



The Hidden Dangers of Infectious Disease

This story is the fourth in a “Working to Death” series of articles in the *International Fire Fighter* that examine the health risks fire fighters face. More importantly, the series looks at what can be done to prevent fire fighter deaths and illustrate how some are improving the health and safety of fire fighters.

When Martin County, FL Local 2959 member Ferdinando “Freddy” Pierno died in February of hepatitis C, it reaffirmed the danger posed to fire fighters by infectious diseases.

“There are a lot more dangers on the job than going into a structure fire and having a second floor drop on you,” Martin County Local 2959 President John Davidson says. “The two things that scare me the most are diseases you can’t see and Interstate 95.”

Pierno had been under medical treatment since October 2006 for a hepatitis C infection he contracted while performing his fire fighter duties, according to the Martin County Fire Rescue Bureau.

Fire presents an obvious threat, but infectious diseases represent an invisible threat and a much more frequent hazard than anything encountered on the fireground. Cancer, heart attacks and vehicle accidents are responsible for many more line-of-duty deaths than infectious diseases, but pre-hospital care puts first responders in constant jeopardy of contracting an illness.

Fire fighters run the risk of exposure to bloodborne pathogens — including hepatitis C, hepatitis B and human immunodeficiency virus (HIV) — through needle sticks or cuts from sharp instruments that are contaminated with infected blood or through contact with a patient’s blood.

Emergency personnel also run the risk of contracting numerous communicable diseases, from the flu to tuberculosis.

“Fire fighters provide a lot of patient care, so they are at an increased risk compared to the general population,” says Tom Hales, a senior medical epidemiologist with the Fire Fighter Program at the National Institute for Occupational Safety and Health (NIOSH), a branch of the Centers for Disease Control.

The increasing volume of emergency medical calls merely heightens the risk of exposure. In general, EMS responses make up nearly 75 percent of runs at departments that provide emergency medical response. In larger, metropolitan departments, EMS calls represent about 80 percent of call volume.

The National Fire Protection Association (NFPA) estimates there were 13,450 exposures to infectious diseases in 2007, the most recent year for which statistics are available. This represents the highest number of infections since 2002, when there were 13,700 exposures to infectious diseases, according to the NFPA.

It’s simply a risk that never goes away; the IAFF remains in the forefront in research and education to reduce the exposure through development of safe operating procedures and proper protective clothing and equipment.

“The good news is that we can reduce the risk from infectious diseases through the use of personal protective equipment,” says Ed Galaid, medical director for occupational medicine services for the Northeast Georgia Health Systems and physician for the Hall County Fire Department and Hall County, GA Local 3348.

In addition to following universal precautions, fire departments must provide annual testing and vaccinations for first responders. Providing routine vaccinations for the general population also put first responders at a very low risk of contracting diseases such as hepatitis B or tuberculosis.

In most cases, taking standard precautions and getting vaccinations is enough to protect against contracting an illness.

“When fire fighters know there’s a risk — when they know someone is either a carrier or has an active infection — there are effective precautions and procedures in place and the risk of exposure is low,” Galaid says.

When fire fighters respond to a chaotic trauma scene, it can be difficult to limit exposure to blood and other bodily fluids. The infectious disease status of the victim is almost never known to fire fighters while they provide emergency services.

Trauma scenes aren’t the only potential danger. Methicillin resistant staphylococcus aureus, or

An Ounce of Prevention: Protecting Yourself From Infectious Diseases

Always use these universal precautions:

- Practice hand hygiene
- Wear gloves
- Use eye protection or face shield
- Employ safe injection practices
- Get vaccinated
- Document all exposures
- Request IAFF educational materials
- Demand that your fire department make any and all infectious diseases screening available
- Work with your state and provincial association and the IAFF on infectious disease disability legislation

MRSA, continues to be prevalent throughout the community. It is one of the leading causes of infections in patients at hospitals and long-term care facilities and is now emerging as a prominent cause of community-acquired infections.

A study by researchers at the University of Arizona says fire fighters are at risk of contracting MRSA because they represent a unique crossover population — they are exposed to both hospital-acquired MRSA and community-acquired MRSA, according to Kelly Reynolds, an associate professor at the University of Arizona and co-author of a study to be released later this year on the prevalence of MRSA in Tucson fire stations.

Ed Nied, deputy fire chief at the Tucson Fire Department and a member of Tucson Local 479, helped secure a grant to fund the university's research because of a MRSA outbreak in the department two years ago.

"The problem with exposure to MRSA is huge," Nied says. "It's everywhere. Fire fighting, technical rescue, hazardous materials and WMD are all high-risk, low-frequency calls. EMS calls are high-risk, high-frequency calls. We need to change the culture so we view EMS calls as high-risk, high-frequency events. If we do that, we'll have increased awareness and we will be better able to protect ourselves."

In an 18-month period from 2006 to 2008, there were 15 documented cases of MRSA in the Tucson Fire Department, four of whom required hospitalization. The city of Los Angeles Fire Department reported 136 medical claims of suspected MRSA from 2003 to 2006.

It's believed two fire fighters have died from MRSA or from complications caused by MRSA, according to Reynolds.

John Vollmer, the immediate past president of Alexandria, VA Local 2141, contracted MRSA infections four times from November 2007 through September 2008. In all, 10 people in the department contracted MRSA over 14 months in 2007 and 2008, before the outbreak was under control. "The bad part is there's not a good way to find out where you got it," Vollmer says.

In Tucson, tests by Reynolds in 2008 proved that fire fighters were surrounded by MRSA. Researchers took 200 samples from nine fire stations, and the one item most covered in MRSA bacteria turned out to be a bit surprising — couches.

That's because fabric traps bacteria, says Reynolds. Vinyl couches are more practical, because bacteria can't settle into vinyl like it settles into a porous, fabric surface, and vinyl is easier to clean.

Desks and classroom equipment also were covered in bacteria. Reynolds detected MRSA on 7 percent of all surfaces within the fire stations — more than double the amount she discovered after similar tests in hospitals, where 3 percent of surfaces had MRSA. Seven percent "is a higher rate than we see in other environments," Reynolds notes.

Personal protective equipment also can harbor MRSA. After an outbreak last year at the Boulder Fire Department's fire academy, state officials with the Colorado Department of Public Health and Environment urged the Boulder Fire Department to prevent the spread of MRSA by prohibiting recruits from sharing turnouts and helmets.

Nied says he is seeking a grant to fund a study that will measure the effectiveness of ultra-violet light in killing MRSA. It's believed that UV-light effectively eliminates MRSA,

urban areas also have a higher prevalence of hepatitis C infection. Researchers also have documented that 67.6 percent of public safety workers have reported encountering blood or bodily fluids on the job at least once a year. Also, 37.6 percent have reported coming into contact with blood or bodily fluids more than five times a year, increasing their risk of infection.

The IAFF, the International Association of Fire Chiefs (IAFC) and the NFPA recommend that all fire fighters obtain

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but more research needs to be done because UV light also can damage turnout gear. "It's going to take a real solid effort by everyone in the fire service to protect themselves," he notes.

While the dangers posed by infectious diseases are clear, the protections from presumptive disability legislation remain elusive. Just 19 states and two provinces have presumptive legislation for infectious diseases. Laws are pending in three states. In New Mexico, the governor just signed into law presumptive legislation that includes coverage for MRSA.

"We can't ask fire fighters to respond to emergencies and care for people if we aren't going to protect them through effective presumptive laws," says Geoff Bichler, a Florida attorney whose practice has represented more than 200 Florida first responders who contracted hepatitis C and had to fight for benefits after their claims were denied.

Bichler engaged in epic legal battles on behalf of Bob Flamily, a member of Orlando, FL Local 1365, and Dick Criswell, president of Seminole County, FL Local 3254. Both men died after contracting hepatitis C on the job, and both men had had their claims denied after their employers disputed that their illnesses were job-related.

Hepatitis C virus (HCV) is the most common bloodborne infection in the United States, according to the Centers for Disease Control, and about 3.2 million persons are infected.

Emergency responders are exposed to these bloodborne pathogens in the course of their employment. Published data has repeatedly demonstrated that fire fighters have a higher rate of hepatitis C infection. Fire fighters and paramedics also come in contact with populations that have an increased prevalence of hepatitis C infection.

Researchers have documented a 13.6 percent prevalence of hepatitis C infection in trauma I patients, and populations living in

baseline hepatitis C testing as part of a fire department's medical monitoring program and infection control program.

Bichler won Criswell's case before he died in August 2006, but he's still litigating parts of the lawsuit brought by Flamily, who died in May 2007. "The city of Orlando should be ashamed. If they had done the right thing from the beginning and taken care of Bob, they would have saved a whole lot of taxpayer money," Bichler says.

The pattern of having fire fighters' hepatitis C claims denied by their employers should serve as a warning to IAFF affiliates to begin working now for disability legislation for MRSA. "We have to do it now or fire fighters will be thrown to the wolves," says Bichler. "Without disability legislation [for MRSA], we aren't going to win these cases, and we have to realize that this is quickly going to reach epidemic proportions. We also need to close any loopholes that exist in current disability legislation."

The IAFF is urging state and provincial associations that pursue new disability legislation to include presumptive language for MRSA. The IAFF has also produced a DVD, *IAFF Guide to Infectious Diseases*, which is available to all affiliates.

For more information on infectious diseases and IAFF efforts to protect members from contracting these illnesses — including materials on hepatitis A, B, C, SARS, smallpox, pandemic flu and other airborne and bloodborne infectious diseases — visit www.iaff.org/hs/index.htm.

The IAFF has also developed online materials, including videos, manuals and handouts with information about hepatitis C at www.iaff.org/HS/Resi/hepc/index.html. This guide provides a more comprehensive overview of the disease, reviews the testing process and discusses treatment options. This guide also contains real-life experiences from fire fighters and EMS personnel from around the country. ■