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Optimizing Post Incident Analysis Lessons Learned Processes

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Abstract

This descriptive research project examined the Post Incident Analysis (PIA), Lessons Learned

Processes (LLP) used by emergency responder organizations. The problem was the Honolulu

Fire Department (HFD) had not fully developed the systems necessary to optimize PIA, LLP

potentially exposing responders and the public to unnecessary risks as personnel operate unaware

of vital information proven to save lives and prevent recorded catastrophes from recurring. The

purpose of this research was to help improve firefighter safety and health and to ensure the

public is receiving quality services. This study sought answers to four questions. How

experienced are emergency responder organizations with PIA, LLP? How sufficient is PIA, LLP

training for personnel? What barriers prevent optimization of PIA, LLP? What best practices

can organizations employ to optimize PIA, LLP? Research was conducted by literature review

and survey. Most respondents indicated sufficient experience and training was very important to

helping optimize PIA, LLP but their actual exposure to these activities was scant. Strong

barriers to optimizing PIA, LLP included the lack of sufficient training, the absence of skilled

facilitators to keep discussions on track, the lack of broad cultural acceptance due to infrequent

and inconsistent use and the lack of widespread recording technology use to objectively establish

what happened. An extreme barrier was individuals fearing the consequences of admitting to

screw ups. Recommendations included increasing PIA, LLP experience through more frequent

training of personnel as well as implementing best practices to expedite collection, analysis,

storage and distribution of lessons learned with emergency responders to enhance their safety.

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Introduction

The Honolulu Fire Department (HFD) Policy and Procedures Manual (PPM) contains a PIA process, albeit rudimentary, with the purpose of reinforcing effective actions and giving management insights into improving the Department's operations. (Honolulu Fire Department [HFD], 2009) The PPM mandates conducting formal PIAs after major incidents with significant property damage and/or loss of life. (HFD, p. 192) No requirement exists to address incidents resulting in injuries. This is a divergence from Firefighter Life Safety Initiative #9 that says to "Thoroughly investigate all firefighter deaths, injuries and near misses". (Everyone Goes Home [EGH], 2011, p. 1) There is also no system to ensure post incident data is expediently collected, skillfully analyzed and stored in a single central database to facilitate timely and widespread lessons learned dissemination.

According to Webster, a system is "an organized or established procedure", "marked by thoroughness and regularity." When you check under procedure, you will find "a particular way of accomplishing something" and also "a series of steps followed in a regular definite order." (Merriam-Webster's Collegiate Dictionary, 1991, p. 937, 1199) Meadows defines a "system" as "a set of elements or parts that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviors, often classified as its 'function' or 'purpose'". (Meadows, 2008, p. 188) When systems work well there is a kind of harmony in their functioning. (Meadows)

The problem was the Honolulu Fire Department (HFD) had not fully developed the systems necessary to optimize PIA, LLP potentially exposing responders and the public to unnecessary risks as personnel operate unaware of vital information proven to save lives and

prevent recorded catastrophes from recurring. The purpose of this research was to help improve firefighter safety and health and to ensure the public is receiving quality services. This study sought answers to four questions. How experienced are emergency responder organizations with PIA, LLP? How sufficient is PIA, LLP training for personnel? What barriers prevent optimization of PIA, LLP? What best practices can organizations employ to optimize PIA, LLP? The research document will also satisfy the National Fire Academy's (NFA), Executive Fire Officer Program (EFOP), Executive Leadership (EL) course requirements for the applied research project (ARP) (Department of Homeland Security [DHS], 2011). Research was conducted by literature review and survey.

Background and Significance

The mission of the HFD is to respond to fires, emergency medical incidents, hazardous materials incidents, and rescues on land and sea to save lives, property, and the environment. (Honolulu Fire Department [HFD], 2009)

The HFD protects the island of Oahu an area of 604 square miles with one million inhabitants comprising three-fourths of the State's population. Oahu is the business and government center of the State of Hawaii and home to world famous tourist destination Waikiki hosting five million visitors a year. Two mountain ranges separate the island with the highest peak at an elevation of 4,000 feet. It is 44 miles long, 30 miles wide, and has 112 miles of coast line. Four major freeways and three highways support traffic flow throughout the urban, suburban, and rural areas. Tourism has superseded agriculture as the primary industry. Military bases are strategically located throughout the island.

The HFD was established on January 11, 1851 and was the first fire department in the Hawaiian Islands. It is the only fire department in the United States established by a ruling

monarch and considered the 16th largest metropolitan fire department in the U.S. The HFD

budget for fiscal year 2011 is approximately $96 million. (City and County of Honolulu

[CCHNL], 2010)   The HFD received initial accreditation from the Commission on Fire

Accreditation International (CFAI) in 2000 and reaccreditation in 2005 and 2010. The Fire

Operations section of the HFD receives about $82 million in funding, or 85 percent of the total

department budget. It is authorized 1,129 career fire fighter positions assigned to 44 stations

distributed among 5 battalions. Fire Operations resources consist of 42 engine companies, 13

ladder or quint companies, 2 rescue companies, 2 hazardous materials companies, 2 tower

companies, 1 fireboat company, 5 battalion commanders, 1 assistant fire chief, 5 water tankers, 1

mobile command center (MCC), 2 helicopters, and one helicopter tender. The HFD also has 57

civilian support staff, and 5 contract employees. (Honolulu Fire Department [HFD], 2007) Three

other divisions support the Department's field operations: Administrative Services, Planning and

Development, and Support Services. According to the HFD's Records Management System

(RMS) data base, HFD Fire Operations responded to 53,706 emergency incidents in 2009,

55,834 in 2010 and approximately 48,650 by the end of October 2011.

The emergency responses for HFD stations vary significantly. The busiest company runs

upward of 6,500 calls annually while the slowest runs below 150, resulting in a wide gap in

experience level of personnel within HFD.

In years past when departments were smaller with fewer calls it was possible for

individuals to evaluate and learn from all incidents. Today, systematic PIA, LLP are essential to

ensure pertinent information is collected, analyzed and stored for easy retrieval. Lessons learned

must be widely disseminated to build the knowledge of the entire organization and not just

enhance the awareness of those few who attend the actual PIA process or were directly involved in responding. (Ockershausen, 2008)

Informal discussions with colleagues similar to "hot washes" are important mechanisms to learning however they do not facilitate the systematic, agency-wide sharing of lessons. (Li et al., 2002)

The stated purpose of the HFD PIA process is to improve emergency operations. Yet, it appears the HFD has disseminated very few lessons learned from a variety of incidents occurring over the past two decades that resulted in death and serious injury to responder personnel and citizens thus missing key opportunities for improvement.

On February 28, 1992, a rescue specialist died during an ocean dive training exercise. (Federal Emergency Management Agency [FEMA], 2002, p. 7) On July 21, 1995 a HFD helicopter pilot and two Honolulu Police Department (HPD) officers died after their aircraft crashed into a cloud obscured wind swept mountain during a search operation for a missing hiker. (Fujimori, 2002) On April 1, 2000 thirteen firefighters were treated and two captains were hospitalized following what is described as the worst high-rise fire in the history of the HFD. (Yamada, 2011) On April 8, 2011 five men were killed and another seriously injured following a fireworks explosion in a former World War II era military bunker now used as a public storage facility. (CBS News, 2011) On June 3, 2011 one firefighter required hospitalization after being electrocuted at the scene of a single family dwelling fire. (Hawaii News Now [HNN], 2011)   Just ten days later on June 13, 2011 a fire captain was hospitalized after falling thirty feet through a fiber glass roof panel during a warehouse fire. (Honolulu Star Advertiser [HSA], 2011)

By any objective measure all of these incidents are worthy of systematic evaluation because of their tragic and serious outcomes. However, none of them appear to have been documented via PIA, LLP for the benefit of the entire HFD. The PIA reports that do exist are stored in separate HFD intranet locations making retrieval inefficient and tedious. One intranet website entitled "Docushare" contains only two folders identified as 2009 and 2010 ostensibly intended for storing HFD PIA reports. One would expect to find dozens of reports in each folder considering HFD has responded to an average of over 54,000 emergency calls annually over that two year period. However, the 2009 folder holds only one report while a message appearing on the 2010 folder link indicates the collection does not contain any content or reader permission is required to view the folder. (Honolulu Fire Department [HFD], 2009) There is no folder provided for 2011. Another separate intranet location devoted to fire operations contains a folder entitled "PIA" where a total of 12 reports from 2005 to 2011 are stored in a loosely organized fashion. There is one report from 2005, no reports from 2006, seven reports from 2007, one report from 2008, no reports from 2009 or 2010 and one report from 2011. This site appears to be a simple repository for finished and unfinished reports. Some reports are extensive and detailed while others are still in draft form. There does not appear to be a standardized format that is followed to produce them.

This research is a proactive effort to help prevent injury and death to citizens and emergency workers facing life and limb threatening situations. This study may also establish a framework to assess the effectiveness of other safety initiatives in the HFD.

The research problem is linked to the curriculum discussed in the Executive Leadership (EL) course which suggests in addressing adaptive challenges leaders create opportunities for learning and knowledge to result. (DHS, 2011) PIA, LLP can substantially improve

organizational learning and knowledge when systematically employed. The research problem is

linked to the USFA operational objective "to respond appropriately in a timely manner to

emerging issues" PIA, LLP take on greater importance as new risks, novel technologies and

unique situations compel the fire service to enhance operational practices while discarding those

that prove ineffective in a rapidly evolving disaster landscape. The research problem is also

linked to the USFA operational objective to reduce loss of life of firefighters. Paraphrasing

Santayana, those who fail to learn from past mistakes are doomed to repeat them.

<div align="center">Literature Review</div>

The literature review began by examining various reference materials at the NFA's

Learning Resource Center. Research continued at different Honolulu Public libraries, book

stores, and the University of Hawaii's libraries. Research was also accomplished using Google's

Scholar search engine (http://google.scholar.com/). The hunt for reference material started with

obtaining information related to the level of experience emergency responder organizations have

with PIA, LLP. This was followed by searches in books, journals and websites related to PIA,

LLP training compared to similar types of emergency or military training. Next, possible

barriers to PIA, LLP were explored along with best practices that could help organizations

optimize PIA, LLP. Finally, the HFD's own internal documents, manuals and publications were

examined for the literature review.

The level of experience emergency responder organizations have with PIA, LLP is very

important and perhaps the most objective indicator of how significant they consider this activity

to be for capturing essential information and disseminating valuable lessons.

Jones relates experience and experiential learning plays an important role in knowledge

and skill acquisition as well as with rapid decision making. Experience strengthens skills,

reinforces knowledge and confirms prior learning. (Jones, 2008) Essentially, the more

experience the better.

Klein supports this idea and explains fire commanders use experience to recognize

familiar patterns even when faced with complex situations consequently helping them know how

to react. Experience enables them to make quick and accurate decisions during fast moving

emergency operations. They begin to recognize patterns between observed events and past

successful or unsuccessful approaches to a solution. Experience also helps create mental files for

rapid pattern recognition called Recognition-Primed Decision Making (RPDM). (Klein, 1998)

This method is also used by military officers, airline cockpit crews and hospital emergency room

nurses who, like fire officers must respond quickly to fluid and uncertain conditions. (Klein)

Graham relates, as it applies to RPDM, the mind is compared to a "hard drive," or for

those over 50, a slide tray. Daily experiences are stored. Everything you do is loaded to your

hard drive. When you are involved in any task or incident your brain scans your hard drive to

find a close match. Over time, your individual hard drive will load up with fire service

experiences. Some experiences will involve "close calls" in which you almost got hurt or worse.

You learned lessons that you will never forget. Your hard drive is permanently loaded. But you

probably won't share this information because of fear of embarrassment or discipline. This is

sad. Had you killed yourself or lost a leg, then everyone learns from your tragedy. (Graham,

2010)

Scientist in Germany conducted a study intimately related to RPDM. They compared

grandmaster chess players with amateurs and discovered they use different parts of their brain

when playing. Amateur players activated brain regions involved in processing new memories as

if they were intensely analyzing unusual new moves. Grandmaster brains, however, were more

active in regions storing older memories leading the scientist to conclude that grandmasters have

memorized many more moves and positions and can recognize key elements in problem

situations far more quickly. (Mestel & McFarling, 2001)

Graham asserts RPDM allows good people with experience to do things the right way.

However, if you have no experience with a task, or only experience it on an irregular basis, than

your brain cannot quickly find a match. Without a match, you are on your way to problems.

High frequency events such as routine medical calls do not cause problems. It is the low

frequency events such as working fires that cause breakdowns. (Graham, 2010)

Experience is also critical for police officers responding to unanticipated events. They

react based upon their training, previous practice and what they had experienced successfully in

previous encounters. (Blum, 2000)

McCall relates better managed firms make extensive use of work experiences for

developing general managers and estimates it takes ten to twenty years to "grow" one. The

process is not easy or quick. In fact it is hard and often slow with many risks and pitfalls along

the way. (McCall , Lombardo, & Morrison, 1988)

"Growing" firefighters through live experience in the fire service is a particular challenge

as the number of fires in the United States that are responded to by the fire service continues to

decline, even as the population increases. (United States Fire Administration [USFA], 2004)

This is certainly a welcome trend from the standpoint of health, safety and property preservation.

However, fewer fires result in less actual "trial by fire" experiences for firefighters and

consequently fewer incident related PIA, LLP.

Compounding this undesirable inadequacy of experience is the potential for senior

personnel to leave the fire service due to the negative impact the global financial crisis is having

on local and state retirement pension systems.   Analysts estimate that pensions are underfunded

by at least $300 billion and arguably much more. (Lowenstein, 2005) Thus, eligible individuals

afraid of losing or having their pensions severely reduced through drastic policy or legislative

amendments may decide to get out of the fire service sooner than they anticipated or wanted to.

When these seasoned veterans leave their experience goes with them. Even if these

positions are filled with newly-trained and promoted personnel, those individuals will have less

opportunities to sharpen their skills through actual firefighting or benefit from the lessons and

personal experiences passed on by older firefighters. (Ockershausen, 2008)

NASA understood the important need to capitalize on the wealth of experience within its

ranks and took steps to overcome barriers and improve the way the agency captured and shared

information and lessons learned. They formed knowledge management teams, a business

strategy used by many organizations to make more effective use of the experience and expertise

of the employees within an organization. By developing new ways to capture and share

knowledge they were able to increase productivity, collaboration and innovation. Also, over

4,000 program management employees have participated in NASA's Academy of Program and

Project Leadership (APPL) formal training program thus further contributing to sharing

organizational information. (Li et al., 2002)

Garvin asserts that we learn from experience by repetition and by exposure. Repetition

ensures that the same tasks are performed more efficiently over time. The adage "practice makes

perfect" is as true of swinging a golf club as it is of conducting PIA, LLP. Exposure ensures that

a new set of talents is developed. Skills are added through exploring unfamiliar environments or

assuming new responsibilities. (Garvin, 2000) Clearly, more and frequent repetition and

exposure to learning experiences is preferable to less or no repetition and exposure.

In addition to a sufficient level of experience, emergency responder organizations also need sufficient and meaningful training for their personnel to sharpen and enhance their skills. Frequent training and practice is fundamental to mastering any skill or process such as PIA, LLP. Conversely, performing little or no training will result in little or no skill improvement which can adversely impact the health and safety of responders and the public.

Training ensures that every firefighter can perform competently as an individual and every fire company prepares to operate as a high-performing team. (National Fire Protection Association [NFPA], 2010) Quality training is crucial to maintaining operational safety and controlling emergency incidents. "In a disaster, you don't rise to the level of the situation; you sink to the level of your training. First responders to terror attacks relate their ability to perform when it isn't a drill has everything to do with how they performed when it was a drill". (Los Angeles Fire Department [LAFD], 2011, p. 1)

The medical community also recognizes the need for training systems to reduce error and learn from mistakes. Even though the repertoire and complexity of cases is greater than ever medical teams seldom conduct post-procedure reviews to assess performance and identify lessons learned. This means individuals, teams and the entire organization is not learning from the experience. In addition, information is not captured and shared across the team, department and organization. Thus the same issues, problems and errors are likely to occur in different teams at different times in the future. (Cook, Noyes, & Masakowski, 2007)

Defensive firearm trainer Scott Vaughn relates, training helps personnel prepare for "worst case scenarios". In a gun fight, trained people survive more often than those that do not train. (Vaughn, 2011)

Smoke relates every situation has the potential for providing valuable information to fire personnel and many departments use PIA, LLP as a valuable training tool. (Smoke, 2010)

The United States Army (USA) is a prominent example of how important frequent and consistent training can be to achieving organizational improvement. The USA is among a handful of organizations to have institutionalized a PIA, LLP-type review process, especially at the group level known as After Action Reviews (AARs). AARs were introduced in the mid-1970s to capture lessons from simulated battle training. The technique diffused slowly and it was a decade before the process was fully accepted and embedded in the culture. Only in recent years have AARs become common practice and used extensively to capture and disseminate critical organization knowledge. All participants are trained to meet immediately after an important activity or event to review their assignments, identify successes and failures, and identify how they can improve. The process is comparable to "chalk talks" in sports where coaches and players assemble at half-time or post-game to discuss individual, group and team performance. (Garvin, 2000)

DeWine concurs with the importance of receiving training but emphasizes individuals who are responsible for delivering training also need training and practice to ensure optimal performance. In "practicing what they preach," trainers develop their own talents and skills. (DeWine, 2001) Essentially trainers learn by teaching. Skinner echoes this sentiment citing Seneca who wrote 2000 years ago, docendo discimus: "We learn by teaching." (Skinner, 2009)

There are multiple barriers that impede organizational efforts to optimize PIA, LLP.

Two inter-related examples of barriers are personnel lacking sufficient experience and training. The number of fires that the fire service responds to continues to decline. (USFA, 2004) Fire events typically trigger PIA, LLP. Without this prompt personnel miss the

opportunity to participate in PIA, LLP and fail to gain an appreciation for the importance and value that can be derived from them.

Logically, if people lack sufficient experience or training with a particular process such as PIA, LLP, they cannot be expected to participate or contribute to it in a meaningful and constructive manner. According to many industry experts, people perform like they train. (Kramer, 2009, p. 62-63)

Graham asserts RPDM allows good people with experience to do things the right way. However, if you have no experience with a task, or only experience it on an irregular basis, than your brain cannot quickly find a match. Without a match, you are on your way to problems. High frequency events such as routine medical calls do not cause problems. It is the low frequency events such as working fires that cause breakdowns. (Graham, 2010)

Li (Li et al., 2002) shares numerous examples of barriers found at NASA. The lack of strong leadership support is a crucial barrier. The effective use of lessons learning at NASA is inhibited because senior management is not committed to using it. If management is serious about capturing and using lessons learned they must model the desired behavior and encourage employee participation. Another barrier is information not being shared and disseminated expediently and widely. Lessons are of little benefit unless they are distributed and used by people who will be helped by them. One more barrier is personnel fearing the consequences of admitting to screw ups. People view lessons learned as admitting to failure. No one is rewarded for telling about how they screwed up or caused a problem. They do not want to be perceived as poor project managers and risk their careers.

Graham concurs with Li on the notion that management must set the proper example citing the issue of firefighter safety. He relates personnel will never follow safety rules unless and until they are being followed by supervisors and managers. (Graham, 2010)

Garvin (Garvin, 2000) lists several other barriers observed in the military that would negatively impact first responder organizations if present. One barrier is the lack of skilled, objective facilitators. Facilitators are required to be sensitive, observant, experienced and knowledgeable about operations and tactics. Poor AARs can be traced to facilitators misunderstanding their roles and turning the occasion into a sharing of war stories and anecdotes. Another barrier is the lack of structure and organization when conducting reviews. Without these features discussions will be incoherent, rambling, meandering and random.   A further barrier Garvin cites is infrequent or irregular reviews. Without this characteristic the process has little chance of achieving cultural or institutional acceptance. Another barrier is the lack of widespread technology assistance in the form of instrumentation and recording mediums to objectively capture precisely what, when, where and how events unfolded and who was involved. Recordings are extremely detailed and leave little room for argument or debate. Superiors tending to dominate discussions are viewed as another barrier. This behavior has the effect of blocking rather than encouraging communication. Leaders become unapproachable as Powell relates, "the day soldiers stop bringing you their problems is the day you have stopped leading them. They have either lost confidence that you can help them or concluded that you don't care. Either case is a failure of leadership". (Harari, 2002, p. 256)

One more barrier closely related to domineering superiors is subordinates being too intimidated to speak freely. Too often the person in charge is intimidating. Some commanders insist on leading their own AARs because they feel they are best able to encourage openness and

debate. Yet most Army experts agree that the task is better left to individuals with less personal stake and a broader perspective. (Garvin)

Feelings of intimidation in an environment where leaders do not promote trust and encourage open and honest participation without fear of personal attack or official retribution can cause some personnel to withhold valuable information that could improve future operations and enhance responder safety. (Ockershausen, 2008)

McCann concurs with the views of Ockershausen relating subordinates who may hide information can deprive others of learning. (McCann & Pigeau, 2000)

There are a variety of best practices that can help organizations optimize PIA, LLP and overcome the limitations imposed by the barriers already described.

Collecting information immediately following an incident to minimize memory loss is one best practice. Reviews should be conducted the same day or as soon after an event as possible. Facts can be difficult to establish especially with high stress and rapidly moving events. Often memories become flawed with the passage of time, leading to competing or inconsistent stories. (Garvin, 2000)

Using recording technology to help objectively establish what happened is another best practice. Global Positioning Systems (GPS) can track exact position and movement of vehicles or individuals. Video cameras provide visual depiction with extreme fidelity. As one officer put it: "If a picture is worth a thousand words a motion picture must be worth a million." Audiotapes convey exact timing and content of communications both within and across units. These tools help ensure that facts are reconstructed with considerable accuracy and allow participants to relate what actually happened. They can also help resolve factual disputes if they arise. (Garvin, 2000) Film study is the rule and not the exception in virtually all levels of sports

today. Having spent four years as a linebacker in Division I college football this researcher

knows first hand the emphasis that is placed on frequent and systematic film analysis of the

opponent in preparation for competition. Even though the reel to reel film technology used at the

time is primitive by today's standards, one could still see every formation; every move and every

play develop. Knowing that your own play would be subject to intense scrutiny by teammates,

coaches and opponents actually motivated you to perform at your best.

Wyman relates the Seattle Seahawks have effectively used video for the past 36 years

because, "the big eye in the sky don't lie." Players and coaches can see exactly what did or did

not happen on any give play and whether assignments were fulfilled or missed so that

adjustments can be made. Technology has taken quantum leaps. In addition to miniaturized

hand held cameras, helmet and body cams are used widely to capture video that can be

downloaded onto all manner of portable devices for immediate review. (Wyman, 2011) The

Seattle police department has adopted the use of video cameras on board patrol vehicles with the

ability to capture action during high speed chases, shootings, drug arrests or routine traffic stops.

This decision was motivated by the desire to promote officer safety. Video also offers 360

degree accountability and provides an unbiased, accurate view of what really happened in a

situation. (Seattle Police Department [SPD], 2011)

Verifying the accuracy of collected incident information is one more best practice.

Domain or subject matter experts may be involved to coordinate and conduct reviews. (Li et al.,

2002) The use of recording technology can assist in the review process.

Incorporating lessons into a centralized electronic storage data base for the dissemination

and sharing of knowledge is an additional best practice. Users should be able to access applicable

information using keywords to facilitate retrieval. (Li et al., 2002)

Sharing and disseminating information expediently and widely is another best practice. As noted previously, the dissemination of lessons learned is important since lessons are of little value unless they are distributed to those who can benefit from them. Lessons can be "pulled" in cases where users manually search for them or "pushed," and automatically delivered to users. (Li et al., 2002) However, "pulling" or explicitly requesting information from the system can be inordinately time consuming and "pushing" relevant information can be useful providing perceptions of "spamming" can be avoided. (Franklin & Zdonik, 1998)

Frequent and consistent use of PIA, LLP is an additional best practice that can help promote cultural acceptance of incident reviews. Unless reviews are carried out routinely at all levels of the organization they will be seen as little more than an interesting diversion. The USA includes AARs after most training exercises and the Army's former chief of staff did not exempt himself from the process. This helped ensure that AARs became second nature and standard procedure. (Garvin, 2000)

Using skilled objective facilitators to help keep discussions on track is another best practice. Skilled facilitation is essential to guide discussions from beginning to end. Facilitators keep the group focused, establish and enforce ground rules, monitor and maintain the meeting schedule. Reviews require openness, candor and a willingness to set aside traditional lines of authority. When leaders can admit up front that they did some things right and some things wrong, it really opens up the whole group. Honest interchange between superiors and subordinates is predicated on recognizing disagreement is not disrespect. This attitude is not typically found in hierarchical organizations but skilled facilitators can help to carefully and consciously cultivate it. (Garvin, 2000)

Procedures

The research data for this project was obtained from responses to a fourteen question survey instrument (see Appendix B) created by this researcher.   The instrument design was initiated on the website SurveyMonkey.com® on August 12, 2011. The survey was administered as a test to five HFD personnel on September 12, 2010. This test was conducted to evaluate the competency of the questionnaire, estimate the length of time to take the survey, determine if the wording is clear and see which items produce irritation, embarrassment, or confusion. (SurveyMonkey [SM], 2008)

Adjustments were made to certain demographic fields in order to maintain the anonymity of respondents if they so desired. The final product underwent multiple revisions to ensure that all four research questions would be answered.

Composing a cover letter (see appendix A) was the first essential step to address ethical considerations such as using language that was reasonably understandable to participants, informing participants that they were free to participate or decline to participate or to withdraw once they started. (Koocher & Keith-Spiegel, 2008) The letter neither stated, nor implied that participation was coerced. The letter described the purpose for the survey and ensured anonymity unless participants desired receiving the results. As further assurance, participants were told all survey data would be destroyed once this project was completed.

Upon completion of the letter, focus turned to developing the survey. Both qualitative (open-ended questions) and quantitative (forced-choice questions) were used. Babbie stressed a poorly designed questionnaire renders results meaningless so he recommended making items clear; avoiding double-barreled questions; keeping items short so they can be read, understood and answered quickly; avoiding negative and irrelevant items. (Babbie, 1990) Busha and Harter

recommended avoiding slang, jargon, and technical terms; developing consistent response methods; sequencing questions from the general to the specific; placing questions with similar content together in the survey instrument, and using an attractive questionnaire format that conveys a professional image. (Busha & Harter, 1980)

Questions one and two of the survey captured demographic data such as rank, position, years of service, age, education, location and size of organization. This was intended to see if respondent's answers to specific questions might be influenced by these characteristics. For instance, respondents with a higher rank or multiple years of service would be expected to have more experience and training related to PIA, LLP used by their organizations. Younger, less tenured respondents would conversely have less. Also, those with higher levels of education would be expected to consider training more important than those with lower levels of education.

Question three sought to establish whether or not organizations actually engage in PIA, LLP.

The first research questions dealing with how experienced organizations are with PIA, LLP was answered by responses to survey questions 4 and 5. Question 4 asked respondents how many times at work in the past 12 months they participated in PIA, LLP. Their five choices were none, 1-5, 6-10, 11-15 and 16 or more. Question 5 asked respondents how many times at work in the past 12 months they led or directed PIA, LLP. Their choices were the same five as in question 4.

The second research question about how sufficient PIA, LLP training is for personnel was answered by responses to survey questions 6 to 9. Respondents were asked if they had received or delivered any training at work in the past 12 months related to PIA, LLP. They were also asked how much they agreed whether personnel had sufficient PIA, LLP experience and

training. Their choices were Disagree Strongly, Disagree, Neither Disagree or Agree, Agree and Agree Strongly. Respondents were also asked how important receiving sufficient PIA, LLP experience and training was. Their five choices were Not Important, Somewhat Important, Moderately Important, Very Important and Extremely Important.

 The third research question related to barriers that prevent optimization of PIA, LLP was answered by responses to survey question 13. Respondents were asked what conditions from a random list of eleven issues were barriers in their organization. Their five choices were Not a Barrier, Moderate Barrier, Average Barrier, Strong Barrier and Extreme Barrier.

The fourth research question related to what best practices organizations can employ to optimize PIA, LLP was answered by responses to survey questions 10 to 12. Question 10 asked respondents how important they thought a random list of seven best practices was. Their five choices were Not Important, Somewhat Important, Moderately Important, Very Important and Extremely Important. Question 11 asked respondents which of the seven random best practices their organization implemented. Question 12 asked respondents how they would rate the effectiveness of the seven random best practices in helping to optimize PIA, LLP in their organization. Their five choices were Not Effective, Somewhat Effective, Effective, Very Effective and Extremely Effective.

Question 14 asked respondents to provide additional comments, concerns or suggestions about optimizing PIA, LLP.

The survey was sent on September 28, 2011 via internet email with an attached link to SurveyMonkey.com® to various first responders as they were likely to have relevant experience with PIA, LLP. Email addresses were selected from the City and County of Honolulu email server and from NFA EFOP class lists. This researcher chose to use the internet as a method to

conduct survey research because of the time and costs savings compared to mailed paper format surveys or long distance telephone interviews mentioned by Wright. (Wright, 2005) It was also used to take advantage of higher response rates electronic surveys provide. (Colorado State University [CSU], 2010)

Limitations in the selected method include not knowing for certain whether the recipient of the emailed survey is the person who actually completes and returns it. Also respondents can misrepresent their demographic information, respond in socially desirable ways or conceal their true feelings about the content of the survey. (Wright, 2005)

Results

The collection period for survey responses was set for one month beginning on September 28, 2011. There were a total of 60 respondents representing fire, police and EMS organizations.

Survey question #3 asked respondents if their organizations conducted PIA, LLP. Fifty-four or 90% of them indicated "Yes". Four or 6.7% indicated "No" while two or 3.3% indicated "Don't Know".

Responses to survey questions #4 and #5 were intended to describe the type and amount of experience respondents have with PIA, LLP.

Survey question #4 asked respondents to indicate how many times at work in the past 12 months they have participated in PIA, LLP. The majority of them indicated "1-5". Thirty-eight or 64.4% indicated "1-5". Eight respondents or 13.6% indicated either "None" or "6-10". Two respondents or 3.4% indicated "11-15" while three or 5.1% indicated "16 or more".

Survey question #5 asked respondents to indicate how many times at work in the past 12 months they have led or directed PIA, LLP. The majority of them indicated "None". Thirty-two

or 53.3% indicated "None".   Twenty-four or 40% indicated "1-5". Two respondents or 3.3%

indicated "16 or more".

Responses to survey questions #6 and #7 were intended to describe the type and amount

of training respondents have with PIA, LLP.

Survey question #6 asked respondents to indicate if they received any training at work in

the past 12 months related to PIA, LLP. The vast majority of them indicated "No". Forty-six or

76.7% of them indicated "No". The remaining fourteen respondents or 23.3% indicated "Yes".

Survey question #7 asked respondents to indicate if they delivered any training at work in

the past 12 months related to PIA, LLP. The vast majority of them indicated "No". Fifty or

84.7% of them indicated "No". Nine respondents or 15.3% indicated "Yes".

Responses to survey question #8 were intended to describe how much respondents agree

whether personnel in their organization have sufficient PIA, LLP experience and training. The

majority of them indicated they "Agree" personnel have sufficient PIA, LLP experience.

Twenty-six or 45.6% of respondents indicated they "Agree" while fifteen or 26.3% indicated

they "Disagree" personnel have sufficient experience. On the other hand the majority of

respondents indicated they "Disagree" personnel have sufficient PIA, LLP training. Twenty-one

or 36.8% indicated they "Disagree" while seventeen or 29.8% the "Agree" personnel have

sufficient training.

Responses to question #9 were intended to describe how important personnel receiving

sufficient PIA, LLP experience and training is to optimizing PIA, LLP in their organizations.

Twenty-eight or 48.3% of respondents indicated it was "Very Important" that personnel receive

sufficient experience while another nine or 15.5% indicated it was "Extremely Important".

Twenty-nine or 50.9% of respondents indicated it was "Very Important" that personnel receive

sufficient training with another six or 10.5% indicated it was "Extremely Important".

Responses to question #10 were intended to describe what how important best practices

are to helping optimize PIA, LLP. Respondents were asked to indicate whether a list of

randomly arranged best practices is "Not Important", is "Somewhat Important", is "Moderately

Important", is "Very Important" or is "Extremely Important" to helping optimize PIA, LLP.

Fifty total respondents or 86.2 % indicated "Information is immediately collected to minimize

memory losses" is either "Very Important" or "Extremely Important". Thirty-four or 58.6% of

them indicated "Very Important" while sixteen or 27.6% indicated "Extremely Important".

Thirty-five total respondents or 60.3% indicated "Recording technology e.g. GPS/video/audio

taping is used to help objectively establish what happened" is either "Very Important" or

"Extremely Important". Twenty-six or 44.8% of them indicated "Very Important" while nine or

15.5% indicated "Extremely Important". Forty-seven total respondents or 81.1% indicated

"Information is verified to ensure accuracy" is either "Very Important" or "Extremely

Important". Thirty-two or 55.2% of them indicated "Very Important" while fifteen or 25.9%

indicated "Extremely Important". Forty-five total respondents or 77.6% indicated "Information

is electronically stored with easy keyword retrieval features" is either "Moderately Important" or

"Very Important". Twenty or 34.5% of them indicated "Moderately Important" while twenty-

five or 43.1% indicated "Very Important". Forty-nine total respondents or 84.5% indicated

"Information is shared and disseminated expediently and widely" is either "Very Important" or

"Extremely Important". Thirty or 51.7% of them indicated "Very Important" while nineteen or

32.8% indicated "Extremely Important". Forty-four total respondents or 75.9% indicated

"Process is frequently and consistently used to help promote cultural acceptance of the practice"

is either "Very Important" or "Extremely Important". Twenty-nine or 50% of them indicated

"Very Important" while fifteen or 25.9% indicated "Extremely Important". Forty-seven total

respondents or 81% indicated "Skilled objective facilitators are used to keep discussion on track"

is either "Moderately Important" or "Very Important". Seventeen or 29.3% of them indicated

"Moderately Important" while thirty or 51.7% indicated "Very Important".

Responses to question #11 were intended to describe which PIA, LLP best practices

organizations implement. Respondents were asked to indicate which best practices from a list of

randomly arranged items their organization implements. Three best practices were implemented

most frequently. The first best practice most frequently identified by thirty-six or 63.2% of

respondents is "Information is immediately collected to minimize memory losses". The second

best practice identified by twenty-eight or 49.1% of respondents is "Information is shared and

disseminated expediently and widely". The third best practice identified by twenty-three or

40.4% of respondents is "Information is verified to ensure accuracy". Eleven or 19.3% of

respondents indicated their organization did not implement any of the listed best practices.

Responses to question #12 were intended to describe how effective best practices would

be to optimizing PIA, LLP. Respondents were asked to indicate whether a list of randomly

arranged best practices is "Not Effective", is "Somewhat Effective", is "Effective", is "Very

Effective" or is "Extremely Effective" in helping to optimize PIA, LLP. Thirty-eight total

respondents or 66.7 % indicated "Information is immediately collected to minimize memory

losses" is either "Effective" or "Very Effective". Twenty-five or 43.9% of them indicated

"Effective" while thirteen or 22.8% indicated "Very Effective". Twenty-seven total respondents

or 49.1% indicated "Recording technology e.g. GPS/video/audio taping is used to help

objectively establish what happened" is either "Very Effective" or "Extremely Effective".

Sixteen or 29.1% of them indicated "Very Effective" while eleven or 20% indicated "Extremely Effective". Thirty total respondents or 53.6% indicated "Information is verified to ensure accuracy" is either "Effective" or "Very Effective". Fourteen or 25% of them indicated "Effective" while sixteen or 28.6% indicated "Very Effective". Thirty total respondents or 54.5% indicated "Information is electronically stored with easy keyword retrieval features" is either "Somewhat Effective" or "Effective". Thirteen or 23.6% of them indicated "Somewhat Effective" while seventeen or 30.9% indicated "Effective". Thirty-two total respondents or 57.2% indicated "Information is shared and disseminated expediently and widely" is either "Effective" or "Very Effective". Seventeen or 30.4% of them indicated "Effective" while fifteen or 26.8% indicated "Very Effective". Twenty-six total respondents or 46.4% indicated "Process is frequently and consistently used to help promote cultural acceptance of the practice" is either "Very Effective" or "Extremely Effective". Fourteen or 25% of them indicated "Very Effective" while twelve or 21.4% indicated "Extremely Effective". Thirty-one total respondents or 55.4% indicated "Skilled objective facilitators are used to keep discussion on track" is either "Effective" or "Very Effective". Twenty-one or 37.5% of them indicated "Effective" while ten or 17.9% indicated "Very Effective".

Responses to question #13 were intended to describe what conditions are barriers to optimizing PIA, LLP in organizations. Respondents were asked to indicate whether a list of randomly arranged issues is "Not a Barrier", is a "Moderate Barrier", is an "Average Barrier", is a "Strong Barrier" or is an "Extreme Barrier". Twenty-two or 39.3% of respondents indicated the issue; "Personnel lacking sufficient experience" is an "Average Barrier" while eleven or 19.6% considered it a "Strong Barrier". Thirteen or 23.2% of respondents indicated the issue; "Personnel lacking sufficient training" is an "Average Barrier" while nineteen or 33.9%

considered it a "Strong Barrier". Nineteen or 33.9% of respondents indicated the issue; "Process lacking strong leadership support" is "Not a Barrier" while twelve or 21.4% considered it a "Strong Barrier". Twelve or 22.2% of respondents indicated the issue; "Process lacking skilled objective facilitators to help keep discussion on track" is "Not a Barrier" while fifteen or 27.8% considered it a "Strong Barrier". Seventeen or 30.4% of respondents indicated the issue; "Process lacking structure and organization" is "Not a Barrier" while thirteen or 23.2% considered it a "Strong Barrier". Fifteen or 26.8% of respondents indicated the issue; "Process lacking broad cultural acceptance due to infrequent/inconsistent use" is a "Moderate Barrier while and equal number and percentage consider it a "Strong Barrier". Fourteen or 25% of respondents indicated the issue; "Information not being shared and disseminated expediently and widely" is "Not a Barrier" while eleven or 19.6% consider it a "Strong Barrier". Fourteen or 25% of respondents indicated the issue; "Recording technology not being widely used" is "Not a Barrier" while thirteen or 23.2% consider it a "Strong Barrier". Sixteen or 28.6% of respondents indicated the issue; "Subordinates being too intimidated to speak freely" is "Not a Barrier" while fourteen or 25% considered it a "Moderate Barrier". Nineteen or 33.9% of respondents indicated the issue; "Superiors tending to dominate discussions" is a "Moderate Barrier" while nine or 16.1% consider is a "Strong Barrier". Twelve or 21.4% of respondents indicated the issue; "Personnel fearing consequences of admitting to screw ups" is "Not a barrier" while thirteen or 23.2% consider it an "Extreme Barrier". One respondent related a barrier they experience is obtaining timely and accurate information from other partners such as law enforcement, mutual aid and utility companies.

Survey question #14 asked respondents to provide additional comments, concerns or suggestions about optimizing PIA, LLP. Seven respondents shared their thoughts. One

individual highlighted the fact that their PIA process is not as effective as it could be because people are reluctant to criticize others in public discussions especially if they are coworkers.

<div align="center">Discussion</div>

The survey results and literature review were compared to identify areas where similarities or differences in describing the issues introduced by the research questions existed.

The survey results showed 90% of organizations conduct PIA, LLP. For those respondents who indicated, "Don't Know" if their organizations conduct PIA, LLP it is unclear whether they lack the time, interest or motivation to find out.

Although the survey results showed 48.3% of respondents indicated it is "Very Important" that personnel have sufficient experience to help optimize PIA, LLP in their organization, the frequency of personnel actually participating in or directing a review in the past 12 months at work was relative low. Nearly sixty-five percent of respondents indicated they participated only 1-5 times while 53.3% of respondents indicated they directed none. It seems reasonable to conclude that meeting less than an average of every two months in a one year period to conduct PIA, LLP barely qualifies as having sufficient "experience".

The survey results related to how experienced emergency responder organizations are with PIA, LLP was unimpressive and paralleled in the literature review. Various authors highlighted the significance of experience and the challenges in acquiring it. The USFA pointed out the number of fires in the United States that are responded to by the fire service continues to decline, even as the population increases. (United States Fire Administration [USFA], 2004) This is certainly a welcome trend from the standpoint of health, safety and property preservation. However, fewer fires result in less actual "trial by fire" experiences for firefighters and consequently fewer incident related PIA, LLP. Jones relates experience and experiential learning

plays an important role in knowledge and skill acquisition as well as with rapid decision making. Experience strengthens skills, reinforces knowledge and confirms prior learning. (Jones, 2008) Essentially, the more experience the better. Garvin asserts that we learn from experience by repetition and by exposure. Repetition ensures that the same tasks are performed more efficiently over time. The adage "practice makes perfect" is as true of swinging a golf club as it is of conducting PIA, LLP. Exposure ensures that a new set of talents is developed. Skills are added through exploring unfamiliar environments or assuming new responsibilities. (Garvin, 2000) Clearly, more and frequent repetition and exposure to learning experiences is preferable to less or no repetition and exposure. Graham asserts RPDM allows good people with experience to do things the right way. However, if you have no experience with a task, or only experience it on an irregular basis, than your brain cannot quickly find a match. Without a match, you are on your way to problems. High frequency events such as routine medical calls do not cause problems. It is the low frequency events such as working multiple alarm fires where breakdowns occur. (Graham, 2010)

The survey results related to how sufficient PIA, LLP training is for personnel was dismal. Although the survey showed 50.9% of respondents indicated it was "Very Important" that personnel have sufficient PIA, LLP training, 76.7% of respondents indicated they received no training at work in the past 12 months related to PIA, LLP and 84.7% indicated they delivered no training in the same time period. These results make one wonder how productive different first responder organization's PIA, LLP are considering the insufficient levels of experience and training that appear to exist. The literature review outlined the importance of training related to PIA, LLP. The United States Army (USA) is a prominent example of how important frequent and consistent training can be to achieving organizational improvement. The USA is among a

handful of organizations to have institutionalized a PIA, LLP-type review process, especially at

the group level known as After Action Reviews (AARs). AARs were introduced in the mid-

1970s to capture lessons from simulated battle training. The technique diffused slowly and it

was a decade before the process was fully accepted and embedded in the culture. Only in recent

years have AARs become common practice and used extensively to capture and disseminate

critical organization knowledge. All participants are trained to meet immediately after an

important activity or event to review their assignments, identify successes and failures, and

identify how they can improve. The process is comparable to "chalk talks" in sports where

coaches and players assemble at half-time or post-game to discuss individual, group and team

performance. (Garvin, 2000) DeWine concurs with the importance of receiving training but

emphasizes individuals who are responsible for delivering training also need training and

practice to ensure optimal performance. In "practicing what they preach," trainers develop their

own talents and skills. (DeWine, 2001) Essentially trainers learn by teaching. Skinner echoes

this sentiment citing Seneca who wrote 2000 years ago, docendo discimus: "We learn by

teaching." (Skinner, 2009) Smoke relates every situation has the potential for providing

valuable information to fire personnel and many departments use PIA, LLP as a valuable training

tool. (Smoke, 2010)

The survey results related to what barriers prevent optimization of PIA, LLP was

interesting and in some instances unexpected. Nearly 39.5% of respondents indicated "Personnel

lacking sufficient experience" was only an "Average Barrier" while 19.6% of respondents

considered it a "Strong Barrier". "Personnel lacking sufficient training" was deemed a "Strong

Barrier" by 33.9% of respondents. "Process lacking strong leadership support" was regarded as

"Not a Barrier" by 33.9% of respondents. "Process lacking skilled objective facilitators to help

keep discussions on track" was noted as another "Strong Barrier" by 27.8% of respondents.

"Information not being shared and disseminated expediently and widely" was deemed "Not a

Barrier" by an unexpected 25% of respondents while 19.6% of respondents actually considered it

another "Strong Barrier". "Recording technology not being widely used" was viewed as another

"Strong Barrier" by 23.2% of respondents. Also interesting was the 23.2 % of respondents who

indicated "Personnel fearing consequences of admitting to screw ups" was an "Extreme Barrier".

The literature review does not completely align with the survey findings but emphasizes

insufficient training, the lack of skilled facilitators, the lack of recording technology and

personnel fearing consequences of admitting to screw ups can be definite barriers to optimizing

PIA, LLP. According to many industry experts, people perform like they train. (Kramer, 2009,

p. 62-63) So logically, if people lack sufficient experience or training with a particular process

such as PIA, LLP, they cannot be expected to participate or contribute to it in a meaningful and

constructive manner. For instance, the need for training systems to reduce error and learn from

mistakes in medicine is obvious. Yet, even as the repertoire and complexity of cases is greater

than ever medical teams seldom conduct post-procedure reviews to assess performance and

identify lessons learned. This means individuals, teams and the entire organization is not

learning from the experience. In addition, information is not captured and shared across the

team, department and organization. Thus the same issues, problems and errors are likely to

occur in different teams at different times in the future. (Cook, Noyes, & Masakowski, 2007)

Garvin (2000) insists the lack of skilled, objective facilitators can have a negative impact on

review proceedings. Facilitators are required to be sensitive, observant, experienced and

knowledgeable about operations and tactics. Poor AARs can be traced to facilitators

misunderstanding their roles and turning the occasion into a sharing of war stories and anecdotes.

The lack of the widespread use of recording technology in the form of instrumentation and recording equipment can also adversely affect reviews. Video and audio recordings detail precisely what, when, where and how events unfolded and who was involved. Without them factual arguments or debates can derail forward momentum. (Garvin, 2000) Personnel fearing the consequences of admitting to screw ups can also hinder the review process. People tend to view lessons learned as an admission of failure. No one is rewarded for telling about how they screwed up or caused a problem. They do not want to be perceived as poor project managers and risk their careers.

The survey results related to what best practices organizations can employ to optimize PIA, LLP were encouraging. All seven of the listed best practices were rated either "Effective" or "Very Effective" by respondents. However, although 63.2% of respondents indicated their organization immediately collects information to minimize memory losses only 43.9% of respondents deemed this best practice "Effective". Also, the use of recording technology was regarded as "Very Effective" by only 29.1% of respondents although 35.1% of respondents indicated their organization implements the practice. Information verification was considered "Very Effective" by 28.6% of respondents while electronic information storage was deemed "Effective" by 30.9% of respondents. Information sharing and dissemination was considered "Effective" by 30.4% of respondents with 26.8% indicating it was "Very Effective". The frequent and consistent use of the process was considered "Very Effective" by 25% of respondents with 21.4% indicating it was "Extremely Effective". Using skilled facilitators was regarded as "Effective" by 37.5% of respondents with 17.9% indicating it was "Very Effective".

The literature review mirrored many of the best practices survey results. Garvin (2000) relates collecting information immediately following an incident to minimize memory loss is

important. Reviews should be conducted the same day or as soon after an event as possible.

Facts can be difficult to establish especially with high stress and rapidly moving events. Often

memories become flawed with the passage of time, leading to competing or inconsistent stories.

Garvin (2000) asserts using recording technology to help objectively establish what

happened is also important. Global Positioning Systems (GPS) can track exact position and

movement of vehicles or individuals. Video cameras provide visual depiction with extreme

fidelity. As one officer put it: "If a picture is worth a thousand words a motion picture must be

worth a million." Audiotapes convey exact timing and content of communications both within

and across units. These tools help ensure that facts are reconstructed with considerable accuracy

and allow participants to relate what actually happened. They can also help resolve factual

disputes if they arise. Wyman relates the Seattle Seahawks have effectively used video for the

past 36 years because, "the big eye in the sky don't lie." Players and coaches can see exactly

what did or did not happen on any give play and whether assignments were fulfilled or missed so

that adjustments can be made. Technology has taken quantum leaps. In addition to miniaturized

hand held cameras, helmet and body cams are used widely to capture video that can be

downloaded onto all manner of portable devices for immediate review. (Wyman, 2011) The

Seattle police department has adopted the use of video cameras on board patrol vehicles with the

ability to capture action during high speed chases, shootings, drug arrests or routine traffic stops.

This decision was motivated by the desire to promote officer safety. Video also offers 360

degree accountability and provides an unbiased, accurate view of what really happened in a

situation. (Seattle Police Department [SPD], 2011)

Li (2002) relates verifying the accuracy of collected incident information is important and

can involve domain or subject matter experts to coordinate and conduct reviews. Li (2002)

declares incorporating lessons into an electronic storage data base for the dissemination and

sharing of knowledge is also imperative. Users should be able to access applicable information

using keywords to facilitate retrieval. Sharing and disseminating information expediently and

widely is also necessary. Lessons are of little value unless they are distributed to those who can

benefit from them. Lessons can be "pulled" in cases where users manually search for them or

"pushed," and automatically delivered to users. (Li et al., 2002) Frequent and consistent use of

PIA, LLP can help promote cultural acceptance of incident reviews. Unless reviews are carried

out routinely at all levels of the organization they will be seen as little more than an interesting

diversion. The USA includes AARs after most training exercises and the Army's former chief of

staff did not exempt himself from the process. This helped ensure that AARs became second

nature and standard procedure. (Garvin, 2000) Using skilled objective facilitators to help keep

discussions on track and guide discussions from beginning to end is also essential. Facilitators

keep the group focused, establish and enforce ground rules, monitor and maintain the meeting

schedule. Reviews require openness, candor and a willingness to set aside traditional lines of

authority. When leaders can admit up front that they did some things right and some things

wrong, it really opens up the whole group. Honest interchange between superiors and

subordinates is predicated on recognizing disagreement is not disrespect. This attitude is not

typically found in hierarchical organizations but skilled facilitators can help to carefully and

consciously cultivate it. (Garvin, 2000)

     The survey results also revealed a puzzling relationship between the education levels of

respondents with how they rated the importance of PIA, LLP training for personnel. It appears

respondents who achieved a high level of education did not affirmatively or consistently place a

high level of importance on training. Perhaps this could be due to a miss-reading or

misinterpretation of the survey question but it was definitely an unexpected finding. Tenure, rank and age did not appear to affect the respondent's level of experience or training either.

This research focused on exploring ways to systematically optimize PIA, LLP in order to improve operational safety and deliver quality service. This study was not an attempt to criticize the personnel, policies, procedures, strategies, tactics or practices of the HFD. It was done with the conviction that those who review this research will find it beneficial and consequently help them improve their own organizations. After reviewing the literature and analyzing the research data this researcher is convinced increasing experience through more frequent training of personnel as well as implementing best practices to expedite collection, analysis, storage and distribution of lessons learned with emergency responders to enhance their safety will help optimize PIA, LLP.

The implication for the HFD is that it will continue to experience preventable death and serious injury to personnel as well as the general public if robust PIA, LLP are not implemented. Certainly, the history of the past twenty years briefly described at the outset proves that point. However, systematic PIA, LLP can and should be implemented especially in light of recent injuries suffered by two HFD firefighters. Implementation will require adaptive change on multiple levels. Graham emphasizes it does not matter why a system is not fully implemented, but if good systems are not properly implemented, disaster awaits. Challenger, Waco, Ruby Ridge, TMI, Chernobyl, Worchester, the Sadler Fire, Jack in the Box, NYPD, LAPD, Los Alamos, Singapore Air, the Russian submarine Kursk, the submarine mess off the coast of Hawaii, the E-coli mess in Canada and the FBI-McVeigh mess are all examples of organizations and incidents where systems were lacking, not up to date or not fully implemented. (Graham, 2010)

Recommendations

The recommendations derived from this study are offered to optimize PIA, LLP in order to improve operational safety and deliver quality service. After analyzing data from the survey and reviewing relevant literature five recommendations are presented for consideration.

The first recommendation is to improve the experience responders have with PIA, LLP by increasing the type, amount and frequency of PIA, LLP training, drills and practice they are provided or deliver. Personnel with sufficient training in PIA, LLP may be better able to serve themselves and the citizens they are sworn to protect because they have knowledge of lessons that can help keep them safe and provide quality service. Realistic training must occur regularly and consistently such that it becomes part of the cultural landscape. Every day must be a training day. Reviewing high risk/low frequency/no discretionary time (HR/LF/NDT) events is crucial for every organization because no matter the type of department, no matter the rank or position, a HR/LF/NDT event is in everyone's future. Training to learn from mistakes and prevent the repeat of disasters is important. Leaders are obligated to ensure that their personnel have a loaded "hard drive" prior to arrival on scene. The ultimate goal is to develop personnel into experienced "grandmasters" who have memorized many more moves and positions and can recognize key elements in problem situations far more quickly. (Mestel & McFarling, 2001)

The second recommendation is for emergency response organizations to consider developing facilitators from within their ranks so they can eventually guide PIA, LLP. Trained outside facilitators from other organizations with significant experience can be recruited to come in initially to assist with existing PIA, LLP. This will allow in-house candidates who have expressed an interest in performing that function to have a proper role model to follow as they attempt to become a facilitator themselves. Once candidates are able to demonstrate a relatively

high degree of competence with the process through repetitive practice and exposure they can be inserted into the role of facilitator on a regular basis. Organizations that are in close proximity to Army or military bases would be wise to network with those commanders to solicit their assistance in developing facilitators. The HFD has a particularly unique opportunity to network with a diverse collection of International, Federal, State and City agencies that have assembled in Hawaii in support of the Asian Pacific Economic Cooperation Summit occurring November 2011 on the island of Oahu.

Increasing the frequency and consistency of using PIA, LLP so that they become part of the organizational culture and standard procedure is the third recommendation. This adaptive change will clearly take time. Adaptive change requires committed leaders, focused participants and supportive administrators. Just composing a PIA, LLP policy or procedure and posting it in an organizational manual does not make the process effective. People make the process work. People with experience and training that can only be gained by frequent and consistent use of PIA, LLP. No one should be exempt from the process either and leaders need to set the example by participating honestly and wholeheartedly.

Implementing widespread use of recording technologies is the fourth recommendation. In this era of relatively affordable technology in the form of smart phones with GPS capability, digital still/video cameras and miniaturized multi-track audio recorders it behooves first responder organizations to develop systems and procedures to take advantage for the safety and welfare of their people. Recording technologies can be programmed to track personnel on the ground in real time. This will provide greater situational awareness and facilitate the rapid development of command strategy options. Recording technologies offer the added beneficial ability to immediately collect incident information thus minimizing concerns that time passage

could dull or distort participant's memories. In turn this information must be analyzed for

accuracy and relevance, reviewed thoroughly, developed into lessons learned than stored in a

centralized electronic data base with key word search capabilities so that personnel can easily

access, retrieve and disseminate it across the entire organization.

The fifth recommendation for "Future Readers" of this research who may wish to

replicate some or all of this study within their own organization is to focus on gathering the

newest literature available to ensure information cited is contemporary, current, and relevant.

This is particularly applicable when collecting information on the role recording technology can

play in PIA, LLP. Innovations to recording hardware, software applications and capabilities

occur swiftly. Similar to most research topics there is an abundance of information in the

literature related to this subject matter. Conducting a survey is also an effective way to collect

original perspectives and candid comments from practitioners in the field of emergency

response.

References

Babbie, E. R. (1990). *Survey research methods* (2nd ed.). Belmont, CA:

Blum, L. N. (2000). *Force under pressure: How cops live and why they die*. New York: Lantern

    Books.

Busha, C. H., & Harter, S. P. (1980). *Research methods in librarianship: techniques and*

    interpretation (1st ed.). Orlando, FL: Academic Press.

CBS News (2011). *5 die in fireworks explosion in Hawaii*. Retrieved August 21, 2011, from

    http://www.cbsnews.com/stories/2011/04/09/national/main20052439.shtml

City and County of Honolulu (2010). *Fiscal year 2011 executive program and budget*. 3

    Retrieved May 27, 2011, from http://www.honolulu.gov/budget/execbgt/index1.htm

Colorado State University (2010). *Writing guide: Survey research*. Retrieved September 11,

    2011, from http://writing.colostate.edu/guides/research/survey/index.cfm

Cook, M., Noyes, J., & Masakowski, Y. (Eds.). (2007). *Decision making in complex*

    environments. Burlington, VT: Ashgate.

DeWine, S. (2001). *The consultant's craft: Improving organizational communication* (2 ed.).

    Boston: Bedford/St. Martin's.

Department of Homeland Security. (2011). *Executive leadership* (1st ed.). Emmitsburg, MD:

    Author.

Everyone Goes Home (2011). *How can you help promote firefighter safety*? Retrieved

    September 27, 2011, from http://www.everyonegoeshome.com/

Federal Emergency Management Agency. (2002). *Firefighter fatality retrospective study* (FA-

    220). Arlington, VA: TriData.

Franklin, M., & Zdonik, S. (1998). *Proceedings of the 1998 ACM SIGMOD international*

    conference on management of data. (A. Tiwary & M. Franklin, Eds.). New York: ACM.

Fujimori, L. (2002). *Widows of HPD officers allege buried information*. Retrieved July 27, 2011,

    from http://archives.starbulletin.com/2002/03/01/news/story3.html

Garvin, D. A. (2000). *Learning in action: A guide to putting the learning organization to work*.

    Boston, MA: Harvard Business School Press.

Graham, G. (2010). *Non-punitive close-call reporting: Learning from the mistakes of others*

    prior to disaster. Retrieved October 2, 2011, from

    http://www.firenuggets.com/default.asp

Graham, G. (2010). *What would you do if that happened?* Retrieved October 12, 2011, from

    http://www.firenuggets.com/graham_IllIIllllllIIIllIIllIIIIllllIllIl/graham13.htm

Harari, O. (2002). *The leadership secrets of Colin Powell* (1st ed.). New York: McGraw-Hill.

Hawaii News Now (2011). *Honolulu firefighter shocked putting out house fire released from*

    hospital. Retrieved July 13, 2011, from

    http://www.hawaiinewsnow.com/story/14841158/honolulu-firefighter-shocked-putting-

    out-house-fire-released-from-hospital

Honolulu Fire Department (2009). *Mission statement*. Retrieved June 5, 2011, from

    http://www.honolulu.gov/HFD/

Honolulu Fire Department (2009). *Post incident analysis reports*. Retrieved August 7, 2011,

    from http://cchdocs01/docushare/dsweb/View/Collection-27388

Honolulu Fire Department. (2009). *Honolulu fire department policy and procedure manual, chapter 4 fire operations*. Honolulu, HI: Author.

Honolulu Star Advertiser (2011). *Fire captain injured in fall*. Retrieved July 13, 2011, from http://www.staradvertiser.com/news/policeandfire/20110615_Police_and_Fire.html

Jones, W. D. (2008). *The role of developmental experience in the career development of fire chiefs in the United States*. Ann Arbor, MI: ProQuest.

Klein, G. (1998). *Sources of power: How people make decisions*. Cambridge, MA: The MIT Press.

Koocher, G. P., & Keith-Spiegel, P. (2008). *Ethics in psychology and the mental health professions: Standards and cases*. New York: Oxford University Press.

Kramer, W. M. (2009). *Disaster planning and control*. Tulsa, OK:

Li, A., Oppenheim, J., Chaplain, C., Dinkelacker, D., Elgas, J., & Ramos, J. et al. (2002). *NASA: Better mechanisms needed for sharing lessons learned* (GAO-02-195). Retrieved July 27, 2011 from U.S. Government Accountability Office: http://www.gao.gov/

Los Angeles Fire Department (2011). *Critical incident planning and training section*. Retrieved August 18, 2011, from http://lafd.org/administration/99-training-a-support-bureau/394-critical-incident-planning-a-training-section

Lowenstein, R. (2005). *The end of pensions*. Retrieved August 21, 2011, from http://www.nytimes.com/2005/10/30/magazine/30pensions.html?pagewanted=print

McCall, M. W., Lombardo, M. M., & Morrison, A. M. (1988). *The lessons of experience: How successful executives develop on the job*. New York: The Free Press.

McCann, C., & Pigeau, R. (Eds.). (2000). *The human in command: Exploring the modern military experience*. New York: Plenum.

Meadows, D. H. (2008). *Thinking in systems: A primer*. (D. Wright, Ed.). White River Junction,

    VT: Chelsea Green.

Merriam-Webster's collegiate dictionary (9th ed.). (1991). Springfield, MA: Merriam-Webster.

Mestel, R., & McFarling, U. L. (2001). *Chess grandmasters use different parts of brain*.

    Retrieved October 7, 2011, from

    http://www.latimes.com/search/dispatcher.front?Query=Chess+grandmasters+use+differe

    nt+parts+of+brain&target=adv_article

National Fire Protection Association. (2010). *Fire officer: Principles and practice* (2nd ed.).

    Boston: Jones and Bartlett.

Ockershausen, J. (2008). *The after-action critique: Training through lessons learned* (USFA-

    TR-159). Retrieved August 2, 2011 from United States Fire Administration:

    http://www.usfa.fema.gov/media/press/2008releases/073108.shtm

Seattle Police Department (2011). *Cameras in patrol cars*. Retrieved October 24, 2011, from

    http://www.seattle.gov/police/technology/patrol_cameras.htm

Skinner, J. (2009). *The Koblenz Model within Anglo-American Cultural Studies at German

    Universities* . Retrieved August 26, 2011, from

    http://www.developingteachers.com/articles_tchtraining/koblenz1_jody.htm

Smoke, C. H. (2010). *Company officer* (3rd ed.). Clifton Park, NY: Delmar.

SurveyMonkey (2008). *Smart survey design*. Retrieved July 20, 2011, from

    http://s3.amazonaws.com/SurveyMonkeyFiles/SmartSurvey.pdf

United States Fire Administration. (2004). *Fire in the United States 1992 - 2001* (FA-286).

    Arlington, VA: TriData.

Vaughn, S. (2011). *M&M's of self defense*. Retrieved September 10, 2011, from

      http://www.usacarry.com/mms-of-self-defense/

Wright, K. B. (2005). Researching internet-based populations: advantages and disadvantages of

      online survey research, online questionnaire authoring software packages, and web

      survey services. *Journal of Computer-Mediated Communication, 6*(3). Retrieved from

      http://jcmc.indiana.edu/vol10/issue3/wright.html

Wyman, D. (2011). *The importance of film study*. Retrieved October 22, 2011, from

      http://mynorthwest.com/275/555089/Film-study-tells-the-real-story-of-an-NFL-game

Yamada, L. (2011). *New prototypes promise improved first responder safety*. Retrieved August

      25, 2011, from http://www.kitv.com/news/28912367/detail.html

Appendix A

Aloha,

My name is Bill Melemai of the Honolulu Fire Department enrolled in the Executive Fire Officer Program at the National Fire Academy.

I am conducting this survey to learn what experience emergency first responders have with Post Incident Analysis (PIA) and Lessons Learned Processes (LLP) including their thoughts on how PIA, LLP can be optimized so information is more readily shared with all personnel to improve their operational effectiveness and safety.

You are being asked to participate because of your status as an emergency first responder with a likely history of participating in or leading PIA, LLP for your organization.

Please take this anonymous survey. The process will last approximately 15 minutes.

No personal identifying information is necessary unless you would like to receive the survey results.

Your answers will help responder organizations optimize key PIA, LLP of collection, verification, storage and dissemination of vital knowledge to their personnel resulting in better decision making and more intelligent actions.

Participation is completely voluntary. If you begin the survey but change your mind, you may discontinue at any time.

This survey data will be destroyed once this project is completed.

If you have any questions regarding this project, you can contact the researcher, Bill Melemai, at (808)282-2776.

Thank you for your participation in this survey and please forward it to your colleagues.

Sincerely,

Bill Melemai
Captain
Honolulu Fire Department
wmelemai@honolulu.gov

Appendix B

Post Incident Analysis Lessons Learned Survey

Aloha,

My name is Bill Melemai of the Honolulu Fire Department enrolled in the Executive Fire Officer Program at the National Fire Academy.

I am conducting this survey to learn what experience emergency first responders have with Post Incident Analysis (PIA) and Lessons Learned Processes (LLP) including their thoughts on how PIA, LLP can be optimized so information is more readily shared with all personnel to improve their operational effectiveness and safety.

You are being asked to participate because of your status as an emergency first responder with a likely history of participating in or leading PIA, LLP for your organization.

Please take this anonymous survey. The process will last approximately 15 minutes.

No personal identifying information is necessary unless you would like to receive the survey results.

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If you have any questions regarding this project, you can contact the researcher, Bill Melemai, at (808)282-2776.

Thank you for your participation in this survey and please forward it to your colleagues.

Sincerely,

Bill Melemai
Captain
Honolulu Fire Department
wmelemai@honolulu.gov

1. Please describe your organization.

Name of Organization:

Total number of personnel:

Career, Volunteer or Combo:

Rank or Position:

Years of Service:

State:

Post Incident Analysis Lessons Learned Survey

2. Please describe yourself.

Name:

Age:

Education:

Email Address:

Phone Number:

3. Does your organization conduct Post Incident Analysis (PIA), Lessons Learned Processes (LLP)?

◯ No

◯ Yes

◯ Don't Know

4. How many times at work in the past 12 months have you participated in PIA, LLP?

◯ None

◯ 1-5

◯ 6-10

◯ 11-15

◯ 16 or more

Other (please specify)

5. How many times at work in the past 12 months have you led or directed PIA, LLP?

◯ None

◯ 1-5

◯ 6-10

◯ 11-15

◯ 16 or more

Other (please specify)

6. Have you received any training at work in the past 12 months related to PIA, LLP?

◯ No

◯ Yes

Post Incident Analysis Lessons Learned Survey

7. Have you delivered any training at work in the past 12 months related to PIA, LLP?

○ No

○ Yes

8. How much do you agree the following conditions apply to your organization?

	Disagree Strongly	Disagree	Neither Disagree or Agree	Agree	Agree Strongly
Personnel have sufficient PIA, LLP experience	○	○	○	○	○
Personnel have sufficient PIA, LLP training	○	○	○	○	○

9. How important is achieving the following conditions to helping optimize PIA, LLP in your organization?

	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important
Personnel receive sufficient PIA, LLP experience	○	○	○	○	○
Personnel receive sufficient PIA, LLP training	○	○	○	○	○

Post Incident Analysis Lessons Learned Survey

10. How important do you think the following best practices are to helping optimize PIA, LLP?

	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important
Information is immediately collected to minimize memory losses	○	○	○	○	○
Recording technology e.g. GPS/video/audio taping is used to help objectively establish what happened	○	○	○	○	○
Information is verified to ensure accuracy	○	○	○	○	○
Information is electronically stored with easy keyword retrieval features	○	○	○	○	○
Information is shared and disseminated expediently and widely	○	○	○	○	○
Process is frequently and consistently used to help promote cultural acceptance of the practice	○	○	○	○	○
Skilled objective facilitators are used to help keep discussions on track	○	○	○	○	○

11. Which of the following PIA, LLP best practices does your organization implement?

- ☐ Information is immediately collected to minimize memory losses
- ☐ Recording technology e.g. GPS/video/audio taping is used to help objectively establish what happened
- ☐ Information is verified to ensure accuracy
- ☐ Information is electronically stored with easy keyword retrieval features
- ☐ Information is shared and disseminated expediently and widely
- ☐ Process is frequently and consistently used to help promote cultural acceptance of the practice
- ☐ Skilled objective facilitators are used to help keep discussions on track
- ☐ None of the above

Post Incident Analysis Lessons Learned Survey

12. How would you rate the effectiveness of the following best practices in helping to optimize PIA, LLP for your organization?

	Not Effective	Somewhat Effective	Effective	Very Effective	Extremely Effective
Information is immediately collected to minimize memory losses	○	○	○	○	○
Recording technology e.g. GPS/video/audio taping is used to help objectively establish what happened	○	○	○	○	○
Information is verified to ensure accuracy	○	○	○	○	○
Information is electronically stored with easy keyword retrieval features	○	○	○	○	○
Information is shared and disseminated expediently and widely	○	○	○	○	○
Process is frequently and consistently used to help promote cultural acceptance of the practice	○	○	○	○	○
Skilled objective facilitators are used to help keep discussions on track	○	○	○	○	○

Post Incident Analysis Lessons Learned Survey

13. What conditions are barriers to optimizing PIA, LLP in your organization?

	Not a Barrier	Moderate Barrier	Average Barrier	Strong Barrier	Extreme Barrier
Personnel lacking sufficient experience	◯	◯	◯	◯	◯
Personnel lacking sufficient training	◯	◯	◯	◯	◯
Process lacking strong leadership support	◯	◯	◯	◯	◯
Process lacking skilled objective facilitators to help keep discussions on track	◯	◯	◯	◯	◯
Process lacking structure and organization	◯	◯	◯	◯	◯
Process lacking broad cultural acceptance due to infrequent/ inconsistent use	◯	◯	◯	◯	◯
Information not being shared and disseminated expediently and widely	◯	◯	◯	◯	◯
Recording technology not being widely used	◯	◯	◯	◯	◯
Subordinates being too intimidated to speak freely	◯	◯	◯	◯	◯
Superiors tending to dominate discussions	◯	◯	◯	◯	◯
Personnel fearing consequences of admitting to screw ups	◯	◯	◯	◯	◯

Other (please specify)

14. Additional comments, concerns or suggestions about optimizing PIA, LLP:

Appendix C

Post Incident Analysis Lessons Learned Survey   SurveyMonkey

1. Please describe your organization.

		Response Percent	Response Count
Name of Organization:		98.2%	56
Total number of personnel:		96.5%	55
Career, Volunteer or Combo:		98.2%	56
Rank or Position:		98.2%	56
Years of Service:		98.2%	56
State:		98.2%	56
		answered question	57
		skipped question	3

2. Please describe yourself.

		Response Percent	Response Count
Name:		93.8%	45
Age:		100.0%	48
Education:		97.9%	47
Email Address:		83.3%	40
Phone Number:		77.1%	37
	answered question		48
	skipped question		12

3. Does your organization conduct Post Incident Analysis (PIA), Lessons Learned Processes (LLP)?

		Response Percent	Response Count
No		6.7%	4
Yes		90.0%	54
Don't Know		3.3%	2
	answered question		60
	skipped question		0

4. How many times at work in the past 12 months have you participated in PIA, LLP?

		Response Percent	Response Count
None		13.6%	8
1-5		**64.4%**	**38**
6-10		13.6%	8
11-15		3.4%	2
16 or more		5.1%	3
Other (please specify)			1
answered question			59
skipped question			1

5. How many times at work in the past 12 months have you led or directed PIA, LLP?

		Response Percent	Response Count
None		**53.3%**	**32**
1-5		40.0%	24
6-10		3.3%	2
11-15		0.0%	0
16 or more		3.3%	2
Other (please specify)			0
answered question			60
skipped question			0

6. Have you received any training at work in the past 12 months related to PIA, LLP?

		Response Percent	Response Count
No		76.7%	46
Yes		23.3%	14
	answered question		60
	skipped question		0

7. Have you delivered any training at work in the past 12 months related to PIA, LLP?

		Response Percent	Response Count
No		84.7%	50
Yes		15.3%	9
	answered question		59
	skipped question		1

8. How much do you agree the following conditions apply to your organization?

	Disagree Strongly	Disagree	Neither Disagree or Agree	Agree	Agree Strongly	Response Count
Personnel have sufficient PIA, LLP experience	7.0% (4)	26.3% (15)	21.1% (12)	**45.6% (26)**	0.0% (0)	57
Personnel have sufficient PIA, LLP training	10.5% (6)	**36.8% (21)**	22.8% (13)	29.8% (17)	0.0% (0)	57
				answered question		58
				skipped question		2

9. How important is achieving the following conditions to helping optimize PIA, LLP in your organization?

	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Response Count
Personnel receive sufficient PIA, LLP experience	1.7% (1)	8.6% (5)	25.9% (15)	**48.3% (28)**	15.5% (9)	58
Personnel receive sufficient PIA, LLP training	1.8% (1)	7.0% (4)	29.8% (17)	**50.9% (29)**	10.5% (6)	57
					answered question	58
					skipped question	2

10. How important do you think the following best practices are to helping optimize PIA, LLP?

	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Response Count
Information is immediately collected to minimize memory losses	0.0% (0)	0.0% (0)	13.8% (8)	**58.6% (34)**	27.6% (16)	58
Recording technology e.g. GPS/video/audio taping is used to help objectively establish what happened	5.2% (3)	5.2% (3)	29.3% (17)	**44.8% (26)**	15.5% (9)	58
Information is verified to ensure accuracy	1.7% (1)	5.2% (3)	12.1% (7)	**55.2% (32)**	25.9% (15)	58
Information is electronically stored with easy keyword retrieval features	8.6% (5)	6.9% (4)	34.5% (20)	**43.1% (25)**	6.9% (4)	58
Information is shared and disseminated expediently and widely	3.4% (2)	3.4% (2)	8.6% (5)	**51.7% (30)**	32.8% (19)	58
Process is frequently and consistently used to help promote cultural acceptance of the practice	1.7% (1)	1.7% (1)	20.7% (12)	**50.0% (29)**	25.9% (15)	58
Skilled objective facilitators are used to help keep discussions on track	0.0% (0)	5.2% (3)	29.3% (17)	**51.7% (30)**	13.8% (8)	58
					answered question	58
					skipped question	2

11. Which of the following PIA, LLP best practices does your organization implement?

		Response Percent	Response Count
Information is immediately collected to minimize memory losses		63.2%	36
Recording technology e.g. GPS/video/audio taping is used to help objectively establish what happened		35.1%	20
Information is verified to ensure accuracy		40.4%	23
Information is electronically stored with easy keyword retrieval features		22.8%	13
Information is shared and disseminated expediently and widely		49.1%	28
Process is frequently and consistently used to help promote cultural acceptance of the practice		29.8%	17
Skilled objective facilitators are used to help keep discussions on track		31.6%	18
None of the above		19.3%	11
		answered question	57
		skipped question	3

12. How would you rate the effectiveness of the following best practices in helping to optimize PIA, LLP for your organization?

	Not Effective	Somewhat Effective	Effective	Very Effective	Extremely Effective	Response Count
Information is immediately collected to minimize memory losses	3.5% (2)	8.8% (5)	**43.9% (25)**	22.8% (13)	21.1% (12)	57
Recording technology e.g. GPS/video/audio taping is used to help objectively establish what happened	14.5% (8)	14.5% (8)	21.8% (12)	**29.1% (16)**	20.0% (11)	55
Information is verified to ensure accuracy	7.1% (4)	19.6% (11)	25.0% (14)	**28.6% (16)**	19.6% (11)	56
Information is electronically stored with easy keyword retrieval features	12.7% (7)	23.6% (13)	**30.9% (17)**	18.2% (10)	14.5% (8)	55
Information is shared and disseminated expediently and widely	1.8% (1)	16.1% (9)	**30.4% (17)**	26.8% (15)	25.0% (14)	56
Process is frequently and consistently used to help promote cultural acceptance of the practice	8.9% (5)	21.4% (12)	23.2% (13)	**25.0% (14)**	21.4% (12)	56
Skilled objective facilitators are used to help keep discussions on track	7.1% (4)	19.6% (11)	**37.5% (21)**	17.9% (10)	17.9% (10)	56
					answered question	57
					skipped question	3

13. What conditions are barriers to optimizing PIA, LLP in your organization?

	Not a Barrier	Moderate Barrier	Average Barrier	Strong Barrier	Extreme Barrier	Response Count
Personnel lacking sufficient experience	14.3% (8)	21.4% (12)	**39.3% (22)**	19.6% (11)	5.4% (3)	56
Personnel lacking sufficient training	16.1% (9)	19.6% (11)	23.2% (13)	**33.9% (19)**	7.1% (4)	56
Process lacking strong leadership support	**33.9% (19)**	21.4% (12)	10.7% (6)	21.4% (12)	12.5% (7)	56
Process lacking skilled objective facilitators to help keep discussions on track	22.2% (12)	20.4% (11)	24.1% (13)	**27.8% (15)**	5.6% (3)	54
Process lacking structure and organization	**30.4% (17)**	17.9% (10)	16.1% (9)	23.2% (13)	12.5% (7)	56
Process lacking broad cultural acceptance due to infrequent/ inconsistent use	21.4% (12)	**26.8% (15)**	14.3% (8)	**26.8% (15)**	10.7% (6)	56
Information not being shared and disseminated expediently and widely	**25.0% (14)**	23.2% (13)	21.4% (12)	19.6% (11)	10.7% (6)	56
Recording technology not being widely used	**25.0% (14)**	23.2% (13)	19.6% (11)	23.2% (13)	8.9% (5)	56
Subordinates being too intimidated to speak freely	**28.6% (16)**	25.0% (14)	25.0% (14)	8.9% (5)	12.5% (7)	56
Superiors tending to dominate discussions	23.2% (13)	**33.9% (19)**	16.1% (9)	16.1% (9)	10.7% (6)	56
Personnel fearing consequences of admitting to screw ups	21.4% (12)	21.4% (12)	17.9% (10)	16.1% (9)	**23.2% (13)**	56

Other (please specify)	2
answered question	56
skipped question	4

14. Additional comments, concerns or suggestions about optimizing PIA, LLP:	
	Response Count
	8
answered question	8
skipped question	52

Appendix D

Bridgeport Fire Department

Cal Fire - San Luis Obispo County

Chanhassen Fire Department

Cimarron Hills Fire

City & County of Honolulu EMS

City of Nevada Fire

City of St. Petersburg Fire and Rescue

Cowlitz 2 Fire & Rescue

Endicott Fire Department

Fire Department of New York

Flossmoor Fire Department

Haywood County Emergency Services

Honolulu Fire Department

Las Vegas Fire & Rescue

Leawood Fire Department

Marysville Fire District

Milwaukee Fire Department

North Naples Fire Department

Orlando International Airport Fire Rescue

Oshkosh Fire Department

Pentwater Fire Department

Philadelphia Fire Department

Prince William County Fire and Rescue

Rockford Fire Department

Rocky Mount Fire Department

Seattle Police Department

Southern Platte Fire Protection District

Stockton Fire Department

Trussville Fire and Rescue

Vista Fire Department

Wauwatosa Fire Department

West Bend Fire & Rescue

West Carrollton Fire Department

York County Fire and Life Safety