

The Nicaragua Stove Project



Driving into El Fortin, a barrio in Granada, Nicaragua, the faint smell of a camp fire starts to dominate the senses. Entering one of the homes of those who live here, it is soon realized that this campfire smell comes from open pit stoves that are used for cooking, hitting you like a brick wall as you enter the kitchen area. Biomass stoves such as these are used in developing countries for heating and cooking needs creating a significant health risk to women and children. This population is exposed to high levels of indoor air pollutants that include carbon monoxide, particulate matter, nitrous oxides, sulfuric oxides and polycyclic aromatic hydrocarbons. These pollutants contribute to an increase risk in disease such as tuberculosis, cataracts, chronic obstructive pulmonary disease, acute respiratory illness, and asthma to name a few.

The purpose of the Nicaragua Stove Project was to conduct a study assessing the exposure to carbon monoxide and particulate matter, two pollutants that are correlated with adverse health outcomes. For the first year of the study, we gathered baseline data evaluating exposure to these pollutants and the current health status of the participants. Health endpoints such as exhaled CO, pulse oximetry, spirometry, blood pressure, blood samples to measure inflammatory markers, height, weight, hip to waist measurements, and peak flow volume were assessed to determine the current health status of the participants. New, enclosed stoves with a chimney to vent smoke to the outside were installed in the participants' homes to optimistically decrease the exposure to indoor air pollutants. In the years to come, the study will measure the same endpoints to evaluate if there is an increase in health status due to a decrease in exposure to indoor air pollution. The study was built from the ground up requiring interaction with professionals in environmental health and medical professions as well as with not-for-profit organizations both here and abroad in Nicaragua. Research surrounding the problem, possible solutions and study design was conducted along with grant writing to receive funding for the study.



I am now an Environmental Health Specialist for Washington County, Oregon. Half of my position involves conducting sanitation inspections for restaurants, daycare facilities, and pools. The other half surrounds compliance with Oregon's smoke free workplace law (prohibiting smoking in the workplace and within 10 ft of any entrance, window or ventilation component of a building) as well as conducting a study encompassing the adoption of smoke free policies by landlords. My experience with every component of this study has built long lasting qualities that allow me to be successful in my career including communication skills, team work, leadership, research capabilities and much more. It ultimately allowed me the experience to bridge all of the knowledge I gained through my undergraduate degree to becoming a successful Environmental Health Specialist.

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