EXPOSURE TO RESPIRABLE DUST AND SILICA TO STONE CUTTERS

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COUNTRY: Armenia
PARTNER: Yerevan Medical University, Yerevan, Armenia

Summary of Project

Background: Workers exposed to fine dust are at risk for developing several debilitating respiratory diseases. Workers exposed to dust containing silica are at risk for developing silicosis. The purpose of this study is to assess exposures to respirable dust to workers who fabricate headstones out of stone and marble. In this project, we will do three things: (1) measure workers’ dust and silica exposures; (2) administer a health symptom questionnaire; and (3) perform a lung function test on workers.

Methods: (1) Respirable dust samples will be collected by placing a small pump (SKC Model 210-2002) on the belt of a worker. The pump is connected via Tygon® tubing to a 37 millimeter (mm) filter housed within a cyclone which will be placed in the breathing zone of the worker (Figure 1). The pump draws air contaminated with the stone/marble dust onto the filter, which is then brought back to the U.S. for silica analysis. Prior to sample collection, we will calibrate the pumps with a Dry Cal calibrator to ensure that it is operating at the right flow rate. We will sample a maximum of 5 workers a day. Samples will be taken at the time the worker starts work until the end of the work day. We expect to collect approximately 30 samples. In addition, we will also collect raw dust samples in a vial and have the lab analyze for silica content in these samples.

(2) On the days of sampling, we will administer a health symptom questionnaire to workers. This questionnaire has already been developed and translated into Armenian. Students will assist with coding of the questionnaires and analysis as part of this experience. (3) Workers will be provided a lung function test at some point to the workers before they start cutting stone. The purpose of this data is to obtain cross sectional data on their lung function.

This project is a joint collaboration with COPH-UNMC and the Yerevan Medical University. The researcher at Yerevan Medical University will arrange for sampling sites and transport to these sites. UNMC students and faculty will most likely stay at dormitories reserved for foreign students.
ASSESSING NURSES AND PHARMACISTS EXPOSURES TO CHEMOTHERAPY DRUGS

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Summary of Project:
Chemotherapy drugs are used to treat tumors in cancer patients. They are aggressive drugs that are effective in destroying tumors. In a healthy body, these drugs will target healthy cells. There is a lot of research looking at health symptoms to nurses who are accidentally exposed to chemotherapy drugs. These include formation of DNA adducts, hair loss, and adverse reproductive outcomes. The purpose of this study will be primarily to characterize exposures by collecting wipe samples and administering a questionnaire. The study will be based on a previous study by Dr. Achutan.*


PESTICIDE EXPOSURE TO A RURAL COMMUNITY

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COUNTRY: Indonesia
PARTNER: University of Muhammadiyah Malang, Malang, Indonesia

Summary
A rural community in Malang, Indonesia (on the island of Java) has identified pesticide exposures to workers and to family members as a public health issue that needs to be addressed. We will work with the community to understand cultural practices with respect to farming and use of pesticides, develop a training module, and educate the community. We will also collect environmental samples that can be analyzed onsite, and use personal data to enhance the educational component.

MITIGATING AIR POLLUTION

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PARTNER: Kazakh National Medical University, Almaty, Kazakhstan

Summary
Air pollution causes a multitude of acute and chronic health effects. In this project, we will quantify air pollution levels in seven regions of the City of Almaty, administer a questionnaire to the community, and work with Kazakh Public Health officials to devise strategies to mitigate air pollution. Air pollution measurements will most likely be collected using a direct-reading instrument that will log data continuously for at least one day in each region. The air pollution measurements will be repeated in the winter.