

**THE APPLICATION OF LESSONS LEARNED: THE STEPS FOLLOWING
THE POST INCIDENT ANALYSIS**

EXECUTIVE DEVELOPMENT

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ABSTRACT

The goal of a post incident analysis is to improve a fire department's performance. The problem was that lessons learned from incidents that the Miami-Dade Fire Rescue Department (MDFRD) responded to were not being consistently incorporated into their policies and procedures.

The purpose of this applied research project was to identify the necessary steps to ensure that lessons learned from incidents are consistently incorporated into the department's policies and procedures.

The descriptive research methodology was used to answer the following research questions:

1. Is it necessary to revise MDFRD's PIA policy and procedure to insure that lessons learned through the PIA are incorporated into department guidelines?
2. Are there currently any procedures for incorporating lessons learned from incidents?
3. What steps should be included in the revised procedure?

The procedures used to complete this research consisted of a literature review, a review of MDFRD files, an internal MDFRD survey, an external fire department survey, an informal verbal survey of international fire rescue representatives, and a review of existing PIA guidelines used by other fire departments.

The results of this research project included the corroboration of research conducted by others, the discovery of the relative lack of documentation regarding steps to follow after a PIA report is completed, and the need to identify the essential steps that should be addressed following the PIA to ensure continuous improvement.

The recommendations of this research included using the recommendations provided in order to develop a comprehensive PIA process, conduct further research and evaluation to determine what, if any, effect the changes have on the consistent application of lessons learned from the department's response to major incidents, and finally, that other fire departments conduct their own independent research while benefiting from the information presented in this paper.

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INTRODUCTION

The problem is that the lessons learned from incidents that the Miami-Dade Fire Rescue Department responds to are not consistently incorporated into policies and procedures or standard operating procedures.

The purpose of this applied research project is to examine the different steps necessary to ensure that lessons learned from incidents are consistently incorporated into policies and procedures or standard operating procedures, as appropriate. This requires a fire department to identify the necessary steps to use lessons learned and then determine the appropriate mechanism for inclusion of lessons learned into the future planning and action process.

Descriptive research methodology was used to answer the following questions:

Research Questions

1. Is it necessary to revise MDFRD's PIA policy and procedure to insure that lessons learned through the PIA are incorporated into department guidelines?
2. Are there any current procedures for incorporating lessons learned from incidents?
3. What steps should be included in the revised procedure?

BACKGROUND AND SIGNIFICANCE

The Miami-Dade Fire Rescue Department uses two sets of guidelines to provide written direction to its personnel. These are (1) policies and procedures, and (2) Operations Standard Operating Procedures. Policies and procedures provide guidance and direction for department-wide policy issues. Operations SOP's provide guidelines specific to Operations functions. A policy and procedure that addresses the post

incident analysis and how to conduct it is in effect for MDFRD. The MDFRD PIA policy and procedure has not been revised since 1989 (Appendix A). The purpose of this document is:

1. To provide a means of objectively analyzing Fire Department operations in a post emergency environment.
2. To provide a continuing review and development process through which improved methods and operations may be realized.

The significance of this study to MDFRD is fourfold:

1. The recommendations from this applied research project will be incorporated into the department's policy and procedure.
2. It will ensure that the most updated information available is used in revising the department's policy.
3. It will enable the department to meet or exceed the recommendations in NFPA 1500 as they relate to the PIA process.
4. The information will serve as a model for future studies.

The National Fire Protection Association (NFPA, 1997) has established recommendations for post incident analysis. NFPA's *Fire Department Occupational Safety and Health Program NFPA 1500* standard recommends that fire departments conduct a post incident analysis with emphasis on the safety and health of firefighters.

In addition to the recommendations in NFPA 1500, the literature review and information provided by other fire departments provided additional factors that should be considered for inclusion in an effective post incident analysis process.

In reviewing reports from previous PIA's conducted by MDFRD, the same issues continue to be identified as needing improvement.

The department's mission is to reduce injury, loss of life and damage to property and the environment. Repeating mistakes or not incorporating new information identified in post incident analyses hampers the department's ability to accomplish its organizational mission.

Improving the way lessons learned are incorporated into the department's procedures will ensure that the mission is accomplished as effectively and efficiently as possible.

The FEMA publication *Fire in the United States 1987-1996*, (1998b) reports that:

The fire problem in the United States, on a per capita basis, is one of the worst in the industrial world. Thousands of Americans die each year in fires, tens of thousands of people are injured, and property losses reach billions of dollars.(p1)

Casey (1987) believes that although training and exercises provide a benefit to departments in testing the effectiveness of their standard operating procedures, there is no substitute for the realism that can only be experienced in actual incidents. He further states that adapting operating procedures using information gained by analyzing areas that need improvement is an efficient and effective way to improve the department's ability to achieve its mission.

Weber (1995) suggests that failure to revise an SOP, when necessary, could also become a liability problem for the department. Carter (2001) suggests that a post-fire critique system should be incorporated into a fire department's training program.

Sharing the information gained from this research project with other executive fire officers will contribute to the knowledge base that exists in the fire service community.

This applied research project relates to the National Fire Academy's Executive Development course, specifically, Unit 10: Service Quality/Marketing. The terminal objective for Unit 10 refers to Total Quality Management and describes evaluating services provided by the students' organizations and developing strategies to improve organizational quality and service standards. The post incident analysis clearly involves evaluating services and incorporating lessons learned to improve performance.

LITERATURE REVIEW

1. **Is it necessary to revise MDFRD's PIA P&P to insure that lessons learned through the PIA are incorporated?**

Montagna (1996) writes:

Firefighters, as all humans, make mistakes. When firefighters make a mistake on the job, however, it can be life-threatening to themselves, to their coworkers, and to the public they serve. Our goal should be to learn from each mistake and try not to repeat it. We should also teach others not to make the same mistake we made. (p. 63)

Weber (1995) states that a report must be developed from every formal post incident analysis. All recommendations must be followed through, with a status report on changes or reasons for no action forwarded to fire personnel.

Weber further goes on to explain that comprehensive post incident analysis procedures resulted in consistent programs that appeared to be accepted by most personnel.

Comfort (1988) stresses the importance of research and identifying desired outcomes of emergency plans for developing strategies for managing disasters.

When preparing a post incident review report, Morgan (1994) suggests that it should include recommendations for program enhancement or other modifications. He also states that if policies and procedures did not address key issues that came up during the incident, policies and procedures would have to be developed. However, other reasons for problem areas would have to be ruled out, such as gaps in the organizational structure for the incident, lack of training or exercising, and that the incident may not have been previously identified as a potential hazard.

In his EFO paper, Friend (1995) conducted research to determine what types of post incident analysis were being done by emergency services. He found that many have two main types, an informal and a formal analysis. Most departments however, didn't have established procedures to follow.

The National Fire Protection Association (NFPA) has established recommendations for post incident analysis. These recommendations include:

6-8.6 The analysis shall identify any action necessary to change or update any safety and health program elements to improve the welfare of members.

6-8.7 The analysis process shall include a standardized action plan for such necessary changes. The action plan shall include the change needed and the responsibilities, dates, and details of such actions.

In addition to the recommendations in NFPA 1500, the literature review and information provided by other fire departments provided additional factors that should be considered for inclusion in an effective post incident analysis process.

“Regular, well-managed fire critiques are necessary to improve the firefighting performance. Standard operating procedures and training before a fire, combined with critiques and revision after an incident, provide a complete system that prepares us for the most important fire we will ever fight: the next one.”

(Brunacini, 1991, p.152)

Koechlein (1997) recommends that, regardless of the post incident analysis method used, there must be a commitment to follow through with the recommendations.

Kramer and Bahme (1992) explain that if the response plan needs to be changed in any way following a PIA, the modifications should be submitted through the proper channels for immediate adoption.

2. Are there any procedures currently in place for incorporating lessons learned from incidents?

Klaene and Sanders (2000) find that effective department SOP's take the guesswork out of the first critical moments on the fireground. Further, they state that without SOP's the incident commander is unable to collect the information necessary to develop an action plan for control of the incident because he is so busy assigning companies.

Weber (1995) discusses results of his research on different methods of post incident review. He found that “Formal procedures throughout the research continued to be uniform, with a similar base concept. All programs were custom fit to each individual department. They all addressed concerns of NFPA recommendations.” (p. 21).

Although no specific procedures were listed, Kramer and Bahme (1992) state that once the response to a disaster is evaluated, the focus is toward mitigation and improving response. Plans should be revised as necessary.

The purpose of Brenneman's (1996) applied research project was to find the elements of a post incident analysis. Although recommendations for the analysis are provided, there are no recommendations for implementation or follow-up steps.

3. What steps should be included in the revised procedure?

Friend (1995) states that his extensive literature review confirmed that most fire service authors recognize the benefits of reviewing performance in a post incident analysis. He also mentions that the report that should be generated from a post incident analysis can identify the need to revise standard operating procedures.

The literature review conducted at the National Fire Academy's Learning Resource Center produced more than 30 listings for post incident analysis. However, there is very little documentation on the steps to follow after the post incident analysis is completed.

The *Operational System Description* for FEMA's *National Urban Search and Rescue Response System* (1999) provides guidelines for an after-action process. A report is to be developed after every mobilization. The report, which contains mission information as well as information from the After-Action Meeting, will also contain:

The IST Commander will ensure an IST After-Action Report is produced to include a documentation of activities, lessons learned, problems encountered, positive aspects and recommendations for corrective actions. The After-Action Report shall be forwarded to the FEMA Program Officer, Attention Corrective Action Officer within 30 days. (p. III-13)

FEMA's website, under its Comprehensive Exercise Program, lists a Corrective Action Program as one the program's six components.

In his applied research project, Koechlein (1997) evaluated several methods of after action review. He states:

No matter what method is selected, there must be a commitment to follow through with the recommendations and suggestions. Failing to do so will only lead to future disinterest and distrust when the next event occurs and AAR process is again used. (p.31).

Weber (1995) recommends that once a post incident analysis is completed, a report containing suggestions for improvements should be forwarded through the proper channels. These suggestions must be time certain and followed through to completion. In addition to a critique, Cook (1998) suggests that a postmortem shall include recommendations for changes in standard operating procedures.

In describing post-disaster review, Carter (1991) lists various ways the review can be utilized; including disaster plan revision, changes to organizational structure, and revision of training and public awareness plans.

Developing Effective Standard Operating Procedures for Fire and EMS Departments (FEMA, 1998a) lists a standardized action plan and a mechanism for reporting results as two of the necessary elements for improving future results through a post incident analysis process.

PROCEDURES

Definition of Terms

Post Incident Analysis – Methods for identifying lessons learned and potential corrective actions following response to an emergency incident: incidents to be reviewed/analyzed, participants and roles, format for gathering information, format for

conducting analyses, standardized action plan, mechanism for reporting results. (FEMA, 1998a)

The desired outcome of this research was to identify what, if any, revisions should be made to the Miami-Dade Fire Rescue Department policy and procedure on post incident analysis to ensure that lessons learned from responding to incidents are consistently incorporated into SOP's and policies and procedures.

Research Methodology

This research project employed a descriptive research methodology to: (a) determine if it was necessary to revise Miami-Dade Fire Rescue Department's policy and procedure on post incident analysis to ensure that lessons learned from responding to incidents are consistently incorporated into SOP's and policies and procedures, (b) determine if there were any procedures currently in place for incorporating lessons learned from incidents, and (c) identify what steps should be included in the procedure.

The initial step in this research project was the development of a problem statement describing the fact that the lessons learned from incidents that the Miami-Dade Fire Rescue Department responds to are not consistently incorporated into policies and procedures or standard operating procedures.

Literature Review

The literature review began with a computer search of the card catalog of the Learning Resource Center at the National Fire Academy. Literature review was also conducted at the Miami-Dade County Public Library, the Miami-Dade Fire Rescue Department Library, and at the United Nations Documentation Center in Geneva while the researcher was attending meetings there.

The literature review consisted of textbooks, magazines, trade journals, technical reports, and EFO Papers that contained information related to emergency and disaster response post incident analysis and after-action critiques. Applicable sources were summarized and included in the Literature Review section of this report. Also reviewed were Miami-Dade Fire Rescue Department's Policies and Procedures and Operations Standard Operating Procedures.

Is it necessary to revise MDFRD's PIA Policy?

A review of MDFRD post incident analysis reports from 1998 through 2001 was conducted. MDFRD's policy and procedure for Post Incident Analysis was reviewed. In addition, NFPA 1500 was reviewed to determine if MDFRD was compliant.

A questionnaire was developed for an internal survey of MDFRD personnel. Professor S. L. Porcelain, Director of Disaster Research at the University of Miami School of Medicine, reviewed the questionnaire. Modifications to the questionnaire were made based on her input. A draft was then field-tested on 15 persons attending meetings at fire department headquarters. Minor changes were made to the survey form based on their input.

A six-question survey (Appendix B) was then transmitted by electronic mail to 97 sworn MDFRD personnel. A spreadsheet was developed to track the responses as they were returned. After one week, only 32 surveys, or 33% had been returned. The form was then re-transmitted by electronic mail to those who had not responded. This resulted in an additional 30 surveys returned for a total of 63.9%. According to Babbie (1973), "A response rate of at least 60 percent is good. And a response rate of 70

percent or more is very good” (p. 165). Therefore, the 63.9 percent return rate was considered more than adequate for the purpose of this research.

The purpose of this opinion survey was to determine: (a) if MDFRD personnel feel that the PIA process is beneficial in improving the department’s effectiveness, (b) how often they feel that recommendations from department PIA’s are implemented, and (c) any suggestions the respondents would share for making PIA’s more beneficial.

While the researcher was attending a meeting of international search and rescue teams at the United Nations, an oral survey was conducted among the participants. Representatives from twenty-four countries attended the meeting. Of the 24 participants, 23 stated that most times, lessons learned from responses were not consistently implemented. The same 23 people agreed that procedures were necessary to ensure that lessons learned were implemented.

Are there any procedures currently in place for incorporating lessons learned from incidents?

A literature review, as described above was conducted to gain information on existing procedures for incorporating lessons learned, usually identified in PIA’s.

A questionnaire was developed for an external survey of metropolitan fire departments in the United States. Professor S. L. Porcelain, Director of Disaster Research at the University of Miami School of Medicine, reviewed the questionnaire. Modifications to the form were made based on her input.

An eleven-question survey (Appendix D) was then transmitted by electronic mail to 111 fire personnel from metropolitan fire departments. A spreadsheet was developed to

track the responses as they were returned. Fifty-nine surveys were returned for total of 53%.

The purpose of this opinion survey was to determine: (a) how many of the respondents use the PIA process, (b) do they feel PIA benefits their department, (c) if their department documents PIA findings, and if so, how are they distributed, (d) how often they feel lessons learned are incorporated into their department SOP's, (e) does their department have an SOP for implementing lessons learned, (f) do they think guidelines are necessary to ensure that lessons learned are implemented, and (g) any comments or suggestions. The form also included a request for any department willing to share their post incident analysis procedures. Twelve SOP's or guidelines from other fire departments were received and reviewed, along with two actual PIA reports.

Identification of what steps to include in the revised procedure

To determine what steps should be included in a procedure for ensuring that lessons learned are implemented, information gained from the literature review was examined. In addition, an Internet search was conducted of the U.S. Fire Administration site, the International Association of Fire Chiefs website, and several fire service publication sites. These searches returned five sample SOP's.

Answers to the external survey as well as twelve SOP's for post incident analysis sent by respondents to the external survey were reviewed.

Assumptions

It was assumed that all respondents to the survey would be honest in their responses. Anonymity could be maintained since several options were provided for

returning completed surveys. It was also assumed that the literature that was reviewed was a result of objective and unbiased research.

It was further assumed that issues or problems that occur repeatedly on incidents could be a result of several factors such as inadequate skill levels, lack of training, lack of experience, and incomplete or inadequate guidelines. This research project only addressed the area of SOP's.

Limitations

Limited information is available pertaining to PIA's as they relate to the fire service. All of the SOPs reviewed by the researcher listed major incidents as one of the criteria for conducting a PIA. A commonly held, general description of disasters is that they are major incidents that overwhelm the local response capacity. Therefore, research related to disasters was also reviewed in order to identify and adapt procedures from the field of disaster study to be used in the fire service, specifically, in the Miami-Dade Fire Rescue Department.

The time limit for completing applied research projects for the NFA's Executive Fire Officer Program precluded more detailed literature review. Additionally, to save time, the surveys were distributed by electronic mail. This transmittal method facilitated the distribution and return process, however it limited the sample to persons with access to electronic mail; a fact that may have skewed the results. Associations between variables in the survey were not analyzed for this research project.

RESULTS

1. Is it necessary to revise MDFRD's PIA policy to insure that lessons learned through the PIA are incorporated?

MDFRD's policy and procedure for *Post Incident Analysis* (Appendix A) lists the steps for a post incident analysis session and directs the Incident Commander to prepare a written summary and distribute copies to all stations and offices. There is no mention of follow up procedures or of development of an action plan for implementing changes.

The policy also states that the Training Division maintains the official department PIA file. While conducting the research for this project, the researcher went to the MDFRD Training Division to review the PIA's on file. To the researcher's and division staff's surprise, the files did not exist.

The researcher then manually pulled and reviewed the PIA's that had been distributed department-wide since 1998 and are maintained as part of the department memoranda filing system.

The review of MDFRD PIA's from 1998 through 2001 showed that many of the issues for lessons learned continued to be identified as needing improvement. Specific examples included staff officers communicating their arrival on scene on the working radio frequency and problems with coordinating activities on fire scenes due to the lack of a standard department tactical worksheet. Twenty-three PIA's were reviewed; of those none recommended changing an SOP. Review of the applicable policies and SOP's for the same time period showed that none had been revised based on recommendations from PIA's.

From NFPA 1500:

6-8.7 The analysis shall identify any action necessary to change or update any safety and health program elements to improve the welfare of members.

6-8.8 The analysis process shall include a standardized action plan for such necessary changes. The action plan shall include the change needed and the responsibilities, dates, and details of such actions.

Based on the NFPA recommendations listed above and the review of the MDFRD PIA policy, the researcher feels that MDFRD is not compliant with NFPA 1500 as it relates to an action plan for making necessary changes.

The rank breakdown for the internal MDFRD survey (Appendix C) consisted of mostly company officers (65%). Nineteen percent were firefighters, ten percent were staff chiefs, five percent were battalion chiefs, and two percent were other, i.e. special assistants. Eighty-two percent of those returning the survey had participated in a PIA on the department.

Ninety-two percent of the respondents felt the PIA was beneficial to the department. However, only two percent felt that the lessons learned through PIA's were always implemented. Seventy-nine percent felt they were sometimes implemented, 6% said never, and 15% didn't know. In addition, 30% of the respondents said the lessons were not implemented often enough.

More than 60% of those who included comments on the survey felt that there was not enough follow-up to lessons learned from response to incidents. An unexpected finding was that many also suggested that there should be a closer link between training and PIA's.

Graphs for the MDFRD internal survey are included in Appendix C.

2. Are there any procedures currently in place for incorporating lessons learned from incidents?

Of the 12 SOP's received from external survey respondents, three mentioned what to do with the PIA reports in general terms, namely, to forward the report to the training division or to a specific committee. None of the examples reviewed contained a procedure for implementation and follow-up of lessons learned.

The results of the literature review supported the following statement made by Weber (1995):

Copies of actual post incident analysis and related standard operating procedures supplied by the departments contacted, provided valuable insight into the workings of an actual program. The ten different programs that were received were similar in nature, even though they were received from different parts of the country. This gave the indication that most departments using a PIA system design them around the same basic principles. (p. 19).

Urban Search and Rescue Incident Support Team (FEMA, 1999) guidelines for After-Action Reports state that the report must be forwarded to the Corrective Action Officer for action. However, no specific steps were listed.

Fifty-nine persons responded to the external survey (Appendix C), 47% were staff chiefs, 26% listed themselves as other, including Fire Chief, 19% were battalion chief, five percent company officer, and three percent were firefighters. The departments varied in size: 45% represented departments with between 101 and 500 people, 24% 501-1000, 22% more than 1000, and 9% less than 100 people.

Ninety-five percent of the respondents reported that their departments use the PIA process, 98% of those who use it feel the process benefits the department. Sixty-five percent of the departments document the results of their PIA's, 45% percent of these distribute the results throughout the department, 36% do not distribute the results, 9% distribute only to those on the incident, and 11% use other distribution.

Regarding how often they feel lessons learned are incorporated into SOP's, of the departments that reported using the PIA process, 79% felt that the lessons learned are sometimes incorporated into SOP's, only 12% felt they are always incorporated, 5% never, and 4% didn't know.

Seventy-seven percent felt guidelines are necessary to ensure that lessons learned are incorporated into SOP's. Twenty-one percent reported that their department had an SOP for implementing lessons learned. Review of these SOP's showed that direction was provided in some of the documents on where to forward the PIA report, however no further follow-up was mentioned.

Several of the respondents to the external survey stated that they didn't feel their department had an adequate follow-up mechanism or measuring tool in place to ensure that those who were not at the incident benefit from the issues identified or problems experienced by those who were directly involved.

Graphs for the external survey are included in Appendix E.

3. What steps should be included in the revised procedure?

Weber (1995) recommends that; "All recommendations for improvement must be followed through, with a status report on changes or reasons for no action forwarded to the troops." (p. 23)

In describing post-disaster review, Carter (1991) lists various ways the review can be utilized; including disaster plan revision, changes to organizational structure, and revision of training and public awareness plans.

The U. S. Fire Administration (FEMA, 1998a) lists a standardized action plan and a mechanism for reporting results as two of the necessary elements for improving future results through a post incident analysis process.

FEMA (2001) is developing a computer software system that will enable users to: “analyze issues from multiple sources; assign corrective actions to responsible offices; track the actions to completion; and follow issues and actions through validation and testing to closure.” (p. 12)

Morgan (1994) reports that once other reasons for poor performance have been ruled out, such as lack of training, inadequate planning, or an inadequate incident management structure, policies and procedures should be developed or revised if they exist for the type of incident being reviewed.

DISCUSSION

1. Is it necessary to revise MDFRD’s PIA policy to insure that lessons learned through the PIA are incorporated?

Various authors (Weber 1995; Koechlein 1997; Morgan 1994) stressed the importance of follow-through on recommendations to ensure that appropriate changes are made to SOP’s. Several of the respondents to the internal survey of the Miami-Dade Fire Rescue Department wrote-in comments related to follow-up on actions and recommendations identified in PIA’s as being essential to continuous improvement in the department.

A review of MDFRD's *Post Incident Analysis* policy (Appendix A) clearly shows that, aside from a department-wide distribution and filing in the Training Division, there is no direction or guidance on follow-up in the policy. The fact however, that a Training Division PIA file is non-existent clearly indicates the need for adding language to the policy detailing what position in the Training Division will be responsible for ensuring that the reports are reviewed and filed.

The researcher believes that based on the results of the study, including: (1) the importance of follow-up, (2) the desire of the department to work toward complying with NFPA recommendations, and (3) the fact that the policy has not been revised since 1989, now is clearly the time to revise and update this policy. Revision of the policy will ensure that the department maximizes the benefit of conducting PIA's to continue to improve its effectiveness.

2. Are there any procedures currently in place for incorporating lessons learned from incidents?

In attempting to answer this research question, the researcher once again found that various authors (Klaene and Sanders 2000; Weber 1995; and Kramer and Bahme 1992) stress the need to revise SOP's based on post incident analysis. Analysis of the external survey also confirms this finding. However, no specifics were found in the literature regarding follow-up or components of corrective action programs.

FEMA (2001) is developing a software system for tracking of actions related to lessons learned from responses and exercises. The researcher believes that, once completed, this technique should prove beneficial to the fire service.

Most of the SOP's that were received by the researcher and reviewed were well organized and mostly comprehensive. None, however, provided guidance past the direction to forward the results to another area. Weber (1995) found in his research that, although procedures he reviewed followed a similar basic concept, all were adapted to the individual department. This was confirmed by this researcher's study.

The implications of these findings for MDFRD include having to explore other areas for ideas on revising the current policy.

3. What steps should be included in the revised procedure?

Here again the literature was limited in recommendations for specific steps to include in a follow-up procedure. There was no deviation from the fact that a written report must be developed for every formal PIA. For FEMA (1999) the report should include recommendations for corrective actions. Carter (1991) stressed the importance of determining what the reason for the issue to be improved was prior to suggesting a change in policy.

FEMA (1998a) lists a standardized action plan and a mechanism for reporting results as two of the necessary elements for improving future results through a post incident analysis process.

The researcher believes that using the steps mentioned above, as a starting point will address the issues raised as comments in the external survey that was conducted for this project.

RECOMMENDATIONS

The findings contained in this research paper demonstrate that specific changes to the department's guidelines are necessary in order to insure that lessons learned by the

Post Incident Analysis process are incorporated, thereby improving the department's ability to continue to reach its major goals. Arguably, the department's most significant goal is to reduce injury, loss of life and damage to property and the environment.

The researcher will suggest that the recommendations contained herein be considered in the review of the current department policy and procedure for post incident analysis. In accordance with Miami-Dade Fire Rescue Department policy, department Executive Staff will review the revised policy and procedure. Once the review is complete, the policy and procedure will go into effect and be distributed throughout the department.

Once the revision is made, the researcher believes that further research and perhaps evaluation is necessary to determine what, if any, effect the changes have on the consistent application of lessons learned from the department's response to major incidents.

Although the recommendations contained in this paper are specific to the Miami-Dade Fire Rescue Department, it is hoped that other fire departments across the country will conduct their own independent research while benefiting from the information presented in this paper.

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APPENDIX A

Miami-Dade Fire Rescue Department

Post Incident Analysis Policy and Procedure

Volume: III	INCIDENT PRACTICES
Chapter: E	INCIDENTS GENERAL
Originated By:	ASSISTANT CHIEF OF OPERATIONS
Subject: 50	POST INCIDENT ANALYSIS (P.I.A.)
Date: 8/2/89	M. E. Perry, Fire Chief

- 50.01** **PURPOSE:**
 To provide a means of objectively analyzing Fire Department operations in a post emergency environment.
- To provide a continuing review and development process through which improved methods and operations may be realized.
- 50.02** **POLICY:**A formal post-incident analysis shall be conducted for every multiple alarm or major incident occurring within the Fire Department's jurisdiction. This should be completed within 30 days from an alarm-incident.
- 50.03** **AUTHORITY:**The authority vested in the Fire Chief by Florida Statute 125.01, Sections 4.01 and 4.02 of the Metropolitan Dade County Charter. Section 2-181 of the Code of Metropolitan Dade County.
- 50.04** **RESPONSIBILITY:**
 The Incident Commander is responsible for initiation of the P.I.A. process.
- It shall be the responsibility of all supervisory personnel to thoroughly familiarize themselves and their subordinates with this policy.
- It shall be the responsibility of the office of the Assistant Chief of Operations to periodically review and update this policy.
- 50.05** **PROCEDURE:**
- I. A major incident is defined as any incident which is a second alarm or greater or any incident that a Division Chief may request a P.I.A. be held.
 - A. Informal P.I.A.s may be conducted by Fire Department officers on an as needed basis, in an effort to provide training and overall improvement of Fire Department operations. These P.I.A.s would be appropriate for alarms that are less than a

major incident but judged to be significant or unique by the officer involved.

- B.** Formal P.I.A.: The formal P.I.A. is designed to involve all levels of the Fire Department. It is intended to be utilized as a method of detailed analysis of major emergency operations.

- C.** The Incident Commander shall:
 - 1. Make arrangements for the time and place at which the P.I.A. shall be conducted.
 - 2. Make contact with the appropriate personnel to provide basic information relative to the incident.
 - 3. Request and receive assistance from the Training Division to provide a plot plan and all other applicable visual aids.

- D.** The P.I.A. shall begin with a description of the involved facts, including:
 - 1. Date
 - 2. Time
 - 3. Location
 - 4. Weather conditions
 - 5. Topography
 - 6. Water supply
 - 7. Occupancy (if applicable)
 - 8. Building construction (if applicable)
 - 9. Special conditions (such as traffic, crowds, etc.)

- E.** Fire Department operations should be discussed in chronological order by allowing the involved officer to recount and discuss their observations and actions in order of their arrival at the scene. Representatives of all concerned divisions should be requested to attend and participate in each P.I.A.

- F.** Involved non-Fire Department agencies should be allowed to describe their respective involvement in the incident when appropriate.

- G.** Once the facts and a description of the operations involved have been presented, the discussion should be opened for questions and answers and expression of opinions from all those present at the P.I.A.

- H. The emphasis must be on overall operational improvement and should not focus on embarrassing any individual or group.
- I. The Incident Commander should conclude the P.I.A. by summarizing the key points involved and providing additional comments as may be necessary.
- J. The Incident Commander shall prepare a written summary of the P.I.A. and retain one copy on file and provide copies to all stations and offices.
- K. The Training Division will maintain the official Department file of P.I.A.s.

50.06**REVOCATION:**

A.O. 28-89 and all parts of previous orders, rules and regulations, operations memos and administrative orders in conflict with this policy and procedure.

APPENDIX B

Internal Survey Instrument

Post Incident Analysis Survey Executive Fire Officer Program

Carlos J. Castillo

As part of the National Fire Academy Executive Fire Officer Program, I am conducting this survey for a research project on post incident analysis. Please assist me by filling out the questionnaire below. I will gladly share the results of the survey with you.

If you have any questions, please call me at the office at 786-XXX-XXXX, or page me at 305-XXX-XXXX, pager #XXXX. Or you can use the e-mail address listed at the end of the questionnaire.

Thank you.

1. What battalion/station/unit do you usually work?

2. What is your title or rank? (Please check one)

- Staff Chief
- Battalion Chief
- Company Officer (Captain or Lieutenant)
- Fire Fighter
- Other, _____

3. Have you ever participated in a Post Incident Analysis (PIA) in our department? (Please check one)

- Yes
- No

4. Do you feel the PIA/critique is beneficial in improving our department's effectiveness? (Please check one)

- Yes
- No

Why, or why not? _____

5. How often you feel the recommendations from our department PIA's are implemented: (Please check one)

- Always
- Sometimes
- Never
- I don't know
- Not often enough, please explain: _____

6. Please list any suggestions that you feel would make our PIA's more beneficial: _____

Please return this questionnaire by any of the following:

Mail: Chief Carlos Castillo
9300 N. W. 41st St.
Miami, Florida 33178
Fax: 786-XXX-XXXX
E-mail: carlosmdfd@aol.com

APPENDIX C

Internal Survey Results

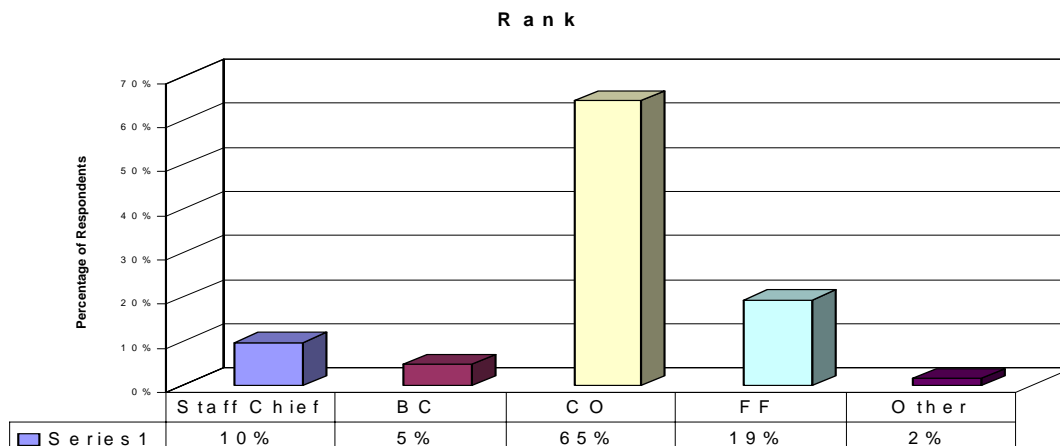


Figure 1C: What is your title or rank? (Please check one)

- Staff Chief
- Battalion Chief
- Company Officer (Captain or Lieutenant)
- Fire Fighter
- Other, _____

The rank held by respondents to the internal MDFRD survey consisted mostly of company officers (65%). Eighteen percent were firefighters, ten percent were staff chiefs, five percent were battalion chiefs, and two percent were other, i.e. special assistants.

Staff Chief	Batt. Chief	Company Off.	FF	Other
6	3	40	12	1
10%	5%	65%	19%	2%

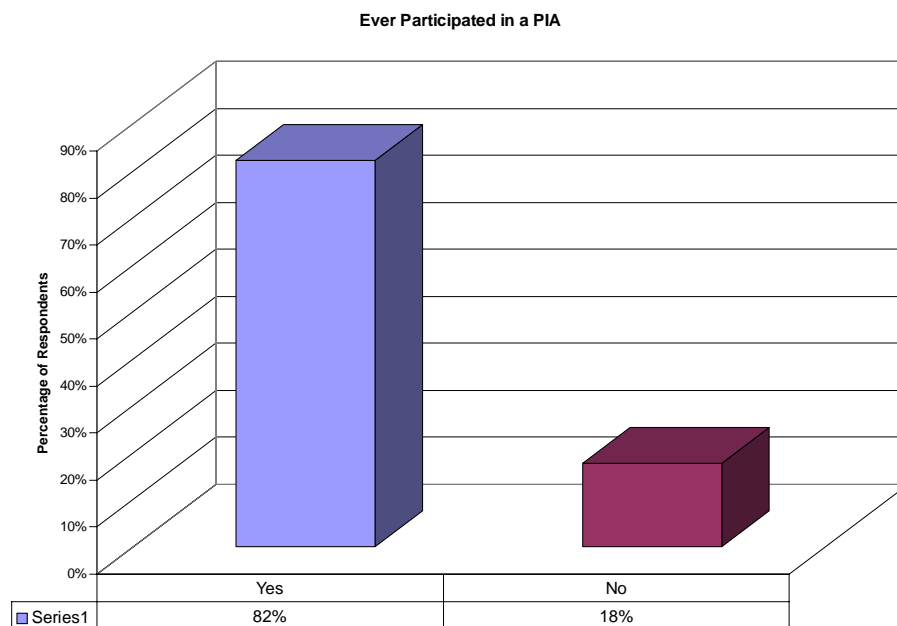


Figure 2C: Have you ever participate in a PIA?

Fifty-one of the 62 respondents had participated in a PIA. This equates to 82%.

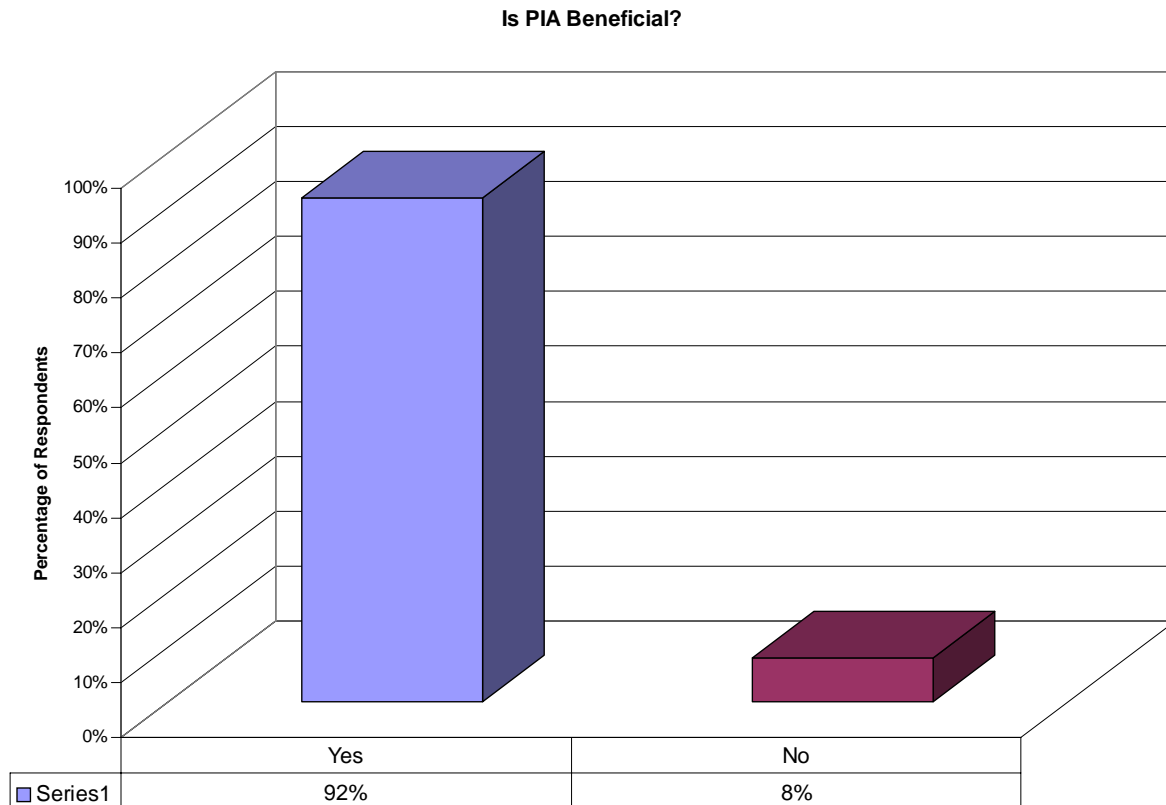


Figure 3C: Do you feel the PIA/critique is beneficial in improving our department's effectiveness?

Fifty-seven of the 62 respondents to this question felt that the PIA is beneficial to the department. This equates to 92%.

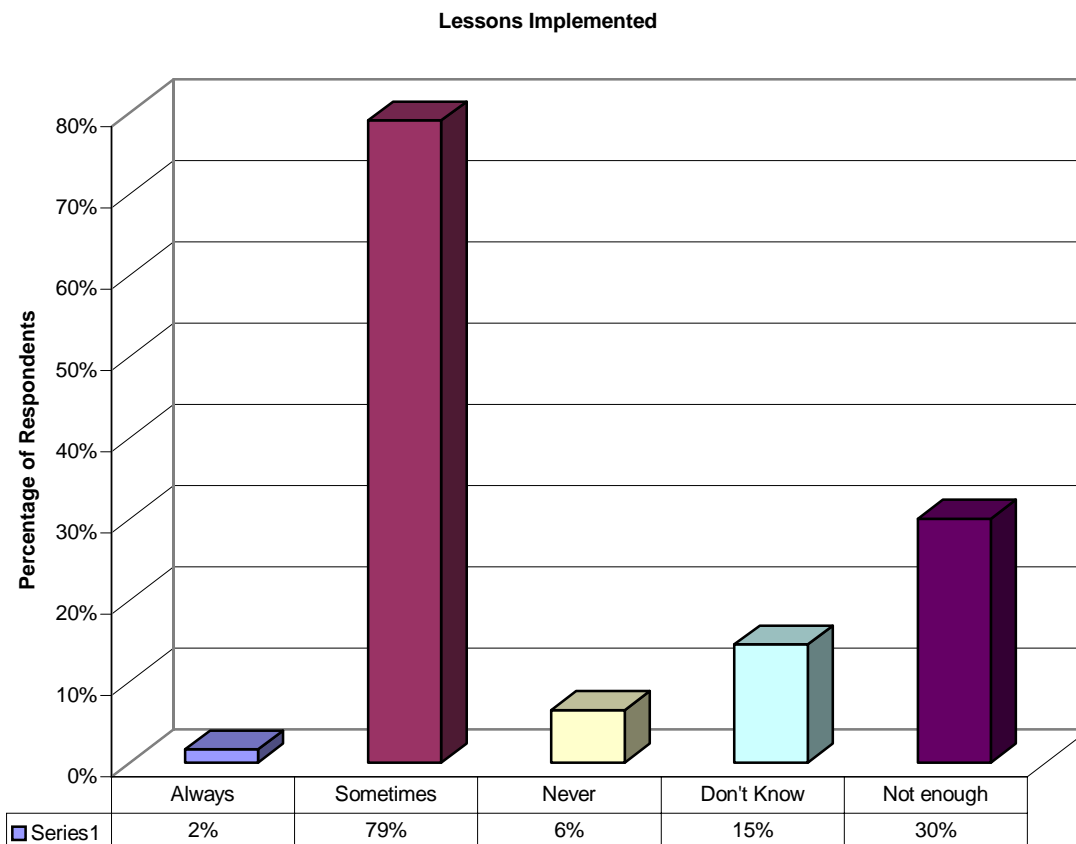


Figure 5C: How often you feel the recommendations from our department PIA's are implemented?

- Always
- Sometimes
- Never
- I don't know
- Not often enough, please explain:

Only one person felt that the lessons learned through PIA's were always implemented. Forty-nine of the 62 respondents felt they were sometimes implemented, four people said never, and nine didn't know. In addition, 20 of the respondents said the lessons were not implemented often enough.

APPENDIX D

External Fire Department Survey Instrument

Post Incident Analysis Survey Executive Fire Officer Program

As part of the National Fire Academy Executive Fire Officer Program, I am conducting this survey for a research project on post incident analysis. Please assist me by filling out this brief questionnaire. I will gladly share the results of the survey with you.

If you would like a copy of the results of this survey, please provide the information listed below:

Name: _____
 Address: _____
 City: _____
 State: _____
 Zip: _____
 E-mail: _____

1. Your department name: _____
2. What is your title or rank? (Please mark one)
 - Staff Chief
 - Battalion Chief
 - Company Officer (i.e. Captain or Lieutenant)
 - Fire Fighter
 - Other, _____
3. How many uniform personnel work for your fire department? (Please mark one)
 - Less than 100
 - 101-500
 - 501-1000
 - More than 1000
4. Does your department use a post-incident analysis (PIA), or critique? (Please mark one)
 - Yes
 - No
 - I do not know

5. If you answered yes to #4 above, do you feel the PIA/critique benefits your department? (Please mark one)

- Yes,
Why? _____

- No
Why not? _____

- I do not know

6. Does your department document PIA/Critique findings? (Please mark one)

- Yes
- No
- I do not know

7. If you answered yes to #6 above, are the results of your PIA/Critiques,

- Distributed throughout the department
- Distributed only to personnel or units on the incident
- Other distribution, please list _____
- Not distributed

8. Are lessons learned from a PIA/Critique incorporated into your Standard Operating Procedures? (Please mark one)

- All of the time
- Some of the time
- Never
- I do not know

9. Does your department have an SOP for **implementing** lessons learned from an incident? (Please check one)

- Yes
- No
- I do not know

10. Do you think guidelines are necessary to ensure that lessons learned from incidents are implemented? (Please mark one)

- Yes
- No

11. Please list any comments or suggestions for improving the Post Incident Analysis

process: _____

NOTE: If you would be willing to share a copy of your department's PIA SOP, please list your e-mail or other contact information below:

Name:
e-mail:
Telephone:

Please return this questionnaire by any of the following:

Mail: Chief Carlos Castillo
9300 N. W. 41 St.
Miami, Florida 33178
Phone: 786-XXX-XXXX
Fax: 786-XXX-XXXX
E-mail: carlosmdfd@aol.com

Thank you

APPENDIX E

External Fire Department Survey Results

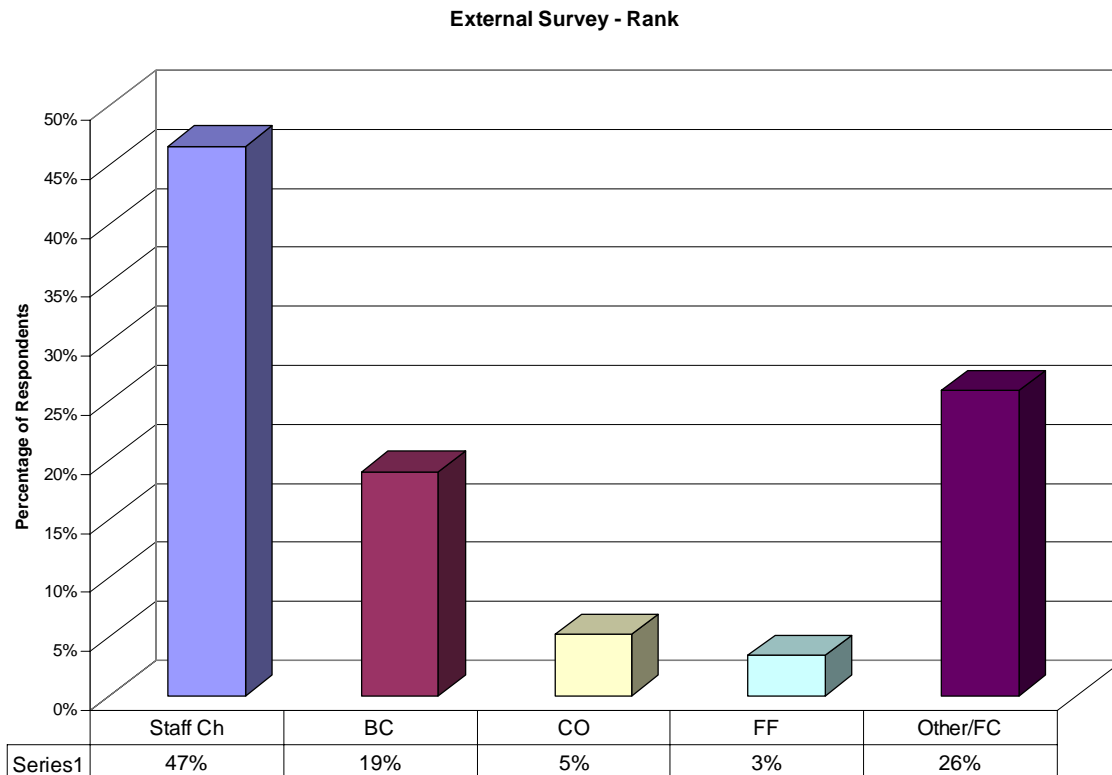


Figure 1E: What is your title or rank?

- Staff Chief
- Battalion Chief
- Company Officer (i.e. Captain or Lieutenant)
- Fire Fighter
- Other, _____

Fifty-eight persons answered this question. Twenty-seven of these were staff chiefs, 11 were battalion chiefs, three were company officers, two were firefighters, and 15 listed themselves as other, including 14 fire chiefs and one administrative officer.

Staff Chief	Batt. Chief	Company Off.	FF	Other/FC
11	11	3	2	15
47%	19%	5%	3%	26%

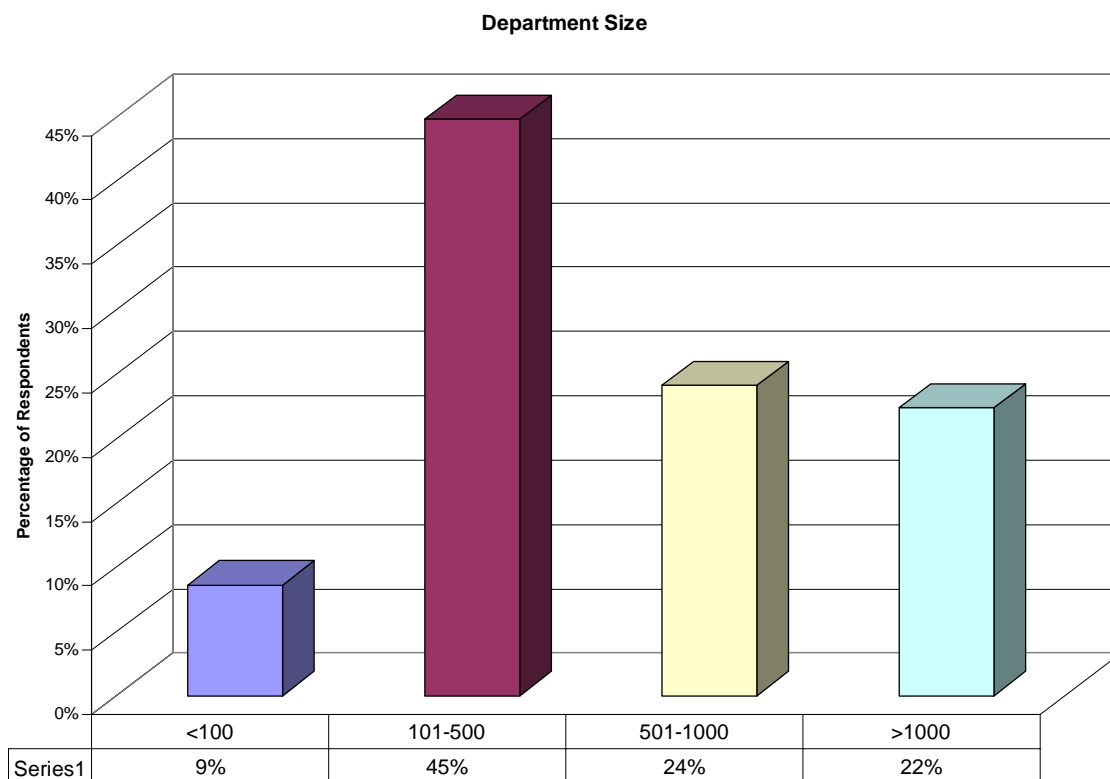


Figure 2E: How many uniform personnel work for your fire department?

- Less than 100
- 101-500
- 501-1000
- More than 1000

Of the 58 respondents, five represented departments with less than 100 uniform personnel. Twenty-six people came from departments with between 101 and 500 people, 14 respondents from departments with between 501-1000 people, and 13 were from departments with more than 1000 uniform personnel.

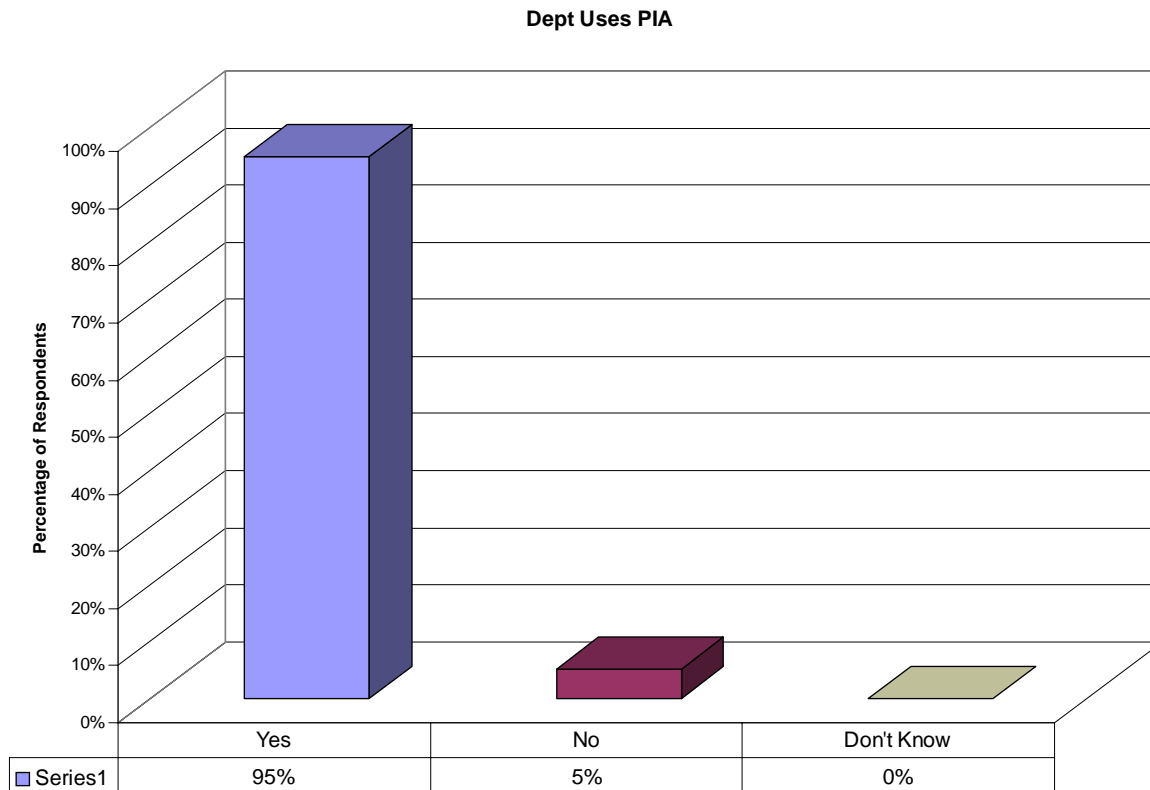


Figure 3E: Does your department use a post-incident analysis (PIA), or critique?

Almost all of the respondents, 55 of 58, reported their departments use the PIA.

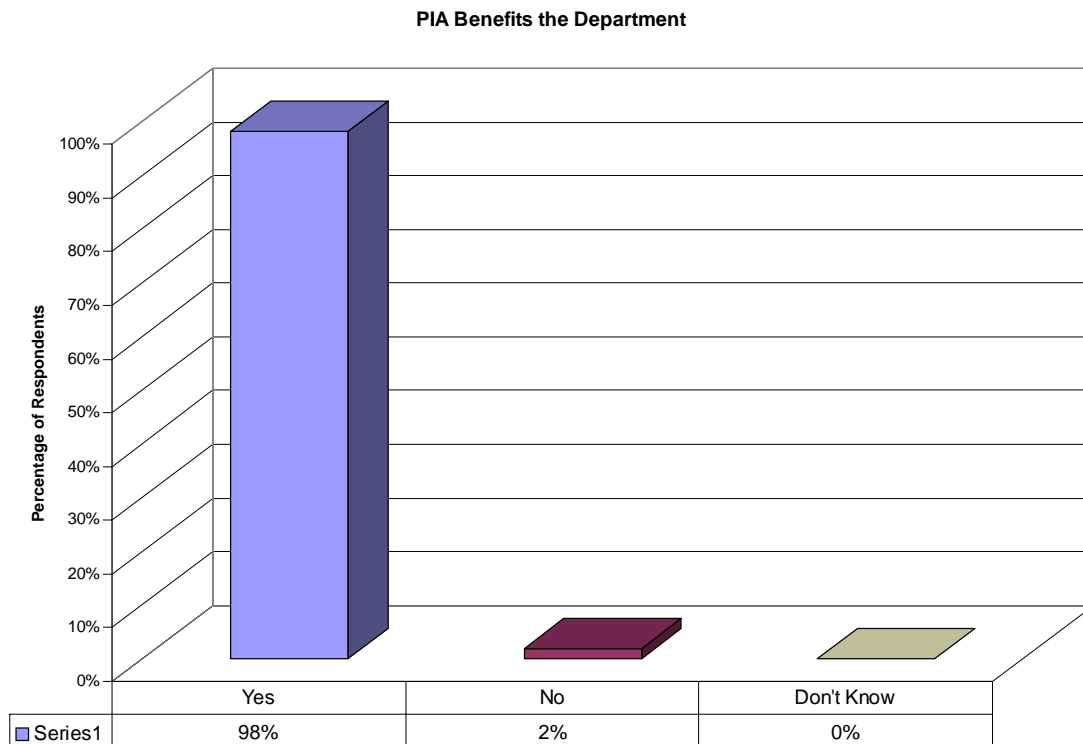


Figure 4E: If you answered yes to #4 above, do you feel the PIA/critique benefits your department?

Of the 55 whose departments use the PIA, 54 felt the PIA benefited their department. The person who didn't feel the PIA benefited his department explained he believed his department did not conduct them correctly. He wrote that participants only discussed what they did right in order to not offend others.

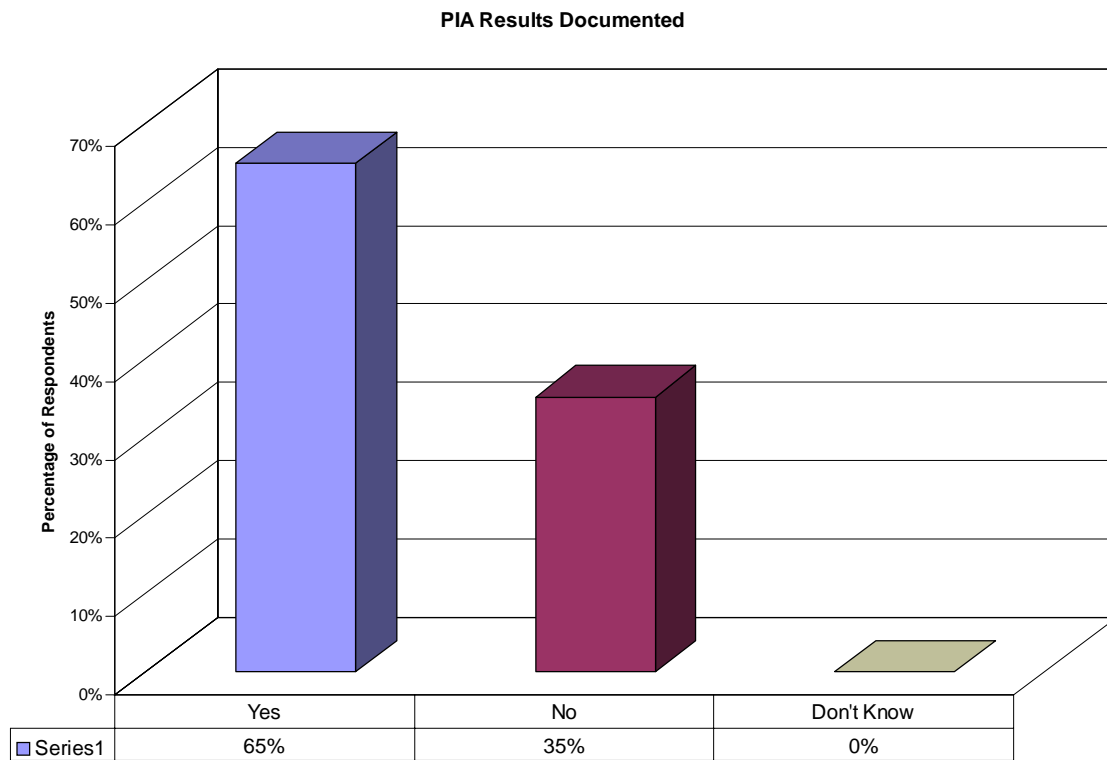


Figure 5E: Does your department document PIA/Critique findings?

Thirty-seven respondents reported that their departments documented PIA findings, 20 departments did not.

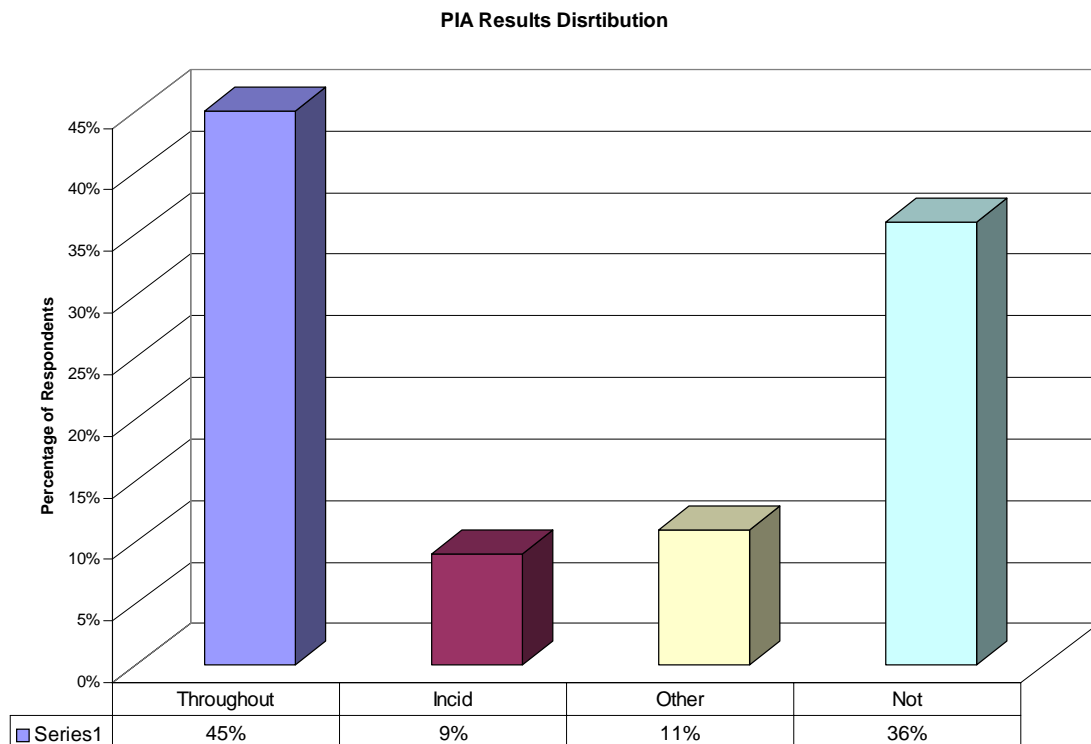


Figure 6E: If you answered yes to #6 above, are the results of your PIA/Critiques,

- Distributed throughout the department
- Distributed only to personnel or units on the incident
- Other distribution, please list _____
- Not distributed

Twenty-five of the respondents reported PIA findings are distributed throughout the department. One person's department also provides the findings to other agencies involved in the incident response. Five respondents only distribute to those on the incident, six used other types of distribution, and 20 did not distribute their PIA findings.

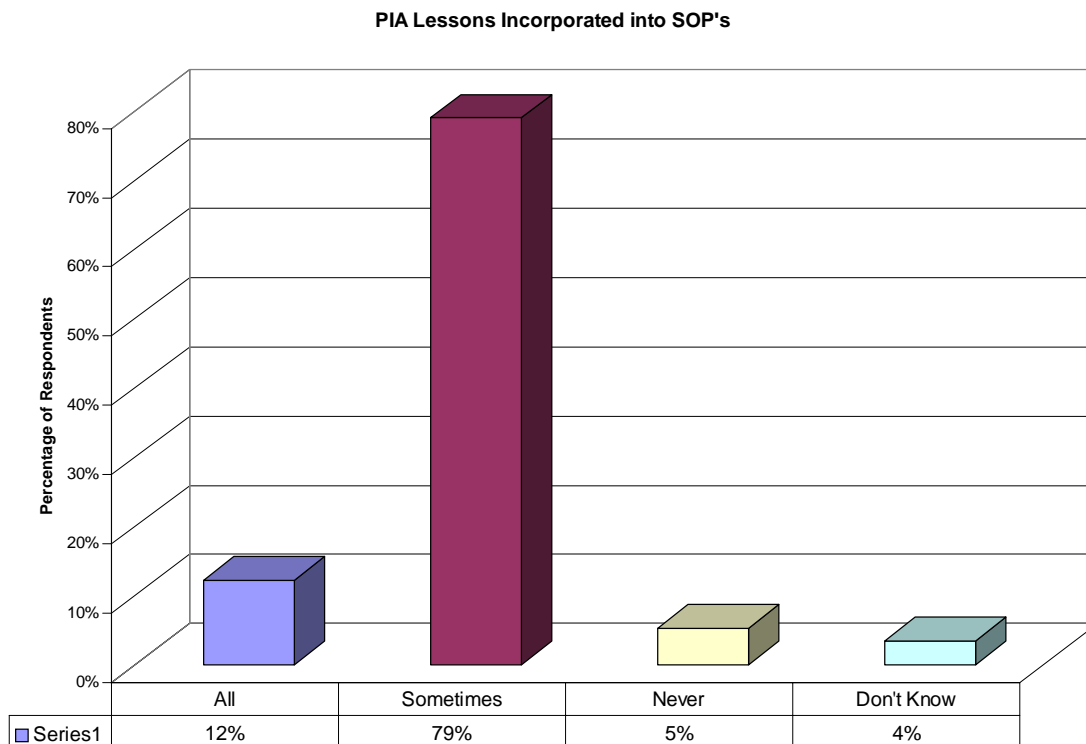


Figure 7E: Are lessons learned from a PIA/Critique incorporated into your Standard Operating Procedures? (Please mark one)

- All of the time
- Some of the time
- Never
- I do not know

When asked how often they felt lessons learned from PIA's were incorporated into their SOP's, seven respondents checked always, 45 stated sometimes, three people said never, and two persons did not know how often lessons learned were incorporated.

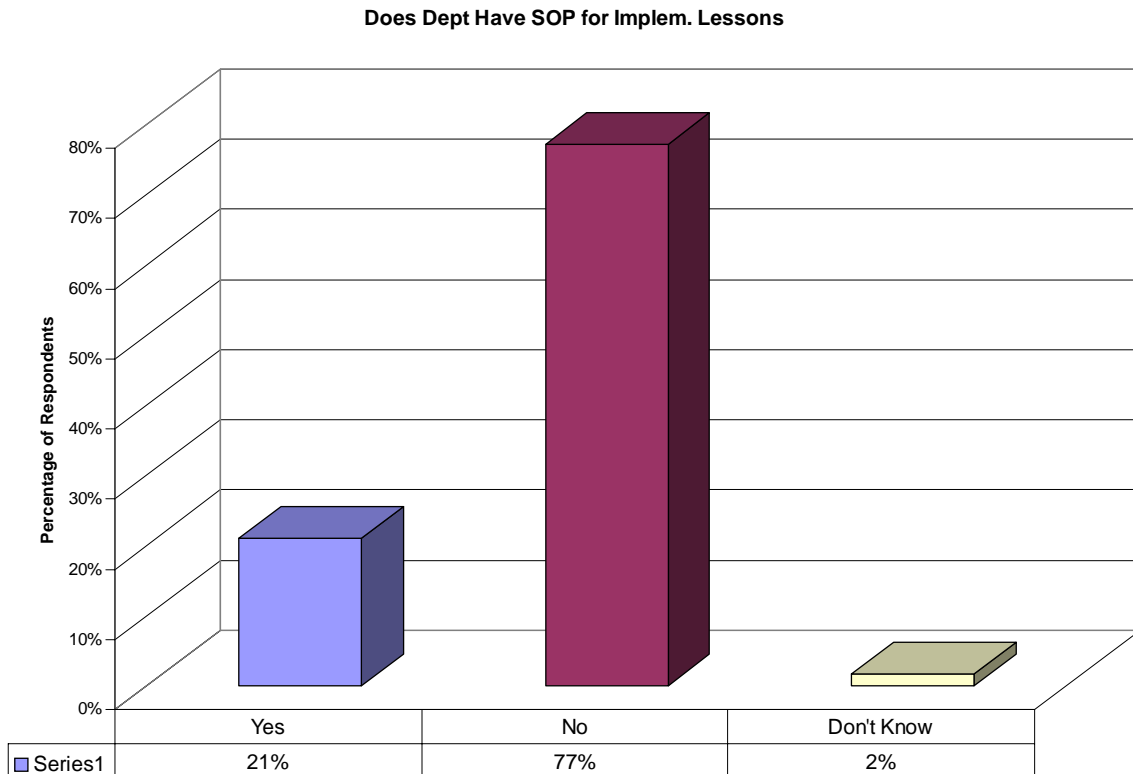


Figure 8E: Does your department have an SOP for **implementing** lessons learned from an incident? (Please check one)

- Yes
- No
- I do not know

Twelve persons stated their departments had guidelines for implementing lessons learned. Forty-four said their departments didn't have guidelines, and one didn't know.

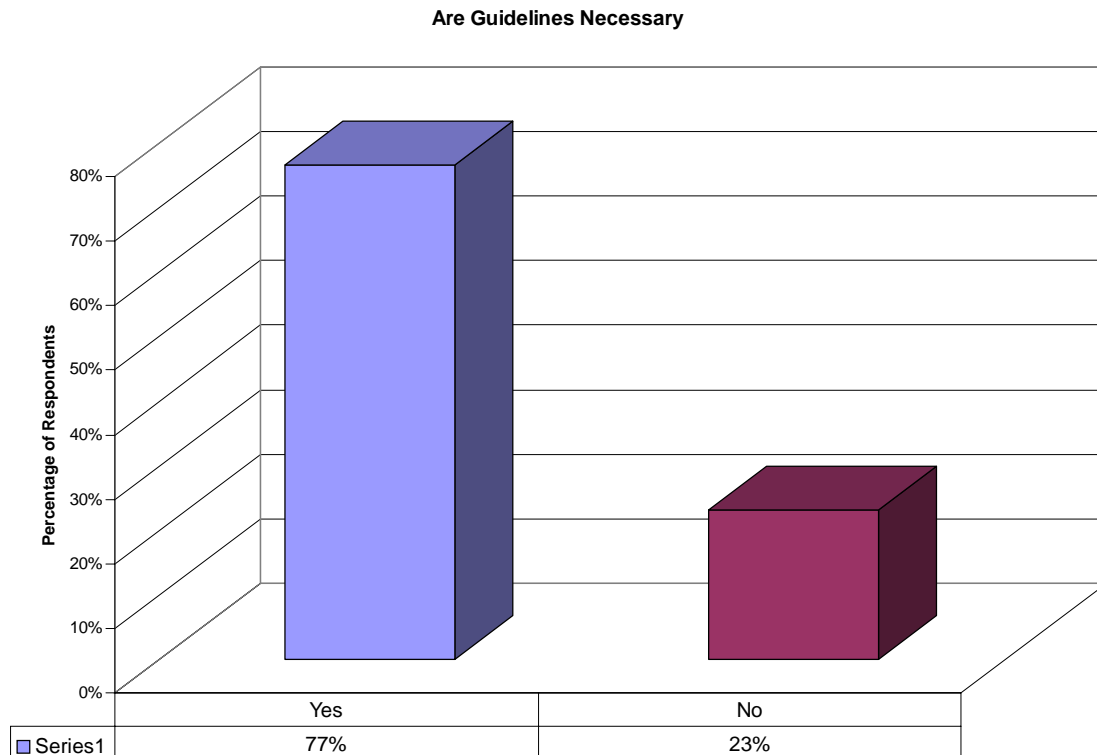


Figure 9E: Do you think guidelines are necessary to ensure that lessons learned from incidents are implemented?

Of the 56 respondents to this question, 43 felt guidelines were necessary to ensure that lessons learned from response to emergency incidents are consistently implemented. Thirteen people did not feel specific guidelines were necessary.