

## PHOTOESSAY

# Globalized migration and transnational epidemiology

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**Accepted** 6 February 2007**Keywords** Transnational, Oaxaca, lead, global health, epidemiology

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During the latter part of the 1800s, the union of migration and epidemiology first surfaced. In that era, the changing shipping patterns that put more people from cholera endemic areas into London, as well as the isolated occurrence of two cholera cases among recent immigrants from Germany to London, bolstered John Snow's belief that cholera was transmitted from person to person.<sup>1</sup> Other studies in more recent times that have focused on migrants from Japan, first to Hawaii and then to mainland US, provided evidence for 'lifestyle' theories (including migration) for risk in relation to chronic diseases.<sup>2</sup> These and other exceptional studies in the history of epidemiology have focused on migrants, and have important insights into the causation of disease in two very different but equally significant ways—through the 'isolation' of migrant communities and through their 'assimilation' to group behaviours in the area to which they migrated.

Today, in the 21st century, travel by millions of travellers (migrants and others) is far easier than in the 1800s. In the case of migrants, the widespread accessibility to means of travel and the availability of new technologies for staying connected to home and community of origin has resulted in transnational communities. Although members of these communities may be physically present in only one, they often 'live' in two places. Connections via communication technologies also are reinforced in some cases through the rapid transport of food from home to the new community.

This form of migration which can be thought of as transnational or globalized migration, is now revealing new connections between migration and epidemiology. This photo-essay concerns the importance of transnational migration to epidemiology by way of example—through words and pictures of an ongoing investigation into the sources of lead poisoning in a community of migrants (and immigrants) in Seaside, California originally from central Oaxaca, Mexico.

The study began as a local investigation into sources of lead poisoning among children of immigrants who were routinely

screened for lead in a small community clinic in California. Whereas the most likely source of lead was thought to be the ongoing use of lead-glazed ceramics among migrants from Mexico (a classic example of an apparent isolated practice/risk factor among a migrant community), the source was found to be related to contamination of foods in Mexico that was inadvertently transported to California through an ingenious transnational migration practice that is increasing in popularity world-wide. The practice, called 'envios' (Spanish for send or transport) involves the frequent transport of prepared foods from Mexico to California. Envios in fact are 'mom and pop' express air transport businesses in which foods are sent from home in Oaxaca to home in California, often on a daily basis. Unfortunately, it was discovered that some of the foods contained lead. The as yet unidentified sources of the lead are currently undergoing investigation.<sup>3</sup>

Envios businesses in Oaxaca (Photo 1) make available home-cooked foods in the United States from Mexico. Home-cooked foods are requested and picked up by family members in California on a regular and sometimes weekly basis. These envios help maintain cultural systems and family connectedness despite great geographic distances.<sup>4</sup> Photos 1 and 2 show two different envios businesses that conduct regular transport of foods including home-made tortillas, seasoned pumpkin seeds, seasoned fried grasshoppers, chocolate-mole and dried herbs, from Oaxaca, Mexico that are going to 20–30 families in over 10 cities in the San Francisco Bay Area.

The typical method for transporting the foods is by air. Usually the food is packed into cardboard boxes weighing up to 70 pounds, taken to the airport and then transported and paid for as extra luggage by the courier. Photo 3 shows the air cargo leaving Oaxaca with the majority of packages not from tourists but from envios businesses. Photo 4 shows the envios after they have arrived in California.

The epidemiological investigation into the sources of lead is now itself transnational, involving a case-cluster study with extended family members living in Mexico, of cases identified in California, to examine possible food-related sources and preparation practices. Although lead-glazed ceramic-ware is used to prepare some of the foods, those that have had the highest amounts of lead are not typically prepared with lead-glazed ceramics. We are also conducting an environmental study of the water, fields, and soils surrounding the abandoned mines in the area, pollution from the downstream

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Photo 1 Envios business in Oaxaca.



Photo 2 Delivering home-made food to an Envios business in Oaxaca.

run-off from the city and past use of lead arsenate pesticides in the area. The investigation also involves collaboration with the envios businesses. The owners of one of the businesses featured in the photos now figure prominently in the investigation into the sources of lead in their community in Mexico. They offered to let the investigators test foods prior to shipping—several were found to have high lead levels.

World-wide, export systems similar to the envios are increasing, thereby allowing families to stay connected through food culture. Although transnational migration is a continuum, there seem to be more opportunities for migrants to live transnationally than in the past. Consequently, epidemiologists must work with other public health and related disciplines such as anthropology, to define the scope of transnational public health. In this example, a transnational public health problem was identified which is now being investigated, but it is equally important to look for health benefits, such as healthier diets and social support, that are maintained through such strong ties with communities of origin.



Photo 3 Air cargo leaving Oaxaca containing mostly envios packages of food.



Photo 4 Envios arrived in California for pickup.

## Acknowledgement

This research was funded by UCSF Global Health Sciences.

**Conflict of interest:** None declared.

## References

- Johnson S. *The Ghost Map - The Story of London's Deadliest Epidemic - And How It Changed the Way We Think about Disease, Cities, Science, and the Modern World*. New York: Riverhead Publishers, 2006.
- Reed D, McGee D, Cohen J, Yano K, Syme SL, Feinleib M. Acculturation and coronary heart disease among Japanese men in Hawaii. *Am J Epidemiol* 1982;**115**:894–905.
- Handley M, Hall C, Sanford E *et al*. Globalization, bi-national communities and imported food risk: results of an outbreak investigation of lead poisoning in Monterey County, California. *Am J Public Health* 2007;**97**:900–906. <http://www.oaxacalifornia-salud.org> (this site is related to the investigation and information about the on-going project).
- Grieshop J. The envios of San Pablo Huixtepec, Oaxaca: Food, Home and Transnationalism. *Human Organ* 2006;**65**:400–6.