

NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP)

Fire Service Community Meeting June 27, 2022

Meeting Summary: Fire Service Suggestions and NIOSH Responses

On April 18, 2022, NIOSH posted on its webpage the date for a virtual public meeting and request for public comment on the NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) [<https://www.cdc.gov/niosh/fire/fsc.html>]. The webpage included the meeting agenda, priority questions, and instructions for submitting written comments to a docket. On May 13, 2022, an announcement was made in the Federal Register [<https://www.cdc.gov/niosh/docket/review/docket063d/pdf/2022-10411.pdf>]. On June 27, 2022, registered participants logged into the Zoom meeting for the virtual fire service community meeting. There were 110 registered participants and 67 attended.

After brief opening remarks and introductions of the current FFFIPP team, NIOSH highlighted FFFIPP accomplishments since the last fire service community meeting in 2014. NIOSH then asked participants to specifically comment on two items: 1) the individual FFFIPP fatality reports, and 2) the proposed flowchart for prioritizing fatality investigations. The remainder of the fire service community meeting was comprised of input from nine invited fire service organizations and meeting participants. The nine invited organizations were the:

- International Association of Fire Fighters (IAFF)
- International Association of Fire Chiefs (IAFC)
- National Fire Protection Association (NFPA)
- National Fallen Fire Fighters Foundation (NFFF)
- Underwriters Laboratory (UL), Fire Safety Research Institute
- Firefighter Close-Calls.com
- United States Fire Administration
- National Volunteer Fire Council (NVFC)
- American College of Occupational and Environmental Medicine (ACOEM), Public Safety Medicine Section

Eleven written comments were received by NIOSH prior to the docket closing on July 27, 2022. All PowerPoint presentations made during the meeting, meeting transcript and written comments submitted to the docket can be accessed at [<https://www.regulations.gov/docket/CDC-2022-0063/document>].

The fire service community expressed accolades for the many accomplishments of the FFFIPP. They specifically commented on their appreciation for new products, which include safety advisories and report slides. Further comments focused on the positive impacts of the line-of-duty death reports and

the importance of identifying key contributing factors and prevention recommendations that can help avoid similar tragedies from occurring.

The following is a summary of the comments and suggestions made during the meeting or submitted to the docket from the fire service community. NIOSH has reviewed these comments and considered this input to further enhance the FFFIPP. For participants who are looking for their specific comments and suggestions, please note that similar topics have been grouped together.

FFFIPP Investigations

1 - Suggestion: Investigate all firefighter fatalities. This suggestion was made with the understanding that additional resources would be required to implement this suggestion.

Comment [or Issue]: The FFFIPP may be missing valuable “lessons learned” by not investigating all firefighter fatalities.

NIOSH Response: In 1998, Congress recognized the need to address the national problem of work-related firefighter deaths and funded NIOSH to implement a firefighter safety initiative. The funding for the FFFIPP has remained constant from the inception of the program. It is worth noting, as a federal agency, NIOSH is prohibited from requesting or lobbying Congress for additional funding. From the creation of the FFFIPP, the program has been funded, staffed, and operated in a manner that supports the investigation of a portion of firefighter fatalities in a given year. Though that portion has no set quantity, the program has developed prioritization methods to investigate fatalities that maximize the mission and objectives of the program. Those methods have been modified and changed as the program has evolved. The prioritization algorithms that have been presented at this Fire Service Community Meeting are an example of that commitment to program improvement. Staffing, budgets, and report detail and content have their role in the limitations of the program’s ability to investigate all fatalities. Certain authority that falls under congressional purview, as discussed in **Suggestion 2**, also limits the program’s ability to investigate all fatalities. The program currently is able to investigate 15-20 firefighter fatalities each year, representing approximately 30% of all non-COVID firefighter fatalities reported by the [2022 NFPA report](#). Of these 15 to 20 investigations, the medical team normally would perform 10 to 12 and the trauma team would conduct 6 to 8 investigations per fiscal year.

2 - Suggestion: NIOSH should have the authority to investigate firefighter fatalities regardless of the cooperation of the affected fire department.

Comment [or Issue]: The FFFIPP may be missing valuable “lessons learned” by not investigating all firefighter fatalities, particularly from fire departments that are reluctant to cooperate with NIOSH.

NIOSH Response: [Part 85](#) of the Occupational Safety and Health (OSH) Act of 1970 gives NIOSH the authority to conduct field investigations also known as the NIOSH Health Hazard Evaluation (HHE) Program. This authority to conduct a HHE independent of management approval is granted once NIOSH receives a valid request; meaning that the HHE request has been made by a management representative, a union representative, or 3 current employees. In 1998, when Congress appropriated funds for the FFFIPP, there were no similar legislative acts approved by Congress for the FFFIPP. Therefore, NIOSH firefighter fatality investigations are initiated either by a fire department’s direct request or via NIOSH outreach to a fire department once notification of a fatality has been received (most often this occurs via the U.S. Fire Association’s USA Firefighter Fatality Notification emails). As a practical matter, NIOSH needs the cooperation of both the affected fire department and local union (if applicable) to collect relevant data about the incident. The medical component of the FFFIPP team also

reaches out to the decedent's family to offer them the opportunity to participate in the investigation on a voluntary basis. Over the 24-years of the program's existence, there have only been a few cases where departments have refused to cooperate after an investigation was requested.

3 - Suggestion: Include motor vehicle crash and struck-by events in the investigation prioritization process.

Comment [or Issue]: Motor vehicle crashes and struck-by fatalities are currently the second or third most common type of fatality and warrant NIOSH investigations.

NIOSH Response: Motor vehicle crashes and struck-by incidents remain a major cause of firefighter fatalities; however, based on the extensive findings of past line-of-duty-death investigations involving these types of incidents and due to limited resources, the FFFIPP is currently not prioritizing motor vehicle crash and struck-by fatalities. The FFFIPP will consider developing summary documents that synthesize the findings from past motor vehicle-related investigations to highlight the most commonly referenced prevention recommendations. The program has determined that many of the prevention recommendations generated from motor vehicle crashes and struck-by incidents are similar and therefore decided to prioritize other types of events to increase prevention recommendations that focus on new and emerging hazards, structural fires, and training.

4 - Suggestion: Investigate wildland firefighter fatalities.

Comment [or Issue]: [Wildland firefighter fatalities](#) represent approximately 24% of all non-COVID firefighter fatalities and would benefit from NIOSH investigations.

NIOSH Response: The [National Wildfire Coordinating Group \(NWCG\)](#), the umbrella agency that manages all wildland firefighters who are employed by federal agencies, investigates the on-duty deaths of all federal wildland firefighters if the employing agency itself does not conduct its own investigation. The FFFIPP has had discussions with representatives from the US Forest Service (USFS), one of the member agencies of the NWCG that employs a large percentage of total wildland firefighters and conducts their own fatality investigations, regarding the potential for joint NIOSH-USFS fatality investigations. Both agencies would benefit as reports generated by joint investigations of wildland firefighter fatality could then be posted on the NIOSH FFFIPP completed report website thereby increasing visibility of these investigations outside of the USFS.

Wildland firefighting contractor agencies are not investigated by the USFS/NWCG and could be investigated by the FFFIPP. Attempts to investigate fatalities in this group have been made, barriers such as authority limitations and communications with a federal agency-to-private work force platform often arise.

5 - Suggestion: Investigate near miss / close call incidents.

Comment [or Issue]: The program is missing opportunities to learn from near miss events. This idea was raised at the meeting, but several participants noted that the program should focus on fatalities unless additional resources become available.

NIOSH Response: The primary mission of the FFFIPP is the investigation of firefighter fatalities. Investigating near-miss incidents is important but has not traditionally been a priority of the FFFIPP program. The FFFIPP intends to investigate unique or emerging hazard incidents resulting in fatal and serious non-fatal firefighter injuries as part of the revised investigation priority flowchart.

6 - Suggestion: When appropriate, consider conducting the investigations virtually.

Comment [or Issue]: Given limited program resources, this may free up investigators to conduct additional investigations.

NIOSH Response: The COVID-19 pandemic has given the trauma component of the FFFIPP the opportunity to pilot test virtual and hybrid (virtual interviews followed by a site visit) investigations. Our experience was that fully virtual investigations were not as effective as in person. Difficulties included inspecting turnout gear and SCBA, seeing the incident scene first-hand, and acquiring full cooperation from various agencies involved in the investigation. The medical component of the FFFIPP has also conducted virtual investigations during the pandemic but in person interactions with the decedent's coworkers, family, and associated agencies are preferred. When virtual- investigations were conducted, it provided savings in personnel time and travel expense. When appropriate, the program will continue to conduct virtual investigations. For example, this may occur when travel restrictions are mandated for public health/ infection control reasons or when financial resources to fund travel are limited or depleted.

7 - Suggestion: Develop an investigation matrix with three levels of investigation priorities. The highest priority investigations will proceed with an in-person investigation and a very detailed comprehensive report. The second highest priority incident will receive an in-person (or virtual) investigation with a more concise report. The third level of investigation priorities will not be investigated, nor will a report be generated; the affected fire department will be sent a similar report previously investigated by the FFFIPP.

Comment [or Issue]: Developing such a matrix will correlate the incident significance with the report length. It should help balance the work demands with the available resources. It may allow more incidents to be investigated.

NIOSH Response: The FFFIPP already uses a process like the matrix described above. High priority medical and trauma fatalities are investigated according to the prioritization flowchart posted on the FFFIPP webpage. The prioritization chart reflects the most effective use of FFFIPP resources, and we presented the updated chart during the introductory part of this meeting. Both the medical and trauma teams are focusing on training line-of-duty-deaths and unique or emerging hazards for the fire service. The trauma team will also place an emphasis on structure fire deaths and will also prioritize events involving multiple trauma-related fatalities. The prioritization chart excludes struck-by and motor vehicle deaths as subjects for investigation due to budget and staffing limitations and the extensive number of prior completed investigations on these causes. The FFFIPP will provide those departments with a previously investigated FFFIPP report occurring under similar circumstances. (*Draft - Fire Fighter Fatality Investigation and Prevention Program Prioritization Guidelines - 2022 included*).

8 - Suggestion: FFFIPP investigators assigned to a particular incident should have the experience/background that matches the fire department involved in the incident.

Comment [or Issue]: Using FFFIPP investigators without the appropriate fire service experience, knowledge, and background may affect the fire departments or the individual firefighters' cooperation.

NIOSH Response: The FFFIPP will continue to attempt to best match available investigators to investigations. The program currently employs four investigators who previously held leadership positions within the fire service and have extensive experience in fire suppression and training.

9 - Suggestion: Improve the hiring process to hire more fire service subject matter experts (SME) to the team.

Comment [or Issue]: The program could use more investigators with fire service experience and subject matter expertise.

NIOSH Response: The program is making efforts to recruit and hire the best qualified investigators. The program will continue to monitor and use other specialized hiring programs as appropriate to assist with onboarding qualified investigators with a variety of fire service experiences. NIOSH has expanded its policy on remote work and now allows an employee's duty station to be their home residence. This change has improved the position of the FFFIPP and its ability to recruit, hire, and retain investigators with fire service experience.

10 - Suggestion: Partner with more subject matter experts (SME), fire service organizations, or fire academies during investigations.

Comment [or Issue]: This could increase the expertise of the investigators and increase the productivity of the FFFIPP.

NIOSH Response: SMEs with recognized fire service experience have been, and will continue to be, utilized by the FFFIPP investigation team on an as needed basis. NIOSH has previously utilized SMEs on fatality investigations involving fire apparatus maintenance and operations, personal protective equipment, modern fire behavior, special operations disciplines (e.g., SCUBA and surf rescue), and building construction. Since 2009 one or more SMEs have reviewed all trauma investigation reports. In addition, the medical component of the FFFIPP has funded SMEs as contractors to conduct a few fatality investigations each year to augment current staffing capacity. These medical contractors must have experience working with firefighters and are recognized by the fire service as having the appropriate scientific/medical expertise (e.g., publications in peer-reviewed journals, active partnerships with various fire service agencies, etc.). The trauma component will also consider using contractors as financial resources allow.

11 - Suggestion: Use students from fire service programs as interns to help with the investigations.

Comment [or Issue]: Students could assist collecting data during an investigation. This would also provide a teaching moment to the students in fire service programs.

NIOSH Response: The FFFIPP program has internship agreements with Catholic University of America, West Virginia University, and Millersville University. In addition, occupational medicine residents from the University of Colorado and the University of Cincinnati have rotated through the FFFIPP trauma team for a month-long rotation. Student interns and rotations have contributed to NIOSH's overall mission, and these internships/rotations have assisted with the development of some FFFIPP products (e.g., safety advisories, workplace solutions, journal articles). NIOSH will continue to use student interns as resources allow.

12 - Suggestion: Investigators must be brought on scene as quickly as possible.

Comment [or Issue]: Visualizing the fire scene before demolition is very important. In addition, over time firefighters' recall of events can become compromised.

NIOSH Response: The trauma component of the FFFIPP has a goal of an initial site visit within 3 weeks of a traumatic incident fatality, but a fire department can request an investigation be started at any time. In general, fire departments have requested field investigations be started after the funeral(s) or worked around dates that better align with fire department staffing schedules.

The medical component of the FFFIPP tends to conduct their on-site investigations several months after the fatality occurs. One of the reasons for this is to ensure the autopsy/medical examiner findings are available as the cause of death and the contributing factors are determinants on whether that case is selected for investigation, and it usually takes several months for that information to become available. The NIOSH medical team also prefers to wait until any

internal/state investigation is complete before we begin our investigation as to not duplicate efforts. We also include information from the autopsy/medical examiner report and any internal/state investigations in our final report of the fatality.

13 - Suggestion: Bring fire behavior modeling into the investigation and the report.

Comment [or Issue]: Fire behavior modeling and computational modeling tools have allowed researchers to identify and understand factors surrounding fatalities and near miss incidents with the goal of preventing similar incidents.

NIOSH Response: The FFFIPP agrees that many structure fire investigations can be aided by understanding modern fire behavior and fire modeling. The program has worked with National Institute of Standards and Technology (NIST) and has incorporated fire dynamics modeling in previous line-of-duty-death reports. NIOSH will work with agencies such as the Bureau of Alcohol, Tobacco, Firearms and Explosives and the UL Fire Safety Research Institute, as well as other subject matter experts which will allow inclusion of fire modeling into select investigations and investigation reports.

14 - Suggestion: Expand NIOSH's authority to analyze, test, and download data from self-contained breathing apparatus (SCBA), radios, thermal imaging cameras (TICs), and other equipment.

Comment [or Issue]: The data available from these devices could have a significant impact on the investigation findings.

NIOSH Response: In past investigations, the NIOSH National Personal Protective Technology Laboratory (NPPTL) has done some additional testing of SCBAs. However, their testing protocol is limited to tests to determine if the unit functions in the manner it was initially approved. The NIOSH FFFIPP does not have the resources to conduct further evaluations of SCBAs, radios, thermal imaging cameras, and other equipment.

There are considerable pneumatic data points, such as the firefighter's breathing rate, milestone activations and alarms that, when matched with the firefighter's reactions/action, are invaluable to the investigation. The FFFIPP will continue to leverage its working relationship with the manufacturers of equipment used by the fire service to download these data sets. The FFFIPP investigators plan to reach out and collaborate with other external partners, such as the UL Fire Safety Research Institute, NIST, and manufacturers to download data from various devices. This will be done in an independent and impartial manner with full concurrence from the fire department and union representatives involved in the investigation.

15 - Suggestion: Investigate some mental health related fatalities.

Comment [or Issue]: Behavioral health issues, including suicide, have been reported to be increasing in the fire service.

NIOSH Response: While behavioral health issues in the fire service are serious, the FFFIPP does not have the specialized expertise on staff to identify and address the unique multitude of contributing factors or to draw conclusions about how these factors might have contributed to an event like suicide. In addition, the FFFIPP needs to be sensitive to the firefighter's family, who may not wish to have their relative's death and the circumstances surrounding it made public. In an effort to address the topic, additional firefighter mental health resources will be added to an existing page within the [FFFIPP website](#).

A newly initiated resource for better understanding firefighter suicides is the [National Violent Death Reporting System \(NVDRS\)](#), run by the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control (NCIPC). The NVDRS captures the "who," "when," "where," and "how"

data related to violent deaths, including suicides, in all 50 states. NIOSH researchers provided input into the development of a public safety officer module within the NVDRS which became operational in 2022.

16 - Suggestion: Include critical incident stress debriefing (CISD) in the investigation process.

Comment [or Issue]: Line-of-duty-deaths (LODD) and their associated investigations are very stressful events for members of the affected FD.

NIOSH Response: The FFFIPP is aware of the stress involved when witnesses are interviewed and asked to provide the details of what they experienced during the LODD incident. Prior to our site visit we mention to the departments the importance of making counseling services available. However, FFFIPP does not have staff with training to provide counseling or incident debriefing services.

17 - Suggestion: Investigate some cancer fatalities.

Comment [or Issue]: Cancer is the second most common cause of death among firefighters.

NIOSH Response: NIOSH has recognized the importance of cancer among firefighters. Firefighters are exposed to numerous carcinogens in fire smoke, and NIOSH studies have found that firefighters are at greater risk for getting and dying from some cancers compared to the general population [https://www.cdc.gov/niosh/firefighters/pdfs/OEM_FF_Ca_Study_10-2013.pdf; [https://www.cdc.gov/niosh/firefighters/pdfs/Daniels-et-al-\(2015\).pdf](https://www.cdc.gov/niosh/firefighters/pdfs/Daniels-et-al-(2015).pdf) <https://oem.bmj.com/content/77/2/84>]. To gather more information about the magnitude of the cancer problem in the fire service, NIOSH has stood up the [National Firefighter Registry](#) [<https://www.cdc.gov/niosh/docs/2021-115/>]. The purpose of this registry is to better understand firefighters' exposure to potential carcinogens and how those exposures may be related to the development of various cancers. We encourage firefighters to become familiar with this effort. The development of cancer is related to multiple factors and its onset does not usually result in on-duty sudden incapacitation. For this reason, investigating most firefighter deaths due to cancer is not within the scope of the FFFIPP. However, if the cancer causes a sudden on-duty death, the medical component of the FFFIPP may investigate.

FFFIPP Reports

18 - Suggestion: Include the name of deceased firefighter and the fire department in the report.

Comment [or Issue]: The FFFIPP report includes the date of death. One can easily search the USFA database on the date of death which brings up the firefighter's name and fire department.

NIOSH Response: This issue was raised at previous fire service community meetings. NIOSH is a public health agency that safeguards personal information. In addition, regulations from [42 CFR Part 85a -- Occupational Safety and Health Investigations of Places of Employment](#) of the 1970 OSH Act state, "These findings of a total investigation will be presented in a manner which does not identify any specific place of employment;" NIOSH will continue to make the reports anonymous while acknowledging that steps can be taken to learn the name of the deceased firefighter and the name of the fire department that was involved in the incident. The primary objective of the FFFIPP is to create and disseminate prevention recommendations that have application across the fire service. Including the name of the fire department and the deceased is not necessary to meet this objective of the program.

19 - Suggestion: Issue a two-page preliminary executive summary within 90 days of the site visit. This summary should highlight the key moments of the incident, list the contributing factors, and provide preliminary recommendations.

Comment [or Issue]: The FFFIPP reports need to be released in a timelier manner.

NIOSH Response: For a one-year trial period, the FFFIPP will issue a preliminary report similar to similarly situated government organizations such as the Chemical Safety Board and National Transportation Safety Board. The preliminary report would accurately describe the event, the next steps in the investigative process, and if applicable, would describe any immediate action to be taken by the fire service. Safety advisories will be developed and published as warranted by the investigation findings. The program will set a goal of issuing this preliminary report within 90 days of concluding the onsite portion of the investigation. The FFFIPP will evaluate the impact of dissemination of the preliminary report on the fire service and seek informal feedback from key community partner organizations on the utility of the preliminary report. These factors will assist the FFFIPP in deciding if the practice of issuing a preliminary report will continue after the trial period.

20 - Suggestion: Issue a completed final report within one year of the site visit.

Comment [or Issue]: The FFFIPP reports need to be timelier. However, several participants noted that the accuracy of the report is of paramount importance and the rush to complete a report may affect its accuracy.

NIOSH Response: The length and detail in the FFFIPP reports are dictated by the complexity of the incident. NIOSH is concerned that putting a deadline on the report's completion could impact the report's accuracy. The investigations have a robust multi-step internal and external review process. The external review process for the trauma team consists of National Fire Protection Association (NFPA) and fire service Subject Matter Expert (SME) reviews. In addition, some investigations are held up due to legal issues or delays in securing relevant information from the fire department. In summary, NIOSH will strive to complete reports within one year, but we believe it should not come at the expense of a complete and accurate account of the incident.

21 - Suggestion: Organizational culture and human factors need to be addressed in the investigation.

Comment [or Issue]: Several comments reflected concern that the FFFIPP reports failed to address the cultural and leadership/management factors that might have played a role in events leading up to a fatality.

NIOSH Response: The FFFIPP understands the added value of assessing fire department cultures and leadership/management factors during an investigation. Acknowledging deficiencies, safety culture and leadership/management is difficult to describe in reports without finding fault or placing blame on fire departments or individual firefighters. One measure of the safety culture of a fire department is the development, use, and enforcement of standard operating policies and procedures. Currently, investigators routinely collect this information as part of their investigation. The FFFIPP will remain alert to possibilities to add insight in this area when we are able to do so without finding fault or placing blame on fire departments or individual firefighters. Not placing blame or finding fault is a key concept of the program. The most important aspect of an investigation is to identify recommendations to prevent similar incidents from happening.

22 - Suggestion: For medical investigations, include new diagnostic modalities such as coronary artery calcium (CAC) scoring.

Comment [or Issue]: The FFFIPP medical report recommendations may not include newer state-of-the-art medical tests.

NIOSH Response: The medical report recommendations mirror the relevant authoritative organizations (e.g., the American Heart Association, American Cancer Society, the U.S. Preventive Services Task Force, NFPA 1582, etc.). NIOSH does not want to prematurely promote a test or testing modalities that have

not been vetted and/or adopted by their respective professional organizations. When and if to use CAC scores to screen for asymptomatic undiagnosed coronary disease is controversial. The FFFIPP medical team staff keeps abreast of relevant professional standards and will incorporate this and/or other new testing modalities once the relevant professional organizations have issued position statements regarding their utility.

23 - Suggestion: Add multimedia components to the report: videos, more photos, more diagrams, more figures.

Comment [or Issue]: To engage the younger generation of firefighters, the program needs to make the reports more reader friendly.

NIOSH Response: The FFFIPP agrees that these components could be valuable. Both the trauma and medical teams will work to enhance the reports with more photos, diagrams, and charts. Embedding videos into the reports is not an option at this point due to formatting issues, 508 compliance requirements related to accessibility for individuals that are visually impaired, and financial resources. The FFFIPP will continue to develop report slides for new investigations and will investigate the use of technology such as PowerPoint presentations with voice overlay to develop outreach materials that are interactive and appealing to the younger generation of firefighters.

24 - Suggestion: Develop a flow chart approach showing causation and contributing factors using a “root cause analysis (RCA).”

Comment [or Issue]: Help the reader understand what went wrong and why. The RCA will identify critical decision-making points.

NIOSH Response: [RCA](#) is a process to discover the root causes of problems and identify appropriate solutions. The FFFIPP is part of the NIOSH Fatality Assessment and Control Evaluation (FACE) [Fatality Assessment and Control Evaluation \(FACE\) Program | NIOSH | CDC](#), which NIOSH uses to investigate occupational fatalities. The FACE model uses an approach similar to RCA as outlined in the [Haddon Matrix](#). This involves identifying factors that were present before (pre-incident), during (incident), and after the incident (post incident). These factors are used to identify key prevention recommendations.

25 - Suggestion: Place more focus on building construction.

Comment [or Issue]: The lack of building construction is not a focus of FFFIPP reports and important information that the fire service should be considering during the initial size-up and 360 may be overlooked.

NIOSH Response: The FFFIPP focuses on building construction when it is a key contributing factor in the incident. When needed, the FFFIPP retains building construction experts to assist in the investigation and reviewing the draft report. In recent years, the program has focused on the unique aspects of fighting fires in rowhouses, strip malls, and deteriorating/abandoned/derelict structures. The FFFIPP continues to develop specific additional NIOSH communication products for these types of structures.

26 - Suggestion: Include sections on what went right, what went wrong, what could be done differently. Sections of the report not involved with the specific incident (FD background, personnel training, etc.) could be deleted or at the very least included as appendices.

Comment [or Issue]: In order to keep readers engaged, the extraneous material in the reports should be reduced or eliminated and the focus should be on the key issues. Eliminate the “fluff” from the report. Focus more clearly and concisely on the major issues. This will keep the readers engaged.

NIOSH Response: The FFFIPP is currently gathering data on the content, format, and length of the FFFIPP LODD reports as part of an ongoing NIOSH funded project. This project will interview 30 fire service community members of different ranks and employer types (i.e., career, volunteer, and

combination). It will include participants who have been part of a FFFIPP LODD investigation and those who haven't. These interviews will seek detailed feedback on each section of the existing reports and general feedback on the overall reports. It will also ask for any suggested report modifications. These data will be analyzed, and changes will be made to reports based upon the findings of this project and available resources.

27 - Suggestion: For medical reports, consider writing a more concise report to free up investigator time for additional investigations.

Comment [or Issue]: Longer reports take more investigator time; time that could be spent conducting more medical investigations.

NIOSH Response: The FFFIPP medical reports address the medical risk factors, both modifiable and non-modifiable, that may have contributed to the cause of death. The reports relate those medical issues back to the current fire service standards and protocols to improve prevention and early identification strategies. The FFFIPP medical team has made the reports more concise by removing the autopsy report appendix and inserting a summary of those findings into the medical section of the report. If requested during the affected fire department's review of the draft final report, the NIOSH FFFIPP medical team will consider additional changes to make the report more succinct.

28 - Suggestion: Report length should correlate with the size and complexity of the incident.

Comment [or Issue]: There should not be a one-size fits all report.

NIOSH Response: The FFFIPP does not have an established predetermined report length. The length of the report is determined by the complexity, magnitude, and scope of the incident being investigated. NIOSH currently has a funded project that is evaluating the length and format of the reports. Modifications will be made based upon the finding of that assessment.

29 - Suggestion: Consider issuing a condensed report for fatalities with recurrent themes or types of events.

Comment [or Issue]: This might help shorten some reports and improve the timeliness of their release.

NIOSH Response: The FFFIPP is evaluating our investigation priorities and agrees that topics that have already been thoroughly investigated and have a large body of prevention recommendations should not be the focus of the program. The length and format of the reports is currently under review as part of an ongoing NIOSH funded project, and modifications will be made based upon the finding of that assessment. The program will continue to summarize investigation findings across all investigations in other documents (e.g., workplace solutions, infographics, and the upcoming rowhouse video). NIOSH may create case series reports for publication in peer-reviewed medical journals if we see "common themes" in firefighter fatalities.

30 - Suggestion: Link the recommendations in the report to the [National Fallen Firefighter Foundation \(NFFF\) 16 Firefighter Life Safety Initiatives](#).

Comment [or Issue]: Highlighting common themes across fire service organizations reinforces the importance of implementing the recommendations to prevent injuries and promote health.

NIOSH Response: The FFFIPP will begin referencing the NFFF 16 Life Safety Initiatives where appropriate in our reports.

31 - Suggestion: Review how the National Fire Protection Association standards are referenced in the reports.

Comment [or Issue]: There is confusion between the standard number and the year/edition of the standard. This may require flipping back and forth from the text to the reference section.

NIOSH Response: The FFFIPP will include the year/edition of referenced standards within the text citation so that flipping to the reference section for this information is not necessary.

Report Dissemination

32 - Suggestion: Use podcasts, webinars, and social media posts to disseminate FFFIPP investigation findings and recommendations.

Comment [or Issue]: The current report format is not engaging the younger generation of firefighters. They tend to prefer on-line learning to reading reports.

NIOSH Response: The FFFIPP will make available its subject matter experts to participate in podcasts hosted by other fire service organizations. The FFFIPP will also explore webinars and/or online blogs to discuss unique cases and emerging topics. In conjunction with a health communication specialist, the FFFIPP will use social media posts to disseminate key finding from our reports.

To help engage firefighters, the FFFIPP has developed “report slides” which provide a concise summary of the investigation, including the contributing factors and recommendations. We have received positive feedback on the report slides, particularly from fire departments and company officers that use the slides for safety training.

33 - Suggestion: Partner with other agencies, fire service organizations, and publications to raise the visibility of the program and to disseminate important firefighter safety and health information.

Comment [or Issue]: The program is not marketed effectively.

NIOSH Response: Currently, efforts to disseminate our investigation findings include posting reports and products on the FFFIPP webpage, participating on National Fire Protection Association technical committees, participating on fire service organization councils, and presenting findings at fire service conferences. While in-person committee meetings, council meetings, and conferences were cancelled in 2020-2022 due to COVID, the FFFIPP participated virtually when the option was available. Conference attendance was restarted during the summer of 2022 as NIOSH agrees these dissemination and outreach efforts are important for the program. Currently, the FFFIPP homepage offers users the ability to enter an email address to get email updates when new reports and products are released. The FFFIPP will explore the possibility of having a standing NIOSH FFFIPP session at FDIC, FRI, and Redmond conferences. These conference presentations could be jointly held with the affected department and other subject matter experts that were part of the investigation and report writing process. The FFFIPP will also explore the possibility of collaborating with one or more of the fire service trade journals to publish the investigation executive summaries as they become available. Finally, NIOSH has entered into co-branding agreements with NVFC, IAFF, IAFC, UL-FSRI, and has agreed to also co-brand products with the USFA.

34 - Suggestion: Consider utilizing members of the affected FD to disseminate reports.

Comment [or Issue]: Everyone listens when a firefighter from the affected department tells the story of what when wrong.

NIOSH Response. As mentioned in #33, the FFFIPP will explore podcasts or conference presentations jointly held with the affected department and other subject matter experts.

35 - Suggestion: Periodically re-release older landmark incidents and their reports.

Comment [or Issue]: Many of the younger firefighters are not familiar with older, classic reports.

NIOSH Response: The FFFIPP will prioritize past reports to highlight. NIOSH will highlight individual past reports on the Spotlight box on the FFFIPP webpage on a regular basis.

36 - Suggestion: Overhaul the website.

Comment [or Issue]: The website is not engaging and is not user friendly.

NIOSH Response: Efforts are currently underway to improve the FFFIPP website and simplify the use of the FFFIPP report database. These revisions will strive to make the website more engaging. We will also work to improve the interface of the FFFIPP report database and USFA/NIOSH interactive tool to allow the export of search results into an Excel spreadsheet thereby facilitating additional data analysis. We also are working with health communications specialists to make the FFFIPP website and the reports on it, more user friendly to those accessing the information on their smartphones vs desktop/laptop computers.

37 - Suggestion: Publish data about the FFFIPP website usage.

Comment [or Issue]: This would help assess the information dissemination of the FFFIPP.

NIOSH Response: Annual summary website metrics will be shared during future fire service community partner meetings and conference presentations.

Implementation of the NIOSH Recommendations

38 - Suggestion: Conduct follow-back surveys after dissemination of investigation reports. Several of the participants mentioned a variation of this suggestion.

Comment [or Issue]: The program needs to know if fire departments have implemented the specific NIOSH recommendations. If they have not implemented recommendations, the program should understand why.

NIOSH Response: A central tenant in public health is determining a program's impact. In 2003 NIOSH hired a contractor to conduct a program evaluation. Using a survey instrument and focus groups, the contractor evaluated the impact of the FFFIPP by measuring the effects of NIOSH's FFFIPP reports, recommendations and other documents on the knowledge, behavior, attitudes and safety practices of fire departments and firefighters. The contractor completed its report in 2006 and the report can be accessed at [<https://www.cdc.gov/niosh/fire/FFSurvey.html>].

From 2007 to 2015, the medical component of the FFFIPP developed and pilot tested another program evaluation known as the "follow-back" program. The follow-back program administered a questionnaire to fire departments who participated in NIOSH LODD investigations. This was done at two points in time. The first was administered at the time the FFFIPP investigation report was sent to the fire department and the second was administered one-year after the report was released. The questionnaire focused on if the FD had, or planned to, implement the report's recommendations. For recommendations that were not implemented, the survey asked what was preventing implementation. Preliminary results of the pilot can be found on slides 17-19; from the 2014 Fire service community meeting [<https://www.regulations.gov/document?D=CDC-2014-0010-0007>].

A third program evaluation survey is in progress which is titled, "*Evaluation of Fire Department Implementation of NIOSH FFFIPP Recommendations*." A survey has been developed to be administered to a representative sample of chief officers, company officers, and fire fighters in about 4,500 fire departments across the United States during calendar year 2023. The survey will be sent to career, combination, and volunteer fire departments, including departments that have had a line of duty death (LODD) investigated by FFFIPP.

39 - Suggestion: Create a user-friendly database that allows others to analyze the NIOSH fatality reports database.

Comment [or Issue]: The NIOSH Fatality report database is not very user friendly. This prohibits users from analyzing the data to identify trends and generate hypotheses that can be tested in epidemiological studies.

NIOSH Response: Efforts are currently underway to improve the FFFIPP website and simplify the use of the FFFIPP report database. These revisions will strive to make the website be more engaging. We are also working to improve the interface of the FFFIPP report database and USFA/NIOSH interactive tool to allow the export of search results into an Excel spreadsheet thereby facilitating additional data analysis. Efforts to expand the capabilities of the database and make it more user friendly are underway.

OTHER COMMENTS

40 - Suggestion: Update the 2008 International Association Fire Chiefs Safety Health and Survival section report titled, “**Fire Fighter Fatality Investigation and Prevention Program Task Force; Implementation Plan.**”

Comment [or Issue]: An updated report could provide the FFFIPP with additional suggestions to improve the program, including with ideas on how to secure additional funding to support the program.

NIOSH Response: The purpose of this public meeting was to seek input on the current state of the FFFIPP. We appreciate the input provided by the IAFC as well as other partners and have considered this for steps going forward.