

IAAI Health and Safety Committee

Benchmark Survey Results

May 30, 2018

Introduction

In today's world, fire investigators are exposed to a myriad of safety hazards. Many of today's hazards are vastly different than those of decades past. The Health and Safety Committee is charged with researching existing data and studies, exploring current options for safety, identifying the existing gaps in fire investigator health and safety practices, and identifying best practices for fire investigators related to health and safety.

To establish a baseline for moving forward, a benchmark survey was developed and sent out to all IAAI members. Members and chapter presidents were encouraged to share the survey with non-IAAI members to gain the largest number of responses possible. There was a comment section at the end where respondents could add any additional information they felt was important. The goal was to have a survey that had content validity by ensuring that the question set captured all aspects of the topic, and the survey included a set of internal control questions designed to measure the respondents' knowledge base regarding selected fire investigation topics.

Using the www.surveymonkey.com data collection platform, the survey was open for three months (September 30, 2016 to December 29, 2016) and 1491¹ responses were received. There were additional responses that were manually tabulated and added to these results. The question then is, was this a statistically valid number of responses that provide a basis for moving forward? While the population size (the number of persons that you are trying to reach) is unknown because non-IAAI members were also solicited through secondary means, we can extrapolate our known information in an effort to validate these results. By adding a factor of 50% to the IAAI membership number, which is likely higher than actual, we can establish a liberal population size (13,500). Using a confidence level of 95% and a margin of error rate of 3%, a sample size of 990 is statistically valid². Increasing the population size to 18,000 with the same confidence level and margin of error rates only increases the sample size to 1008. Conversely, reducing the population size to 9,000 (with the other factors the same) gives us a sample size of 955. Our 1491 responses are greater than each of these three scenarios and therefore represents a statistically valid data set. Although not every respondent answered every question, the clear majority did answer all questions, which maintained the statistical validation parameters for every question.

¹ Foreign language results were manually tabulated and added to the electronic results to achieve this total. Additionally, in questions where respondents could add comments and these comments equated to the established responses for that question, the answers were added to the response numbers. In every instance these additions were statistically insignificant.

² <https://www.surveymonkey.com/mp/sample-size-calculator/> These are both common research standards.

Survey Response Summary

The 54-question survey covered a wide range of questions regarding current fire investigator health and safety policies and practices. It also included a series of baseline questions designed to gauge the respondents current level of understanding concerning basic fire investigation practices, and an opportunity at the end for the respondents to add any comments.

While the survey was vetted by many people prior to its publication, in retrospect there were a few questions that could have been worded better as indicated by responder comments.

Survey responses were intentionally not tracked by each person. While this was the right thing to do, it also made it impossible to get clarification of some answers.

Because this is a summary report, not all listed question response percentages equal 100%. The tabulated responses to every question are found in the table on the committee's resource page <https://www.firearson.com/Publications-Resources/Fire-Investigation-Resources/Health-Safety.aspx>

Survey Results

Here is a summary of the responses by category:

Demographic Questions:

The respondents were overwhelmingly white (93%) males (95%) from the United States (92%). There were also responses from one or more persons in eleven other countries with the most from Canada (71) and the United Kingdom (23).

Most respondents were thirty-five years old or older, with at least some college, and working in the public sector (76%). Just over half of the respondents were full time fire investigators. About one third of the respondents held at least one fire investigation-related certification. Almost all the respondents indicated that they had some form of post-secondary education, with about one quarter in a fire investigation concentration.

Policy Questions:

Nine questions focused on employers having written policies that addressed fire investigator health and safety. 59% of respondents said that their employer did not have a written policy that addressed fire scene investigation/examination site safety surveys. Of those that did have a policy, two thirds of them did not address biologic and/or chemical hazards. 80% did not have a policy regarding the transportation of contaminated tools and equipment. 52% did not have a policy regarding the cleaning of contaminated clothing. 53% did not have a policy for annual medical check-ups or physicals.

Half of the respondents said that they usually conduct scene examinations by themselves, and 70% of those said that their employer has no policy about checking on them while they are at a scene.

51% of the respondents said that their employer's written policies did not specifically address the use of personal protective equipment. Of those that do have a policy, 42% require PPE use and

24% suggest it. 58% of respondents said that their employer had no policy on the use of respiratory protection.

Health-related Questions:

Two thirds (66%) of respondents said that their employer did have a program for mental health support, and 14% of those respondents said that they had used these services at some point.

The clear majority (79%) said that they had never had a reportable workplace injury related to a fire scene investigation or examination. 94% said that they have never had a reportable workplace illness related to a fire scene investigation or examination. Of those who reported that they have had a reportable illness or injury, only 156 said that they had lost time from work.

79% said they get an annual physical, either from their employer or on their own. Of those, 98% included an examination by a medical doctor and 94% included blood work. Other testing included: chest x ray 37%, pulmonary function test 61%, cancer screening 35%, cardiovascular screening 47% and stress test 28%.

94% of respondents reported that they do not smoke. 62% said that they either do not drink alcohol at all or have less than one drink a week.

In one of the more important health-related questions, the survey asked how concerned respondents were with whether their work as a fire investigator has or will put them at an increased health risk. Here are the results: Not at all – 5% A little – 19% Some – 45% Very – 23% Highly – 9%

Procedural Questions:

Sixteen survey questions addressed various procedural aspects of fire investigation. Half of the respondents (51%) said that they conduct scene examinations by themselves. Half do some type of scene air quality before starting their scene examination and one third of those continue to monitor the air quality during their examination. Related to this was the question about the type of gas metering devices respondents had available to them, but not necessarily used. Many had CO, O₂ and LEL. Nearly everyone (95%) checks the status of the utilities at the scene before starting their examination.

One third (32%) use a P100/OV/AG respirator while 10% are using a dust mask at fire scenes. About one third (30%) use respiratory protection most or all the time. However, another third (36%) reported they never or rarely use respiratory protection.

57% of respondents said that they wear full PPE during scene examinations either most of the time or always. Conversely, 17% said that they never or rarely wear it.

Half of the respondents (51%) keep a detailed scene examination log but only 44% of those that do so note any hazardous conditions encountered, injuries or possible exposures.

Baseline Questions:

Of the baseline questions, with one exception, most respondents answered them correctly, indicating a good base level of understanding for the health and safety aspects of the job. Question 32 was the one question that two-thirds of the respondents got wrong. This question asked whether there was a correlation between CO and/or HCN readings and the presence of other toxic gas levels at a fire scene; there is not. While it is possible that the question was misread or misunderstood, it is also possible that this is an indication that more education is needed in this area.

Comments:

297 comments were submitted in the survey responses. Some comments elaborated on the respondent's specific answers, and some offered suggestions for additional work. Many of the comments indicated appreciation for the IAAI conducting this survey, with many saying that it was long overdue and hoping that some good would come from it.

Conclusion

The results of this survey will be used to develop one or more documents that identify specific fire investigator best practices. This information will then be proffered for inclusion in the various training and education tools and methodologies used by the IAAI to communicate to its members and the industry, with the goal of increasing awareness, at all levels, of the risks and hazards associated with conducting fire investigations and the best ways to mitigate them.