

# Session Abstracts

National Environmental Health Association (NEHA)  
71<sup>st</sup> Annual Educational Conference & Exhibition

## Indoor Air Quality

Thursday, June 21

8:30 – 9:20am

### **Public Awareness of Indoor Air Quality Problems in Residential Buildings**

*Raeyd M. Aldakheel, PhD, Assistant Professor, King Saud University, Saudi Arabia*

Recent research indicates the deterioration of indoor air quality in urban areas in many parts of the worlds. The capital city of Riyadh, in Saudi Arabia is no exception. The deterioration is due in part to better energy conservation measures and an increase in the use of synthetic building materials. Local studies confirm the adverse health effects to occupants associated with indoor air quality (IAQ). Although not extensive, these studies have identified several indoor air pollutants in the city of Riyadh Residential Buildings with concentrations that exceed acceptable international standards.

This study, through a representative sample, attempted to measure the city of Riyadh residents' awareness of the IAQ problem, their perception of the adverse health effects associated with it, and methods for improving the current situation. The study main findings revealed that the majority of the city of Riyadh residents were aware of the IAQ problem; but they had many misconceptions about its causes. The study concludes with several suggestions to improve the public awareness of these risk factors and to improve their involvement with the issue.

9:30 – 10:20am

### **Radon Community Health Assessment**

*Wade T. Sparkman, Director of EH, Nassau County Health Dept., FL*

The State of Florida has diverse environmental issues to address as well as federal and global concerns. These issues come from municipalities, rural communities, cities, counties, and state government as well as individuals, industry and special interest groups. Competition exists for financial and human resources to address these issues. Established environmental concerns take a back seat to the “disease du jour” of present, which places even greater competition on available public health resources.

Competition for resources has created a void in addressing radon gas exposure. According to the U.S. Surgeon General, Dr. Ray Carmona, in an issued Health Advisory, warned Americans about the health risk from exposure to radon in indoor air. Dr. Carmona noted that more than 20,000 Americans die of radon-related lung cancer each year, second only to cigarette smoking, which attributes to half of all lung cancer deaths.

Even with these staggering statistics, there is limited legislation and literally no financial resources to provide testing of radon. Radon is a tasteless, colorless and odorless gas that is a decay product of uranium and occurs naturally in soil and rock. Radon gas has been identified in every State in the Country.

The vision of the Nassau County Health Department is to identify exposure to radon gas and eliminate lung cancer within our local communities. There are two delineated areas of the county where radon exists. Our goal is to create multiple partnerships with key stakeholders (The Nassau County Realtors Association, The Northeast Builders Association, The Nassau County Building Department, and the American Lung Association) to institute an educational, testing, and mitigation program for residents. This Community Radon Assessment initiative will be developed to sustain and implement, at a minimum, four of the Ten Essential Services of Environmental Health.

A creative tension exists between the vision and the current reality of which the partners have competing interests. Public Health partners strive for quality of health and life issues as opposed to the economic and community development issues of the building and real estate profession. All partners have committed to a strong, sustainable partnership that will be effective in addressing radon and other environmental issues that may arise in the future and will promote the livability of our local communities.

The impact of this new partnership will create an enhanced local Public Health System. The Community Radon Assessment program will provide educational resources to the public as well as radon testing of homes to ensure that residents are free of exposure to radon gas thus eliminating lung cancer due to radon.

10:30 – 11:20am

**Carbon Monoxide: Silent, Invisible, and Deadly**

*LCDR Allison Stock, PhD, MPH, CO Activity Lead and Toxicologist, USPHS, CDC, GA*

Abstract not available.

1:00 – 1:50pm

**Variability of Radon Measurements in Schools**

*Chrystine Kelley, Environmental Protection Specialist, Colorado Dept. of Public Health and Environment, CO*

*Douglas L. Kladder, Director, Center for Environmental Research and Technology, CO*

Colorado schools were tested in 1991 as required by state regulation. However, no provisions were made in the regulations for the need to periodically retest schools in high risk areas or after major renovations.

This study compares the results of long-term testing that was conducted in 19 school buildings (400 plus individual locations) in school year 2006-7 to long-term measurements that were made in 1990-91. The results when correlated to building renovations that occurred since the original 1991 tests should provide guidance on:

- the effects of building renovations,

- the effects of HVAC improvements or deterioration, and
- recommendations for periodic retesting of schools and similar structures in high radon risk areas.

2:00 – 2:50pm

**Impact of Human Traffic on Spatial Distribution Patterns of Indoor Particulate Matter**

*John J. Bang, MD, PhD, Research Scientist, North Carolina Central University, NC*

Indoor air quality has been a public and an environmental health concern because more than 80% of our daily activities are usually conducted in indoor settings. Particulate matter (PM) is believed to be one major air pollutant detrimental to human health. In indoor settings, human activities have been suspected as a major indicator for the overall level of PM. This presentation will provide insight on the impact of human traffic on PM levels at three different locations in a public building during two separate time periods. The impact of the relative distance between the entrance and the measurement site (i.e., office location) on the observed PM level will be also discussed during the presentation. The characteristic dispersion patterns of different PM types (PM 10, 2.5, and ultrafine) will be presented.

3:00 – 3:50pm

**Risk Associated with Microbial Contamination in Health Care Facilities: A Mixed Model for Fungal and Bacterial Contamination**

*Michael D. Larrañaga, PhD, PE, CIH, CSP, Assistant Professor, University of North Texas Health Science Center, TX*

The American Industrial Hygiene Association's strategy for assessing and managing occupational exposures was modified to assess occupant risk associated with microbial contamination in healthcare facilities. The model accounted for the toxicity and pathogenicity potential (TP) of fungal and bacterial contaminants, and contaminated surface area was used as an indication of potential exposure. Exposures were quantified according to the presence of an exposure pathway, location (non-critical, critical, or super-critical area), and contaminated surface area. The Health Risk Ratings (HRR) categorized risks associated with microbial contamination as high, medium, low, and de minimis. The HRR were determined with input from an inter-disciplinary team of experts. A regimented sampling scheme is necessary to assess microbial contamination in air conditioning systems and within a facility. Composite HRR scores provide a single HRR for the space under the environmental control of each HVAC system.