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Summary and Results of the Joint WMD-DAC/Alameda County Bioterrorism Response Plan Exercise

Joel Lipkin, Ricky Tam, Heidi Ammerlahn, Dawn Manley,
Todd West, and Howard Hirano

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

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Joel Lipkin, Ricky Tam, Heidi Ammerlahn, Dawn Manley, Todd West,
and Howard Hirano,
Sandia National Laboratories
P.O. Box 969
Livermore, CA 94551-0969

Abstract

On June 12, 2003, the Alameda County Public Health Department and Sandia National Laboratories/CA jointly conducted an exercise that used a Weapons of Mass Destruction-Decision Analysis Center (WMD-DAC) bioterrorism attack simulation to test the effectiveness of the county's emergency response plan. The exercise was driven by an assumed release (in the vicinity of the Berkeley Marina), and subsequent spread, of a small quantity of aerosolized, weapons-grade anthrax spores. The simulation used several key WMD-DAC capabilities, namely: 1) integration with an atmospheric dispersion model to calculate expected dose levels in the affected areas, 2) a individual-tracking capability for both infected and non-infected persons as they made decisions, sought treatment, and received prophylaxis drugs, and 3) a user interface that allows exercise participants to affect the scenario evolution and outcome. The analysis of the county's response plan included documenting and reviewing the decisions made by participants during the exercise. Twenty-six local and regional officials representing the health care system, emergency medical services and law enforcement were involved in responding to the simulated attack. The results of this joint effort include lessons learned both by the Alameda County officials regarding implementation of their bioterrorism response plan and by the Sandia representatives about conducting exercises of this type. These observations are reviewed in this report, and they form a basis for providing a better understanding of group/individual decision processes and for identifying effective communication options among decision makers.

Acknowledgments

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1 Background and Approach

The Alameda County Public Health Department (ACPHD) Bioterrorism Response Plan (BRP), <http://www.co.alameda.ca.us/PublicHealth/bioterrorism/bioterrorism.htm>, is a comprehensive document that identifies specific actions that need to be taken in the event of a bioterrorism incident, public health emergency, or major disaster. After seeing a demonstration of the WMD-DAC capability at a San Francisco Bay Area Regional Emergency Managers Association Meeting, Jim Morrissey, Disaster and WMD Coordinator for Alameda County Emergency Medical Services, approached SNL/CA with a request to hold an exercise that would make use of the WMD-DAC Biological Defense Application to test the effectiveness of their BRP.

The WMD-DAC Biological Defense Application simulates an anthrax attack in a metropolitan region (for this exercise, Alameda County, California). The application user plays the role of a regional Public Health Officer (PHO) and is able to make decisions throughout the course of the exercise based on information generated by the simulation. This information is representative of the data a real PHO would have access to during an epidemic. The simulation allows the user to conduct a simple epidemiological investigation through access to various public health reports such as morbidity and death reports, implement a prophylaxis strategy by activation of a simulated U.S. national pharmaceutical stockpile and prophylaxis distribution centers, as well as direct people to seek treatment. In addition to models representing Public Health Officer policies and data, the simulation utilizes supporting models to characterize and quantify the evolution of the event and response actions. These supporting models included threat characterization and dispersion, population behavior, historical disease trends, and resource utilization models for health care providers, prophylaxis supplies, etc. Figure 1 shows these various model elements and their relationship in the application.

In traditional “tabletop” exercises, which are set up to bring together representatives from critical organizations involved in disaster detection and response, the sequence of events and scenario development are pre-scripted, known to all participants, and often unaffected by the actions of the participants. In contrast, the WMD-DAC bioterrorism simulation provides an interactive interface so that user inputs or decisions over the course of the simulation can influence the outcome. This human-in-the-loop capability creates realistic time pressures and links participant actions to the final scenario metrics of performance.

In collaboration with Jim Morrissey and Dr. Rosalyn Ryals, Acute Communicable Disease Control Department in the ACPHD, Sandia developed a plan for a WMD-DAC based tabletop exercise that provides a unique immersive environment in which local and regional officials could exercise and evaluate their responses to a bioterrorism event. For the Alameda County BRP exercise, the WMD-DAC simulation was tailored to the Alameda County region and links between WMD-DAC supported decision points and response actions and the BRP were identified. Figures 2 and 3, taken from the ACPHD BRP, show the procedures to be followed for reporting suspected bioterrorism illnesses and the steps taken in “Response Operations” to address the event in the ACPHD,

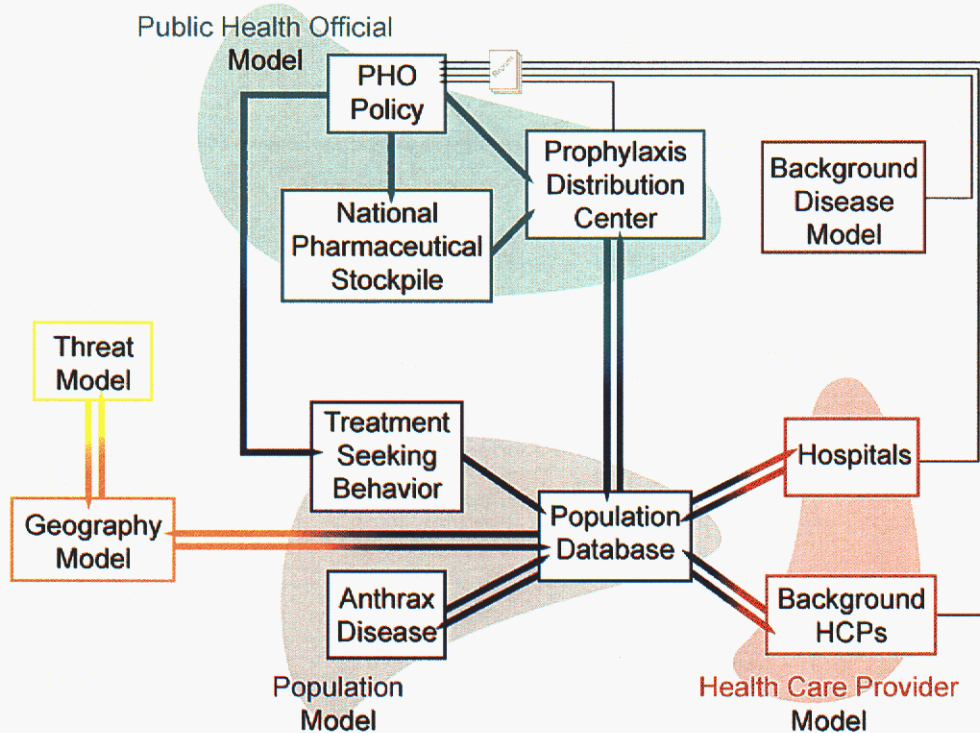


Figure 1. Schematic representation of the functional model elements and their relationship in the WMD-DAC Biological Defense Application.

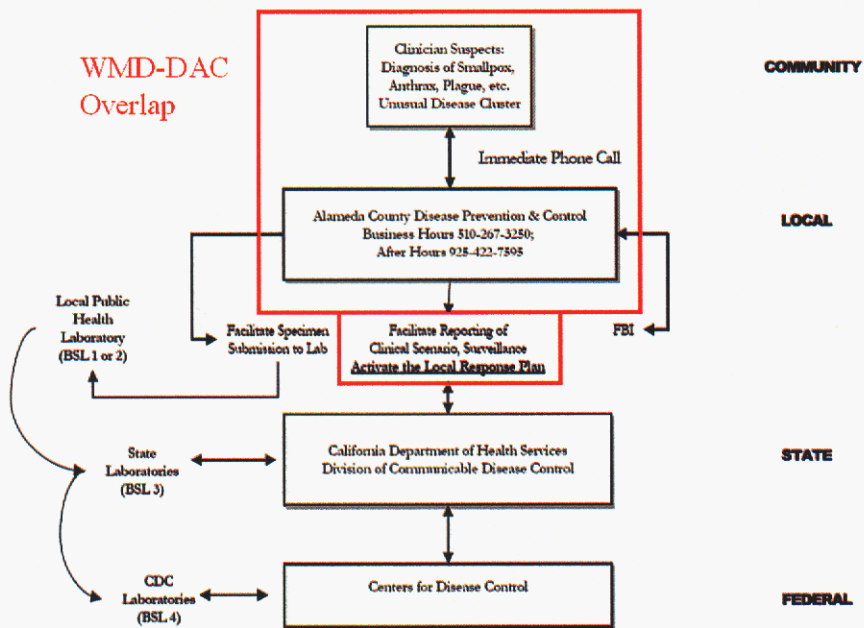
respectively. The overlay boxes in these figures labeled “WMD-DAC Overlap” identify areas in the BRP that intersect with elements incorporated into the WMD-DAC bioterrorism attack simulation.

The intent of the joint exercise was to bring as many local and regional officials as possible together representing key elements of the BRP in order to test their response to a simulated, deliberate release and subsequent spread of anthrax spores in Alameda County. During preliminary testing of the simulation, it was determined that the proposed scenario would involve the participation of health care and emergency response personnel in neighboring Contra Costa County and Berkeley in addition to those already identified in Alameda County. Appropriate individuals from those organizations were therefore invited by the ACPHD to participate in the exercise. All of the participants and their affiliations are listed in Table 1. In order to facilitate discussions during the exercise, the participants were grouped according to the expertise they represented. Five groups, or teams, were defined:

- (1) Public Health Officer
- (2) Health Department A (communicable diseases, nursing, lab)
- (3) Health Department B (environmental health, Berkeley health, community planning)
- (4) Emergency Medical Services (Alameda/Contra Costa, hospital)

CHART A-1

Reporting Suspected Bioterrorism Related Illness



August 2002, Alameda County Public Health Department

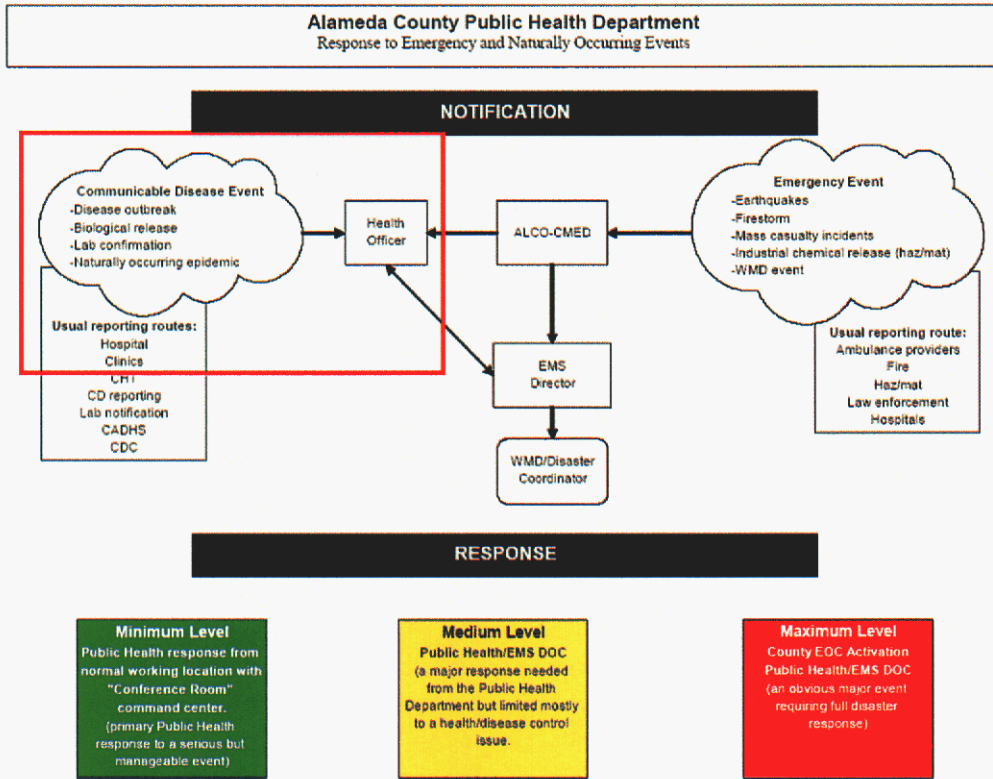
Figure 2. Reporting protocols for suspected bioterrorism related illnesses including overlap with WMD-DAC simulation components. Underlying figure taken from ACPHD BRP dated December 1, 2002.

(5) Law Enforcement and State Agencies (FBI, CA Dept. Health Services/Office of Emergency Services).

The group assignment of each participant is also given in Table 1.

The exercise was conducted June 12, 2003, in the SNL/CA Visualization Design Center. Appendix A is the agenda of exercise activities. Three pre-defined pauses were introduced in the exercise: one prior to the start of the simulation and two while the simulation was executing. These pauses were designed to allow the groups to discuss and decide on appropriate actions based on the information they received during the exercise. Inter-group discussions were also encouraged during these pauses. The results of the group discussions were summarized on forms developed for the exercise. The forms completed by the participants are collected in Appendix B.

2. RESPONSE OPERATIONS



WMD-DAC
Overlap

Figure 3. Flow of notification and response operations in ACPHD including overlap with WMD-DAC simulation components. Underlying figure taken from ACPHD BRP dated December 1, 2002.

Table 1. Outside Participants in the June 12, 2003 Exercise.

Participant Name	Affiliation	Group Number
Dr. Tony Iton	AC ^a Health Officer	1
Dr. Barbara Allen	AC Communicable Diseases	1
Dr. Poki Namkung	Berkeley Health Officer	1
Linda Frank	AC Communicable Diseases	2
Allison James	AC Communicable Diseases	2
Dena Andersen	AC Laboratory	2
Elaine Conley	AC Public Health Nursing	2
Sheila Proctor	AC Public Health Nursing	2
Marge Deichman	AC Family Health Services	3
Brooke Kuhn	AC Public Information Office	3
Bill Reynolds	AC Environmental Health	3
Bill Pitcher	AC Environmental Health	3
David Boone	AC CAPE ^b	3
Dina Quan	Berkeley Health Department	3
Dave Sullivan	AC Emergency Med. Services	4
Dr. Jim Pointer	AC Emergency Med. Services	4
Dan Guerra	CC ^c Health Services	4
Erika Jenssen	CC Communicable Disease	4
Dr. Arnie Spanjers	Hospital Representative/Kaiser	4
Jim Devitt	Hospital Representative/Highland	4
Dan Butler	FBI	5
Jan McClellan	AC Office of Emergency Services	5
Relda Roberson-Beckley	CA Dept. of Health Services	5
Barb Center	CC Region II Medical/Health	5
Dr. Rosilyn Ryals	AC Communicable Disease	All
Jim Morrissey	AC Emergency Med. Services	All

^aAlameda County

^bCommunity Assessment Planning and Education

^cContra Costa County

2 Exercise Execution and Results

The first pause was introduced after the exercise context was established. This context placed the participants in the month of January with a recently heightened national security alert level (Homeland Security Advisory System raised to Red status) and intercepted intelligence suggesting that the San Francisco Bay area might be a terrorist target. Key responses from the groups captured on the Pause 1 decision forms in Appendix B include:

- Communicate heightened alert to staff
- Confirm status/availability of emergency and back up supplies and equipment
- Ensure communication channels are open between/within organizations

- Implement CA EMS/hospital red alert recommended actions
- ReddiNet survey of all hospitals
- Staff CA OES at minimum level to support EOC

The second pause was introduced when the simulation generated the first presumptive diagnosis of an “unusual respiratory illness” at one of the sentinel hospitals. A number of additional suspicious cases and their distribution (number of illnesses in particular census tract locations) were also identified before each group was asked to consider their next course of action. During this pause, Group One was given additional details about the presumptive diagnosis, and they announced to all participants that the symptoms of the unusual respiratory illness suggest that the illness was probably inhalation anthrax, but confirmation from laboratory tests had not been received. Key responses from the groups captured on the Pause 2 decision forms in Appendix B include:

- Conduct detailed epidemiological/communicable disease investigation on suspect cases/identify commonalities
- Exercise county mutual aid agreements
- Communicate to state Region II
- Inform FBI who will coordinate criminal/epidemiological investigation with public health authorities
- Formulate press release
- Ask state DHS for public information announcement
- Issue alerts to health care system components/increase surveillance
- Assure availability of Cipro and Doxy to paramedics and hospital staff
- Activate EOC and ECRS
- Assess status of pharmaceutical supplies
- Begin organization of clinics for health care and prophylaxis distribution

The simulation provides several action options to the Public Health Officer role, Group One. These options include alerting the community, alerting the Strategic National Stockpile (SNS) (national emergency source of pharmaceuticals) and setting up prophylaxis distribution centers. The only action taken at this pause was authorizing a press conference to provide status information to the public.

The third and final pause occurred after one additional day had passed in the simulation. During that day, a large number and a wide distribution of confirmed inhalation anthrax cases were reported. Key responses from the groups captured on the Pause 3 decision forms in Appendix B include:

- Provide prophylaxis to all who live or work in affected areas / priority to hospital and health care workers working in facilities that are likely to have been exposed to anthrax
- Coordinate with local law enforcement for security of facilities to be used for clinics and drug distribution
- Stage prophylaxis clinics
- Seek alternate clinic and distribution centers outside of affected areas

- County OES will ramp up logistics for SNS and other response assets
- State DHS will initiate full command center in collaboration with internal and external partners / send out info via CAHAN to all counties and coordinate CDC
- FBI continues investigation to identify, apprehend and prosecute those responsible / find and process crime scene (anthrax release point) / coordinate activities through JOC and information through JIC
- Request SNS pharmaceuticals and Vendor Managed Inventory
- Consider evacuation procedures
- Request assistance from National Guard and other federal resources
- Continue collection information about new cases and investigate circumstances
- Conduct press conference, coordinate news releases with state and national agencies, and establish procedures for regular news advisories
- Share information and attempt to put out one consistent message
- Evaluate and augment surge capacity at local hospitals
- Seek expert help on plume modeling from national labs
- Advise Public Health Officer to activate federal Disaster Medical Assistance Teams (DMAT) and Disaster Mortuary Teams (DMORT)

Actions following this pause included a press conference announcing the size and extent of the disease outbreak and providing links to other sources of information related to the emergency, as well as the selection and stocking of prophylaxis distribution centers.

Several photographs showing the presentation and team interaction components of the exercise are collected in Appendix C. These photographs reveal the high level of engagement of the participants in the exercise.

3 Analysis of Exercise Participant Decision Processes

Members of the Sandia facilitation team had an excellent opportunity to observe the decision-making processes of the participating health and law enforcement professionals as they performed their functions during the course of this exercise. The setting was also felt to be fairly realistic because response to the simulated anthrax attack required both joint and mutually dependent decisions by multiple organizations under conditions of high stress. The participants working in Group One were designated as the primary decision makers. The construct of the exercise forced them to deal with four critical factors in conjunction with the decision process:

1. High time pressure – The negative consequences of delayed decisions could significantly increase the total number of simulated casualties in the scenario. The timing of the Public Health Officer’s decisions on alerting the community, alerting the Strategic National Stockpile, and activating prophylaxis distribution centers had a direct impact on the final number of casualties.
2. Incomplete data – There were limited data available about the attack at each of the three pause points and during the entire exercise. By design, the participants were not aware of the ground truth of the attack—a situation that is likely comparable to the reality of an actual bioterrorism event. Fragmented data resided in different

organizations and were often disguised by background noise or delayed in transit. For example, during the first planned pause, the FBI agent representing the law-enforcement organization had additional relevant—but security sensitive—information. In addition, Group One received some of the medical details about the first presumptive diagnosis during the second pause. They then had to decide if those details should be released to the participants at large prior to being confirmed. Because each sub-group had access to different information, it was natural for each of them to create their own mental picture of the attack and to recommend actions accordingly. Reaching consensus on joint decisions, however, required all of the participating sub-groups to develop a shared mental model. The quality and effectiveness of the decisions of Group One depended on how well they compiled the distributed and fragmented data.

3. **High negative consequences** – In addition to delayed decisions, premature and incorrect decisions could contribute to public panic, financial loss, tarnished individual or organizational reputations, and potential loss of lives. The WMD-DAC simulation challenged the Public Health Officer to make timely but correct decisions according to the ACPHD BRP.
4. **Limited trust** – There were 26 participants in the exercise from federal, state, and county government representing many different health, emergency services, and law-enforcement organizations. The ad-hoc nature of the team formation, differences in organization culture, and conflicting task focus such as criminal and epidemiological investigation can potentially interfere with team trust. Inter-group communications were encouraged at the beginning of the exercise and during the three pre-defined pauses to provide opportunities for the participants to build the required trust.

As described above, the three pre-planned pauses in the exercise were designed to support the participants in addressing communication and decision-making problems at interfaces between agencies and the decision makers. During each of these pauses, participants were asked to decide what they would do based on the information they had received up to that point. After the sub-groups presented their decisions to the entire community and there was a brief dialogue among the sub-groups, Group One, acting in the role of the Public Health Officer, relayed the community's joint decisions to Sandia facilitators so that it could be incorporated into the continuing WMD-DAC scenario.

As the participants were interacting, communicating, and making their decisions, the Sandia facilitators carried out an informal and subjective observation that was broadly based on the Interaction Process Analysis method introduced by Bales¹. This method divides team interactions into the four categories that are summarized below along with the results of the informal analysis done by the Sandia facilitators.

1. **Social-Emotional Area (positive reactions)** – Participants used about twenty percent of the time to raise the stature of others, gave help, and rewarded each other. On several occasions, appropriate jokes and laughs helped to release task

¹ R. F. Bales, *Interaction Process Analysis: A Method for the Study of Small Groups*, Addison-Wesley Press, Cambridge, MA, 1950.

tensions. During sub-group presentations, the community showed passive acceptance and understanding.

2. **Task Area (attempted answers)** – About forty percent of the time, the participants gave suggestions and directions from the perspective of their national areas in sub-group discussions and presentations, debriefings, and community dialogues. They offered their opinions, analysis, and expressed feelings and concerns. Very often, they repeated, clarified, and confirmed their analyses, expert opinions, and recommendations.
3. **Task Area (questions)** – With the remaining forty percent, they asked the Sandia facilitators for orientation, and each other for information, repetition, and confirmation. During many of the sub-group communication and community dialogues, they asked for opinions, evaluations, directions, as well as for possible courses of action.
4. **Social-Emotional Area (negative reactions)** – Our informal observation did not detect either passive rejection or withholding of support from any participant. Everyone was fully engaged with the exercise, and no individual withdrew from the process. There were no attempts to deflate the status of others or to assert an individual's position for self-interest only.

The group appeared to build team trust and integrated their differences quickly by embracing very healthy communication patterns. Individuals and sub-groups were very willing to risk and share information. The group effectively built its shared mental model of the attack and made effective joint decisions accordingly. The benefits of their effective decision-making process reflected positively on the results of the exercise.

4 Debrief and Lessons Learned

The formal debrief of the exercise focused on defining actions the participants planned to take in order to improve the ACPHD BRP. In addition, the participants were asked to record their specific impressions of the simulated attack, including both the content of the exercise materials and the process of conducting the exercise. All of the debrief summaries obtained from the groups are collected in Appendix D. A consistent theme in these summaries is that the exercise was very helpful in building relationships between the various organizations represented by the participants, including those that span local and state jurisdictions. Many of these organizations are the ones that would be activated and must communicate effectively in crisis situations of this type. The high level of realism provided by the simulation was another aspect of the exercise that was frequently noted in the debrief materials. In particular, as the scenario played out, participants were required to make decisions even though the information that was available to them was incomplete, which is also likely to be the case in real-world emergency situations.

The participants identified several important lessons learned relative to the ACPHD BRP as a result of their involvement with the exercise. These are summarized as follows:

- Job-Specific Action Forms should be developed for each of the BRP key players in order to clarify roles and responsibilities and the appropriate communication channels to be followed when the ACPHD BRP is activated in a crisis.
- A Bioterrorism Coordinator position should be established in the ACPHD.

- The prophylaxis distribution plan should be reviewed and modified in an effort to enhance its flexibility to accommodate multiple crisis scenarios.
- Relationships between the roles of Law Enforcement and Public Health should be clarified to aid in pursuing criminal/epidemiological investigations.
- Training and hands-on experience should be increased for individuals at all response levels.
- Policy makers should be included in future training exercises.

**Appendix A.
Agenda**

**Alameda County Public Health Department
Sandia National Laboratories**

Bioterrorism Response Exercise

June 12, 2003

8:30 am Sandia Arrival & Badging..... Badge Office

Visualization Design Center (VDC)

Building 912, Room 096A

9:00 am Welcome..... Howard Hirano
Manager, Advanced Technologies (925) 294-2053

9:05 am Agenda Items Ricky Tam
Tam: Staff Technologist, Videoconference & Collaboration Technology (925) 294-2213

9:10 am Alameda County Public Health Dept. Exercise Goals Jim Morrissey

9:15 am Introduction to WMD-DAC/Bio and Exercise Context Todd West
West: Principal Member of the Technical Staff, System Studies Department (925) 294-3224

9:45 am PAUSE 1 – Team Reactions to Context Todd West/Ricky Tam
West: Principal Member of the Technical Staff, System Studies Department (925) 294-3224
Tam: Staff Technologist, Videoconference & Collaboration Technology (925) 294-2213

10:00 am WMD-DAC/Bio Simulation Todd West, Dawn Manley
& Heidi Ammerlahn

West: Principal Member of the Technical Staff, System Studies Department (925) 294-3224

Manley: Staff Technologist, System Studies Department (925) 294-4589

Ammerlahn: Staff Technologist, Systems Research Department (925) 294-3066

10:20 am PAUSE 2 – Team Discussions and Decision Making

11:00 am Break

11:15 am Restart Simulation

11:30 am PAUSE 3 – Team Discussions and Decision Making

12:15 pm Conclude Simulation

12:30 pm Lunch

1:15 pm Discussion of Simulation Parameters

2:00 pm Debrief

3:00 pm Adjourn

**Appendix B.
Summary of Pause Points**

Pause Point: 1 Your Team (names): Iton/Allen/Namkung

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process L1 leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u> HSAS threat raised	<u>What does this info mean to you? / What additional info do you need?</u> Need to increase communication with staff, and be alert for unusual disease outbreaks. Specifics on threat?	<u>What action will you take?</u> Cancel scheduled vacations and leaves; alert critical team members; set up daily communication schedule Prepare/distribute fact sheets on alert to front line ER MDs and nurses Communicate with Board of Supervisors and other local health departments Check pharmacy and vaccine inventories Review roles with fire and police Put mental health counselors and crisis teams on standby	<u>How will your action(s) affect others?</u> Disruption of normal routines

Pause Point: _____ 1 _____ Your Team (names): Quan/Kuhn/Deichman/Boone/Pitcher/Raystolds _____

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u> HSAS	<u>What does this info mean to you? / What additional info do you need?</u> Heightened awareness Stay attuned to national media Track status of health alerts	<u>What action will you take?</u> To back up generators, back up supplies, make sure up-to-date, food supplies, make sure staff knows where emergency backpacks are Give staff heads up on red alert (email); Alert staff should report anything unusual Communicate thru Health Officer (connected to EOC); Open channels of communication Make sure getting key information out via press releases (communicate info via Health Officer) Make sure Communicable Disease Surveillance System activated Make sure pagers have batteries Ready ERCS system	<u>How will your action(s) affect others?</u> Be in contact to with other health depts

Appendix B

**Pause Point: ___1___ Your Team (names): Dan Guerra, Dave Sullivan, Dr. Jim Pointer, Dr. Arnie Spanjers, Jim Devitt, Erika Jenssen
Given the information you have now, what actions will you and your colleagues take?**

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u> Red Threat Level Bay Area prime target. Flu season	<u>What does this info mean to you? / What additional info do you</u> Additional information/intelligence needed from FBI and government sources. Weather forecasts. Info on types of agents	<u>What action will you take?</u> Contra Costa Health Services is staffing up to support neighboring counties. Implement California EMS/Hospital Assoc. red alert recommended actions, i.e. Notify staff of high alert and need for increased awareness; augment security; restrict public ingress and egress, inspect packages, etc.; reschedule elective surgical ; do bed availability; increase BT surveillance by infection control; activate Hospital EOC command staff and implement HEICS. ReddiNet survey of all hospitals. Notify paramedics and hospital providers to be aware unusual symptoms. Survey pharmaceutical prophylaxis drugs.	<u>How will your action(s) affect others?</u> Increased level of alert. Determine available resources. Notify critical staff. Ability to increased staff levels.

Pause Point: _____ 1 _____ Your Team (names): _____ Team: 5 _____

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u> Red, Bay Area Target Chem/Bio	<u>What does this info mean to you? / What additional info do you need?</u> DHS-Command Center activation, wait for request from Alameda County, communicate with CDC and Federal command Center OES-at least partial activation of EOC for information sharing. Conference calls with cities Region II Med Health-OES conference calls and relaying information to sixteen counties in Region II and ask for daily updates on any unusual occurrences, disseminate any positive information FBI-response elements placed on alert, additional resources brought in from other Divisions and HQ, contact public health and provide information regarding potential Chem/Bio attack	<u>What action will you take?</u> DHS-on alert. Waiting for confirmed cases OES-Minimal staffing to support EOC	<u>How will your action(s) affect others?</u> DHS-Increased communication between agencies. Access to resources OES-Increased communication between agencies

Appendix B

Pause Point: 2 Your Team (names): Iton/Allen/Namkung

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u>	<u>What does this info mean to you? / What additional info do you need?</u>	<u>What action will you take?</u>	<u>How will your action(s) affect others?</u>
Increased No. of unusual respiratory cases	Clinical Nature of respiratory illness, demographic information	Notify FBI/DHS Conduct more thorough epi investigation; exposure information Determine onset symptoms for each case; where they've been during the preceding week Issue alerts to hospitals, laboratories, outpatient health care providers veterinarians, animal control re: cluster of anthrax cases; conduct active surveillance re: cutaneous anthrax or unusual lesions Conduct active surveillance at local hospitals Activate ECRS; Train PHD staff to respond to calls; Issue periodic media alerts Activate EOC Assess pharmaceutical supplies/stores Activate prophylaxis site Consider declaration of State of Emergency Write standardized procedures for administration of antibiotics, screening forms Begin organization of clinics: location of clinics still to be determined.	

Pause Point: 2 Your Team (names): Linda Frank, Allison James, Erika Jenssen, Dena Andersen, Sheila Proctor
 Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<p><u>What cues do you have now?</u></p> <p>Morbidity reports, sentinel reports with reports of unusual respiratory disease</p>	<p><u>What does this info mean to you? / What additional info do you need?</u></p>	<p><u>What action will you take?</u></p> <p>Overall epidemiological investigation: Gathering information from hospitals, possibly dispatching staff to work with ICNs:</p> <p>Need to gather information on patients– demographics (age, race, sex, location, work location)</p> <p>Presenting symptoms, diagnoses, date of onset and date of dx, any labwork or xrays that have been done, treatments and responses to treatments and outcome</p> <p>Health data: Look at trends of respiratory illnesses, flu rate in rest of country So take the findings and then analyze. Based on analysis, then we would determine next steps</p> <p>Review clinical information about anthrax including incubation period, mode of transmission, period of communicability, lab confirmation</p> <p>Start collecting information for contact information Determine where to get the vaccine from State DHS as well as how to obtain cipro</p> <p>Expand notification to alert all health care providers including hospitals in both counties as well as DHS (CAHAN), including what has happened, to look for, how to manage and how to report</p> <p>Activate ERCS system for alerting providers as well as providers calling in</p> <p>Talk to lab about specimen handling Planning for public phone calls and information – work with PIO</p>	<p><u>How will your action(s) affect others?</u></p> <p>Report to health officer these unique reports and findings thus far so that health officer can coordinate with other agencies and gather information about other counties, etc. as well as any intelligence information</p> <p>Contact PIO about status of situation in order to brief but not for purposes of releasing information</p>

Appendix B

Pause Point: 2 Your Team (names): Quan/Kuhn/Deichman/Boone/Pitcher/Raynolds
 Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u> 35 cases of unusual diagnosis peak above average in select # of census tracks Biggest concentration in Columbia/san Leandro No lab confirmation	<u>What does this info mean to you? / What additional info do you need?</u>	<u>What action will you take?</u> Initiate CD investigative effort in hot spots first Activate Outbreak Investigational Response Team with CD investigators at each hospital Determine age, ethnicity of suspect cases Make sure hospitals are using standard infection control procedures (CD work with EMS) Assess stockpile of prophylactics Call in county mutual aid agreements (coordinate staff needs) Do press releases (fax/email to media); include information on symptoms of anthrax, location, ages, # of suspected cases, situation under control, hotlines, websites, stay informed) Be in contact with CDC for additional support (have PH lab test to pick up sentinels, mobilize field inspectors) Alert ERCS Do press briefings; coordinate with Health Officer Update with news advisories as info develops Do news alerts for TV	<u>How will your action(s) affect others?</u>

Pause Point: 2 Your Team (names): 4

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<p><u>What cues do you have now?</u></p> <p>Unusual respiratory cases.</p>	<p><u>What does this info mean to you? / What additional info do you need?</u></p> <p>Deviation from the norm. Ask Health Dept. for identification.</p> <p>Need origin of outbreak info.</p>	<p><u>What action will you take?</u></p> <p>Reconfirm status of EOC at hospital and EMS.</p> <p>Assure availability of Cipro and Doxy to paramedics and hospital staff.</p> <p>Communicate to Region 2 and request Strategic National Stockpile.</p> <p>Use standard precaution.</p> <p>Start setting up large triage centers for worried well.</p>	<p><u>How will your action(s) affect others?</u></p> <p>Contact PIO</p>

Pause Point: 2 Your Team (names): Relda Robertson-Beckley-DHS, Barb Center-Region II Med/Health, Jan McClellan-ALCO OES, Dan Butler-FBI

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u>	<u>What does this info mean to you? / What additional info do you need?</u>	<u>What action will you take?</u>	<u>How will your action(s) affect others?</u>
<p>DHS receives info from Alameda County Public Health of unusual sentinel diagnoses</p> <p>FBI receives info from Alameda County PH, DHS, and OES</p> <p>EMSA receives information from DHS</p> <p>OES receives information from DHS</p>	<p>Info relayed to CDC and other state agencies such as OES and EMSA</p> <p>FBI WMD Coordinator will monitor situation and remain in contact with Alameda Co PH. Upon confirmation, FBI will coordinate criminal/epidemiological investigation with public health authorities</p> <p>Report information to Counties and remind Region II counties to report any unusual events Ask state DHS for public information announcement</p> <p>Standing by to support LE and other functions. Report information to counties</p>		

Pause Point: 3 Your Team (names): Iton/Allen/Namkung

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u>	<u>What does this info mean to you? / What additional info do you need?</u> Obtain additional information re: wind dispersal patterns and model it out.	<u>What action will you take?</u> Plan to provide prophylaxis to all who live or work in the affected geographic area Stage the prophylaxis clinics Consider closing schools to use as PDCs May have to consider evacuations	<u>How will your action(s) affect others?</u> Request assistance from National Guard and other Federal Resources

Appendix B

Pause Point: _____ 3 _____ Your Team (names): Linda Frank, Allison James, Dena Andersen, Sheila Proctor, Erika Jensen
Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<p><u>What cues do you have now?</u></p> <p>35 confirmed cases of anthrax and 613 reported suspected cases that meet case definition</p> <p>Hot spot along the bay and then moving eastward</p>	<p><u>What does this info mean to you? / What additional info do you need?</u></p> <p>How long can it last in environment? Lives on surfaces for many years – need to decontaminate</p> <p>Talk to CDC about possibility of engineered</p> <p>Weather pattern and wind for last few days as well as predicted weather</p>	<p><u>What action will you take?</u></p> <p>Reconvene CD outbreak investigation team including surrounding jurisdictions (Contra Costa, San Joaquin, City of Berkeley) and State DHS to focus on:</p> <p>Control: Continue to collect information about new cases and investigate, continue communication with health care providers and surveillance</p> <p>Taking care of those exposed</p> <p>Identifying exposed individuals</p> <p>Ensuring standard precautions</p> <p>Set up mass prophylaxis clinics for cipro and doxy for first responders as well as identified individuals</p> <p>Identify clinic sites Get SNS stockpile</p> <p>Determine staffing for prophylaxis clinics</p> <p>Get word out about clinics and hours using ring down system and other media</p> <p>Work with Hazmat for decon preparation</p> <p>Coordinate with local law enforcement for security and cities/schools for facilities</p>	<p><u>How will your action(s) affect others?</u></p> <p>Coordination with health officers, State, CDC as well as law enforcement – police and FBI – and the cities/schools</p> <p>Question: block off affected areas, restrict movement or evacuation?</p>

Pause Point: 3 Your Team (names): Quan/Kuhn/Deichman/Boone/Pitcher/Raynolds
 Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<p><u>What cues do you have now?</u></p> <p>Initial 35 cases confirmed for inhalational anthrax</p> <p>Increase in suspected cases to 648 cases</p> <p>Wide west-east distribution of cases Family members infected</p> <p>No correlation to workplace Cases extend as far as San Joaquin Co.</p>	<p><u>What does this info mean to you? / What additional info do you need?</u></p> <p>This is a large outbreak of inhalational anthrax with the potential to cause widespread morbidity and mortality – potentially thousands of cases</p> <p>Probably a terrorist attack</p> <p>May be aerosolized environmental release</p>	<p><u>What action will you take?</u></p> <p>Contact relevant authorities, i.e. FBI, CDC, DHS if not already informed.</p> <p>Coordinate with arriving national authorities to manage information release</p> <p>Conduct: Press briefing</p> <p>News advisories</p>	<p><u>How will your action(s) affect others?</u></p> <p>Working as team with State and National authorities.</p>

Appendix B

Pause Point: 3 Your Team (names): 4

Given the information you have now, what actions will you and your colleagues take?

Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u>	<u>What does this info mean to you? / What additional info do you need?</u>	<u>What action will you take?</u>	<u>How will your action(s) affect others?</u>
<p>Positive culture; lab confirmation. Meets case definition. Cluster info. Know now not a place of work. Commonality is place of residence</p>	<p>Know now that following major hospitals are in the path of exposure: Doctors, Alta Bates, Oakland Kaiser, Richmond Kaiser, Summit, Highland, John Muir. Concern that employees in these hospitals may have been exposed also employees living in these areas. Need info on weather pattern on suspected day of exposure.</p>	<p>Refer to Health Officer for pattern and guidance. Seek alternate treatment facilities for prophylaxis and tx. Evaluate and augment surge capacity at impacted hospitals. County operations center for hospital mutual aid.</p> <p>Ask for adequate number of PUSH packages and Vendor Managed Inventory including intravenous and oral medications. Advise health officer to activate federal national resource DMAT and DMORT.</p> <p>LLNL plume modeling</p>	<p>Will impact other counties</p>

Pause Point: 3 Your Team (names):): Relda Robertson-Beckley-DHS, Barb Center-Region II Med/Health, Jan McClellan-ALCO OES, Dan Butler-FBI

Given the information you have now, what actions will you and your colleagues take?

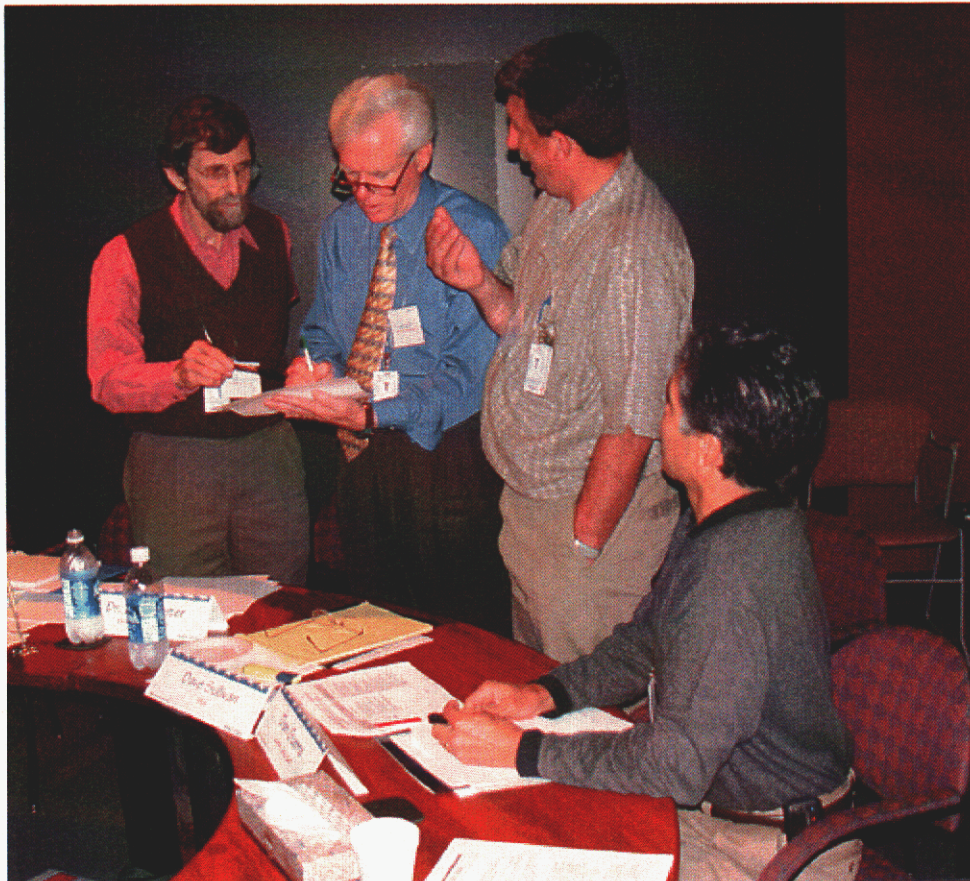
Decision Criteria Cues (input from other teams, external agencies, and external environment)	Action Options (general, high-level options)	Implementation (specific plans) Strategy Staff (roles and responsibilities) Process Leadership Procedure	Effect (Output to other teams, external agencies, and external environment)
<u>What cues do you have now?</u>	<u>What does this info mean to you? / What additional info do you need?</u>	<u>What action will you take?</u>	<u>How will your action(s) affect others?</u>
35 confirmed cases of Anthrax	<p>EMSA-Two counties asking for med/health resources, get resources from region or state as necessary</p> <p>DHS-Full command center initiated in collaboration with internal and external partners. Send out information via CAHAN to all counties and confirmed case initiates CDC command system. State stockpile activated. Labs on alert.</p> <p>ALCO OES-Ramping up for logistics of SNS and other response assets. Proclamation of emergency</p> <p>FBI-Continue crime/epi investigation in order to identify, apprehend, and prosecute those responsible. Identify and process "crime scene" using FBI (and other) HazMat teams. Coordinate all activities through JOC and information through JIC</p>	EMSA-information sharing and gathering and put out one consistent message	<p>EMSA-Resources taken from other counties (reluctantly)</p> <p>DHS-CDC command center initiated</p>

Appendix C. Selected Photographs of Exercise Process and Team Interactions





Appendix C



Appendix D. Summary of Debriefing

Team 1 / Debrief — Dr. Tony Iton, Dr. Barbara Allen, Dr. Poki Namkung

Meeting Goals

Benefit of BTRP is planning process, not necessarily plan/document itself
Building relationships with your department
Setting expectation of roles
Did not refer to plan during process
Don't expect to ever pull up document in real situation

Operations to work with other divisions
Environmental health—need to work with constituent cities
Pleased to learn about kinds of resources available
In reality, would get together in same room

I don't want to be in EOC, want to be with my people
EOC doesn't have my resources
My info would be at my place

(Team 2 Need Info Systems to be here— to develop forms etc.
Team 4 Need for job action sheets—BT plan is large
Team 5 Did not see plan ahead of time
HAZMAT needs to be here, going out, taking samples)

Action Item List

Make sure prophylaxis clinics defined - size and capacity
CDC BT funding - post event vaccination clinic for smallpox
UCB task force - detail by detail what did they do for SARS clinics
West Nile planning helped for BT planning
Intense Training Field epi teams
ENV Health—important role—how to ask them for sampling, make sure sufficient capacity
Weather modeling
Communications—work out strategy
If chem. spill – go to EOC
If BT, go to clearinghouse (stay at office) & send comm. Rep to EOC
Hire BT staff
Political ramifications—bring policymakers in to think through issues

Team 2- more TT exercises, clarify lines of comm. & roles
Team 3- operating checklist
Team 4- work out prophylaxis distribution

Appendix D

Team 2 / Debrief

Erika Jenssen, Linda Frank, Allison James, Sheila Proctor, Dena Andersen

Short-term action plan

More practice sessions and tabletop exercises

 With Public Health internally

 With FBI/OES/DHS in order to clarify communication lines and performance expectations

Staff

 Identify prophylaxis sites and work on MOUs with cities/school districts

Training for health department managers about emergency management

Hire a BT Coordinator

Team 3 / Debrief -- Quan/Kuhn/Deichman/Boone/Pitcher/Raynolds

Goal 1: Test Bioterrorism response plan: Didn't get to test the plan per se but were able to test the people and their abilities to think together through a complex problem

Goal 2: Were able to work with other players in BT Response plan and get to know their roles and responsibilities

Goal 3: Learned the roles of the external agencies and became somewhat more familiar with the individuals.

Potential Action Items:

- Develop standard operations procedure checklists, applicable to specific roles.
- Review emergency back up status, who is updating them, etc.
- Beef up knowledge of local resources as well as available external resources, i.e. mutual aid, national, etc.
- More and more wide spread/broad based training/tabletop exercises
- Periodic and frequent update of telephone and address lists
- Test of page system to determine percentage of responses and response times.

Team 4 / Debrief – Guerra/Sullivan/Pointer/Spanjers/Devitt/

Moderately successful given the timeframe (plan is very comprehensive)

Excellent opportunity to work with other departments

High quality of interaction

Good understanding of resources available

Job action check sheet needed

Short-term action

More inter agency/jurisdiction planning/exercises

Work out the strategic pharmaceutical distribution

Pre identify alternate treatment sites (field treatment sites, CCP, designated hospitals, etc)
finalize plan for distributing pharmaceutical stockpile.

Surge capacity/ triage of worried well.

Coordination of public information among all agencies

Bring in additional staff for training.

Bring info to department levels, extrapolate training to local level

Identify key State agencies to interact with

Process: well organized, prepared, obvious thought and attention paid to preparation.

Team 5 / Debrief OES, DHS, EMSA, FBI

Test the ACPHD BTR Plan and identify strengths and weaknesses:

This group didn't have the plan to test it.

Provide opportunity to work with all PH divisions/departments responding to BT event:

Didn't have information how each department would have been affected.

Provide an opportunity to work with external agencies:

Yes. We did hear about the response procedures of external agencies.

Next Steps:

OES

Ensure other agencies know capabilities and resources available

DHS

Use simulated data to conduct more tabletop exercises with all parties involved in the plan (i.e. security, hazmat)

EMSA

Learn how Regional Med/Health component is written into the BTR Plan; assure realistic expectations

FBI

Conduct training with Public Health departments with regard to joint criminal/epidemiological investigations

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