# The Computerworld Honors Program

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## Final Copy of Case Study

LOCATION:
*Camarillo, CA, US*

YEAR:
*2011*

STATUS:
*Laureate*

CATEGORY:
*Health*

**ORGANIZATION:**
Face Forward Fund

**ORGANIZATION URL:**
http://www.faceforwardfund.org

**PROJECT NAME:**
Face Forward Initiative

**PROJECT OVERVIEW**

Cleft deformities of the palate are among the most common congenital malformations. In the United States and other developed countries, the treatment and repair of children suffering from cleft palate is truly multidisciplinary, involving care given by otolaryngologists, oralmaxillofacial surgeons, plastic surgeons, dentists, nutritionists, and speech pathologists. In these cases, the most important outcome for these patients is functional speech and swallowing. Outreach programs to developing countries routinely provide good surgical care to patients suffering from cleft palates. However, throughout the developing world, the additional essential component of full rehabilitation—of which speech therapy is essential—continues to be absent. This is due to numerous factors which include the lack of both physical and professional resources. Frustrated by a situation that has persisted for more than a quarter century, Dr. Patrick Byrne, Director of the Division of Facial Plastic and Reconstructive Surgery in the Department of Otolaryngology Head and Neck Surgery at The Johns Hopkins University School of Medicine, has long sought a way to provide the same U.S. standard of care to any child regardless of location, financial means, and local availability of the highly specialized cleft palate surgery and post-surgery skills. (Appendix 1) His “aha” moment finally came in 2009 while travelling in Nicaragua, when he realized that nearly everyone had a mobile phone and wireless Internet access. Dr. Byrne immediately set out to determine how his volunteer team could use technology to fill its biggest gap in patient care: speech therapy. Working together with colleagues from Johns Hopkins and the Greater Baltimore Medical Center, he and his team developed a telemedicine project that uses Cisco WebEx technology to provide remote speech therapy to cleft-palate patients in distant countries. With an online collaboration tool like WebEx, the medical team is not only able to communicate face-to-face with patients and local providers through real-time video, but can also share visual references from a variety of media. (Appendix 2) The interface proved extremely effective and user-friendly for both patients and providers. Three months into the pilot project, the team had provided speech therapy to an initial group of six patients in Nicaragua and had identified 10 more children

as future candidates. Dr. Byrne and his team used Cisco Flip Video cameras to capture footage of patients speaking, which could then be used by the speech pathologist back in Boston to make initial evaluations. In just a little over a year, Dr. Byrne's project has transformed from vision to reality thanks to online video collaboration technology, and he could not be happier with the outcome. Today known as the Face Forward Initiative, the nonprofit provides free surgical treatment to children in developing countries to help eliminate cleft lip, cleft palate and other facial deformities worldwide. Video conferencing allows physicians and speech therapists to sit face-to-face with these children to provide real-time diagnosis of speech errors and treatments to correct disorders. The ultimate goal of the project is to spread this telemedicine technique across the developing world.

## SOCIETAL BENEFITS

The Face Forward project benefits society by giving cleft palate patients anywhere in the world access to the specialized medical care they need, regardless of location, financial means, or treatment availability.

## PROJECT BENEFIT EXAMPLE

young girl named Allison was one of the first patients Dr. Byrne and his team treated during the pilot phase of the project. In just eight minutes, a remote speech therapist in Boston was able to teach Allison how to pronounce the word "cat" correctly, solely through online collaboration tools. Using the desktop-sharing feature in WebEx, the speech therapist displayed a picture of a cat then demonstrated how to pronounce the word correctly through the video that was streaming in real time next to the image. When Allison succeeded in pronouncing the word correctly shortly after, the entire room she was in erupted in a cheer. Her family was thrilled to see her making such rapid progress. As a result of this project, children in a tiny town in Nicaragua, who would have received zero follow-up speech therapy in the past, are today speaking markedly better. For the first time in their lives, these cleft palate patients are able to express themselves verbally, and be understood by their families and peers. In the past, a Boston-based medical team like the Face Forward Initiative wouldn't have even been able to address these speech problems, much less correct them, and in so little time. "We've gotten letters from the parents of these children, telling us how they've seen their once introverted child transform into a social butterfly as a result of these speech therapy sessions," says Dr. Glazer. "It's hearing stories like these that takes me back to the fundamentals of why I chose to pursue medicine and surgery in the first place." In addition to providing remote speech therapy to patients, the Face Forward project has also improved the knowledge and expertise of local healthcare providers in Nicaragua by training them on best practices and procedures using pervasive video technologies. The team has conducted this effort within the designs of an Institutional Review Board approved study. The study design has several objective outcome measures, and the results have proven that this strategy can effectively diagnose and treat speech problems in children with cleft lip and palate. Speech measures have improved in the children in the cohort.

## IS THIS PROJECT AN INNOVATION, BEST PRACTICE? Yes

## ADDITIONAL PROJECT INFORMATION

One benefit that Dr. Byrne had not anticipated with this telemedicine project is the strengthened bond that WebEx-led "house calls" have afforded between clinicians and patients. Typically, when doctors overseas are on the ground doing surgery, they are trying to help as many kids as possible and


are extremely pressed for time. The WebEx sessions, by contrast, allow patients and their families to interact with doctors in a leisurely, more intimate way, despite being thousands of miles apart. In this way, the human touch has been enhanced—the technology actually introduces an interpersonal element to the therapy session that can often be difficult during hectic, in-country visits. By delivering its services to patients' doorsteps, the Face Forward project brings the human network closer together. It demonstrates the power of pervasive video, as well as the direction that healthcare and telemedicine is headed in the future. (Appendix 3) In addition, the Face Forward project continues to work hard at increasing its medical mission trips and spreading its message to countries outside of Nicaragua. As part of this effort, Dr. Chad Glazer, who designed the telemedicine study, will be presenting the nonprofit's work at the international conference of the American Cleft Palate Craniofacial Association in Puerto Rico this April 2011.