Humanitarian Otolaryngology: A Navy Hospital Ship Experience

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No sponsorships or competing interests have been disclosed for this article.

Abstract
The USNS Comfort (T-AH-20) is 1 of 2 United States Navy hospital ships. In 2011, she deployed to 9 countries in Central and South America including Jamaica, Peru, Colombia, Ecuador, Nicaragua, Guatemala, El Salvador, Costa Rica, and Haiti. Eight surgical specialties including otolaryngology were involved, for a combined total of about 150 cases per country. An advance team coordinated patients with the Host Nation to be seen for presurgical screening. Selected patients were then taken aboard the ship for surgery and recovered in either the ship’s intensive care unit or ward. They were then discharged prior to ship embarkment to the next country. A total of 95 otolaryngology cases were performed during 9 mission stops. The mean number of procedures performed was 12 per country, with thyroidectomy being the most common. A wide variety of general otolaryngology procedures were performed without significant complications, markedly impacting the quality of life in these underserved countries.

Keywords
humanitarian, otolaryngology, medical mission

Received April 30, 2014; revised July 7, 2014; accepted August 7, 2014.

From May through September 2011, military and civilian organizations came together for the sixth annual Continuing Promise (CP-11) humanitarian mission aboard the United States (US) Navy’s hospital ship USNS Comfort: a 5-month visit to Jamaica, Peru, Colombia, Ecuador, Nicaragua, Guatemala, El Salvador, Costa Rica, and Haiti. The floating base for the mission was the USNS Comfort (T-AH-20), 1 of the US Navy’s 2 Mercy-class hospital ships (Figure 1). The vessels Comfort and Mercy are maintained on the East and West coasts, respectively, and serve alternate years as a mobile base of operations for a mission of humanitarian and civic assistance. The USNS Comfort was initially built as a San Clemente-class tanker before being converted to a hospital ship in 1987.1 She has played a major role in support of humanitarian and disaster relief missions worldwide. Homeported in Norfolk, Virginia, the USNS Comfort stands ready to deploy on 5 days’ notice. Nearly 3 football fields in length, the ship is a complete 1000-bed hospital with radiology, laboratory, intensive care unit (ICU), and operating room capabilities. Its 4 distilling plants can make 300,000 gallons of fresh water per day, and its landing pad carries 2 MH-60 Seahawk helicopters.

Eight surgical specialties embarked onboard the USNS Comfort and utilized 5 of the 12 possible operating rooms. Otolaryngology, general surgery, plastics, ophthalmology, urology, oral surgery, orthopedics, and gynecology surgeons performed a combined total of about 150 cases per country. One general otolaryngologist from a Navy academic training program deployed aboard the USNS Comfort for the first half of the mission and was relieved by another otolaryngologist fellowship trained in head and neck oncology for the second half. Personnel from the US Military, various nongovernmental organizations, and assisting nations such as the Netherlands, Mexico, Ecuador, and Peru joined the mission for several weeks at a time, providing a unique opportunity to build relationships and share techniques. CP-11 also served as an excellent opportunity for graduate medical education. Residents from Naval Medical Center Portsmouth and the Walter Reed National Military Medical Center rotated through 2 country stops at a time, gaining a real appreciation for and interest in humanitarian surgery.

Methods
Following institutional review board (IRB) approval from the Naval Medical Center Portsmouth IRB, a retrospective
Chart review of all otolaryngology cases performed aboard USNS Comfort (T-AH-20) during CP-11 was undertaken. Surgical capabilities were conveyed to the Host Nation by an advance team, which typically preceded the arrival of USNS Comfort by 1 week. Patients were then notified to arrive at the surgical screening site on either day 1 or 2 of the mission stop, where they were screened by both the otolaryngologist and anesthesia team before scheduling surgery. Only surgeries that would allow patients to reliably recover prior to disembarkment were scheduled. Procedures were performed aboard USNS Comfort on days 3 through 8, with only minor procedures or postoperative follow-ups planned for days 9 and 10. Patients recovered from surgery onboard the ship in either the ICU or ward, depending on the surgery performed and patient condition. Discharge planning personnel aboard the ship arranged interval follow-ups for patients with the Host Nation medical assets prior to patient discharge and disembarkment. The typical transition time to the next country was 7 to 10 days, with repetition of the above schedule on arrival to a new Host Nation.

Results
A total of 95 otolaryngology cases were performed during 9 mission stops. There were 39 children (age, 11 months to 17 years) and 56 adults (age, 18-66 years), with 41 males and 54 females. The mean number of procedures performed was 12 per country, with thyroidectomy being the most common (see Table S1 at www.otojournal.org). Of the 95 cases performed, 90 were for benign disease and 5 for malignant findings (see Table S2 at www.otojournal.org). Malignant pathology results were relayed back to the Host Nation sponsor, who would in turn contact the patient or the patient’s primary care provider.

Discussion
Humanitarian assist visits commonly occur in areas of extreme need, where surgical expertise or access is limited.2 The literature is replete with reports of mission statistics for otological and cleft surgeries but devoid of general otolaryngology procedures.3-11 Our unique experience of bringing comprehensive otolaryngology surgery to 9 countries in Central and South America had a very specific goal: deliver safe, high-quality care that would maximize the quality of life.

Several country-specific trends influenced the surgeries performed. The majority of cases presented in Kingston, Jamaica, were to ease the surgical backlog. Guatemala and Peru lacked easily obtainable thyroid hormone replacement, influencing the decision to perform thyroid lobectomies instead of total thyroidectomies. We received many requests for lingual frenulectomies for children who were having difficulty rolling their “r,” a common articulation in the Spanish language. Surprisingly, there were not as many otology cases as expected.

No other specific trends in pathology or case type were appreciated. The breadth of procedures performed and patient age demographics mostly paralleled those seen in our general practice back in the US with a few exceptions. Sinus surgery and tonsillectomy were not actively sought, as they were felt to deserve closer postoperative follow-up. There were no significant complications, attributable to the careful patient selection. The gratitude expressed by each
Host Nation’s patients was immense, and the ability to drastically improve the lives of so many people was humbling.

**Conclusion**

The 95 otolaryngology procedures that we performed restored hearing, eased tracheal compression, removed stigmatic masses, reduced the risk of life-threatening infections, and prolonged lives. We demonstrated that a wide variety of otolaryngology procedures could be performed successfully in this unique humanitarian environment.

**Author Contributions**

Jonathan L. Chadwick, drafting, design, and revision; Shankar Sridhara, drafting, design, and revision; Jennifer Goodrich, drafting, design, and revision; Allen O. Mitchell, drafting, design, and revision; Eric M. Gessler, conception, drafting, design, and revision.

**Disclosures**

Competing interests: None.

Sponsorships: None.

Funding source: None.

**Supplemental Material**

Additional supporting information may be found at http://otojournal.org/supplemental.

**References**


