

September 26, 2014 | By Yadira Galindo

## Disease Without Borders

### Bioregional approach to healthy living involves health care, city planning and ecological restoration

In a paper published this week online in *Global Society*, researchers with University of California, San Diego School of Medicine and the Urban Studies and Planning Program, also at UC San Diego, present a bioregional guide that merges place-based (territorial) city planning and ecosystem management along the United States-Mexico border as way to improve human and environmental health.

Issues like climate change, economic crisis, natural disasters and disease outbreaks do not stop at national borders, compelling public health officials, academics and researchers to think differently about how to address wide-ranging human health challenges.

“City planners, health officials and researchers are combining knowledge and action in new ways to promote healthy placemaking,” said Keith Pezzoli, PhD, UC San Diego Department of Communication and director of the Urban Studies and Planning Program. “Our health is not entirely hardwired genetically. It is also affected by environmental exposures, stress, diet, urban design and behavior. In our region, we can’t think about health on just one side of the border because animals, sick people and pollutants move back and forth.”

In border towns, health risks are common on both sides of the border. In the paper, Pezzoli, with co-authors Wael K. Al-Delaimy, MD, PhD, professor and chief of the Division of Global Health in the UC San Diego Department of Family and Preventive Medicine, and Catherine Wood Larsen, staff research associate in the Department of Family and Preventive Medicine, recommend supporting ecological restoration in transborder metropolitan areas where urban sprawl is taking place, such as in the canyon communities of Tijuana, Baja California.

In a related paper, published in the *International Journal of Environmental Research and Public Health* on Sept. 15, Pezzoli, Al-Delaimy and Larsen looked at the impact of the environment on residents of Tijuana’s rapidly urbanizing settlement called Los Laureles Canyon. This was the first large scale investigation evaluating the health of this population.

In one decade, the area grew from zero residents to 70,000, forming multiple communities called “colonias.” These settlements do not typically comply with standard building codes and are without basic infrastructure, such as a sewer system, trash collection or paved roads. Many unregulated dumpsites dot the area, often containing a variety of hazardous waste from industry, construction and household garbage.

With Alter Terra (a binational non-governmental organization), the UC San Diego Superfund Research Center, the Center for U.S.-Mexican Studies and the Universidad Autonoma de Baja California, researchers interviewed residents of Los Laureles Canyon about their well-being and any symptoms of illness. The occupants of the 4.6-square-mile area, a sub-basin of the binational Tijuana River Basin, reported skin problems, stomach discomforts, eye irritation, confusion/difficulty concentrating and extreme fatigue, which are symptoms commonly associated with exposure to environmental toxins.

“We have people who are living in dismal situations surrounded by dump sites,” said Al-Delaimy, who was the principal investigator on the study. “Their houses are made of garage doors brought from the U.S. and other materials that are mismatched. This is an environmental injustice that is impacting their health and has consequences for the San Diego region as well.”

For example, the ecological health of the Tijuana River Estuary in San Diego County depends upon what happens in the Tijuana River Basin. Toxins in upstream soils can contaminate rain runoff from Los Laureles Canyon, which eventually drains north to the U.S. and into the Pacific Ocean.

“We are joined together to Mexico through the watershed,” said Pezzoli. “We are in it together because of land, buildings and streets, but also from a health perspective because disease doesn’t stop at the border. The failure of control measures in one country has the potential to put neighboring communities at risk.”

To achieve an interconnected healthy bioregion, the scientists said public health professionals need training in global health diplomacy and cooperation. In addition, universities, through programs like the UC San Diego Superfund Research Center, must integrate community engagement and basic research translation through a cross-border approach. Creating sustainable and resilient communities, even across national borders, is possible by fostering investment in natural resources, rooted livelihoods and institutions, they said.

Co-authors for the *Global Society* paper include Justine Kozo, County of San Diego Office of Border Health, Health and Human Services Agency; Karen Ferran, Early Warning Infectious Disease Surveillance Program, California Department of Public Health; Wilma Wooten, Public

Health Services for the County of San Diego Health and Human Services Agency; and Gudelia Rangel Gomez, US-Mexico Border Health Commission, Mexico Section.

Co-authors for the *International Journal of Environmental Research and Public Health* paper include Wael K. Al-Delaimy, UC San Diego Department of Family and Preventive Medicine, Division of Global Health, Keith Pezzoli, UC San Diego Department of Communication and Urban Studies and Planning Program, and Catherine Wood Larsen, UC San Diego Department of Family and Preventive Medicine.

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