

## Global Perspectives on Disability Studies Article

### Cross-Border Collaboration to Assist Individuals with Disabilities: Despite a Border Wall, a Common Goal Unites People

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**Abstract:** An informal needs assessment along the Mexico-United States border resulted in a cross-border organization; Arizona Sonora Border (ARSOBO) Projects for Inclusion, referred to colloquially on both sides of the border as ‘ARSOBO.’ Individuals with disabilities have been trained to construct high-quality, low-cost medical devices they themselves use, for others who need them. Cross-border resources emerged, enabling ARSOBO to grow and approach self-sufficiency.

The border between the United States (US) and Mexico (MX) is 70 miles from Tucson, Arizona, US, yet the contrast between the two sides belies this short distance. On the Mexican side of the border, resources are limited, individuals with disabilities have little help from the government and must adapt. Medical devices that are necessary to overcome social, economic, and educational barriers are much more difficult to obtain south of the border than in the northern side. The following Mexican program, ARSOBO for Inclusion was initiated by an informal needs assessment conducted on both sides of the US-MX border, and implemented with both local MX and US resources, is decreasing these barriers.

#### A Needs Assessment Dictated a Conference Agenda

In 2008, public health students and faculty from the University of Arizona (UA) in Tucson, Arizona, US, conducted an informal needs assessment in several towns and cities along the border region in Arizona, US and Sonora, MX to determine the content for the annual Border Conference on Disabilities. Two UA faculty members interviewed health care workers who provided care for individuals with disabilities in several towns and cities from Nogales, MX to Douglas, Arizona, US. And a UA Master of Public Health student conducted a similar assessment on the MX side of the border. Author, Dr. Burris Duncan helped in formulating the needs assessment and the conference agenda. He has worked for over 20 years as a pediatrician at Children’s Rehabilitation Services in Tucson and during that time frequently volunteered at St. Andrews Children’s Clinic in Nogales, AZ, a clinic that serves Mexican children with disabilities who live south of the border.

The conference was sponsored by the UA’s Sonoran University Center of Excellence in Developmental Disabilities (UCEDD) and *Desarrollo Integral de la Familia* (DIF) Nogales, MX was held in Nogales, MX. The goal of the conference was to educate care providers and to open a factory after the conference that would help alleviate some of the

needs that were found. The factory would train individuals with disabilities to construct needed medical devices and provide the devices to indigent families at a price they could afford.

The needs assessment revealed the following:

1. Individuals needing a wheelchair, experienced extreme difficulty navigating the rough terrain of their neighborhoods, as streets and sidewalks are not always 'friendly' for conventional wheelchairs that had been provided by well-intended individuals or non-governmental organizations (NGOs).
2. The number of individuals with lower-limb amputations had grown exponentially. This is largely secondary to complications of the diabetes epidemic in Mexico (WHO, 2017), and prosthetics were beyond the budgets of most.
3. Individuals who are hearing impaired could not afford hearing aids or batteries so the elders were isolated from their families and friends and the children had extreme difficulties in school.
4. There is a lack in medical devices, because of this many individuals were not only socially isolated but devices for employment opportunities were non-existent.

These four themes thereby informed the mission of the Mexican factory, later known as ARSOBO, that would be created after the conference.

### **After the Conference**

Shortly after the conference, an NGO in MX and a 'sister' NGO with tax-exempt status in the US were established—both with the same name. The name of the NGOs reflect the cross-border orientation and purpose: ARizona SONora BOrder (ARSOBO) Projects for Inclusion.

Once individuals' needs were identified, appropriate resources had to be found. The University of Arizona Foundation provided initial funding to purchase equipment and supplies for the conference that included a session on constructing an all-terrain wheelchair. After the conference, additional external funding and resources were needed. A Rotary Club in Tucson, Arizona, US, connected with a Rotary Club in Nogales, MX and a grant from Rotary International was obtained. UA faculty felt they could be a resource to secure additional funding. Oftentimes, external resources can be difficult to obtain, may not be aligned with or adequate to meet the needs, and are usually not sustainable. Thankfully, hidden resources within this resource-limited community soon emerged eliminating the need for other grants.

Every community has people and it is in people where hidden resources can be found. Some people have talents (what they were born with), some have skills (what they were trained to do), and some have passions (what they love to do) (McKnight, 1995). A Nogales, MX third-generation resident with the inherent talent to assist individuals with disabilities was

hired to organize and direct the Mexican NGO. A conference workshop was conducted by a technician wheelchair user, and who had acquired the skills to construct an all-terrain wheelchair, the RoughRider. This wheelchair was designed by Ralf Hotchkiss, a wheelchair user, specifically for developing countries that have the toughest of terrains (Whirlwind Wheelchair International, 2018). The director of the *Centros de Capacitación Para el Trabajo Industrial* (CECATI)—a technical training school in Nogales, MX—had a passion for this project. He donated space and also paid for the utilities. The talents and skills of other individuals from diverse disciplines were engaged, as were the passions of many who were connected with institutions and commercial entities on both sides of the US-MX border. Two years later, the space at CECATI had become insufficient and *Parque Industrial de Nogales Sonora* (PINSA) donated a 4,500 square-foot warehouse, rent-free, and paid for the utilities. The City of Nogales, Sonora, MX, had recently donated land and the *Maquila* (factory); and the Association gave sufficient funds to build a facility. It opened in July of 2019, thus enabling continued expansion of the factory.

Thus, when local resources are identified, interested individuals become receptive and energized, allowing their resources to be enlisted (talents, skills, and passions). Collaborators have the potential to positively impact the lives of individuals with disabilities and unite communities despite border walls. This certainly has been the case for ARSOBO.

### **ARSOBO's Mission, Principles, and Partnerships**

ARSOBO's mission is to provide medical devices, made by individuals who use the same device, to alleviate barriers and enhance the potential of those with a disability. ARSOBO has three principles:

1. Train and hire individuals with a disability to construct the medical equipment they themselves need and use.
2. Charge for medical devices, but only based on what an individual or family can afford. The remaining balance of the full-cost is supplemented from donations and/or grants.
3. Work toward a self-sustainable 'social business,' a business where the 'bottom line' is to benefit the social good of the community.

ARSOBO is a cross-border project that includes provision of three different types of affordable medical devices at affordable prices with costs subsidized for those with limited incomes. Two individuals who are wheelchair themselves construct the RoughRider, both a standard and a customized wheelchair for individuals with neurologic and/or neuromuscular problems. Two individuals, each with a prosthetic leg, fabricate prostheses with the assistance of volunteers from Hanger Clinic: Prosthetics & Orthotics, Inc. in Tucson, Arizona, US. Youth with hearing-impairments from Nogales, MX assisted in monthly hearing health clinics conducted by audiologists from the UA Speech, Language, and Hearing Sciences Department who select and distribute high-quality, low-cost, hearing aids (Dean & Velenovsky, 2018) (See Figure 1.).

**Figure 1.** ARSOBO Cross-Border Project



*Figure 1.* Image Description: Figure 1. includes a collage of five ARSOBO™ pictures. The picture in the far left, includes two employees building all-terrain wheelchairs appropriate for the regional landscape, and even customize them for children with developmental disabilities – these employees also use the wheelchairs themselves. The picture in the upper-middle, includes two employees posing in the factory, each with an amputated leg who have been trained to fabricate prosthetics. The picture in the lower-middle, include employees working on a prosthetic leg. The picture in the upper-right, includes a youth patient with a hearing-impairments from Nogales, MX, who is participating in a monthly hearing health clinics conducted by audiologists, from the Speech, Language, and Hearing Sciences Department at the UA, who select and distribute high-quality, low-cost, hearing aids. The picture in the lower-right, includes another photo of the youth patient.

ARSOBO also serves as an extramural site to expose students to this social model and the richness of the border community. This project offers volunteer and internship opportunities for UA Master of Public Health candidates, as well as students from the Colleges of Medicine, Nursing, Audiology, and Management and engineering students and faculty from Universidad Tecnológica in Nogales, Sonora, MX.

### **ARSOBO Achievements and Next Steps**

Since ARSOBO opened in 2012, 413 RoughRider wheelchairs (one-third customized) have been constructed; 335 individuals now have a prosthetic limb, enabling them to walk without crutches; and 708 individuals have an appropriate high-quality hearing aid.

In 2016, public health students from UA and nursing students from Nogales, MX conducted semi-structured home interviews of 35 recipients of an ARSOBO medical device. The purpose was to assess the services ARSOBO was provided and the impact the devices had on their lives. The results were positive changes, which included improved ambulation, greater social inclusion, improved interaction with family and friends, and decreased feelings

of social discrimination. Interview findings also highlighted recipients' hesitancy to return for adjustments and prompted logistical changes to insure follow-up appointments. Findings also prompted the engagement of physical therapists from both sides of the US-MX border to provide rehabilitation services for recipients of prostheses (Aubert-Vasquezet. al., 2017).

A large international door-lock manufacturing company, Dormakaba, recently opened an operation in the industrial park and contracted ARSOBO to assemble the bolts and nuts necessary to install the locks. This partnership not only allows ARSOBO to employ additional individuals with a disability, it provides continuous income, enabling ARSOBO to begin the road toward accomplishing the third goal of becoming a self-sustaining, social business. Dormakaba is largely based on ARSOBO's example, several *maquilas* (or factories) in Nogales, Sonora have begun to hire individuals with a disability.

## Conclusion

Approximately 15 million people reside in the 42 US counties and 39 Mexican municipalities along the US-MX border; 86% reside in 14 pairs of 'sister cities.' ARSOBO demonstrates a cross-border program that has the potential to diminish artificial physical barriers and unite these border communities to solve public health problems.

**Burris R. Duncan, MD**, has been on the faculty of three different pediatric departments; the University of Colorado (10 years), the Universidade Federal do Rio Grande do Norte in Natal, Brazil (3 years), and the University of Arizona (30 years). During his tenure at Colorado and Arizona he taught medical students and pediatric residents and had a panel of patients with chronic conditions that he personally followed and was on call for after clinic hours. Most of these patients were special needs children with complicated multi-system problems. He has conducted multiple research projects, most of which developed from individual problems he saw in his patients and where he felt there was not a sufficient readily-available answer in the medical literature. He has more than 60 published articles in peer-reviewed medical journals and 20 chapters in medical textbooks. His international experience extends over the past 30 years and has included clinical work, teaching, research, field work, and administrative responsibilities in more than a dozen different countries. He has worked extensively with the Section on International Child Health with the American Academy of Pediatrics and is a co-founder of ARSOBO.

**Francisco Trujillo**, is a lifetime resident of the border region of Nogales and recently acquired permanent resident status in the U.S. He has a bachelor's degree in Industrial Engineering from *Instituto Tecnologico de Nogales*, worked for fifteen years for three US Companies in Mexico under the *Maquiladora* Program, is a former director of the Nogales Sonora Chamber of Commerce and in the last twenty years has worked with three nonprofit organizations: Borderlinks, ARAN, and (for the last ten years) as co-founder of ARSOBO Projects for Inclusion operating in Nogales, Mexico.

**William Neubauer, MD**, is the immediate past chairman of the board of directors for the

ARSOBO U.S. entity and a business owner in Tumacacori, Arizona. He has worked extensively to provide free medical clinic and treatment services for various populations, including those in the Arizona-Mexico border region and for rural communities in Bolivia. He is a former commander and chief of surgery for the United States Public Health Service Hospital (1974–76), has performed approximately 25,000 major surgical procedures during his time in private practice as a general surgeon (1976–2004), and has served as chief of general surgery for a number of local hospitals and medical centers. Dr. Neubauer has also served the community through his service on multiple boards for local nonprofit organizations such as the Border Community Alliance, Community Foundation of Santa Cruz County, the Health Committee of the Arizona Mexico Commission, and the Boys and Girls Club of Tucson.

**Heidi L. Pottinger**, DrPH, MPH, MA, is originally from the U.S.-Mexico border town of Nogales, AZ. Over her career, she has focused extensively on advocacy, education, nonprofit, research, and service efforts. Since 2014, she has worked to help lead a multi-site clinical trial for young children with cerebral palsy, and as a board member for ARSOBO's U.S. entity and volunteer for the MX entity. She has served in various roles as chair, co-chair, and member of the Integrative Touch for Kids (ITK) research and evaluation committee – ITK supports families whose children have any type of special health or medical need with integrative healing therapies and wellness education – and in 2017, was recognized by the American Public Health Association Disability Section for her work with ITK evaluating their pediatric hospital program. Dr. Pottinger is also founder and executive director of Child Health & Resilience Mastery (CHARM), a Nogales, AZ nonprofit that empowers children and families to strengthen resilience in health-promoting ways. Previously, she was director of clinical research for the Muscular Dystrophy Association national headquarters.

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