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Medication Crushing and Nurses Personal Exposures to Airborne Particle

Azita Amiri

University of Alabama in Huntsville

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Project Title
Medication Crushing and nurses personal exposures to airborne Particle

Faculty Name, Rank, All Department(s)/Center Affiliations
Azita Amiri, Assistant Professor, Nursing

Office Address, Phone Number, Email
Nursing Building 206 C- 256-824-2444, Azita.amiri@uah.edu

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Project Description
Nurses crush the medication in medication room every single day to provide prescribed medication to those patients who cannot swallow the pills. For instance, nurses should crush the medications for elderly patients 2-3 times a day to convert it to a powder then mix it with a liquid food, such as applesauce and administer it to the patient. The process of crushing and transferring the powder to another container may produce dust and particles, such as particulate matters, volatile organic compounds, and formaldehyde, which can become airborne and be inhaled by nurses. There are relationships between particulate matters and volatile organic compounds with health effects including asthma, chronic obstructive pulmonary disease and cancer.

The goal of this study is to determine the potential airborne particles that can produced during medication crushing procedure.

Objectives
1- To create medication-crushing scenario’s to be played in a clean room located in the mentor’s lab
2- To measure the levels of particles in the air during medication crushing procedure
3- To determine the fate of potential produced particles in the air 2-3 hour after medication crushing
4- To develop a standard protocol to reduce nurses personal exposures to airborne particles produced by medication crushing

Outcomes: The results of this study will be used to create a standard protocol to reduce nurses personal exposures to airborne particles

The student’s duties include
1- Be dedicated and responsible
2- Review literature related to topic and be up-to-date
3- Be in my office 4-6 hours a day, at least three days a week
4- Help with developing scenarios
5- Help with playing the written scenarios
6- Help with interpretation of the results and writing a standard protocol
Mentorship
The student will be mentored by the faculty mentor directly during the summer. The student and faculty will meet 3-4 times within the first week for training and hands-on efforts on crushing medications and measuring pollutants with available devices. On week two and after the student will work at the faculty’s office/lab 4-6 hours a day for, at least three days a week, directly under faculty’s supervision.