

ESTABLISHING SUCCESSFUL BINATIONAL ACADEMIC COLLABORATIONS IN MINORITY HEALTH RESEARCH

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This article describes a continuing, successful binational collaborative effort between researchers from two academic institutions in the United States and Mexico addressing health issues on both sides of the Texas/Mexico border region. Researchers from the Texas A&M University System Health Science Center School of Rural Public Health (SRPH) and the Reynosa-Aztlán Multidisciplinary Academic Unit of Universidad Autónoma de Tamaulipas (UAT) partnered to conduct two research projects in the South Texas/Mexico border region. These binational research projects focus on obesity and diabetes, issues that seriously affect border residents. This article also highlights the challenges that must be addressed to sustain binational collaborative efforts and recommendations for successful partnerships.

BORDER HEALTH ISSUES

The United States/Mexico border, a blending site of cultures and behaviors, poses the challenge of understanding and addressing the health issues of its 13 million residents—6.6 million in the U.S and 6.4 million in Mexico.¹ The U.S.-Mexico border region extends approximately 2,000 miles from the Gulf of Mexico to the Pacific Ocean and 62 miles north and south on either side of the border. In the border region, there are 44 U.S. counties and 80 Mexican municipalities or municipios. These areas have a higher annual population growth rate than national rates—more than twice the U.S. national rate and almost two times the Mexico national rate.² Border populations are medically underserved and poor. They experience similar health and environmental problems and are economically and culturally interdependent. It is estimated that up to 1.1 million individuals cross the border legally each day to work and access health care, among other reasons.^{2,3}

Health issues in the region are complex and difficult to address. These issues include sanitation infrastructure deficiencies, air pollution in metropolitan areas, health-system

disparities, and high prevalence of communicable and chronic diseases.^{2,3} According to Healthy Border 2010, U.S. border residents fare well compared to U.S. national mortality rates, but have poor access to health care. Mexico border residents have higher mortality rates than their U.S. counterparts for communicable and chronic diseases.¹ Specifically, diabetes is of great concern, reaching epidemic proportions in the U.S.-Mexico border region.^{1,4} A study by the Pan American Health Organization (PAHO) suggests that diabetes is the seventh leading cause of death for Americans living along the border and third for Mexicans living on the other side of the border.⁵ The PAHO study estimates that nearly 30% of border residents suffer from diabetes and one-third are unaware that they have the disease.

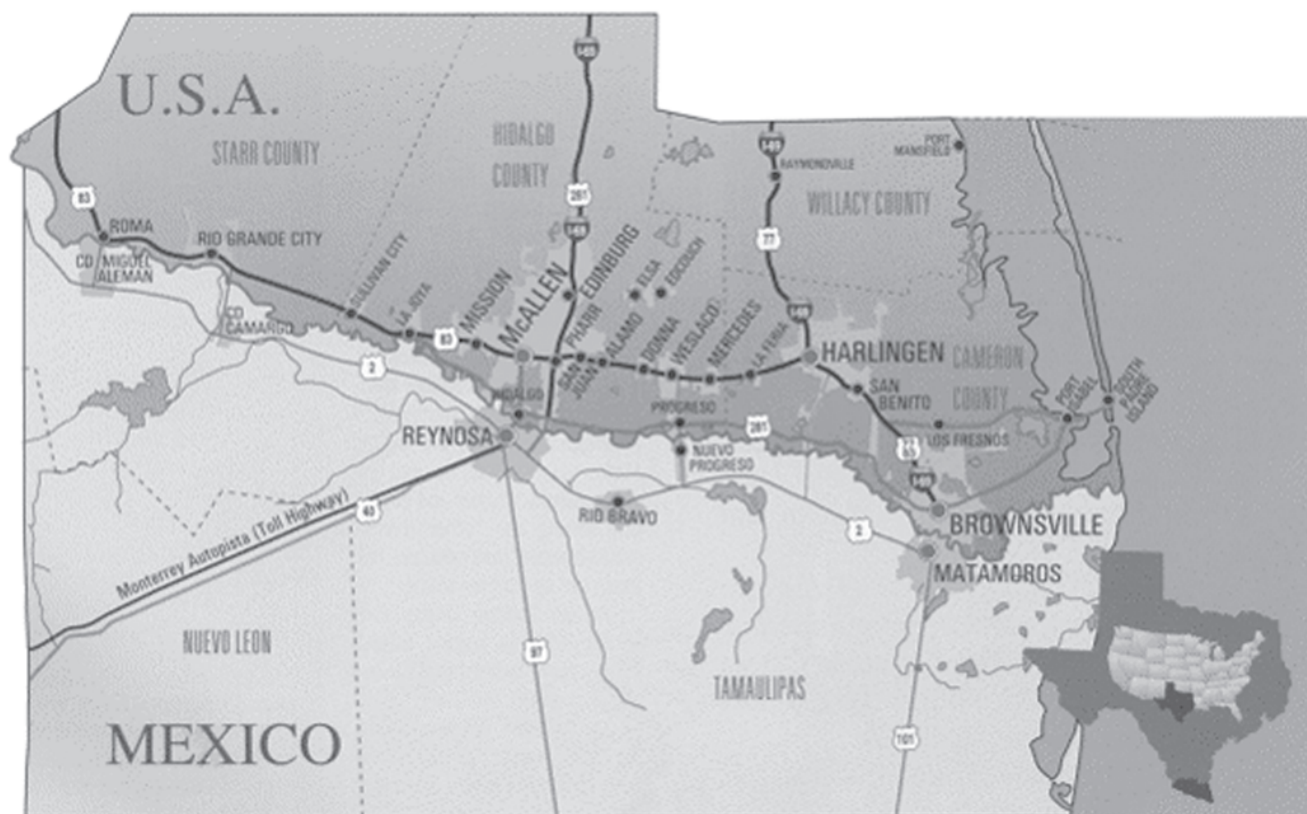
To address border health issues, Healthy Border 2010 established a bi-lateral health agenda for the region and underscored the need for cross-border partnerships to improve the region's health status.² Acknowledging the critical role that academic institutions play in the process of cross-border cooperation, researchers from SRPH and UAT partnered to conduct binational health research in the Lower Rio Grande Valley in South Texas and northern Tamaulipas.

The Lower Rio Grande Valley (LRGV) is a four-county area in the southernmost part of Texas along the U.S./Mexico border. It is home to approximately one million people, almost half of the population of the South Texas border region. The LRGV population is expected to continue growing in the next five years, at a rate higher than the state of Texas. The population is young and primarily of Mexican American or Mexican descent. Up to 90% of area residents reported that the preferred language spoken at home is Spanish.⁶ The LRGV borders four municipios in Tamaulipas, Mexico: Reynosa, Matamoros, Camargo, and Miguel Aleman (Figure). Nearly 900,000 people live in these municipalities.⁷ The border area of Tamaulipas extends over only 10% of the state territory, but is home to 43% of the state population⁷ and has a higher annual population growth (2.1%) than the national rate (1.9%).⁸

ACADEMIC PARTNERS PROFILE

The School of Rural Public Health (SRPH), a component of the Texas A&M University System Health Science Center (HSC), is a classic school of public health that focuses on underserved rural areas. Based in College Station, SRPH has a strong research component and offers a number of graduate degrees in public health locally and through distance education. The Texas A&M University System Health Science Center and the School of Rural Public Health expanded their presence in the Lower Rio Grande Valley with the establishment of the South Texas Center at the border

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Figure. Texas counties and Mexican municipalities along The Rio Grande Valley/Mexico border

SOURCE: The Rio Grande Valley Partnership/Chamber of Commerce

city of McAllen. Through the South Texas Center, SRPH and other HSC components conduct research on border health issues and provide education to health professionals and outreach programs to disadvantaged populations.

Universidad Autónoma de Tamaulipas is a state-funded institution offering undergraduate and graduate programs in chemistry, biochemistry, nutrition, and food sciences in its Reynosa-Aztlán Multidisciplinary Academic Unit, based in Reynosa, Mexico. UAT created a state health research network through which the Reynosa-Aztlán unit collaborates with researchers from other sister units.

SRPH and UAT investigators met for the first time in 2003 during a meeting organized by the School of Rural Public Health and the Mexican Consulate in McAllen. This meeting gathered representatives from higher education institutions, federal, state, and local governmental agencies, and health service providers from both the U.S. and Mexico. The purpose of the meeting was to discuss similarities and differences between the health care systems of both countries and to explore common research interests. Shortly after the meeting, a smaller group of researchers from SRPH and UAT met occasionally to discuss views about the health status of border populations and to identify research projects to be conducted in the Lower Rio Grande Valley of South Texas and the northern municipalities of Tamaulipas.

COLLABORATIVE RESEARCH

The first field commitment between SRPH and UAT faculty was to replicate an ongoing childhood obesity research project conducted by SRPH researchers. The initial effort led to a second binational cross-sectional diabetes-related project.

Childhood obesity research

SRPH and UAT investigators sought to determine the prevalence of obesity and type 2 diabetes risk factors among preschool children 3 to 6 years of age on both sides of the border. The teams, however, used different research procedures and instruments and collected data at different times. Different research approaches were applied for two reasons. First, the SRPH research team initiated its study two years before partnering with the Mexican university. Second, UAT researchers obtained financial support from their institution to include a larger sample and to acquire equipment for data collection.

SRPH researchers conducted their study in a Head Start Program (HS) in Hidalgo County, Texas. The 2002–2003 HS database was used to analyze data on gender, age, body mass index (BMI), family history of diabetes, and presence of acanthosis nigricans in a cohort of 2,376 children aged 3 to

5. A self-administered 24-hour dietary recall instrument was given to parents of the children to determine baseline dietary habits of preschoolers at two targeted HS centers. A total of 127 children at these centers were screened during HS enrollment clinics before school started in fall 2003 to obtain data on BMI and blood glucose levels. In 2003 and 2004, an intervention in the form of a nutrition game based on the participatory research approach was designed and piloted to determine its feasibility, educational potential, and cultural appropriateness. In 2005, SRPH researchers will extend their research to include a larger sample size to examine BMI, glucose level, acanthosis nigricans, television viewing, and exercise habits among the children.

UAT researchers studied the same risk factors and outcomes as SRPH investigators, except for the nutrition education intervention game. UAT researchers conducted a survey in 16 public schools with children 4 to 6 years of age in Reynosa, Mexico. One thousand children were screened to determine height, weight, and glucose levels and to test for acanthosis nigricans. UAT researchers conducted face-to-face interviews with parents to gather data on children's diabetes history, dietary habits, and television viewing.

Projects of both teams are not completed yet, but preliminary findings have been presented at a binational forum and two journal articles have been submitted.

Diabetes research

The purpose of the diabetes research project is twofold: to examine the burden of diabetes mellitus on quality of life in Mexican American and Mexican individuals residing at the Texas/Mexico border, and to determine the influence of social support systems in diabetes management, depression, and health-related quality of life. Researchers from both sides of the border used the same research protocol and design to survey 400 adults with type 2 diabetes—200 in Hidalgo County, Texas, and 200 in Reynosa, Mexico. Participants were recruited from hospital facilities, local health clinics, and physician offices. Students from UAT and a research assistant from SRPH were trained to conduct face-to-face interviews with participants using a questionnaire in English or Spanish. The survey included valid and reliable scales to measure health-quality of life, burden of diabetes, depressive symptoms, social support, acculturation, and other demographic variables.

The data collection was completed in Reynosa and is still ongoing in Hidalgo County. Preliminary findings were presented at an international congress in 2004.

CHALLENGES AND RECOMMENDATIONS

The need for long-term health research and interventions at the U.S./Mexico border demands the establishment of binational academic partnerships. These partnerships have great potential for increasing the scientific knowledge base on health issues affecting border residents and of improving the health status of border residents through implementation of binational strategies and interventions. Although SRPH and UAT have not established a formal institutional agreement for education and research cooperation, the collaborative work initiated by the faculty in 2003 and an international agreement between the Texas A&M University Sys-

tem Health Science Center and the Secretary of Health of Mexico signed in 2002 represent a solid foundation for ongoing binational health research in the border region.

Through their partnership, SRPH and UAT researchers have exchanged ideas and technology and combined resources to study the effects of socioenvironmental influences on diseases with a genetic predisposition and identify best practices to promote healthy lifestyles among border residents. Research data from the SRPH/UAT collaboration will contribute not only to determining the prevalence of childhood obesity and diabetes risk factors in the Texas/Mexico border region, but also to examining the interconnection between eating and exercise behaviors and socioenvironmental factors among Mexican Americans and Mexicans. The SRPH/UAT binational academic collaboration will also increase scientific knowledge on the issue of type 2 diabetes among the border adult population and will lead to culturally appropriate interventions aimed at increasing the quality of life of border residents affected by the disease.

Additional benefits

Benefits of the collaborative work extend beyond border residents' health status. The academic institutions that the researchers represent also benefit from the partnership. First, binational research partnerships may help both the Texas A&M University System Health Science Center School of Rural Public Health and Universidad Autónoma de Tamaulipas to instill an international perspective into their teaching and research programs and to globalize the education of their students through exposure to culturally diverse faculty and binational research projects that illustrate transborder perspectives. Second, binational research partnerships increase awareness of cultural differences among members of research teams and allow the application of more culturally appropriate research approaches. Third, binational research partnerships allow researchers to share technology that may only be available on one side of the border (e.g., the dietary analysis software available in Mexico was more appropriate for the analysis of preschool children's diet from both sides of the border than the U.S. software). Fourth, research partnerships offer greater opportunities for health professions students to gain research experience and learn skills through their collaboration in meaningful studies with a global perspective. Students from UAT who assisted in conducting the binational research based their academic thesis requirements on the described projects. These students received support and advice from experienced faculty from both sides of the border and enhanced their interest and skills in community-based research.

Success factors

The SRPH/UAT collaboration has been successful due to several factors: a high level of commitment and professionalism in the researchers involved; acknowledgement of and respect for policies and rules particular to each academic institution; acceptance of cultural differences among researchers, particularly in approaches to data collection and analysis; establishment of a binational team with expertise and skills in different research areas, including public health, health education, nutrition, and endocrinology; inclusion of researchers who are bicultural and bilingual and who

have resided and studied in both the U.S. and Mexico; and the institutional interest of both universities to globalize and diversify their activities.

Challenges

The success of the partnership has been achieved not without significant hardship. The research teams have had to overcome challenges such as scheduling meetings with sizable teams from different areas along the border; assuring uniform data collection and entry among research sites; reconciling differences in opinion among researchers about data analysis and interpretation; identifying valid and reliable measurements in English and Spanish languages applicable to both Mexican American and Mexican populations; overcoming language barriers; overcoming technical difficulties with telecommunications; and meeting deadlines.

Lessons learned

Both research teams have several recommendations for institutions and faculty pursuing successful binational academic partnerships:

- Focus on health research problems that are relevant for both sides of the border;
- Establish multidisciplinary teams whose members have overlapping functions and are comprised of researchers from both sides of the border;
- Identify mechanisms and techniques to collect comparable data on both sides of the border;
- Determine hypotheses and strategies of data analysis before starting the projects;
- Meet bimonthly or as often as necessary to discuss project updates, challenges, or any relevant, emerging issues; and
- Clarify the authorship criteria for dissemination of results and publications.

Future projects

The border region provides a unique opportunity to study health problems and improve health care. In the future, the SRPH/UAT partnership will pursue several research initiatives. Researchers will continue to pursue a longitudinal study of preschool children on both sides of the border to determine risk factors for diabetes and assess the value of nutritional education. They will also seek to implement family-based interventions with this population. Other research projects will include designing and implementing health interventions to improve the lifestyle of adult border residents with type 2 diabetes as well as addressing other health issues, including tuberculosis and environmental health. The researchers hope to obtain funding from both U.S. and Mexican sources to broaden the scope of their research.

A fundamental goal of the researchers' partnership is the establishment of a formal agreement between SRPH and

UAT to support ongoing binational health research in the border region. This agreement could foster academic exchange initiatives with a significant impact on faculty development and student education in public health from both institutions; it could promote a truly binational approach to the problems facing the border region; and it could facilitate the organization of border health scientific conferences and workshops.

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