



UFF Position Statement: Mitigating the Impact of COVID-Long in the Fire Service

Diagnoses of coronavirus disease 2019 (COVID-19) due to infection from the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was first reported in December 2019. Since that time, the World Health Organization (WHO) has announced over 200 million confirmed cases of the SARS-CoV-2 infection worldwide, and reported over 4.5 million deaths due to COVID-19 as of September 1, 2021 (1). The pandemic continues to pose a serious health risk, particularly as new variants are identified and as the long-term health risks of infection become more apparent. It appears that approximately 10-20% of those who are COVID-19 positive will develop post-COVID-19 syndrome (COVID-Long) with persistent and serious effects lasting up to several months (2,3).

Firefighters perform essential public safety work and have continued that work despite the challenges of COVID-19. Research suggests that firefighters are at an increased risk of infection with SARS-CoV-2 (4). As of September 1, 2021 the USFA reported that 129 firefighters had died due to COVID-19. The precise number of firefighters infected is unknown, although fire departments across the country are struggling with members who are seriously ill and with the staffing challenges created by illness and quarantine. Furthermore, there is almost no information available about the prevalence of COVID-Long and no uniform guidelines on when a firefighters should return to work following a prolonged course of the illness.

The fire service has demonstrated leadership in facing the challenges associated with COVID-19. National organizations and individual departments quickly advocated for and adopted the increased use of personal protective equipment (PPE) and modified policies and procedures to reduce the risk to firefighters (5). Furthermore, fire service leaders, such as the IAFC have endorsed widespread vaccination to limit the risk to firefighters (6). However, the fire service continues to face long-term health consequences associated with COVID-19. This challenge is exacerbated by the fact that many firefighters continue to display vaccine hesitancy (7) and the emergence of new variants is leading to increased infections (1). Thus, it is critical that the fire service undertake efforts to better understand the long-term consequences of COVID-19 infection on firefighter health and safety and on operational readiness.

The most common symptoms among these long-haulers are fatigue, headache, attention disorder, and dyspnea. More severe consequences include new onset of diabetes and hypertension, and blood clots in the brain, lungs and kidney (8). Importantly, the likelihood of developing long-term effects does not seem to be related to severity of disease (3). Despite this emerging medical reality, there is still a lack of consistent medical guidance on how to treat these individuals or to identify who is at risk for developing COVID-Long. While COVID-Long is a concern for anyone who is infected with the virus, it presents specific challenge for firefighters and those who are responsible for their health. Firefighters routinely perform physically demanding work that requires mental

acuity, adequate pulmonary function, and the ability to sustain high work rates. Furthermore, during this work, firefighters are exposed to high thermal loads and products of combustion that can lead to cytokine (inflammatory protein) production and inflammatory responses (9) and increased coagulatory response (10,11) that can damage organs, mimicking those seen during COVID-19.

The Metropolitan Fire Chiefs Association encourages fire chiefs to take the following steps to mitigate against the adverse impact of COVID-Long in the Fire Service:

- Educate fire department personnel on the potential symptoms that are associated with COVID-Long.
- Communicate with your health and safety officers and/or occupational health care group to request that data be systematically collected on the number of firefighters who are suffering prolonged symptoms. Data collected should include the specific symptoms, length of symptoms, severity of symptoms and tests that were performed prior to being cleared to return to work.
- Work with your occupational health group to identify physicians who are experienced in the treatment and management of COVID-Long.
- Participate, collaborate, and/or follow evolving research to learn new information on which to base policies for firefighter evaluation and return to work following COVID-Long diagnosis.

Sources

1. World Health Organization. WHO Coronavirus (COVID-19) Dashboard. <https://www.who.int/>
2. CDC.gov/Post-Covid Conditions. <https://www.cdc.gov/>
3. Jacobson K.B., Rao, M., Bonilla, H., Subramanian, A., Hack, I., Madrigal, M., Singh, U., Jagannathan, P., and Grant, P. (2021). Patients with Uncomplicated Coronavirus Disease 2019 (COVID-19) have Long-Term Persistent Symptoms and Functional Impairments Similar to Patients with Severe COVID-19: A Cautionary Tale During a Global Pandemic. *Clinical Infections Disease*. 73(3):e826-9.
4. Prezant DJ, Zeig-Owens R, Schwartz T, et al. (2020). Medical Leave Associated With COVID-19 Among Emergency Medical System Responders and Firefighters in New York City. *JAMA Netw Open*. 3(7):e2016094. doi:10.1001/jamanetworkopen.2020.16094
5. Graham, E. L., Khaja, S., Caban-Martinez, A. J., & Smith, D. L. (2021). Firefighters and COVID-19: An Occupational Health Perspective. *Journal of Occupational and*

Environmental Medicine, 63(8), e556–e563.
<https://doi.org/10.1097/JOM.0000000000002297>

6. IAFC Position on COVID-19 Vaccination of Fire and EMS Personnel.
<http://www.iafc.org/press-releases/press-release/iafc-position-on-covid-19-vaccination-of-fire-and-ems-personnel>.
7. Caban-Martinez A.J., Silvera C.A., Santiago K.M., Louzado-Feliciano P., Burgess J.L., Smith D.L., Jahnke S., Horn G.P., Graber J.M. (2021). COVID-19 Vaccine Acceptability Among US Firefighters and Emergency Medical Services Workers: A Cross-Sectional Study. *J Occup Environ Med.* 63(5):369-373. doi: 10.1097/JOM.0000000000002152. PMID: 33560073; PMCID: PMC8091896.
8. Ortega, M. A., Fraile-Martínez, O., García-Montero, C., García-Gallego, S., Sánchez-Trujillo, L., Torres-Carranza, D., Álvarez-Mon, M. Á., Pekarek, L., García-Honduvilla, N., Bujan, J., Álvarez-Mon, M., Asúnsolo, Á., & De la Torre, B. (2021). An integrative look at SARS-CoV-2 (Review). *International journal of molecular medicine*, 47(2), 415–434. <https://doi.org/10.3892/ijmm.2020.4828>
9. Smith, D.L., Friedman, N.M.G., Bloom, S.I., Armero, W.L., Pence, B.D., Cook, M.D., Fernhall, B., Horn, G.P., Woods, J. (2019). Firefighting Induces Acute Inflammatory Responses that are not Relieved by Aspirin in Older Firefighters. *J Occup Environ Med.* 61(7):617-622.
10. Smith, D.L., Horn, G.P., Petruzzello, S.J., Fahey, G., Woods, J., Fernhall, B. (2014). Clotting and fibrinolytic changes after firefighting activities. *Med Sci Sports Exerc.* 46(3):448-54.
11. Smith, D.L., DeBlois, J.P., Kales, S.N., Horn, G.P. (2016). Cardiovascular strain of firefighting and the risk of sudden cardiac events. *Exerc Sport Sci Rev.* 44(3):90-97.