

Final Report: “*Bad Lungs*”: *Capturing the ‘lived experience’ of childhood asthma among Mexican immigrant families in California’s San Joaquin Valley*

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PIMSA 2008 cycle

Policy brief: “Bad Lungs’: Capturing the lived experience of childhood asthma among Mexican immigrant families in California’s Central Valley”*

I would like it if they did not put...a lot of pesticides next to my school...so I won't get sick. (8-year-old Juan, Photovoice participant).

Asthma, the most common of chronic childhood illnesses, carries a serious public health burden. This research challenges the current asthma disparities paradigm which posits that the prevalence rates for Mexican-American children are generally lower than for other ethnic groups or Latino subgroups; particularly Puerto Ricans.¹⁻⁶ Survey data and extensive ethnographic research conducted in Mexican American farmworking communities in California strongly suggest otherwise.^{7,8} This project contributes to the theory that population studies on asthma disparities must include immigration status and be conducted within as well as between ethnic groups.⁹⁻¹¹ It informs the literature on health disparities by documenting the lived experiences of children of Mexican-origin farmworkers with unexplainably high rates of asthma who, on a regular basis, are exposed to agrichemicals and other pollutants. Lastly, this study fills a gap in the scientific literature on the understudied rural experience with asthma in the United States.¹²

California’s San Joaquin Valley—known for its agricultural produce, large Mexican farmworker population and extreme rural poverty— also has some of the worst air quality in the nation.¹³ Children living in the San Joaquin Valley report some of the highest rates of childhood asthma in California.⁷ An estimated 3.85 million children in the US have current doctor-diagnosed asthma, with an overall prevalence rate of 6.7%.¹ Twenty percent, or 95,000 US-born Mexican-American children in the San Joaquin Valley aged 2 to 17, were reported as having been diagnosed with asthma—more than double the national lifetime prevalence of 7.8% cited by Rodriguez et al (2002) for Mexican American children.^{1,7} In one county in the San Joaquin Valley, the lifetime prevalence of diagnosed asthma reached 37% for US born Mexican American children between ages 2 and 17. When compared to recent data from the International Study on Allergy and Asthma in Children (ISAAC), this mounts to what might possibly be one of the highest prevalence rates in the world and is deserving of concerted exploration.¹⁴ We suspect that for a variety of reasons, including undocumented immigration status, many more children are being undiagnosed, uncounted and untreated.^{8, 15-16}

Asthma in the Valley: A Mexican-American Paradox?

Proponents of the ‘hygiene hypothesis’ postulate that children raised in farming communities run a lower risk of manifesting asthma and allergic reactions than do their metropolitan counterparts.¹⁷ Therefore, much of the applied research and many of the innovative programs are being targeted to the inner-cities, while the needs of children residing in less urbanized communities may be overlooked.¹² Mexican farmworkers and

their families face environmental health risks associated with exposure to agrichemicals, including organophosphate pesticides.¹⁸⁻²¹ Despite laws and directives such as the Protection of Children from Environmental Health and Safety Risks (Executive Order 13045), children of farmworkers in this valley are being exposed to pesticides and other by-products of agribusiness at home, at school and at play. And, they are showing up at schools and clinics with signs and symptoms of asthma.

Marginalized populations are subject to environmental health disparities.²²⁻²⁴ Asthma diagnosis in children under five years of age was associated with exposure to herbicides and pesticides during the first year of life, with Odds ratios of 4.8 and 2.39, respectively, in one prevalence case-control study.²⁵ Ozone and particulate matter have also been associated with frequent asthma symptoms and hospital visits for children in the San Joaquin Valley.²⁶ Data from the California Health Information Survey (CHIS)⁷ was used in one study to link severity of childhood asthma morbidity with outdoor air pollution. The authors concluded that children residing in highly polluted areas experienced worse morbidity than those living in less polluted communities.²⁷ The World Health Organization, which lists air pollution as one of the strongest risk factors for developing asthma, addresses air pollution as one of its top priorities.²⁸ We suggest that the 'hygiene hypothesis' is not applicable to children raised in farming communities which are saturated with agrichemicals and other pollutants.

Health disparities, social suffering, and childhood asthma

The results of this project contribute to the understanding of health disparities, social suffering, and childhood asthma in relation to environment justice. The economically depressed San Joaquin Valley, commonly known as "the other California", has been compared to Appalachia in terms of socioeconomic status³³. Environmental and social determinants of childhood asthma may include low socioeconomic position^{29,30}, sub-standard housing³¹, air pollution and pesticides³²; all of which are evident in the lives of children of agricultural workers residing in the San Joaquin Valley. In addition, the increasing economic burden associated with asthma is estimated to rank as one of the highest among chronic diseases.³⁴

Abundant high risk issues have been investigated in this proposal. Because of their small size, children absorb environmental toxicants into their lungs at a much higher rate than do adults.³⁵ Under the Food Quality Protection Act of 1996 "children are presumed more vulnerable to pesticides than adults unless evidence exists to the contrary".³⁶ Yet, many Valley residents believe that their concerns about air quality and childhood asthma are being ignored. Many countries have adopted the 'precautionary principle' under which paraquat has been banned in the European Union since 2007.^{23,37} Nevertheless, through combining ethnographic inquiry and the methods of Photovoice, we discovered that paraquat is commonly being applied by agricultural workers in the San Joaquin Valley and is being stored near their homes.

Carter-Pokras et al (2007: 312.)⁴ note that "factors that place all children at risk from environmental exposures are compounded for Latino children...Latino children are at greater risk of morbidity and premature death from such conditions as asthma." In comparison with the other five principal regions of California, the San Joaquin Valley has

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the lowest rate of medical doctors, primary care physicians and specialists. All eight counties of the San Joaquin Valley have medically underserved areas and all have shortage designations for primary care, dental and mental health.³⁹ Despite the urgent need to increase funding to address issues associated with childhood asthma for underserved populations, the two major programs providing asthma education outreach to the Spanish-speaking community in the San Joaquin Valley recently lost their funding.⁸ The migrant farmworker population in the United States is a vulnerable and understudied population.¹⁶ Their children are even more so. We propose to help them share their everyday lived experiences with a concerned audience.

Results: Childhood Asthma and Air Quality: An Ethnographic Perspective

Executive Order (EO)13045, Protection of Children From Environmental Health and Safety Risks [signed in 1997], directs each federal agency to ensure that its policies, programs, activities, and standards address disproportionate environmental health and safety risks to children (Payne-Sturges and Kemp 2008).⁴⁰

The air is not clean because of all the pesticides... I have to breathe all this... I feel bad because it makes me sick... (8 year old Photovoice participant, Juan; 2009)

Migrating can be a difficult and complicated process for healthy families. For families of children with chronic illness, the experience can be devastating. This project explored the “lived experiences” of recent immigrant and established families in the San Joaquin Valley dealing with childhood asthma, including their cultural perceptions of the relationship between asthma and the environment. Children of immigrant families in the San Joaquin Valley are economically disadvantaged and may be underdiagnosed for asthma due to lack of access to care. Little ethnographic research has been conducted on the management of childhood asthma among the population of Mexican migrants and little is known about the rich cultural beliefs and daily activity in the homes of families of children dealing with this illness. Even less is known about the families’ experiences surrounding the development of asthma in their children and the onset and reaction to acute episode of it.

Many parents expressed concern that children are being unduly exposed to pesticides and that their requests to be notified when overhead spraying takes place are being ignored. Through providing cameras to children and their parents, we discovered that children play in the adjacent agricultural fields and eat pesticide laden fruit directly from the fields without washing the fruit. Plainview, a small community consisting of approximately four square blocks is surrounded by agricultural fields and has no playground; thus children are forced to use the surrounding fields as a playground. This was first uncovered through responses to open-ended, in-depth interviews. The information was substantiated through photographs taken for the Photovoice project and followed up with a short documentary produced by an independent filmmaker. The film recorded children in Plainview playing the agricultural fields and the streets, as well as children in Planada attending asthma camp, visiting Yosemite National Park, and playing in their home town. Interviews for the film were conducted with parents in both communities and in asthma camp; as well as with professionals.

The general perception among professionals is that poor air quality due to particulate matter and pesticide exposure is a contributing factor to childhood asthma in the San Joaquin Valley. This corroborates with the current literature on the relationship between particulate matter and asthma. It is also a concern of clinicians that asthma is being underdiagnosed and undertreated.

*Excerpted from a forthcoming article by Norah Anita Schwartz and Christine Alysse von Glascoe.

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References

- 1- Rodriguez, M.A., Winkleby, M.A., Ahn, D., Sundquist, J., Kraemer, H.C. (2002). Identification of population subgroups of children and adolescents with high asthma prevalence findings from the Third National Health and Nutrition Examination Survey. *Arch Pediatr Adolesc Med.*;Mar; 156(3):269-275.
- 2- Lara, M. Akinbami, L. Flores, F. and Morgenstern, H. (2006). Heterogeneity of childhood asthma among Hispanic children: Puerto Rican children bear a disproportionate burden. *Pediatrics*, 117(1):43-53.
- 3- Canino, G., Koinis-Mitchell, D., Ortega, A., McQuaid, E., Fritz, G., and Alegría, M. (2006). Asthma disparities in the prevalence, morbidity, and treatment of Latino children. *Social Science & Medicine*, 63 (11):2926-2937.
- 4- Carter-Pokras O, Zambrana R. E., Carolyn F. P, Logie L. A., MA, & Guerrero-Preston R. (2007). The Environmental Health of Latino Children. *Journal of Pediatric Health Care* September/October.21,307-314.
- 5- Homa, D.M., Mannino, D.M. and Redd, S.C. (2002). Regional Differences in Hospitalizations for Asthma in the United States, 1988–1996, *Informa Healthcare*. 39: 449-455.
- 6- Hunninghake, G. M., Weiss, S. T., Celedón, J.C. (2006). Asthma in Hispanics, *Am J Respir Crit Care Med*, 173(2):143-63.
- 7- California Health Interview Survey (CHIS) 2007 Child Source File. Los Angeles, CA: UCLA Center for Health Policy Research.

- 8- Schwartz, N.A. and Pepper, D. (2009). Childhood asthma, air quality, and social suffering among Mexican Americans in California's San Joaquin Valley: "Nobody Talks to Us Here". *Medical Anthropology*, 28(4):336-367.
- 9- Gold, D.R. and Wright, R. (2005). Population disparities in asthma. *Annu Rev Public Health*, 26:89-113.
- 10- Weiland, S.K., Bjorksten B, Brunekreef B, Cookson W.O., von Mutius, E., Strachan DP. 2004 Phase II of the International Study of Asthma and Allergies in Childhood (ISAAC II): rationale and methods. *European Respiratory Journal*, 24(3):406-12.
- 11- Ellwood, P., Asher, M.I., Beasley, R., Clayton, T.O., Stewart, A.W., ISAAC Steering Committee. 2005 The international study of asthma and allergies in childhood (ISAAC): phase three rationale and methods. *International Journal of Tubercular Lung Disease*,9(1):10-6
- 12- Valet R. S., Perry T. T., Hartert T. V. (2009). Rural health disparities in asthma care and outcomes. *American Academy of Allergy, Asthma & Immunology*, 123(6):1220-1225.
- 13- Bengiamin, M., Capitman J.A., and Chang, X. (2008). Healthy people 2010: A 2007 profile of health status in the San Joaquin Valley. Fresno, CA: California State University, Fresno.
- 14- [Pearce, N.](#) and [Douwes J.](#) (2006). The global epidemiology of asthma in children. [The International Journal of Tuberculosis and Lung Disease](#), 10(2):125-132.
- 15- Schwartz N.A, von Glascoe C.A., Torres V.M, Ramos L. (2009). Photographing the air: Farmworker children's perceptions of asthma and the environment. Talk presented at the Annual Meeting of the Society for Medical Anthropology. Hartford: Yale University, September 24.
- 16- Salazar, M.K., Napolitano, M., Scherer, J.A., McCauley, L.A. (2004). Hispanic adolescent workers' perceptions associated with pesticide exposure. *West J Nurs Res*, 26(2):146-66.
- 17- Liu, A.H. (2007). Hygiene theory and allergy and asthma prevention. *Paediatr Perinat Epidemio*, 21(Suppl 3): 2-7.
- 18- Arcury T. A., Quandt, S. A. and Russell, G.B. (2002). Pesticide safety among farmworkers: perceived risk and perceived control as factors reflecting environmental justice. *Environ Health Perspect*, 110(Suppl 2): 233-40.
- 19- Wright R.J. and Subramanian, S.V. (2007). Advancing a multilevel framework for epidemiological research on asthma disparities. *Chest*, 132(Suppl 5):757S-769S.
- 20- U.S. Department of Health and Human Services. (2009). Centers for Disease Control and Prevention National Center for Health Statistics. Summary Health Statistics for U.S. Children: National Health Interview Survey, 2007. Vital and Health Statistics Series 10, number 239 January.

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- 21- Hunt, L., Tinoco Ojanguren, R., Schwartz, N.A., and Halperin, D. (1999). Balancing Risks and Resources: Applying pesticides without using protective equipment in Southern Mexico. In *Anthropology in Public Health*. Robert A. Hahn, ed. New York: Oxford University Press.
- 22- Smedley, B.D., Stith, A.Y. and Nelson, A.R. (2002). *Unequal Treatment*. Institute of Medicine: National Academies Press.
- 23- Brulle, R.J. and Pellow, D.N. (2006) *Environmental Justice: Human Health and Environmental Inequalities*. *Annu Rev Public Health*, 27:103-24.
- 24- Mohai, P., Lantz, P.M., Morenoff, J. and House, J.S. (2009). Racial and socioeconomic disparities in residential proximity to polluting industrial facilities: evidence from the American’s changing Lives Study. *Am J Public Health*, 99(Suppl 3):S649-56.
- 25- Salam, M.T, Li, Y.F., Langholz, B., Gilliland, F.D. (2004). Children’s Health Study. Early-Life environmental risk factors for asthma: findings from the Children’s Health Study. *Environ Health Perspect*, 112(6):760-5.
- 26- Meng, Y., Rull, R.P, Wilhelm, M., Lombardi, C., Balmes, J., Ritz, B. (2010). Outdoor air pollution and uncontrolled asthma in the San Joaquin Valley, California. *J Epidemiol Community Health*, 64:142-7.
- 27- Wilhelm, M., Meng, Y., Rull, R.P., English, P., Balmes, J. and Ritz, B. (2008). Environmental public health tracking of childhood asthma using California Health Interview Survey, traffic and outdoor air pollution data. *Environ Health Perspec*, 116(9):1254-60.
- 28- World Health Organization 2006 Fact sheet. <http://wwd.who.int/entity/respiratory/copd/en/>. Accessed 12/1/06.
- 29- O’Neill, M.S., Jerrett, M., Kawachi I., Levy, J. I., Cohen, A. J., Gouveia, N., Wilkinson, P., Fletcher, T., Cifuentes, L. and Schwartz, J. (2003). Health, wealth, and air pollution: advancing theory and methods. *Environ Health Perspect*, 111(116):1861-70.
- 30- Garry, V.F. (2004). Pesticides and children. *Toxicol Appl Pharmacol*, 15;198(2):152-63.
- 31- Christiansen, S. C., Martin, S.B. Schleicher, N.C., Koziol, J., Hamilton, R.B. and Zuraw, B. (1996). Exposure and sensitization to environmental allergen of predominately Hispanic children with asthma in San Diego’s inner city. *J Allergy Clin Immunol*, 98(2):288-94.

- 32- Sarnat, J.A., Holguin, F. (2007). Asthma and air quality. *Curr Opin Pulm Med*, 13(1):63-6.
- 33- Cowan, T. (2006). *California's San Joaquin Valley and the Appalachian region: comparison and contrast*. Nova Science Publishers.
- 34- Bahadori, K., Doyle-Waters, M.M., Marra, C., Lynd, L., Alasaly, K., Swiston, J. and FitzGerald, J.M. (2009). Economic burden of asthma: a systematic review. *BMC Pulmonary Medicine*, 9:24.
- 35- Gitterman, B. and Bearer, C. (2001). A developmental approach to pediatric environmental health. *Pediatric Clinics of North America*, 48(5):1071-83.
- 36- Landrigan, P.J., Kimmel, C.A., Correa, A. and Eskenazi, B. (2004). Children's health and the environment: public health issues and challenges for risk assessment. *Environ Health Perspect*, 112(2):257-65.
- 37- Dunderstadt, K.G. (2006). Environmental health policy & children's health. *Journal of Pediatric Health Care*, 20:411-413.
- 38- Rao, P., Quandt, S.A., Doran, A.M., Snively, B.M. and Arcury, T.A. (2007). Pesticides in the homes of farmworkers: Latino mothers' perceptions of risk to their children's health. *Health Educ Behav*, 34(2):335-53.
- 39- Riordan, D. (2007). Health professional shortages in the San Joaquin Valley: the impact on federally qualified health clinics. Electronic reference: http://www.csufresno.edu/ccchhs/institutes_programs/CVHPI/index.shtml. Accessed 6/15/10.
- 40- Payne-Sturges, D. and Kemp, D. (2008). Ten years of addressing children's health through regulatory policy at the U.S. Environmental Protection Agency. *Environ Health Perspect*, 116(12):1720-24.