need
    • Poverty/poverty of access to health care
  – Local Support-shared vision with HCI
    • medical- specific physician “champion”
    • non-medical volunteers
    • competitive forces among local physicians/hospitals
    • importance of a contract with host country team
  – Long-term Commitment- minimum 5 years
  – Hospital/Clergy/Government support
  – Site Visit
Sustainability:
Heart Care International

- Developed a nursing manual in Spanish
- Apprentice/Mentor model of training
- Scholarships for physician, perfusion and nurse training in U.S., Mexico and Guatemala
- Web based year round communication
  - Virtual consultations
Sustainability: Heart Care International

- Challenge of protected physician time
  - Salary offset?
- Public vs Private hospitals?
  - Economics
  - Access to indigent patients
- Private patients pay for indigent care?
- Brain drain of talent to developed countries
Sustainability: Heart Care International

- Non-Medical Volunteers
  - Executive Director
  - Works closely with Chairman MD and Board
  - Year round job
  - Establish Critical Pathway
    - coordinate volunteers
  - Oversight over equipment and supplies
  - Communication with team members
Sustainability: 
Heart Care International

• Non-Medical Volunteer Infrastructure:
  – Airline Travel
  – Lodging and Meals
  – Transportation
    • Airport arrival and departure
    • Hospital-Hotel route
  – Personal safety and security
    • Establish rules and safeguards
    • Travel information package including relaxation
  – Interpreters, beepers, communication critical
Investing in congenital cardiac care is not mutually exclusive to caring for all children.

Cardiac surgery prepares a hospital to treat most if not all serious pediatric illness.
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The team leaves behind kids who can look forward to tomorrow.

W.

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Text by Claudia Glenn Dowling