Goal

Anti-Terror programs all share one fundamental — information. An effective Anti-Terror program should be at its core, an information processing and dissemination mechanism that supports and coordinates operations in the field. In this module, participants will learn and explore how information should be analyzed, processed, and acted upon relating to Explosive Terrorist Incidents. These actions often mean the difference between life and death for first responders on scene. Participants will focus on one of the most systemic problems first responders face on scene, making effective and accurate decisions.

Learning Objectives

At the end of this module, the participants will be able to:

- Define Proactive Awareness.
- Understand the process of a Proactive Awareness System.
- Understand the purpose of a Proactive Awareness System
- Understand and describe Technical Awareness.
- Understand and describe Situational Awareness.
- Understand and describe Predictive Awareness.
- Understand and describe Instinctive Awareness
- Understand and describe Administrative Awareness

Introduction

First responder's emergency operations plan and standard operating procedures state that each local, state, and federal operations center will establish and maintain situational awareness and disseminate a common operating picture. Unfortunately, no one ever tells them how to do that. Why does that matter? Because every single decision first responders make depends on accurate, complete, and current situational awareness and a common operating picture, otherwise known as SA/COP. But several issues complicate the problem. For all these reasons, teaching practical SA/COP development is mission critical.

Proactive Awareness

Proactive Awareness is a systematic approach to analyzing, processing, and acting on informational data that directly affects safety and job performance throughout a broad spectrum of first responder groups.

It is no surprise that during an Explosive Terrorist Incident, information pours into Emergency Operations Centers (EOC) from every direction. If information requirements have not been properly identified beforehand, collecting, and assimilating all incoming data can be like trying to drink from a fire hose. Critical information can be missed, and less important information can take prominence. These are reasons why EOCs need to plan.

Furthermore, each first responder group can contribute to specific informational requirements needed for the overall system. Through knowledge and training, each first responder group can recognize their own specific informational requirements and submit them to the EOCs. Any plan that is developed should be living and always adjusting to current performance requirements needed on scene.

There are five elements at the crux of a proactive awareness systems:

1. Defining your information requirements.
2. Determining how to gather information.
3. Deciding who will analyze that information.
4. Determining how that information will be shared.
5. Choosing the technology that will help communicate and manage the information.

It is that simple and that profound. And very few EOCs currently do this, let alone do it well. In sports, you cannot tell who the players are without a scorecard. But in emergency management, when lives are on the line, you cannot play the game well without proper training and an effective Proactive Awareness system.

Proactive Awareness Application

1. **Determining your informational requirements –** The concepts taught in this course thus far was designed to provide structured and exact informational requirements needed for a Proactive Awareness system. As it relates to Explosive Terrorism Incidents, each concept categorizes and organizes information needed to make decisions throughout the whole response process. Furthermore, the following concepts detail patterns, motives, characteristics, and priorities needed for any explosive terror incident. Understanding these details and the information within will help expose key decision points needed to react almost perfectly during incident. For example:

    A. **Explosive Terrorism Characteristics –** Details all the elements involved with an Explosive Terrorist Incident. (Explosive Incident Triangle) This describes the baseline individuals that will be affected by the actual explosive incident. *(Refer to Student Workbook 1 and Student Handout 1 & 3)*

    B. **Ingredients of Explosive Terrorism –** Details motive/reasoning, human characteristics, patterns of behavior, and potential capabilities of the bomber/bombers involved. *(Refer to Student Workbook 2 and Student Handouts 1, 2 & 3)*

    C. **IED Characteristics –** Provides detailed information on the weapon of choice for Explosive Terrorist attacks. Creating IED trends will help provide information towards Technical Awareness, increases Situational

Awareness, and provide detailed requirements for Administrative Awareness. *(Refer to Student Workbook 3 and Student Handouts 1, 2 & 3)*

2. **Determining how to gather information** – The processes of how to gather information should be related to your performance objectives based on your specific first responder group. (Fire, EMT, Patrol, SWAT, EOD, etc.)

3. **Deciding who will analyze the information** - How specific evidence is collected, categorized, and reported should follow each first responder groups training and performance priorities within an area of responsibility.

4. **Determining how information should be shared** – The information that is shared should be tailored to each specific first responder group. A Bomb Technician requires specific detailed information about the Explosive Terrorist Incident to perform their jobs safely and effectively. Also, a firefighter requires detailed information about the same incident to perform safely and effectively.

   However, the detailed information is tailored to each responder group, respectively. Both responder groups need different information to perform. For example, Bomb technicians needs more details about the internal components of the IED whereas the firefighter needs information that helps recognize and react to the IED.

5. **Information Management** – Technology nowadays helps first responder groups manage and share information. It is important to keep innovating towards this topic. The most important aspect is to have an information management system. Furthermore, getting familiar with other information management systems and coordinating them to feed each other specific detailed information related to performance priorities.

Technical Awareness

As first responder leaders/managers, we have the responsibility of patiently and systematically explaining and drilling personnel on the basic skills that make up their Technical Trade. (Fire, EMT, SWAT, EOD, etc.) These skills, **called technical skills**, are the fundamentals that provide each responder with the tools to execute the physical requirements of the Technical Trade.

Application

During each training session you must also create situations in which responders need to use their technical skills in a focused situation. Forcing them to make decisions that simulate the applications of the skills and the choices they will have to make on scene. These skills**, called tactical skills**, are the bridge between training performance and real-life response performance. Although the proper execution of technical skills is

necessary for success, the ability of responders to make appropriate decisions, known as tactical skills, is the key to having everything come together when it counts—on scene.

1. **Technical Skills -** Technical skills are defined as the specific procedures to move one's body to perform the task that needs to be accomplished. The proper execution of the technical skills as first responders, obviously, is crucial to successful performance.

2. **Tactical Skills -** Mastery of the technical skills of any first responder group is important, but responders must also learn the tactics of their trade. Tactical skills are defined as the decisions and actions of individuals in any given situation to gain an advantage during the response. For first responders to develop better job performance skills in their respective trades, they need to learn techniques and tactics together. One way you can approach tactical and technical skills together systematically is by focusing on the three levels of learning:

   A. **Mechanical Phase –** The first lessons for every new fighter concern safety, both in training and in the arena. The same emphasis holds true in training first responders, who must practice and perfect basic safety fundamentals and tool employment in a supportive learning environment. Responders must learn to operate successfully in a variety of conditions—by day, night, under physical restrictions, and in different physical positions. The responder gains mastery, or builds Tactical Muscle Memory, by practicing simple repetitive motions, without an opponent or scenario to distract from learning the fundamental mechanics. This mastery frees the technician's mind from having to consciously think about basic mechanics, helping them develop confidence in their basic readiness, personal load-out, awareness, tool deployment, and more.

   B. **Cognitive Phase –** In the Cognitive Phase of learning the first responder continues to enhance their mechanical proficiency, and combines that proficiency with tactics, techniques, and procedures. Again, the responder trains in a practical environment, but in the cognitive phase problems sets increase in sophistication. This will test the first responder's understanding of a tool's advertised applications, as well as the ways in which a tool can be adapted to meet unconventional operational challenges. By this stage, the responder has developed Tactical Muscle Memory, and can begin to exercise greater thought and creativity in tool employment techniques and decision making. Without the thorough grasp of fundamental principles and mechanics gained from the Mechanical Phase, such improvisation would not be possible.

   The first responder's increased cognitive abilities will be tested in lab exercises (Games, Sub-games concept) that test the integration of parallel basic skill sets with threat assessment calculations. This application enhances the responder's Technical, Tactical and Situational Awareness and

further develops the responder's confidence in their abilities. Once the responder has established mechanical proficiency and leveraged those capabilities to tackle complicated multi-factor tactics-related problems, they are prepared to enter the Instinctive Phase of training. Mastery of the previous phases enables the first responder to consider highly sophisticated and exotic operational conditions to achieve operational objectives in high-stress, time-critical situations.

    C. Instinctive Phase - In the Instinctive Phase, previously mastered skills and concepts are combined to address an unknown environment. This phase is roughly analogous to combat, high-risk law enforcement operations, full-contact sparring, or any number of intense training scenarios. In this phase, the first responder demonstrates immediate and instinctive employment of appropriate tools. Moreover, the first responder demonstrates situational awareness and operational control. To successfully complete the Instinctive Phase, first responders must exhibit "multi-dimensional" thinking. The first responder does so by immediately selecting the appropriate tool for the threat, rapidly calculating potential complications or collateral damage, smoothly placing or employing the tool in such a manner as to minimize complications, showing an awareness of other operational assets or personnel, and fluidly engaging in response TTPs. Responders operating at this level are the most valuable assets to the overall incident and their commanders.

    Once professionally trained, first responders will be able to defeat operational challenges rapidly and accurately, from mechanical issues to problems requiring sophisticated scene management skills.

Situational Awareness

Situational awareness or (SA) is the perception of environmental elements and events with respect to time or space, the comprehension of their meaning, and the projection of their future status. The formal definition of SA is broken down into three segments:

1. Perception of the elements in the environment
2. Comprehension of the situation, and
3. Projection of future status

Situational Awareness Application

1. **Perception (Level 1 SA):** The first step in achieving SA is to perceive the status, attributes, and dynamics of relevant elements in the environment. Thus, Level 1 SA, the most basic level of SA, involves the processes of monitoring, cue detection, and simple recognition, which lead to an awareness of multiple situational elements (objects, events, people, systems, environmental factors) and

their current states (locations, conditions, modes, actions). Examples of SA Level 1:

    A. **Characteristics of Explosive Terrorism**

    B. **Explosive Terrorism Incident Triangle**

    C. **Ingredients of Explosive Terrorism**

2. **Comprehension (Level 2 SA):** The next step in SA formation involves a synthesis of disjointed Level 1 SA elements through the processes of pattern recognition, interpretation, and evaluation. Level 2 SA requires integrating this information to understand how it will impact upon the individual's goals and objectives. This includes developing a comprehensive picture of the world, or of that portion of the world of concern to the individual. Examples of SA Level 2:

    A. **Explosive Incident Case Study**

    B. **IED Characteristics**

    C. **IED Trend Analysis**

    D. **IED Recognition, Reaction and Reporting**

3. **Projection (Level 3 SA):** The third and highest level of SA involves the ability to project the future actions of the elements in the environment. Level 3 SA is achieved through knowledge of the status and dynamics of the elements and comprehension of the situation (Levels 1 and 2 SA), and then extrapolating this information forward in time to determine how it will affect future states of the operational environment.

<u>**Situational Awareness Process**</u>

Task and Environmental Factors
- First Responder Group (Workload)
- Explosive Threats/Stressors
- Standard Operating Procedures (SOP's)
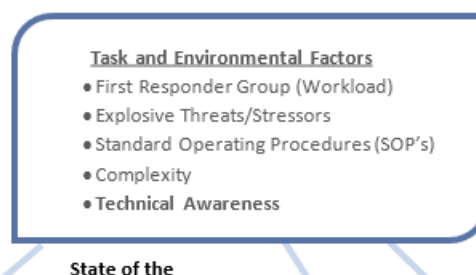- Complexity
- Technical Awareness

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*Figure 2, Situational Awareness Process***Predictive Awareness**

Predictive Awareness is the application of analytical techniques-particularly quantitative techniques-to identify likely targets for police intervention and to prepare for or prevent crime or solve past crimes by making statistical predictions.

The use of data and statistics to inform policing is not new. Twenty years ago, before the deluge of big data we have today, law enforcement regimes such as the New York Police Department (NYPD) were already using crime data in a major way. To keep track of crime trends, NYPD used the software CompStat to map "crime statistics along with other indicators of problems, such as the locations of crime victims and gun arrests. The senior officers used the information provided by CompStat to monitor trends of crimes daily and such monitoring became an instrumental way to track the performance of police agencies. CompStat has since seen application in many other jurisdictions.

But what is new is the amount of data available for collection, as well as the ease with which organizations can analyze and draw insightful results from that data. Specifically, new technologies allow for far more rigorous interrogation of data and wide-ranging applications, including adding greater accuracy to the prediction of future incidence of crime.

Application of Predictive Awareness

Geospatial Modeling - You can incorporate predictive statistical models into crime analysis methods to produce analytics that describe and predict where and what kinds of criminal activity are likely to occur. Relating to explosive terrorism, Predictive spatial models can help you predict the behavior, location, or criminal activities of repeat offenders. You can also apply statistical methods to spatial-temporal data to ascertain causative or correlative variables relevant to crime and law enforcement.

Methods of Predictive Awareness

Some methods of predictive policing involve application of known standard statistical methods, while other methods involve modifying these standard techniques. Predictive techniques that forecast future criminal activities can be framed around six analytic categories. They all may overlap in the sense that multiple techniques are used to create actual predictive policing software and in fact it is similar theories of criminology which undergird many of these methods, but the categorization in such a way helps clarify the concept of predictive policing. The basis for the categorization below comes from a RAND Corporation report entitled 'Predictive Policing: The Role of Crime Forecasting in Law Enforcement Operations, which is a comprehensive and detailed contribution to scholarship in this nascent area. For the purposes of Explosive Terrorism Levels of awareness, some if not all the following methods may be utilized.

1. **Hot spot analysis:** Methods involving hot spot analysis attempt to predict areas of increased crime risk based on historical crime data. The premise behind such methods lies in the adage that crime tends to be lumpy. Hot Spot analysis seeks to map out these previous incidences of crime in order to inform potential future crime.

2. **Regression methods:** A regression aims to find relationships between independent variables (factors that may influence criminal activity) and certain variables that one aims to predict. Hence, this method would track more variables than just crime history.

3. **Data mining techniques:** Data mining attempts to recognize patterns in data and use it to make predictions about the future. One important variant in the various types of data mining methods used in policing are different types of algorithms that are used to mine data in different ways. These are dependent on the nature of the data the predictive model was trained on and will be used to interrogate in the future. Two broad categories of algorithms commonly used are clustering algorithms and classification algorithms:

    A. **Clustering algorithms** form a class of data mining approaches that seek to group data into clusters with similar attributes. One example of clustering algorithms is spatial clustering algorithms, which use geospatial crime incident data to predict future hot spots for crime.

B. **Classification algorithms** "seek to establish rules assigning a class or label to events. These algorithms use training data sets to learn the patterns that determine the class of an observation. The patterns identified by the algorithm will be applied to future data, and where applicable, the algorithm will recognize similar patterns in the data. This can be used to make predictions about future criminal activity for example.

4. **Near-repeat methods:** Near-repeat methods work off the assumption that future crimes will take place close to timing and location of current crimes. Hence, it could be postulated that areas of high crime will experience more crime in the near future. This involves the use of a 'self-exciting' algorithm, remarkably like algorithms modeling earthquake aftershocks. The premise undergirding such methods is remarkably like that of hot spot analysis.

5. **Spatiotemporal analysis:** Using environmental and temporal features of the crime location as the basis for predicting future crime. By combining the spatiotemporal features of the crime area with crime incident data, police could use the resultant information to predict the location and time of future crimes. Examples of factors that may be considered include timing of crimes, weather, distance from highways, time from payday and many more.

6. **Risk terrain analysis:** Analyzes other factors that are useful in predicting crimes. Examples of such factors include the social, physical, and behavioral factors that make certain areas more likely to be affected by crime.

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Various methods listed above are used, often together, to predict the where and when a crime may take place or even potential victims. The unifying thread which relates these methods is their dependence on historical crime data.

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Instinctive Awareness

IED response TTPs are specific to a given attack or situation—they cannot be generalized to all attacks. Assessment of the current threat will determine the appropriate response TTPs for that threat. First responders should follow the four factors P.A.T.H.™ memory formula to assess the current threat:

- Periodic Moment
- Analyzed Information
- Terrain
- Hazards to personnel and property

1. **Periodic Moment -** The periodic moment is the exact time the explosive threat is found or confirmed. Everything contained in this "snapshot" of time will

influence the TTPs of an effective response: Who is around the device? What phase is the operation in? Has an entry been made? Have there been explosions already?

2. **Analyzed Information -** Analyzed information is intelligence that has already been gathered, studied, and presented before an operation begins. This factor supports the launch of the operation, although analyzed information can also apply during the operation. Analyzed information is derived from applying the M.A.C. Effect™ to operational or mission-specific data. During a catastrophic IED attack, the sum of analyzed information, plus the data derived from the Periodic Moment, will directly affect response TTPs.

3. **Terrain -** As noted earlier, terrain or "field of play" is an overriding influence on IED placement and effectiveness. Indoors/outdoors, cover and concealment, and natural or artificial terrain features (e.g., cars, buses, crowds, ditches) all affect the location and result of an IED attack. The nature of the terrain, and the subsequent placement of the IED, can all impact response TTPs.

4. **Hazards to Personnel and Property -** This environment factor describes the damage potential of an IED. Who will be injured or killed if the device detonates? Can this building withstand a high order detonation? What protective measures are currently in place, or should be in place? In short, how bad will this hurt? The threat posed by the IED will also directly affect response TTPs.

Taken as a group, these four factors provide ample information for formulating sound response TTPs during an incident. Following this process will guarantee a safe P.A.T.H. for the tactical units and civilians involved.

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Administrative Awareness

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