

Crossing Borders: The Importance of What You Leave Behind

By Jim Dean, AuD, and David S. Velenovsky, PhD

For the past four years, volunteers from Tucson, AZ have crossed into the border city of Nogales in the state of Sonora, Mexico to provide hearing health care services on the last Saturday of each month. These services are provided through the Arizona Sonora Borders (ARSOBO) Projects for Inclusion, a U.S.-Mexico non-profit collaboration based in Nogales that was formally recognized as a U.S. 501(c)(3) program in 2012. ARSOBO's mission is to "assist in alleviating the physical, psychological, and economic barriers faced by individuals with disabilities by providing high-tech, low-cost medical devices that minimize the impact of their disability and maximize their economic and social contribution to society" (arsobo.org).



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PROJECTS FOR SOCIAL INCLUSION

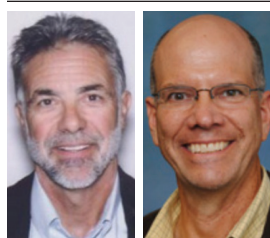
Advancing social inclusion of people with disabilities is at the heart of ARSOBO's goals. The organization has developed three projects that operate under one roof in Nogales. Through its Wheelchair Work project, the group constructs durable wheelchairs designed for rough terrains. These wheelchairs benefit children with cerebral palsy or seating abnormalities, among others. Through its Prosthetic Workshop and Clinic, the group is developing the capacity and expertise to refurbish and build prostheses and orthotics. Finally, ARSOBO's hearing health care program provides comprehensive audiology services, as well as affordable and high-quality hearing aids and custom-fit earmolds for hearing-impaired children and adults.

DISABILITY IN MEXICO

The World Bank Organization currently lists Mexico as an upper-middle income economy (WBO, 2015) but this can be misleading. Daily wages are well under \$10 a day. Mexico's

poverty rate is increasing, and in 2014, the Mexican government estimated that 46.2 percent of the population lived at the poverty level (Borgen Project, 2016). A Mexican national census taken in 2010 revealed that 5.1 percent of the population, approximately six million people, had a disability (*Am J Phys Med Rehabil.* 2014;93[1 Suppl 1]:S36). Within the disabled population, 12.1 percent—approximately 694,451 people—had an "auditory disability" (*Cirugía y Cirujanos.* 2016;84[1]:93; WHO, 2012; Global Disability Rights Now, 2016). Clearly, there is an increasing demand for hearing health care services not only in the city of Nogales but also throughout Mexico.

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PROVIDING HEARING HEALTH CARE

To address the need for comprehensive audiologic services and affordable hearing aids, a community-focused hearing health care program was initiated in October 2013. Our first

AUDIOLOGY WITHOUT BORDERS



In the hearing health care program, patients receive comprehensive services, including cerumen management, otoacoustic emission testing, tympanometry, behavioral audiometry, visual reinforcement audiometry, conventional audiometry, hearing aid fitting, earmolds, audiologic counseling, and most recently, infant-child auditory brainstem response (ABR) testing. Though we hold large clinics on the last Saturday of each month, basic hearing tests and hearing aid fittings and repairs for adults are done by trained audiology assistants during the regular work week. Today, we have a list of 660 patients with an age range of 3 months to 92 years old. We have also fit over 550 hearing aids and earmolds.

DEVELOPING BEST PRACTICE

Providing the best practice and ensuring long-term sustainability are constant challenges

few clinics took place in an aging building that served as a school for the deaf and an educational resource center for parents of hearing-impaired children. We had limited resources, but the clinic grew quickly. The heart of the program and the energy that drove the clinic's growth came from the cross-border collaboration of like-minded individuals who saw a wide gap in hearing health care equity and wanted to fill it. A shared vision and trust led to the creation of what is now known as the ARSOBO Hearing Health Care Clinic.

In February 2014, the hearing health care clinic joined the wheel chair and prosthetics projects under the same roof, and the mission of creating an interdisciplinary clinic became a reality. As it stands now, if people can get to ARSOBO, they have access to durable, low-cost medical devices that significantly reduce the impact of their disability and maximize their potential to become contributors to the social and economic growth of their community.

faced by every audiologist who works in communities with few resources. The work environment is dynamic, and there is clearly no one best method for all clinical situations. Becoming sensitive to the social and cultural norms of the community has its own challenges with an eternal learning curve. For us, best practice is framed by the context of patient needs, available technology, and patient ability to access follow-up services. Over the years, our catchment area for patients from the northern region of the state of Sonora has grown. Children and adults who have traveled up to 12 hours for audiology services are now routinely seen at our clinic. Our fastest growing population is infants and children, many of whom have multiple disabilities.

The hearing health care program has been strengthened by increasing community ties. For example, we collaborate with a small community school for children who are deaf or hard of hearing in Nogales called "Manos Que Hablan"



AUDIOLOGY WITHOUT BORDERS



ARSOBO volunteer and patients at the clinic in Nogales.

(Hands that Talk). We cross-refer children and families, which has led to better continuity of care and expanded parent-child education. Other important community programs we connect with include the Fundacion Del Empresiado Sonorense (FE-SAC), a community-based program that provides services for children with disabilities, and the National System for Integral Family Development (DIF). DIF is a public social assistance program that focuses on strengthening and developing the welfare of Mexican families.

SUSTAINABILITY THROUGH VOLUNTEERS

Sustaining the hearing health care clinic is a constant challenge, but we have been fortunate in receiving grants and donations that supplement the sliding fees we ask of patients. Dedicated volunteers are also a large part of our sustainability. Two audiology faculty members from the University of Arizona create a supportive environment that allows volunteers from the Student Academy of Audiology (SAA), as well as other community volunteers from Tucson and Nogales, to experience the challenges and rewards of improving the quality of life of our patients. They see a range of etiologies and pathologies in Mexico that is broader and more diverse than what they have experienced in the United States. They learn that audiology is not just about the ears. They get to develop cultural sensitivity and critical thinking, explore appropriate communication techniques through an interpreter, and apply best practice principles to diverse situations. The ARSOBO experience increases awareness of the long-term effects of poverty, neglected ear disease, syndromic conditions, stress, and physical disabilities. Some words that volunteers have used when describing their ARSOBO experience include: gratifying, eye-opening, humbling, moving, fulfilling, challenging, rewarding, innovative, and compassionate.

The ARSOBO hearing health care program is fully integrated into the community of Nogales, Sonora, and beyond. It is recognized as a place that provides comprehensive, accessible, and affordable hearing health care services that were

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not available before. The program is adaptive and serves patients of all ages and functional ability. Program volunteers discover that good health and a sense of well-being is a universal desire and that integrated services promote conditions that allow everyone to have the opportunity to make choices that lead to a healthy lifestyle. Now each time a team of Tucson volunteers cross the "line," they no longer see the fence as a barrier between two nations, but as a doorway into another neighborhood where they will see old friends and meet new ones. [\[9\]](#)