11 Gerty Drive
Champaign IL 61820-7404
217-265-6563
800-437-5819
www.fsi.illinois.edu

UNIVERSITY OF ILLINOIS
ILLINOIS FIRE SERVICE INSTITUTE

IFSI Research Center releases interim report on "Cardiovascular and Chemical Exposure Risks in Modern Firefighting" project

(CHAMPAIGN, IL. January 20, 2016). The University of Illinois Fire Service Institute (IFSI) Research Center in tandem with UL Firefighter Safety Research Institute (FSRI) and the National Institute for Occupational Safety and Health (NIOSH) has released their interim report on a study of cardiovascular risks and carcinogenic exposures in the modern firefighting environment. The study quantifies a number of factors, such as core and skin temperatures, blood chemistry, ECG changes and exposure to contaminants in the air, on the gear and in the firefighter's bodies relative to firefighting assignment on a simulated, yet realistic, modern fireground.

Initial results from data collected in mid-2015, are still to be analyzed comprehensively, but initial impressions of the data include:

- Firefighter's assignment on the fireground had an influence on core and skin temperatures, as well as blood clotting potential.
- Hydrogen cyanide and benzene levels inside the structure during active fire were remarkably high.
- Two important sources of particulate matter (smoke plume from fire and diesel exhaust from apparatus) were dependent on wind direction.
- Several flame retardants and polycyclic aromatic hydrocarbons (PAHs) were found on turnout gear after use in a fire.
- Gross on-scene decon with water, detergent and scrubbing brought PAH contamination to pre-fire levels.

"This is the first time that we have had the opportunity to assess – in a comprehensive, efficient, yet safe manner – the thermal insult, chemical exposures and cardiovascular risks that firefighters face when responding to a residential structure fire in the 21st century. We studied the impact of tactics and fireground job function on exposure, but also the ability for skin cleaning and PPE decon to impact these risks," Dr. Gavin Horn, Director for IFSI Research, said. "As we further examine research results, we will continue to lead the national discussion on 'putting the firefighter back in service'", Horn added.

The Interim Report: Cardiovascular & Chemical Exposure Risk in Modern Firefighting can be downloaded from the IFSI Research web site at
https://www.fsi.illinois.edu/documents/research/CardioChemRisksModernFF_InterimReport2016.pdf.
In addition to the comprehensive report, a three-page Fire Service Executive Summary document can be downloaded from
https://www.fsi.illinois.edu/documents/research/Summary_CardioChemRisksModernFF_InterimReport2016.pdf .
Updates on the research can be followed on Twitter @IFSIresearch as well as @UL_FSRI and
https://www.facebook.com/ULfirefightersafety.

The **Illinois Fire Service Institute Research Center** is part of the statutory State Fire Academy for Illinois. In addition to training provided at its Champaign campus, the Institute offers one-day hands-on classes for fire departments at Regional Training Centers and local fire stations across the State. The mission of the Illinois Fire Service Institute is to help firefighters do their work through training, education, information, and research.

For more information about the IFSI Research Institute, call 217-265-6563.