Does the United States' First Responder Training Program Improve National Preparedness?

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ABSTRACT - *During the last decade, the federal government has allocated over one and a half billion dollars to first responder training related to homeland security at the federal level alone. Due to the ongoing difficult financial climate in the United States, it is essential to examine whether or not the nation receives a benefit from increased spending on training. Specifically, this paper questions if there is a relationship between training first responders and national preparedness. Three theoretical models and methods are used to analyze this relationship, including the "structural mode," the "knowledge, skills, and abilities model," and the "application model." The paper contains never released before data, along with multiple interviews. Through this analysis, it can be seen that the resources and money devoted to training are an important element in making first responders more capable to respond, which helps to ensure the country is more prepared, and better able to address any incident or emergency.*

INTRODUCTION

In a time period where the United States faces record high security threats and incidents both domestically and abroad,[1] and the ever existent potential for large scale natural disasters, it is essential to be prepared as a nation. Whether it is a terrorist bombing, forest fire, shooting rampage or a hurricane, the common element is that the government is looked to for a remedy, and it must be ready at a moment's notice. At the forefront of any response are first responders, at the local, county, and state level. Training provided to these responders has significantly increased, and is now at an all-time high at the federal level, in terms of budget allocation and the number of students taking the courses.[2] Due to the current fiscal environment and demands to cut costs, it is essential to question whether or not spending on training is beneficial to the nation, despite the fact that the amount spent on training is relatively low compared to the overall federal budget.[3] Specifically, do the resources and costs devoted to training first responders across the country result in a nation that is more prepared and capable of responding to an incident?

In this article it will be argued that despite the criticism over the budget allocation for training first responders at the federal level, training is a key factor in ensuring that the United States is more prepared and better able to address any incident or emergency, which is affected by the resources and money devoted to it. Today's responders have both more equipment and skills, which are needed to effectively and efficiently respond, unlike in past history. This can be seen by the gap that is being addressed by post September 11, 2001 programs and initiatives. The skills held by responders are acquired through one of the more comprehensive training programs of its type worldwide, enabling them to have the practice and the knowledge to combat emergencies in the field. However, training is often viewed as an early area to be cut in the budgeting process, because some view it as having limited benefit, and thus believe the financial allocation could be better utilized elsewhere. Yet this analysis will display that increases in training yield great benefit because while the marginal cost of training may rise, the marginal benefit increases at a more rapid rate.

Prior to moving forward with this analysis, it is important to define two key concepts to ensure there is a common understanding about what they mean. The first concept is first responders. As defined by the Homeland Security Act of 2002, "the term first responder refers to those individuals who in the early stages of an incident are responsible for the protection and preservation

of life, property, evidence, and the environment."[4] First responders fall into various emergency response disciplines, such as police, fire, emergency medical services, and public health, among others. What differentiates first responders from other responders is that they are typically the first to arrive at an incident, and come from local, tribal, county, and state agencies, working together through the National Incident Management System (NIMS). Typically federal responders come later in the incident if needed to offer assistance.

The second key concept is the training structure examined in this analysis. This article focuses on the efforts of the federal government in training first responders. The training is of a specialized nature offered through various federal training facilities, on topics such as weapons of mass destruction, incident management, emergency management, and explosives, among other areas. This training is beyond initial training that a first responder would receive, such as certification as an Emergency Medical Technician (EMT) and other basic programs. For clarity, the training focused on in this article will be referred to as "disaster and attack training." It is important to note that local jurisdictions and individual states also train first responders, but that the federal government is the dominant force because a majority of the specialized training programs are solely offered at the federal level, much of the curriculum taught by the state is developed at the federal level and passed down, and money is given to the states by the federal government for training. Consequently, a majority of the costs of training originate from the federal government and is allocated by Congress "to ensure that all US responders/receivers have access to high quality training."[5] While there is not a comprehensive compilation of local and state first responder training budgets, it is important to realize that federal money is given to these entities to train responders locally, which is not included in this analysis. In addition to money, federal training resources are often utilized by states to offer training locally. For instance, New Jersey's Office of Homeland Security and Preparedness (OHSP) occasionally has federal training partners that, as outlined later, conduct training programs within New Jersey, which other states follow as well.

This article begins by examining how past and current literature discusses first responder training at the federal level. Next, the theoretical models and methods used in this article to measure the benefits of training will be presented, showing how the structure, abilities of the responder, case studies, and responder perspectives, serve to support the argument of this article. Using the models and methods to organize the evidence from a variety of sources, the benefit of training to the nation will be evident. Lastly, a discussion on the findings of this article and their implications on the current structure of training will be shared. When reading this article please keep three points in mind. First, this is the first known attempt to analyze training through a comprehensive approach, and consequently prior evidence and data is somewhat limited, but this article serves as a foundation to commence the examination of an area that has received too little attention. Second, it important to realize that this analysis should not be conducted just one time, but rather one that should be reviewed in the future as data will change, and training needs will evolve. Third, there are many factors that impact the nation's preparedness, but training is an essential component.

Through this investigation, it will be evident that training of first responders and the nation's preparedness are directly related. While the expense of training may be high, if the country is more prepared, a response is likely to be more efficient, saving money and more importantly, lives. Events such as the government shutdown in October 2013 show that training is negatively affected by the reduction or complete elimination of funds being allocated to training. However, as this article will demonstrate, first responder training is not like most other types of training, showing the essential nature of it in terms of preparedness, because property, the economy, and lives could be risked without it.

LITERATURE REVIEW

With both current and past budget difficulties,

areas within government that can be cut or reduced are always explored. As a result, some question if the money the federal government allocates to first responder training is worth it, in terms of whether or not this is the best way to maximize the country's preparedness. There are no known specific accounts of an analysis of training's benefit in terms of finances and response capability, but past literature does reflect on the more technical aspects of training, compared to the political and economic elements. Based on past literature related to the subject, there are three main positions. The positions include that current training processes and structures may not be the best use of resources; that training first responders yields a high return to the country; and a final view that calls for the examination of the structural elements of disaster and attack training.

The first argument claims that training first responders may not be the best use of limited preparedness resources, and questions the current training processes, which is further categorized into four points. One source of support of this argument is that there "have been no domestic attacks since 9/11," and that the country "has increased apathy toward the threat of terrorism."[6] Along with this, some assert that the probability of an attack is low, so the question of whether "the gains in security are worth the funds expended" is important to consider before making expenditures.[7] Some claim this position to be invalid, because while the country has not experienced a terrorist again as deadly as September 11, 2001, there have been disasters and acts of violence requiring a first responder response. This is not to mention a terrorist attack can happen at any time without warning. While it is true that incidences of terrorism in the United States are infrequent, failure to train and prepare for incidents in advance could leave first responders at a disadvantage when responding, and could consequently jeopardize those that responders are supposed to protect and assist. A second claim is that money could better be spent on equipment procurement for "tangible essentials" to be used in response, such as vehicles and technology.[8] While proponents of this claim often still see the need for training, they believe it should be less than what is currently offered. This is the case because an opportunity cost of spending on training means fewer resources are available for other preparedness activities, which also could lead to a more prepared nation. Thirdly, some believe specialized training should not be given to first responders, but rather to "specialized response teams."[9] Those against this position say this is based on false logic because first responders need to know how to handle the problem before a specialized unit arrives. The final claim is that training at the federal level is inefficient because there are "at least seven federal departments with responsibilities for training … which creates opportunities for duplication, inefficiency, and confusion."[10] A specific critique is that some responders have not been afforded adequate training, such as "public health and national urban rescue teams."[11] Some claim that while there may be overlap or gaps, it would be advisable to coordinate agencies more efficiently, than to reduce or cease training.

The second main position advocates for first responder training and for money to be allocated to it, which can be broken up into three categories. The first point is that first responder training allows personnel to respond in a "safer, less dangerous, and more efficient manner" should an incident occur.[12] Both the scope of action and technical skill expected of responders has increased over the years, making it essential for them to have diversified skills available for response and to keep up with the preparedness demands of the nation. For instance, rather than just being training as a fire fighter, there is a benefit to being cross-trained in other related disciplines that may be needed, such as being a hazardous material technician. However, a critique to this stance is that some first responders receive training that they will unlikely ever need simply because it is available. Secondly, the training first responders receive will assist in regular emergency operations within one's jurisdiction, but it is most valuable when the skills learned are utilized on a larger scale, which "increases the nation's overall level of domestic preparedness and capabilities."[13] For instance, if a first

responder receives hazardous materials training this could be beneficial during a "normal incident," such as a small hazmat incident, but also on large scale incidents that could adversely impact many. The final point is that most first responders and agencies do not have the resources available to offer preparedness training, making it essential for the federal system to support training if the responders will be of use in times of need. In addition, while the focus on this article is response rather than prevention, it should be noted that due to the training first responders receive, they are more likely to recognize the signs of terrorism in advance, which could possibly stop terrorism in the first place before needing to respond.[14]

The third approach to training's role in national preparedness entails looking at the structural elements of training to increase efficiency, which can be broken into two sub-points. The first looks at how training is offered, which entails consideration to offering "regional training," where trainers are trained (Train the Trainer courses), and in turn teach others in their jurisdiction.[15] The benefit would be cost savings because first responders would not have to be flown around the country. Under the current system, responders from different parts of the country are transported to training facilities based on the course they are seeking, all at the federal government's expense. Secondly, under the current system, training is offered free of charge to first responders, including travel, course, and meal expenses.[16] To save money, some suggest having the responder's agencies pay part of the cost of the training. However, it is still an obligation of the sending agency to pay the first responder, including any overtime expenses incurred, unless the individual chooses to attend on their own time.

By utilizing the concepts presented by past authors and reports, the case showing that training is an important factor in increasing national preparedness will be analyzed, possibly displaying a direct link between training and preparedness. Further attention will be given to the arguments for altering/reducing current training processes, as each point has drawbacks, and perusing this path could have consequences to the nation's security. Focus will also be placed on reasons not to reduce training to allow for an analysis of both opinions. This article will expand upon the key concepts behind the importance of training, each of which will be supported with evidence. As mentioned, this article is the first known attempt to bring the different aspects of first responder training into a single analysis, with a focus on whether the nation is more prepared due to the training. Also, options for increased efficiency will be discussed, in light of training's future.

MODELS AND METHODS OF ASSESSING RESULTS OF FIRST RESPONDER TRAINING

While there has been debate surrounding one of America's largest bureaucracies, the U.S. Department of Homeland Security, over its expanding budget and the amount of authority vested in the agency, few elected officials are quick to target the Department's functions. This is due in part to their fear that constituents may critique them for not wanting to secure the nation and possibly prevent an attack. The answer has traditionally been to spend more money because it will lead to a safer country, evident by the fact that the Department of Homeland Security has seen increases in yearly budgets, and over thirty billion dollars in increases within ten years, unlike most other federal departments.[17] Applying this concept to first responder training, it is important to see if the argument of this article, that first responder training leads to a more prepared nation, holds true.

Why should the United States continue to allocate millions of dollars to training first responders? Is there any gain in doing so, or does it continue to be funded simply because it has been for years? Answering these questions is important for the preparedness of the country for any disaster or emergency that may occur. If a change in funding or available training were to occur without carefully considering the potential outcomes, there could be consequences. This makes it crucial to analyze the relationship between training first responders and the nation's preparedness. This can be accomplished by using three different models, "structural," "knowledge,

skills, and abilities," and "application." Each model looks at the question from a different perspective, and takes into account both qualitative and quantitative data.

The "structural model" looks at the question from the way first responder training is organized and funded in the United States. The model examines the financial breakdown and costs of first responder training, and also the funding of first responder training over time. Specifically, information on the funding of training will be examined from the National Domestic Preparedness Consortium (NDPC), including financial allocation from 2000 to 2014, the number of classes held each year, the number of contact hours, and the number of students taught, among other components. Attention will be given to determine if the average costs per class and student has declined or risen over time. The theory of this article would be supported through the model, if there has been a gain with the increased amount spent on training, rather than no return, or diminishing returns. A possible return will be determined partially by comparing trends in costs to trends in the number of students trained, and the number of classes held. Specifically, if the data shows that training capabilities increased, or the number of first responders attending training rose, this would help achieve the notion that the nation is more prepared, since more responders would be trained to handle varying incidents that they would have likely not been prepared to handle beforehand.

The "knowledge, skills, and abilities model" examines the question from the perspective of the first responder who receives the training. This model explores whether first responders have benefited in terms of knowledge and performance from the training they have received through the federal first responder training program. Specially, it asks whether their ability to respond to an emergency has gone up, or has not changed because of the training. The main evidence to support this model will be quantitative, relying on the responses of the first responder from two optional post-course surveys conducted by the Emergency Management Institute. For example, each time a first responder completes training, they are provided the opportunity to evaluate the course and reflect upon the benefit they received. A limitation of this approach is that the responses come from one institution and they rely on the perspective of the responder through an optional process. The evaluations are given immediately after training and six months afterwards, through a numerical scale, allowing time to determine if the training was beneficial or not. The data relevant to this article is whether their knowledge increased after the training, compared to where it was prior to the training, and also if the training allowed them to better preform in their role as a first responder.

Finally, the "application model" explores the answer to the question from the viewpoint of the outcomes caused by the training and the current status of training. This model will utilize two different parts. One part looks at the application of training in case studies of actual incidents, and the other part examines the cases of actual responders and their interaction with NDPC training. To begin, the first part of the model will analyze the actions and outcomes of unique incidents, both natural disasters and acts of terrorism, including the Oklahoma City Bombing, the Boston Bombings, the Californian forest fires of the 1970s, and the 2011 tornadoes in Joplin, Missouri. The rationale of this approach will be to see if first responders were better able to respond and react in these incidents because of the training they received. To accomplish this, qualitative accounts will be utilized, comparing the two natural disasters to one and another, and the two acts of terrorism to each other. In each comparison one case is used is from prior to the start of the formal federal first responder training network, and one is selected after the NDPC establishment. The rational for selecting these cases stem from the fact that they are among the most prominent examples in terms of severity and impact, but future reports could easily extend the analysis to other cases. The focus will be on analyzing the response to the incident occurring before training was implemented, compared to the incident occurring after training was conducted. This approach allows one to see if there was a benefit of training in terms of response and the handling

of the incident. There are some cases that contradict the argument, such as Hurricane Katrina, but outside factors had an impact that does not allow the response of first responders to be properly evaluated, including a slower than desired federal response to assist first responders and poor communication capabilities. The theory of this article would be supported if responders showed a more efficient response, leading to a greater preservation of life and property because of the training they received, which can analyzed by comparing responses to incidents before and after training resources were available and utilized.

In addition, the second part of the model examines perspectives from three first responders who have personally taken the training that is focused on, which will look to see if they found the training to be beneficial in multiple senses. Responders were intentionally selected from different areas of the country, and from different disciplines, including fire, public health, and law enforcement. This approach will be helpful to see how those directly involved with training evaluate its usefulness. An obvious limitation of including this is the small sample because of capability limitations, which limits the ability to draw concrete conclusions. However, a structure is established for a future widespread survey that could be aggregated. The overall theory would be supported if the responses indicate that participants learned new abilities and skills from the training, and that they are better able to function as a first responder. This is the case because with higher functioning and trained responders, the country is more prepared from a personnel and response perspective.

The benefit of using the three models to explore the hypothesis of the article is that the question is explored from different angles, which reduces potential bias (refer to Table One for a summary of models and methods). If only one perspective were focused upon, such as the benefit first responders received, a premature conclusion could be reached without giving justice to the complete answer. The benefit is that both quantitative and qualitative data can be accounted for through a combination of the three models. Evidence will be applied to each model to show that from financial, personnel, and historical points of view, the preparedness of the United States increased in part due to first responder training.

TABLE I
SUMMARY OF MODELS AND METHODS

Model	Purpose	Data
I. Structural Model	Examine the way training is organized and funded in the United States	NDPC Data from 2000-2009 & 2010-2014*
II. Knowledge, Skills, and Abilities Model	Examine the impact of training on first responder knowledge and performance	Kirkpatrick's Level One and Level Four Data (2003-2013)
III. Application Model	Examine the outcomes of training through past incidents and through responders	Case studies of incidents before and after NDPC; Sample of responder impact

The table above summarizes the models and methods used to assess the results of first responder "disaster and attack training."

EVIDENCE: APPLYING QUALITATIVE AND QUANTITATIVE DATA

By following the framework presented in the previous section, it will be apparent that the evidence will support the argument that first responder training is a key element in terms of preparing the United States to respond to incidents of various type. The following three sections will apply evidence, qualitative and quantitative, to argue this position.

Model I: Structural Model

Prior to examining the benefit of first responder training in national preparedness, it is essential to go through the current manner in which training is provided in the United States. As will be discussed in Model III, the Oklahoma City Bombing revealed gaps and weaknesses of the nation's first responders. In an effort to correct the weaknesses, a formal federal training network was established

in 1998.[18] The network, established by Congress, is the National Domestic Preparedness Consortium (NDPC), under the National Training and Education Section of FEMA. Prior to the formation of this network, training was handled by a variety of agencies, and often training was not coordinated or connected. Some of the members of the current NDPC existed prior to its formation, but they were under the control of a variety of agencies, leading to inefficiency, such as the Center for Domestic Preparedness being under the Department of Justice.[19] While other opportunities exist for first responders to receive training, the NDPC is the only national provider of free training by the federal government to qualifying responders, including those at a local, county, or state level.

NDPC serves as the umbrella organization encompassing seven members. Each member specializes in a given type of training, and responders would go the respective facility based on the type of training needed. For example, the Center for Domestic Preparedness specializes in Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) threats.[20] These seven members with their specialties in parentheses are the Center for Domestic Preparedness in Alabama (CBRNE), the National Center for Biomedical Research and Training in Louisiana (Weapons of Mass Destruction, counter-terrorism, and high consequence events), the National Center for Emergency Response to Surface Transportation in Colorado (hazardous materials and transportation emergencies), the National Domestic Preparedness Training Center in Hawaii (disaster preparedness, response, and recovery), the National Emergency Response and Rescue Training Center in Texas (ten core competencies, including crisis communication, cybersecurity, and infrastructure protection), New Mexico Tech Energetic Materials and Testing Center in New Mexico (energetic materials), and the Counter Terrorism Operations Support Center in Nevada (radiological incidents). Although not formally part of NDPC, the Emergency Management Institute and the National Fire Academy, which form the National Emergency Training Center (NETC) in Maryland, are the final partners in the federal network for training.

There are a variety of costs associated with offering an elaborate training network such as this, but they can be divided into five categories. First are participant expenses, including transportation, lodging, meals in most cases, and miscellaneous expenses. Most costs are covered for qualifying responders, but the sending agency needs to pay for the responder's salary, and any resulting overtime. Second are instructor expenses, including the costs of paying for subject matter experts and their expenses. Third are the costs associated with course development, including research and curriculum creation. Forth are the course delivery expenses, including materials, facilities, and supplies. Fifth are the administration costs, including personnel to coordinate participants and courses, management, and other miscellaneous costs. Part of administration costs also include the expenses for mobile delivery, which is when a course is offered by NDPC within a local requesting jurisdiction.

These costs are funded through a congressional budget allocation to NDPC through FEMA, and then they are divided up to each member center as needed. The Emergency Management Institute (EMI) is funded in a similar manner but through a different allocation, so the numbers below will not take into account EMI's budget. Table Two outlines various NDPC data from 2000 to 2009 including, budget allocation per year in millions of dollars, the number of classes, the number of contact hours (instruction time), and the number of students trained. Table Two also includes numbers that were derived from the 2010 NDPC Report data, including the average costs per class (calculated by dividing the total yearly budget by the number of classes held that year), average contact hours per student (calculated by dividing the total number of contact hours by the total number of students), and the average cost per student between all NDPC partners by year (calculated by dividing the total yearly budget by the number of students taught in a given year). The derived data was found to see if any additional trends could be identified. By combining this data into one chart, it enables one to compare what was put into training to what was

received on a yearly basis. When the NDPC data was obtained each category had its own chart which makes it hard to compare the different categories to one another over time, and many of the calculations were not preformed.

It is important to explain the data from 2010-2014, which is intentionally listed separate in Table Three from the 2000-2009. This dataset was not publicly available, but was requested and denied for release by NDPC on the grounds of it being for internal use only. A Freedom of Information Act (FOIA) request was made, and after Congressman Jon Runyon's (NJ-3) assistance, the data was received. However, there are extremely large variations that raise questions surrounding the accuracy of the reported numbers for 2010-2014 compared to 2000-2009, which are known to be accurate. For instance, in 2009, there were 101,504 classes, but in 2010 it was reported that there was 7,390 classes for the same budget amounts. Considering other numbers were determined differently between the two reports (i.e. the first data set does not include CDP students in the number of students, but the second data set does), it is likely other numbers were determined differently as well. In addition, the 2014 data is incomplete because at the time of this analysis the year was still in progress. Requests for clarification were made to NDPC, but were not answered. As such, to avoid potential errors in results, only the 2000-2009 data will be used, but the 2010-2014 data is included for reference.

TABLE II
NDPC TRAINING DATA FROM 2000 TO 2009

Year	Budget in Millions	Number of Classes	Average Cost Per Class	Contact Hours	Number of Students	Average Hours Per Student	Average Cost Per Student
2000	28	2,563	$10,924.70	224,604	8,809	25.497	$3,178.57
2001	33.5	3,350	$10,000	393,709	31,341	12.562	$1,068.89
2002	91	16,635	$5,470.39	908,083	59,536	15.253	$1,528.49
2003	125	28,298	$4,417.27	1,322,679	92,407	14.314	$1,352.71
2004	135	58,533	$2,306.39	1,971,497	87,880	22.434	$1,536.19
2005	135	68,295	$1,976.72	2,250,648	112,316	20.039	$1,201.97
2006	145	61,494	$2,357.95	2,093,011	103,843	20.155	$1,396.34
2007	145	68,895	$2,104.65	1,987,226	87,090	22.818	$1,664.94
2008	150	117,331	$1,278.43	2,510,118	83,006	30.240	$1,807.10
2009	164.5	101,504	$1,620.63	2,389,683	90,644	26.363	$1,814.79

Raw Data Obtained from NDPC's 2010 Report: National Domestic Preparedness Consortium: Past, Present, & Future. Notes: Number of students does not include CDP counts.

TABLE III
NDPC TRAINING DATA FROM 2010-2014

Year	Budget in Millions	Number of Classes	Average Cost Per Class	Contact Hours	Number of Students	Average Hours Per Student	Average Cost Per Student
2010*	160.7	7,390	-	2,338,681	201,540	-	-
2011	153.9	7,521	-	2,398,004	200,269	-	-
2012	149.3	5,586	-	1,907,345	166,183	-	-
2013	150.3	5,167	-	1,802,419	162,456	-	-
2014*	162.9	-	-	-	-	-	-

Raw Data Obtained from FEMA Records Management Division through FOIA Request[21].
Notes: Refer to text above for incomplete data explanation; 2014 data still in progress at time of request.

From the 2000-2009 dataset, the first major trend to present is that the budget allocation for training has increased every year since NDPC's creation, including the years not presented in the table. Prior to September 11, 2001, training was funded at low levels, but afterwards the allocation

nearly tripled, as many believed that providing responders with more training would enable them to be more prepared should another attack occur.

A key finding of Table Two data is that there is a positive relationship between the amount allocated to training and training capabilities, in terms of the classes and the number of students. This means that as more money is put into training, more training is available. For instance, in 2001, $33.5 million was allocated and 3,350 classes were conducted, but in 2008, $150 million was allocated and 117,331 classes were conducted. As this comparison shows, along with the data for the other years, not only were more classes offered each time, funding increased, but the cost per classes decreased with a couple exceptions, allowing more classes to be offered at cheaper rates. However, some say this is possible because quality declined, but no support exits for this claim. In addition, as funding increases, more students are able to attend training and the number of contact hours increases. For instance, with a $33.5 million budget in 2001, only 31,341 students were trained, but with a $164.5 million budget in 2009, 90,644 students were trained. It is worth to note than students are able to attend multiple courses in a year and that in some years the number of courses has declined, but that the number of students attending is equal or greater because more students are included in each class. Due to these variations some trends do not remain linear for each year, meaning that in a given year like 2007 there is an abnormality.

These findings are very important because it can be seen that when more funding is directed toward training, there is an advantage in terms of the number of first responders afforded the opportunity to receive training. With more classes being conducted and more first responders being trained, the United States has a more knowledgeable and capable force to respond to incidents. This is this case because prior to training many responders had a low amount of knowledge on the topic, which could have resulted in a poor response to an incident, as will be discussed in future sections. If a decrease in funding were to occur under the current system, fewer responders would be trained, which could reduce the readiness of individual responders and of the nation itself because fewer responders would have the knowledge to respond to an event they do not face regularly, such as the specialties taught by NDPC partners mentioned earlier, including radiological incidents and weapons of mass destruction. This data also shows that for the most part, the cost per class decreased as the amount allocated to training increased, making the system more cost efficient. In addition, as the NDPC budget increases the total number of contact hours also increased, which shows that more instructional results from additional expense. Similarly, as more is spent per student, the more contact hours they receive. This shows that while more may be spent on training overall and per responder, the amount of training received increases when input rises.

It should be noted that some individuals are advocates for first responder training and believe it increases national preparedness, but they argue that individual states and municipalities should control it in an effort to save money. However, in "some cases the federal government handling certain aspects of training may be more efficient than the program being offered on a state level."[22] This is the case because "operating specialized training facilities in each state would be costly and wasteful, but having regional facilities where first responders who need the training can be sent, is better in the long run."[23]

Model II: Knowledge, Skills, and Abilities Model

Through the first assessment, it is evident that the nation receives a gain with additional money spent on training, which entails more training programs and more responders receiving training. However, simply having more programs and first responders trained is not valuable if the responder is not benefiting from the training. After all, millions of responders could be trained, but if there is not a return on the training, it is a worthless venture. The value of training can be evaluated by the level of knowledge and skill performance of a responder. If a responder had an increase in knowledge and was able to perform additional skills, or improve upon existing capabilities, the

training is beneficial and value additive.

The data to evaluate a possible benefit comes from the Federal Emergency Management Agency's Emergency Management Institute, one of the emergency management community's leading training institutions in the United States. Each student who attends training is given the opportunity to evaluate the training they received. It is important to reiterate that this data could be limited by the response rate, and by the fact that this data is from a single institution. The evaluation process is conducted following Kirkpatrick's Levels of Evaluation. The first instrument originates from a course evaluation form given at the conclusion of the course. This instrument follows Kirkpatrick's Level One evaluation, which "judges the participants reaction to the training."[24] Each student is asked to evaluate their knowledge and ability to perform skills pertaining to the course, in terms of what it was prior to taking the training program, and what is after the training program (Table Four).

TABLE FOUR
KIRKPATRICK'S LEVEL ONE EVALUATION DATA FROM 2003 TO 2013

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Extensive After	505	2249	5776	25755	17559	51,844
	0.96%	4.34%	11.14%	49.67%	33.87%	100%
Already Extensive	4252	15996	8133	14770	6871	50,012
	8.50%	31.98%	16.26%	29.53%	13.75%	100%
Number Given	65,398		Start Date	10/1/2003		
Number Received	55,766		End Date	9/30/2013		
Response Rate	85.27%		Duration	10 years		

Notes: Kirkpatrick's Level One Evaluation Data is from FEMA's Emergency Management Institute in Emmitsburg, Maryland. The data is from October 1, 2003 to September 30, 2013.

For the period of evaluation given over a ten year span from October 1, 2003 to September 30, 2013, to 65,398 students, there was an 85.27% response rate.[25] It is worth noting that this rate is high because students are given an opportunity before the course ends to complete the survey. The measure being examined deals with the extensiveness of participant knowledge before training, compared to knowledge after training (Table Four). The data show that 83.54% or 44,314 respondents, evaluate their knowledge as being extensive after completing training, excluding 11.14% of respondents who are neutral (Figure One). This leaves only 5.3% of students disagreeing that their knowledge was not extensive after completing training. This percentage is remarkable, considering 40.48% of students said their knowledge was not extensive prior to taking the course. This leads to a significant reduction in the number of students who said their knowledge was not extensive before training compared to the number of students who said their knowledge was not extensive after training (Figure Two).

It is important to compare extensive participant knowledge after the course to participant knowledge before the course. About 43% of respondents rated their knowledge as being extensive prior to completing training, compared to the 84% afterwards. This shows that there was a nearly double increase in the number of students who said their knowledge was extensive after training, compared to before. (Figure Three).

FIGURE I

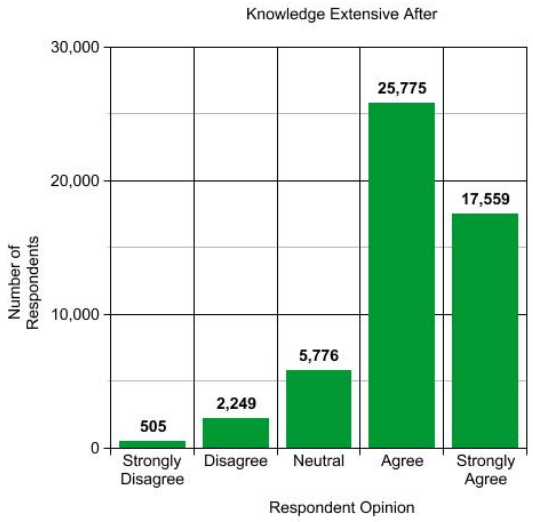


FIGURE II

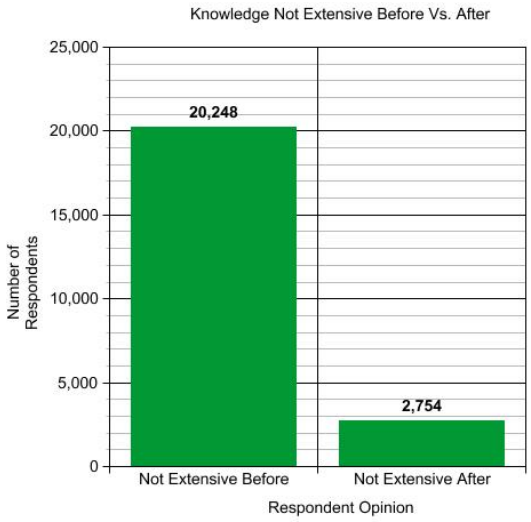
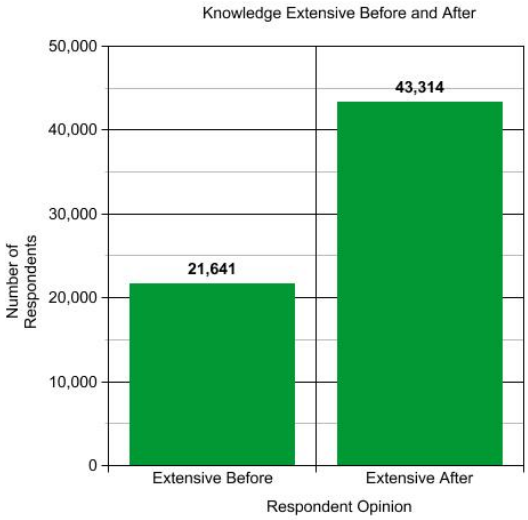


FIGURE III



<u>Raw Data Obtained From FEMA's Emergency Management Institute, 2013</u>
Figure I: Student responses on whether they agree that their knowledge was extensive after completing training.
Figure II: Responses on the number of students who said their knowledge <u>was not</u> extensive prior to training compared to the number of students who rated their knowledge not being extensive after training.
Figure III: Responses on the number of students who said their knowledge <u>was</u> extensive prior to training compared to the number of students who rated their knowledge as being extensive after training.

The second instrument to be used to evaluate the benefit of training for the responder also comes from the Federal Emergency Management Agency, during the ten year period from 2003 to 2013. The data relate to the Kirkpatrick's Level Four evaluation, which is how an individual behaves.[26] This is measured through a survey being sent to each student six months after training, to judge whether the training has impacted them in terms of job performance and in skill ability. Specifically, students are requested to reflect whether the knowledge and skills learned during the program has positively impacted their performance. The data shows that out of the 21% of the 65,398 students that responded to the survey, 96% claim that they are better preforming and capable in their job as a result of the training.

There are two dominant trends shown through

this data. First, that the training programs attended led to an increase in knowledge among thousands of first responders. This is knowledge that the responder either did not have prior to the training, or knowledge that they had but was not extensive. Increasing knowledge allows a responder to be more capable to respond to an incident, especially if it is a type of incident that they have not before experienced, or that they do not experience often. Another trend shows that the training has positively impacted an overwhelming majority of responders in their role as a first responder, after having a time period to utilize the skills. These two trends are very important because they demonstrate that there is a benefit to conducting training in terms of the gain responders receive. The benefit to the nation is that there is a more highly trained and knowledgeable responding force, should the need for a large scale response occur, whether a natural disaster or an act of terrorism.

Model III: Application Model

The first model showed that there is a gain in training with increases in funding, and the second model shows that responders themselves are benefiting. However, it is important to see if the value of training holds true when examining actual emergencies and incidents. To accomplish this, a pair of terrorist events will be examined, the Oklahoma City Bombing and the Boston Bombing, and a pair of natural disasters will be examined, the California Wild Fires of the early 1970s, and the Joplin Missouri tornadoes in 2011. The importance of selecting these cases is that they are from two different categories of emergencies, including two acts of terrorism and two instances of natural disasters for sample diversity. The comparison is done by comparing the two natural disasters to one another, with one case occurring before the establishment of NDPC, and one after the establishment. The same type of comparison is also done for the acts of terrorism.

This comparison allows the impact of training on response to be analyzed. There are two important points to take into account before reviewing the analysis. The first point is that these comparisons can be done with other cases, which could potentially yield a different outcome, however these cases represent large impact incidents. The second point is that there are other factors that are likely to impact the quality and efficiency of the incident response, but failures/weaknesses in response to earlier incidents were noted partially to be a result of a lack of training, and later responses noted training to be beneficial. While this type of analysis may be seen to be flawed or problematic to some, it is important to see a practical application of training in four real life incidents, which does support the notion that training is important is making the national more capable to respond to incident.

To begin, the two cases of natural disasters will be assessed. The California wild fires of 1970 were a series of fires "from Oakland Hills in the northern part of the state to the Mexican border, 400 miles to the South."[27] The fires "destroyed 885 homes and killed 16 people," with "an economic loss of $233 million," or about $407 million in 2012 currency.[28] While the destruction and the resulting deaths were caused in part due to the fire, the extent would most likely not have been as severe if it were not for "widespread confusion and coordination difficulties."[29] Fire departments and agencies from different areas responded to fight the blaze, but there was not a system in place or training available to allow the responders to know how to coordinate efforts. The wildfire showed that responders were not trained properly to handle the emergency, since each jurisdiction had their own management system and training mentality.[30] For example, there was no unified command structure, meaning each agency reported to their own chief who directed their actions, rather than a central incident command. This caused duplication of efforts and a lack of accountability. Also, different departments had varying approaches to fighting forest fires, causing one agency to be completing the task differently than another, leading to challenges in teamwork. "All agencies recognized, that a number of problems hampered the effectiveness of the response," which led to the eventual creation of the Incident Command system (ICS) because identifying solutions "was determined to be

critical to the success of any future wildfire operations on the scale that were experienced in 1970."[31] Presently, through NDPC efforts, training is offered through the Incident Command System Series, to provide responders from different agencies, practical experience and training when responding to disasters, including wildfires. This curriculum directly addresses the many difficulties and complications faced on the 1970 wildfires to improve future responses.

While the tornado that struck Joplin, Missouri is unlike the wildfires, since it is a different type of disaster, it shows the importance of training. The Joplin Tornado of 2011 was one of the strongest tornados in history, claiming "158 lives and caused $2.8 billion in damage."[32] While the extent of the damage was severe, Joplin is a prime example of the value of training. Shortly before the tornadoes struck, representatives from Joplin, including Joplin Mayor Mike Woolston, attended an Integrated Emergency Management training course on tornadoes through the Emergency Management Institute.[33] This course allows a city to train together and work through a simulated scenario of an emergency that may occur in their city. For the case of Joplin what they trained on would become reality. This training provided "the foundation that enabled a rapid, effective, and coordinated response," which was mainly obtained through FEMA's Emergency Management Institute.[34] For example, since the city worked through a training scenario, they knew which agencies were available and needed when it came to the real incident. This allowed for a more rapid response since decisions did not have to be made during the incident. A specific case of success is shown by St. John's Regional Medical Center's successfully evacuation of 183 patients to safety when they learned of the approaching tornado, which they credit to the training they received two years prior at the Center of Domestic Preparedness.[35]

These case studies show two very different examples. However, one shows more lives and properties being lost because of the lack of training and preparedness, whereas the other shows more lives being saved because they were more equipped to handle the situation because of training they had received. This comparison shows that as a practical example, the value of training is high, and that training was one important element that led to a more effective response. It is essential to note that other factors also had an impact on the outcome differences, including better equipment, but training was certainly a major contributor.

Training is shown to be beneficial and effective when examining natural disasters through the two cases examined, but does this logic hold true when examining acts of terrorism? The cases of the Oklahoma City Bombing and the Boston Marathon bombing will assess this. The Oklahoma City Bombing of 1995 was a call to action for the need for first responder training. This bombing showed that first responders needed more training with explosives and incidents caused by terrorism.[36] Some blame the response of the first responders for the high loss of life, but this is not accurate. The responders quickly handled the situation to best of their abilities, but lacked formal training in handling an event involving explosives, which "illustrates that first responders need additional preparation to deal with WMDs."[37] For example, responders as part of normal certification as a fire fighter and/or emergency medical technician/paramedic learn the basics of medical treatment, but are likely to have little experience with blast injures and should thus "become familiar with the characteristics of explosives … and of the nature of their injuries."[38] After all, a blast injury causes various types of injuries from the blast waves, meaning that a patient may have internal damage in addition to the external trauma, making it essential to treat both, in order to save the individual's life.[39] This event showed that formal training for all hazards needs to be offered to responders because no one knows when, where, and what type of event will occur, which prompted Congress to create NDPC. Presently, a NDPC member offers training specifically related to terrorist explosives events.

The Boston Marathon Bombings showed a tremendous response on the part of the initial first responders because they quickly mobilized a variety of agencies and combined efforts seamlessly. A 2013 FEMA report states that "preparedness programs – including training and

exercise programs … that were implemented in coordination with Massachusetts and Boston had a positive impact on the City of Boston, on the Commonwealth of Massachusetts, and the survivors of this tragic day,"[40] and that training is one essential item "to minimize the impact and devastation caused by a disaster."[41] Prior to the bombings, many first responders received training that enabled them to more efficiently respond to the bombings. For example, more responders were trained to know what to do when responding to an event involving explosives, and "because of the training they knew that a safe, calculated, and systematic approach to the bomb site was required."[42] The Center for Domestic Preparedness alone, provided "Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) training to over 500 first responders" and more than 5,500 responders were trained in total from NDPC partners.[43] Police Commissioner Edward Davis III, cited the success of the response and apprehension of the bombers to the "dedicated training, relationships in place, and an engaged public."[44] In fact, thirteen responders in Boston are graduates of FEMA's Master Degree program through the Naval Postgraduate School in California, "teaching them to think smarter about the challenges they may face in the future."[45] While degrees are typically considered education, rather than training, this is a unique program designed to train and advance first responders. The effective response to the Boston Marathon tragedy was strongly influenced by the training the first responders who handled the incident received prior to it. Since responders were exposed to similar scenarios in a training environment, they had the opportunity to work through the incident for practice prior to the real event.

Both of the cases studies of the two natural disasters and the two acts of terrorism display the value of training. In the two instances before the formal network was in place, responders were not well equipped to handle the incident, leading to a more disastrous outcome. However, in the two cases where responders were trained to handle the situation, the outcome was drastically improved. This shows that there is an advantage in terms of any response by trained individuals. This result is also supported by the survey data of trainees and by the results from the budgetary analysis. It is essential to note that there are many other factors that may have played a role on impacting response, including communication difficulties and lack of equipment, among other possibilities. However, while other factors may have impacted the response outcome, training certainly was one element leading to a more efficient response.

The second part of this analysis examines three individuals who have engaged in NDPC training over the course of many years on different subject matters. Each is from a different area of the country, and each is from a different discipline. As mentioned, the sample is very small due to resource capabilities, but the purpose is to provide an example of participant's view on the value of training. This will be assessed in terms of personal value, and global benefit, or simply their ability and comfort to response to incidents of different sizes. Each individual was asked the same set of questions, which pertain to the number and scope of the courses they have taken, the benefit of the courses, the quality of NDPC courses compared to others available in their jurisdiction, if others in their agency have completed courses, and final remarks. It would be advantageous to conduct a similar approach on a national level in the future with a large sample, which could be incorporated into a later analysis on this subject.

The first individual is Dr. Martha Salyers, MD/MPH/CEM, who is involved with preparedness and public health in North Carolina.[46] Salyers has completed over forty total courses between 2002 and 2014, including more than fifteen resident courses through a NDPC partner and EMI, and ten to fifteen courses offered by EMI in North Carolina. Salyers stated the courses have "without a doubt" have been beneficial, and her experiences "with these course, both distance and in-person, have made {her} able to respond to major incidents, but more than that, to think strategically, proactively and knowledgably in peacetime."[47] One example Salyers mentioned was obtaining a skill set than can be used in all hazards through NDPC courses, not just public health, which is useful when

assigned to other Incident Command System capacities. Salyers points to the training specifically being beneficial to her service on the National Homeland Security Consortium and on the National Association of County and City Health Official's National Public Health Bioterrorism Committee, which shows that training has made her "able to respond to major incidents, but more than that, to think strategically, proactively and knowledgably in peacetime."[48] Salyers also cited the instructor development courses taken as being instrumental in helping her teach others. When asked how NDPC courses compare to local offerings, Salyers mentioned that "the concentration of intellectual firepower, cross-disciplinary experience, aspiration to academic rigor, and adaptability of the federal training programs I've been exposed to is the ne plus ultra."[49] One of Salyers final remarks was the "training offered by these partners is the fundament and fortification for our security and foresight into national, state, Tribal, territorial, and local preparedness and response."[50]

The second individual is Mr. Michael Ramsey, who is a career battalion chief for a fire department in Missouri.[51] During the last fifteen years, Ramsey has completed over twenty five courses through NDPC, EMI, and the National Fire Academy, which is on the same campus as EMI as part of the National Emergency Training Center (NETC). Ramsey has found "all of the classes to have been beneficial" in terms of his response capabilities and preparation to respond to a major incident, along with assisting him during the normal operations associated with his position in the fire service.[52] One specific example cited were the NIMS/ICS courses Ramsey has taken. Ramsey mentioned that "generally speaking {the course offered by the NDPC} are superior in terms of course development" compared to courses offered in his state, including high caliber instructors, and more up to date and validated information.[53] Ramsey concluded that as a department it is believed that NDPC programs are the best return on investment, and they are thus very supportive of individuals taking NDPC courses.

The final individual is Mr. Patrick Touchard, who is a retired Hazardous Materials Unit Commander and lieutenant for a law enforcement agency in Louisiana.[54] Touchard has taken a variety of NDPC courses on emergency preparedness, terrorism response courses for law enforcement, and hazardous material specific classes. Touchard points to courses that teach "hands-on spill response and mitigation techniques" for hazardous materials incidents to have been particularly beneficial for his career in the public and private sector.[55] Specifically, he found the training to be helpful during his time in a command staff position during the 2010 Deepwater Horizon Oil Spill (BP Oil Spill), along with numerous other environmental emergencies. He stressed the importance of having private sector workers train with first responders, which the NDPC allows at the private entity's expense. Touchard has found "the NDPC courses to be superior to locally and commercially available courses in both content and variety of topics."[56] Touchard concluded that "almost universally, course attendees … were enthusiastic and effusive in their praise of NDPC courses."[57]

While it is possible that other responders could be interviewed and express negative aspects of NDPC, and the training programs under it, but most students find the training to be beneficial.[58] These individuals who have been involved with the NDPC programs for many years, and are unique in geographic location and discipline, have the common believe that NDPC training programs have been beneficial to their personal ability to respond to both regular and major incidents, all at relatively no cost to them or their agency. Another commonality is that the respondents have found the quality of NDPC to be superior to courses they could take locally, in terms of curriculum, the ability to meet experts from around the country, and the ability master skills, among other factors. Thirdly, each respondent believes that the NDPC programs are of an essential nature and a valuable asset to them and their agency. It needs to be highlighted that the individual training and readiness of responders, collectively forms a larger, and more highly trained and experienced first responder community in the United States due to the available training programs. This

consequently increases national preparedness and response capabilities, which offers a national benefit.

CONCLUSION: THE CONNECTION BETWEEN TRAINING AND NATIONAL PREPAREDNESS

Being prepared as a nation for any natural disaster or act of terrorism is very important, as an incident can happen at any time without notice. First responders are the foundation for an effective response, since they will be the first personnel on scene and often until the incident concludes. This makes it essential to have a capable, experienced, and knowledgeable force of first responders, which training serves to create and preserve. However, the question this article asks is whether or not training actually makes the nation more prepared or if the United States is spending without an advantage to the nation.

An argument used against training is that it is not beneficial, or that it does not maximize the benefit that the nation receives compared to other uses of resources. However, training it is crucial, and it cannot be neglected. A strong positive relationship exists between the benefit the nation receives from training, compared to the relatively small financial input, such as the nation being more prepared due to the level of training their first responders have. As seen through the "structural model," with increased financial allocation, there is increasing returns, including more students being trained, more contact hours, and more classes being offered. Through the "knowledge, skills, and ability model," it is seen that first responders benefit strongly from training, seeing an increase in knowledge and their ability to serve as a first responder. Thirdly, through the "application model," cases where training did not occur resulted in greater losses, but in cases where training was conducted, a more efficient response resulted with greater preservation of life. The third model also demonstrates the strong effect training has had on individual responders, including both personal and global benefits. These models combined show that from three different perspectives, training is valuable, and an essential component of the national response framework. Since a similar conclusion is reached across three different levels of measurement, a robust overall connection can be concluded. It is important to realize that this should not be a onetime analysis, but rather one that should be conducted regularly going forward using multiple frameworks and additional data.

If one is a proponent of the argument of this article, a link between the benefits of training and national preparedness is seen, but questions surrounding how training is offered should be raised. As alluded to early in the article, training is usually targeted due to the fiscal constraints, evident by the fact that all training ceased during the government shutdown. While this is not directly the focus of this article, three important considerations were highlighted during research to ensure this relationship continues. First, it is important to ensure training is efficient, in that it should "be conducted in a responsible manner," ensuring that it is not duplicated and uncoordinated.[59] Second, training should be conducted through "a mixed approach," "where it is offered both in person and online" by the federal government.[60] Since there is no "silver bullet" to training it "is essential to base the method and type of training on the desired outcome."[61] Lastly, training "should be an ongoing process," where the "right people are matched to the right skills in a timely and efficient manner."[62] In other words, training should be "customized to the specific needs of responders and should not occur just to check a box."[63] In addition, a question that comes to light, is how much money should be allocated to training, and how much training is enough? No clear answer to this question exists, and the answer to it can be a topic of future analysis.

What separates first responder training from other types of professional training is that if first responders are not adequately trained, lives may be at stake, and property could be lost. While training may cost the United States consistently over one hundred and fifty million per year, this is a relatively small investment compared to the benefit the country receives. Training should not be the area looked to when budgets need to be cut,

or when last minute savings need to be made, as doing so places the country in an unnecessary position of vulnerability. While training will not solve the problem fully, "since our enemies will try to go around our efforts in responding and preventing an attack"[64] and natural disasters are unavoidable, it serves to help ensure as a nation, we are as prepared as possible to prevent and respond to an attack or disaster.

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