Cochlear Implantation following a Major Natural Disaster

D’Antoni Dennis, MD, MS1; Kristin Thompson, AuD, CCC-A3; Tammy Crabtree, MCD, CCC-A2,3; Herbert Marks, MD, FACS1,3,6; Moisés Arriaga, MD, MBA, FACS1,3,4,5,6

1 – Louisiana State University Health Sciences Center, New Orleans, LA
2 – Louisiana State University School of Allied Health, New Orleans, LA
3 – Children’s Hospital of New Orleans, LA
4 – Our Lady of the Lake Regional Medical Center, Baton Rouge, LA
5 – Earl K. Long Medical Center, Baton Rouge, LA
6 – East Jefferson General Hospital, Metairie, LA

Abstract

Objective: This retrospective study reviews the issues and results of re-establishing a cochlear implant program following a natural disaster

Study design: Retrospective Study

Setting: Tertiary Referral hospital

Patients: Patients treated through this post-disaster Cochlear Implant Program

Intervention(s): Patients receiving cochlear implantation or cochlear implant rehabilitation through the post-disaster cochlear implant program

Main outcome measure(s): Adults and children receiving cochlear implantation or implant rehabilitation.

Results: Efforts to support previous implant recipients with temporary arrangements for programming, device troubleshooting and replacement components began within six weeks of the disaster. New adult implantation resumed within 15 months and the new, relocated pediatric program began implantation surgery 25 months following the disaster. Up to now (48 months following the disruption) 50 new implants have been accomplished (32 children and 18 adults) with increasing patient evaluations projected to exceed the pre-disaster pace of implantation by the 5 year point post disaster.

Conclusions: 1. Specific contingency plans should be in place for potential service disruptions to cochlear implant patients. 2. Cooperative efforts by industry, university officials, hospital administration and other implant centers permitted timely care of existing implants patients and continuation of implantation surgery with all commercially available implant devices.

Timeline of Events

Before Hurricane Katrina

Memorial Medical Center was the location for LSUHSC Cochlear Implant Program

Paper charts were being used for documentation

Staff included 2 Neurotologist and 2 audiologist

Serving approximately 250 patients with Cochlear Implants - ½ adults and ½ children

9 surgeries were scheduled for September 2005

The Cochlear Implant Program was on pace for 60 implants in 2005

August 29, 2005 to December 31, 2005

Memorial Medical Center was damaged and did not re-open

No facilities in New Orleans were available for patients with Cochlear Implants

Medical records were destroyed and patients were disconnected from the program

Cell phones and institutional email were initially nonfunctional

Some patients established communication through non-institutional email

Public broadcasting and word of mouth were invaluable means of communication

The Cochlear Implant Program maintained its 2 Neurotologist and the director

Priority for critical care needs took precedence over cochlear implantation patients

January 2006 to December 2007

LSUHSC began hiring new personnel to help re-establish the Cochlear Implant Program

Device manufactures provided loaner equipment and programming computers to the program

Many of our patients were serviced at programs in nearby cities

1st cochlear implantation at Children’s Hospital of New Orleans, LA

1st cochlear implantation at Earl K. Long Hospital in Baton Rouge, LA

1st cochlear implantation at Our Lady of the Lake Regional Medical Center in Baton Rouge, LA

January 2008 to December 2009

Cochlear Implantation Program added a 3rd Neurotologist and a full-time Audiologist

Contact with former patients, new clinic visits and implantation services grew rapidly

1st Cochlear Implantation at East Jefferson General Hospital in New Orleans, LA

Began bilateral cochlear implantation at Children’s Hospital of New Orleans, LA

14 adults and 15 children implanted in the program

Lessons Learned and Changes

Patient Information

Establishing multiple sources of contact information and updating this information at each clinic visit will help increase the efficiency of contacting patients following a disruption in care

Electronic medical records with adequate back-up files at a remote location will ensure continuity of care

Communication

Establishing a non-institutional Cochlear Implantation website that patients and program personnel can access at a remote location will provide updates and deliver pertinent information to our patients

Establishing a calling tree and executing this assignment biannually is a practical and effective part of preparation

Implementation and expansion of an established neurotology telemedicine practice to serve our implant program

Partnerships

While the facilities were damaged, the director of the program and the 2 Neurotologist resumed their services in a short time following the storm. Adding new personnel to an established core provided a solid foundation to re-establish the program and is aiding in the expansion of the program

Establishing a relationship with other programs in the geographic area will help serve patients in the event the facilities are damaged. Multiple facilities in 2 major cities may help with program relocation when compared to a single location for operation

Importance of a healthy relationship with the 3 major manufacturers of cochlear implants, Eyes, Ear, Nose, and Throat Foundation, and Cochlear of America provided great assistants in re-establishing the program through equipment and financial support

Importance of the Community Benefit program contributions to the Children’s Hospital cochlear implantation service

Results

Number of Cochlear Implantation following Hurricane Katrina

<table>
<thead>
<tr>
<th>Year</th>
<th>Children</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>2007</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>2008</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>2009</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Number of clinic visits for the cochlear implant program at Children’s Hospital of New Orleans, LA.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>150</td>
</tr>
<tr>
<td>2008</td>
<td>200</td>
</tr>
<tr>
<td>2009</td>
<td>250</td>
</tr>
</tbody>
</table>