

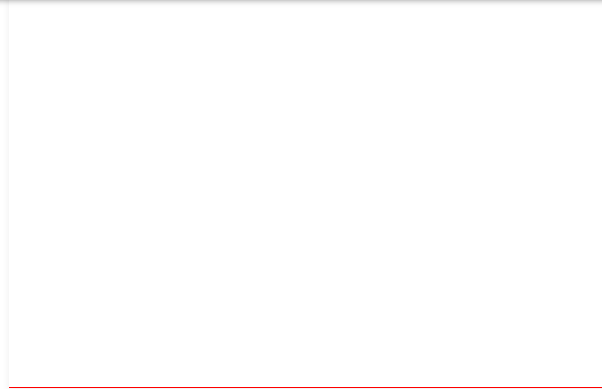
**HEALTH**

Firefighters Battle Exposure to Carcinogens as well as Flames

A new study finds that firefighters absorb harmful chemicals through their skin as they fight fires.

Sandy Smith

OCT 23, 2017



Captain David Matschke is well aware of the dangers he faces on the job. A firefighter for 32 years, he is trained to race to the scene of house fires, car crashes and even industrial accidents, breaking through windows and doors to evacuate occupants and routinely putting himself in harm's way.

But beyond fire itself, a study published today in the journal *Environmental Science & Technology* sheds new light on another, more insidious threat that may be putting firefighters' health at risk: toxic chemicals in smoke.

"I have witnessed many of my peers and friends battle job-related illnesses," says Matschke. "To have definitive proof of the chemicals that we are exposed to and the routes of our exposures will improve our procedures and our equipment, meaning reduced incidence of job-related disease and longer, healthier lives."

A team of researchers at the University of Ottawa, working with Health Canada, the University of Toronto and the Institut national de santé publique du Québec, examined chemical exposure experienced by Ottawa Fire Service firefighters during on-shift, emergency fire operations between January 2015 and April 2016.

The team collected urine and skin wipe samples from the firefighters at the start of their shift as well as after a fire to measure whether they were exposed to polycyclic aromatic hydrocarbons (PAHs), which can cause DNA mutations and cancer, and other harmful chemicals often found in smoke.

researcher at the University of Ottawa and senior author of the study. “Mutagenic potency of the urine, which reveals the potential for genetic mutations, also increased on average more than four times after a fire.”

Since urine contains waste and toxins filtered by the kidneys from the bloodstream, its mutagenic potency is a good indicator of the presence of noxious components in firefighters’ blood, according to researchers.^{[1][2][3][4]}

Previous studies have shown that firefighters have increased risk of cancers and other serious illnesses compared to the general population, due in part to their exposure to hazardous chemicals found in smoke. This is the first study to examine chemical exposure occurring during emergency, on-shift fire suppression.

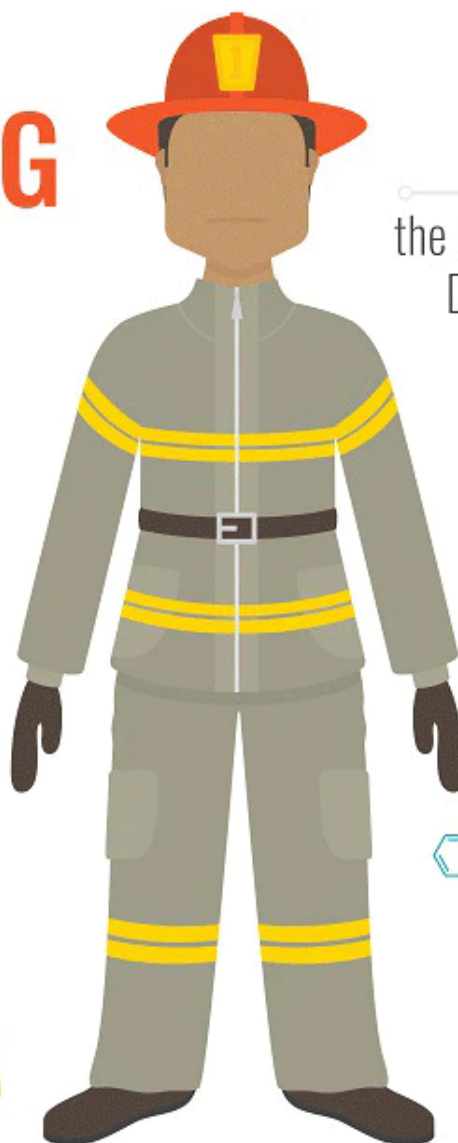
An unexpected finding relates to the route by which the monitored chemicals enter a firefighter’s body. The team found a significant link between PAH metabolites found in urine and levels of PAHs on skin, suggesting that firefighters are exposed to these harmful chemicals mainly through contact with their skin, rather than by inhalation.



“Our study shows that the best way to reduce a firefighter’s exposure to harmful combustion products is to reduce chemical exposure to the skin,” says Jules Blais, professor of environmental toxicology at the University of Ottawa and research team leader. “Our research shows how firefighters are exposed to harmful chemicals, which helps us find ways to reduce those exposures and hopefully, reduce the onset of disease.”

AFTER FIGHTING A FIRE

urine samples
collected from
firefighters
showed

**4x**

the potential for
DNA damage

**3-5x**

the amount of PAH
metabolites of

**naphthalene****pyrene****phenanthrene****fluorene**

Credit: University of Ottawa

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COVID-19 CRISIS

California Imposes Emergency Temporary Standard

The COVID-19 rule adds detailed requirements for employers to meet.

David Sparkman

DEC 13, 2020

Although it is expected that under a Biden administration the federal Occupational Safety and Health Administration (OSHA) will adopt nationwide Emergency Temporary Standards (ETS) for employers regarding COVID-19, some states already have done so, most recently California.

Union leaders have been calling for an ETS from OSHA, which under the Trump Administration has chosen instead to use the General Duty Clause to enforce its guidances, rather than write new rules. As a result, the union-friendly states of [Virginia](#) and more recently, Michigan and Oregon chose to adopt their own ETS to deal with pandemic employer issues..

The highly detailed and lengthy new California ETS have significance that reaches far beyond

Those employers need to take immediate note because although the effective date for the new standards is Jan. 1, 2021, Cal/OSHA can rely on its COVID-19 related guidance to enforce against employers that have not implemented preparedness plans or procedures, says attorney Cressinda D. Schlag of the Jackson Lewis law firm.

The new ETS, called the COVID-19 Prevention Rule, is unique in that it is performance-based and adds to the host of requirements imposed by the state's public health departments, according to Schlag. In addition to Cal/OSHA enforcing the new standard, California employers need to make sure that their efforts to manage COVID-19 will adhere to both the new COVID-19 Prevention Rule and orders issued by state and local public health departments.

"Employers with California workplaces subject to the COVID-19 Prevention Rule may, in fact, have to contend with additional or more restrictive obligations under applicable state or local health department orders on top of the rule's many requirements," she stresses.

Employers also need to be diligent in implementing the measures required by the rule because Cal/OSHA has expanded enforcement authority under the AB 685 law enacted in September. That law allows Cal/OSHA to issue Orders Prohibiting Use in certain circumstances where it believes that COVID-19 presents an imminent hazard.

The new law also allows the agency to issue citations alleging serious violations of occupational health and safety requirements related to COVID-19 without giving employers 15-day pre-citation notice to pursue enforcement of employers' violations related to COVID-19 hazards.

In fact, under the Prevention Rule and AB 685, Cal/OSHA can issue orders compelling certain actions, such as COVID-19 testing, preventive measures or worksite closures, Schlag observes. Cal/OSHA also is allowed to issue citations to employers for COVID-19 related violations without providing a pre-citation notification.

Employer Obligations Grow

The rule covers all workplaces in California, except those with only one employee who has no contact with others, employees who are working remotely from their homes, and employees who are covered by Cal/OSHA's Aerosol Transmissible Disease Standard (almost exclusively those who work in hospitals, nursing homes and perform other medical services).

The new rule imposes the following minimum requirements on all covered California workplaces:

Prevention program. Employers must establish and maintain an effective written COVID-19 prevention program, including procedures for communicating disease information and for identifying and responding to COVID-19 hazards. Also required are procedures for investigating and responding effectively to workplace cases, including notifications for potential exposures, methods for correcting hazards, and training employees on virus hazards and controls.

physical barriers, markings, optimized ventilation, and cleaning and disinfecting procedures. Also required are handwashing facilities and personal protective equipment (PPE), such as gloves, face shields, face masks, goggles and respirators.

Reporting and recordkeeping. Employers must report information to their local health department when required or requested, report COVID-19 cases that result in a serious illness or death to Cal/OSHA, maintain records relevant to COVID-19 cases, and do so in a confidential manner and consistent with Cal/OSHA medical records regulations.

Worker exclusions. Workers must be excluded from the workplace who have COVID-19 or were exposed and do not meet set criteria for returning. Workers who have had an exposure to COVID-19 in the workplace must, without exception, be kept away for at least 14 days.

Management of infections and outbreaks. For workplaces that a health department determined to have had an outbreak and those with three or more cases within a 14-day period, employers must provide testing within a week to employees at that workplace. Employers are responsible for testing costs and may need to provide ongoing testing if found necessary by Cal/OSHA, the health department, or to manage an ongoing outbreak.

Case investigations. Employers must immediately investigate COVID-19 cases and potential outbreaks to find out if workplace-related factors contributed to the case or outbreak and take immediate action to address any identified hazards.

Case notifications. Employers must report outbreaks (defined as three or more positive cases of COVID-19 within a 14-day period) to their local health departments within 48 hours of learning about the outbreak.

Cover Every Eventuality

Cal/OSHA's Prevention Rule requires that employers having a major COVID-19 outbreak take additional actions to prevent and minimize the spread, Schlag explains. A major

outbreak is defined as a workplace that has had 20 or more COVID-19 cases within a 30-day

If a major outbreak occurs, employers must comply with certain requirements until no new COVID-19 cases have been detected in the workplace for a 14-day period. These requirements include:

- Employer-provided COVID-19 testing for all workers at least twice a week.
- Exclusion of workers who have COVID-19 or experienced an exposure from the workplace.
- Conduct ongoing COVID-19 case investigations.
- Conduct COVID-19 hazard assessments and corrections, which may require adjustments in ventilation, respiratory protection requirements, change in operations, or other control measures deemed necessary by Cal/OSHA.
- Meet ongoing COVID-19 notification obligations.

If employers provide transportation for employees to and from work or as part of their job duties, prescribed precautions must be implemented. Among these are emphasizing transportation assignments that minimize workers sharing transportation with others who do not share a common household, use of physical distancing if possible and requiring drivers and riders to wear face coverings.

Employers providing employee transportation also must maintain effective screening

access to sanitizing supplies.

Employers who provide housing accommodations for employees need to take other measures. In addition to providing the usual social distancing rules and adequate PPE for the residents, the employer must implement physical distancing controls by redesigning housing spaces to maximize distance between individuals, limit capacity of common areas, and ensure separation of individuals' beds and furniture.

"Cal/OSHA's COVID-19 Prevention Rule will upend California employers' operations and workplace safety measures," Schlag declares, because its new programmatic and preventive requirements go beyond Cal/OSHA's prior guidance.

Employers will need to develop new written program materials and comply strictly with preventive measures, such as the six-foot distancing rule. "This burden to show that physical distancing is 'not possible' diverges from other occupational health and safety regulations and requirements where employers can show generally that compliance with a requirement is infeasible rather than impossible," she notes.

The rule sets up significant compliance hurdles for employers in the form of COVID-19 case management requirements, mandatory worker exclusions and required testing, Schlag adds. For example, employers must provide employees on-site COVID-19 testing during working hours in some situations. This means employers need to make arrangements for testing before a potential outbreak to ensure testing resources are available, especially if testing options are limited near the worksite location.

Employers also will need to coordinate testing services, maintain corresponding records as confidential medical information, and establish controls to prevent improper disclosure of employees' private health information, she points out.

In addition, because the rule does not supersede state or local health department requirements, compliance with the rule alone may not satisfy all workplace COVID-19 requirements in the state, Schlag says. Employers may need to balance different

employers because of conflicting requirements due to differences in health department orders, guidances and recommended practices.

“Indeed, because of significant differences in safety requirements in the COVID-19 Prevention Rule, emergency temporary standards adopted in several states, frequent changes in CDC guidance, and more stringent or additional obligations imposed by health department orders, employers may be unable to establish a consistent or uniform COVID-19 response plan and procedures across all of their operations,” Schlag asserts.

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