After Action Report of Interrelationships between Response Organizations during SARS Attack Exercise of November 5th, 2008

Final Report of February 4, 2009

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Executive Summary

On November 5, 2008, a large scale functional exercise named SARS Attacks was conducted by many metro Portland, Oregon, hospitals, a local public health incident command organization, emergency management operations centers at the city, county, and state levels, and a state health agency operation center. The scenario was an outbreak of a highly contagious and serious disease, Severe Acute Respiratory Syndrome, occurring during an influenza epidemic.

Each organization was encouraged to draft an AAR/IP specific to their unique objectives and internal processes. This AAR addresses the interrelationships between organizations relative to common objectives.

1. **Resource ordering.** Clear resource ordering processes, flow of information, and ordering points for each response organization are identified and working well.
2. **Allocation of resources.** Orders of scarce resources are filled according to properly made allocation decisions, e.g. by a IC/UC for its operations, an AC for its IC/UCs, or a MAC group for broader application.
3. **Situational Awareness.** Information is rapidly shared between response organizations and displayed at suitable levels of detail at each organization. Response actions are monitored (operations reports, field observers), communicated to ICP, reflected on situation display, analyzed, and applied to adjustments to current and/or next period's operations.
4. **Command, Control, Support, Coordination** Relationships between activated response organizations are clear, agreed upon, and operate as an efficient system.
5. **Tactical Communications** between activated response organizations are efficient and effective.

SARS Attacks continued to advance the region's resource management and coordination between response organizations. However, the challenges remain daunting and they largely exist in the world of details, for example:

- Complex, multiple automated and manual resource management systems;
- Agreement on resource standards, e.g. abbreviation, numbering, order formats;
- Training, experience of response organization leaders and staff;
- Properly applying and differentiating Planning/Situation and Logistics/Supply with respect to informing resource management processes.

One may recall a fable that ends something like "but for the want of a nail in a horse shoe, the kingdom was lost." Many of the conditions and recommendations in this report are not merely aimed at improved efficiency; they are aimed at improving simple processes and information flows that are critical to executing response operations and objectives. The reader/group intending to achieve operations that meet the above objectives, and to correct problems that seem to be continually repeated, is encouraged to drop down from the 30,000 foot perspective of this executive summary, to the 1 foot perspective of the report that follows.

A. Scope

SARS Attacks was a metro Portland, Oregon exercise of command posts and emergency coordination/operation centers activated for a Severe Acute Respiratory Syndrome (SARS)-like virus (SLV) and influenza epidemics. The exercise was on November 5th, 2008. Most organizations participated for 6-7 hours on a day that was a month into the simulated influenza epidemic, and several weeks into the simulated SLV epidemic. Response organizations included:

- eight hospitals from Legacy, Kaiser, Portland Veterans Administration, and OHSU systems and their Operation Centers/Command Posts;
- Multnomah County Health Department Incident Command;
- Oregon Health Region 1 Health/Medical Coordination Center (HMCC); and
- City of Portland Emergency Coordination Center (ECC) Multnomah County Emergency Operation Center (EOC), Oregon State Public Health Division Agency Operations Center (AOC), and Oregon State Emergency Management ECC.

B. Purpose

This report is an overview of relationships between response organizations with respect to six objectives that were common to all participating organizations.[1] This report may be referenced or included, in whole or part, with the After Action Reports (AAR) drafted by and for each participating organization. These AARs as well as the Participant's Handbook at http://www.mchealth.org/emergprep/sars/index.shtml offer more details on the exercise and the performance of specific organizations.[2]

C. Objectives

The remainder of this report describes the main inter-organizational issues with respect to each of the six common exercise objectives, with a brief analysis and recommendations.

Objective 1 - Resource Ordering. Demonstrate functional resource ordering processes and information flow, internally and with proper ordering point(s).

Analysis: Hospitals and public health command Supply Units placed orders in a format proposed by State Public Health Division. Form fields covered the details of the basic elements of a resource request that are part of the ICS ordering process, as well as justification for the request which is typically part of the planning functions responsibility to analyze and share. The State Public Health Division order form reflected an effort to standardize ordering format for the exercise, however, it was not consistent with resource ordering processes and organizational responsibility at the

[1] Organization-specific objectives are covered in the AARs for each participating organization.
[2] The relationships and flow of information between response organizations is described on page 21 of the Handbook. Part of the pre-exercise scenario was that response organization leaders agreed to these relationships two days before the exercise.

Incident Command level. The FEMA IS-703 course outlines minimum resource order fields and processes and other ICS courses describe functional, organizational, and position specific roles. Justification for resource orders typically extend from incident objectives which are displayed and shared by the Situation Unit rather than the Supply Unit.

There is not a system wide order resource request coding or numbering protocol that allows for efficient locating and tracking of orders. Each organization assigned their own number, WebEOC™, (a web-based platform used by an increasing number of Emergency Management programs in the Portland Metro area) and OpsCenter™ (a web-based platform used by Oregon Office of Emergency Management and many counties) automatically assigned numbers. Both web based systems required basic training and some skill to locate and track orders. Multnomah County ("County") EOC staff spent too much time searching in OpsCenter™ in order to report order status back to originators of requests. Without a pre-determined protocol for order numbering it was difficult or impossible to determine if orders disappeared as they were passed to and between ordering points. County EOC logistics section responded by creating order number conventions "on the fly" to reduce confusion and permit order status communication. Order originators are in the best position to do this if the ordering system is transparent and ordering point(s) preserve the order number which eventually returns to the originator and should be used to manage the resource until it is used or demobilized.

Order originators conveyed orders to either the City ECC or County EOC ordering points via phone, fax, or email. It had been agreed that all hospital medical resource requests automatically go to the County EOC which was also staffed by hospital logisticians (the HMCC was not an ordering point). The City and County transcribed requests into WebEOC™ and OpsCenter™ respectively. The State did not require Oregon counties to submit orders to it via OpsCenter™ (Fax, phone, and amateur radio are options, WebEOC™ was not), however OpsCenter™ provided a consistent approach to communicate and track orders and was chosen to provide participants experience in working with the system. Therefore, the County EOC was the nexus of manual and two web-based systems, and therefore the point of greatest risk for error as information was transcribed from one system to another. All organizations were given the opportunity for system training and read-only access to WebEOC™, and OpsCenter™. Organizations that tracked the web- based resource order status displays were reassured of order status with a glance at one or both web-based systems. Others needed to telephone or email ordering points for a status update. Portland and Multnomah County emergency managers noted the challenge for even a few select staff members to be adequately expert in the systems. *The two web-based systems, other normally used ordering systems, and incident specific manual resource management systems (required backup) add up to complex resource ordering processes that may not be consistent with each other. They require significant training and exercise investment to develop experienced staff, of sufficient depth, who can apply them well.*

Nine of 24 orders forwarded from the City to the County were greatly delayed when City ECC staff learned that County EOC staff were not pulling orders out of WebEOC™, and County staff assumed there were no more orders or were not using WebEOC™ as agreed upon with the City prior to the exercise[3]. Near the end of the exercise the City queried the County on the status of these orders the County EOC Manager contacted the City ECC, to ask if there were any concerns. At that point, the City ECC contact stated that their orders were not being processed at the County EOC. A quick phone conversation revealed that logistics staff needed to select a button for the screen to be refreshed with newly placed orders. Of a sample of 32 orders sent from County EOC to the State using OpsCenter™, the State put 8 into a County Only status. This meant that the State did not intend to fill the order and was sending them back to the County for action. Communication between State AOC and County EOC logistics staff that the order was now the County EOC's responsibility was not effective. Therefore most of these orders fell out of the system. Even if everyone is well trained and experienced, no one should rely passively on these systems. *Follow up calls and ongoing communications are essential. Few staff are trained to a basic level on one or both systems, and supply unit and ordering point staff are minimally trained as they join the response organization.*

During emergencies the leader is challenged to balance their responsibilities to work with superiors, establish and coordinate relationships with coordinating and support organizations, and lead subordinates managing internal processes. At least one hospital system's logistics/supply staff was never briefed on the scenario (in the Participant Handbook available to share with exercise participants more than a month before the exercise) or on the resource requests and information flow relationships between response organizations on page 21 of the Handbook. These individuals were confused and misplaced calls and orders. This is not exercise artificiality. *Real emergency staff are often plagued with poor knowledge of the differentiated roles between organizations, and within the organization. The result is a proliferation of freelancing and inefficient, improperly linked ICS processes.*

Recommendations:

1. **Ordering Form.** Simplify the resource request form to include 1) incident name; 2) order number; 3) Date/Time of order; 4) quantity, kind, type of resource (or, if appropriate, a mission); 5) reporting location; 6) reporting contact; 7) requested delivery date/time; 8) communication system; 9) requesting person/title; and 10) Callback phone number(s) (reference FEMA IS-703 Course, Unit 4). Meet with State Public Health to determine a minimal amount of additional essential information required to justify the request, preserve the integrity of ICS Situation Unit and Supply Unit roles and processes, and revise the form accordingly. Do not group different kinds/types of items under same order number; this practice is too complicated if the total

[3] Portland Office of Emergency Management provided WebEOC™ training to select County EOC, hospital, and public health staff with understanding that they would be logged in and using the system during the exercise.

order cannot be filled at same time by same vendor.

2. **Manual Ordering Display.** In the event of automated system failure, each originator of requests and each ordering point minimally requires manual ordering processes that are well documented with quick review sheets and checklists to support just-in-time training of surge logistics/supply staff.

3. **Web-based Systems.** Select a single web-based ordering system, or install a robust and accurate software interface between systems, if system purpose is to share resource ordering and other situation updates with other organizations. Consider that the existence of two web-based systems increases each user's learning curve, time required to view and understand the content of each system during emergencies, and adds time to compare information and interpret inevitable inconsistencies.

   Selection of a single system may not be practical given the large investment made in each system. A software solution could allow the systems to 'talk' to one another. Or individuals trained on each system would be needed at every Supply Unit and ordering point. If a choice could be made, selection criteria should include ease of learning, applying, and overall utility of the system. Any system(s) needs easily understood quick review sheets and checklists to support just-in-time trained users. System administrators need capacity to quickly issue access and noted job aides to select users from activated response organizations within the supply chain.

   A high level resource ordering use of a web-based system will allow request originators to enter requests directly into the system, and allow them to assign request numbers consistent with <u>their</u> resource management system. If this is not possible, well established ordering number conventions that uniformly reference the originator's request number must be agreed to and communicated to all participating organizations. This will speed up the request process and reduce or eliminate errors in transcribing from one system to the next. A lesser, but still valuable level of use will allow organizations to view the status of orders that they originated, relayed, or filled. Organizations still need to maintain a backup manual system.

4. **Request Resource Numbers.** Preserve the originator's request number at every point of the ordering chain, ensuring that that number is known by the ordered person or is recorded on the piece of equipment of shipping invoice available for review at the originators check-in and receiving locations. This will allow the response organization to quickly match resources with the original request, manage the resource until it is released or depleted.

5. **Naming and Abbreviation Conventions.** Develop conventional, widely accepted abbreviations for local jurisdictions , hospital, and other response organizations. When used with the originator's resource request, these

abbreviations can be used to differentiate a resource throughout the resource management processes, from forms making initial resource requests to tracking and labeling a resource assigned to an incident. Consider California Firescope as a benchmark.

6. **Develop Ordering Leaders and Staff.** Each organization needs core Supply Unit/Ordering Point staff with demonstrated expertise in the system(s) , written procedures/job aids to trained staff, and capacity for just-in-time training of surge staff.

7. **Response Organization Leadership.** Response organization leadership (IC/UC, Command and General Staff, and their OC/CC counterparts) require the training and experience needed to effectively balance responsibilities to: 1) support executives: 2) establish details of their organization's relationship with other response organizations; and 3) lead people. Each of these influences the quality of processes such as resource ordering and ordering relationships between organizations..

8. **Resource Ordering Information Relative to Situational Awareness Information.** Adhere to ICS compatible processes and responsibilities that support the Planning/Situation Unit roles for analyzing, sharing, and displaying situational awareness data, and the Logistics/Supply/Ordering Point roles of processing and filling request orders. The former is supported by sharing situation reports and status summaries at needed intervals, the latter by quickly getting resource requests to the ordering point that can fill the order, and transparency at all points in the ordering chain about the status of the order. Position specific training will help leaders to properly link the ordering and planning processes.

9. **Expertise of Ordering Point Staff.** It is critical that supply unit/ordering point staff include individuals expert in the specialized resources expected to be ordered. Including hospital logisticians in the County EOC ordering point that filled or relayed medical resource requests was a best practice that should be continued and extended to other specialized disciplines and to staffing of other ordering points.

Objective 2 - Allocation of resources. Orders of scarce resources are filled in compliance with allocation decisions made by the appropriate response organization or entity, e.g. by a IC/UC for its operations, by an AC for its IC/UCs, and by a MAC Group for broader application.

Analysis:

The scenario was designed to have forced this issue, but exercise controllers did not ensure that certain requests would not be filled. Exercise participants in the ordering chain processed "filled" every order at some level, ultimately at the State ECC or State Health AOC.

Recommendation:

Improve exercise control and enforce participant ground rules that discourage unreasonable performance assumptions.

Objective 3 - Situation Awareness. Situation information is rapidly shared between response organizations and displayed at suitable levels of detail at each organization.

Analysis:

The public health and hospital incident commands were responsible for updating the Hospital Capacity website and posting/sending other prescribed reports to the Health/Medical Coordination Center (HMCC) at a pre-arranged time.. The HMCC was responsible for establishing the format of reports that described the health/medical situation, and collecting, processing, analyzing, and then sharing that summarized/processed information to the County EOC, City ECC, State ECC/AOC, Health/Medical MAC Group, and back to the incident commands. The respective EOCs and ECCs coordinated their jurisdictions with support of emergency operations. These relationships were agreed to by response organization leaders (see the page 21 addendum describing information flow relationships between response organizations). These agreed to relationships and the Participants Handbook were not shared with at least one major hospital system's participants. This is the same as organizational leaders making decisions that should influence the work of their staffs, but the staffs not being informed. Inter-organizational communications improved as the exercise progressed.

County EOC and HMCC needed better coordination of their information handling and processing. It was the first time the Portland metro area established a HMCC so questions arose regarding the functions and roles of the two organizations; these must be clarified to improve the efficiency of the two organizations, as well as other organizations that communicate with them. These organizations were located on separate floors of the same building. Since the scarce resource objective was not achieved, the quality of information that might have been provided to a Health/Medical MAC Group for determining hospital/incident prioritization could not be evaluated.

Log/blog type entries via WebEOC™, OpsCenter™, and other means are important ways to document and share major events and decisions. However, in a prolonged incident these statements multiply and are ever more difficult for the reader to piece together and know what is important for current and planned operations. Aside for the epidemiological tables and graphs produced by designers as part of the scenario, exercise participants at all levels did not convert data into graphics and tables that clearly illustrated the progression of the diseases relative to response operations. These products should be included in situation displays at operations centers and in shared situation reports. One test of the quality of situation displays in the degree to which others in the incident facility (ICP, ECC, EOC, AOC, etc.) refer to them, and rely upon them as the basis of their work products.

The Hospital Capacity website was not fully utilized during the exercise. Hospitals posted information at the start of the exercise but did not provide updates throughout the exercise. Hospitals primarily reported their situation status to the HMCC, which compiled it into a regional report. Clinics also reported their situation status to the HMCC.

Recommendations:

1. **Processed and Displayed Information.** The planning/situation functions of each organization need to better emphasize analysis, processing, and easily comprehended visual displays (graphics, tables, trend lines, etc) of the problem and operations to resolve the problem. WebEOC™ is the accepted web-based tool in the Portland Urban Area Security Initiative (UASI) Region. Current practice does not include mutually accepted communication/display conventions that would contribute to these displays. Edward Tufte workshops and books on the display and sharing of data are one means to inspire better ways to display and share information. These practices should be applied during exercises if they are to be done well during real incidents. Response organizations need to impose formats and data field requirements on data originators that will support situation display products.

2. **Web-based Systems.** Comments under first recommendation of Objective 1 about multiple web-based systems also apply here. The UASI Regional partners should establish mutually accepted communications/display conventions to improve the understanding of information posted by various response and support organizations.

Objective 4 - Response Operations Feedback. Response actions are monitored (operations reports, field observers), communicated to ICP or superior organizations, reflected on situation displays, analyzed, and applied to adjust the current and/or next operational period.

Analysis:

This objective mostly applies to tactical operations with the Incident Command Post or Hospital Operations Center that strive to achieve objectives for each operational period, and collect feedback in order to adjust objectives, organizations, and resources for the next operational period. This should be covered in organization specific AARs.

Objective 5 - Organizational Relationships. Create NIMS-compliant organizational relationships between ICP(s)/EOC(s)/ECC(s)/ State/Hospital OC/Non-Health partners that make sense.

Analysis:

Each hospital and the public health incident command was treated as a separate incident command. Kaiser and Legacy Regional Operation Centers handled information and requests to and from their system hospitals and clinics. Organizational relationships were agreed to as a part of the situation on page 21 of the Participants handbook (see footnote 2). As part of the scenario, leaders agree to these relationships over a day before the exercise period. Medical/health related information went to the HMCC located at County EOC for processing and further sharing. Medical and health related resource orders all went to the County EOC ordering point, and other requests to the City or County ordering point most likely to fill the order. As noted under objective 1, some participants/organizations did not know of this agreement. *However, as the day progressed, the flow of information and relative relationships generally aligned well with the page 21 agreements.*

The HMCC was in the same building as the County EOC, but on different floors. This created some redundancy in operations (situational awareness, communications plan, etc.) Longer operations would have allowed adjustments to better coordinate their respective roles. The distance between the locations and the limited hours of exercise play did not allow for proper information analysis and meshing the resource order and situation processes.

The Health Officer at the HMCC was designated to serve in the role of a Multi-agency Coordination (MAC) Group with delegated responsibility to prioritize incidents for the purpose of allocating scarce resources. As noted under objective 2, no resources were declared to be scarce. Therefore the Group did not make decisions that would have informed the ordering system which requests would be filled, and which would not.

There was general agreement that coordination and communication channels were better than comparable major exercises of recent years.

Recommendation:

HMCC location and organization. Consider collocation (same work area) of HMCC with the jurisdictional Center that may be performing important related processes. In this case, the HMCC developed the overall operational picture required to inform a MAC Group and other response organizations while the County EOC served as the ordering point for all health/medical resource requests as well as other resources that the county might provide. A simpler way to integrate processes of these two Centers may be to merge them into one Center, that is a County and Health/Medical Center. Further analysis and planning is required between County Emergency Management and Region 1 Health Preparedness Organization (planners for HMCC) to determine how the region can support integration of these processes.

Objective 6 - Tactical Communications.

Demonstrate good communications between activated response, contributing, and supporting organizations, and internally within each organization.

Analysis:

Communications between response organizations were via normal internet, fax, and phone services. Therefore, backup radio communications were not used. Communications between the City ECC and County EOC were significantly better than in previous exercises. A number of State AOC staff were not informed of the communications plan. They made repeated exercise related calls to normal disease investigation/epidemiology numbers rather than to the ICP. Certain hospital contacts were the emergency manager/exercise controller who often took messages. The Oregon Emergency Management reception line staff person was not aware that a Portland area exercise was being conducted. The HMCC received situation reports from 8 hospitals, 11 clinics, and 1 public health department during the exercise. All but 1 clinic received the combined regional report from the HMCC. There were some cases where the report was sent to the wrong person, however this was likely due to the confusion regarding exercise and real world communication. The HMCC also communicated with the County ICP and EOC, and the State AOC. In summary, communications between response organizations was stressed to realistic levels.

Recommendations:

1. **Communications Plan.** Each response organization needs a communications leader to develop the initial contacts between organizations into a comprehensive communications plan. The plan should link key processes between organizations, for example leadership, public information, supply/resource ordering points, planning/situation, and communications. Critical connections might be via dedicated phone lines and backed up by radio channels.

2. **Communications Leadership.** Each organization's communications function should be led by an individual with suitable experience and who has taken a communications unit leader course.

Appendix 1 - Participating Organizations and Lead Planners

Legacy Health Sys. Regional Operation Center (OC) • Legacy Emanuel Hospital OC • Legacy Good Samaritan Hospital OC • Legacy Meridian Park Hospital OC • Legacy Mount Hood Hospital OC	John Reid, Director Environment of Care
Oregon Health Sciences University OC	Joe Partridge, Emergency Management Program Director
Portland Veterans Administration Medical Center OC	Tony Barker, Emergency Preparedness
Kaiser Health System Regional Office OC Kaiser Sunnyside Hospital OC	Braxton Chambers, KSMC Environmental Health and Safety Coordinator
City of Portland Emergency Coordination Center (ECC)	Patty Hopkins, Exercise Manager Bob Maca
Multnomah County: • Emergency Management Emergency Operations Center (EOC) • Health Department Incident Command Post	Dave Houghton, Interim Director Heather Randol, Program Development Specialist, Sr. James Spitzer, Emergency Preparedness Manager
Healthcare Preparedness Region 1: • Region 1 Health/Medical Coordination Center	Christine Bernsten, Region 1 Coordinator
State of Oregon • Oregon State Health Division Agency Operations Center (AOC) • Oregon Office of Emergency Management ECC	Lynda Murieta, Training and Exercise Manager Brian Mahoney, Health Region 1 Liaison

Appendix 2 – Resource Order Examples

The following are several examples of sample orders traced from the originator, to County EOC, State ECC, and State AOC. Several were placed before the exercise, but not yet filled, most were placed the day of the exercise. Data on orders sent directly to the City were sought, but not made available to Kathleen Innes in time for this report.

A Kaiser order submitted under one request number was split into several categories and became OEM request numbers 81, 83, and 85 and State ECC request numbers 39, 40, 38, 41, 42, and 45. The ventilator component was to be referred for Federal action. Medical supplies were assigned to State agencies. Barricades were put into "County Action Only" status. No record of action was found for 20 security personnel, however, Behavioral Health Specialist were assigned.

A VA Medical Center request number 1 resulted in two different responses by State AOC. The ventilator and gowns were acted on by the State but personal protective equipment were denied using the rational that the VA could get supplies from the Department of Defense. The VA staff said this was not the case. This was not resolved the day of the exercise.

Multnomah Health orders for non-medical personnel to support mass prophylaxis operations appeared on the City's list of orders placed with the City before 11/5. The order did not go through the County EOC due the County staff not pulling the information off of WebEOC™, (described under Objective 1 of this report). The same order appeared on OpsCenter™ and the State referred it back to the County level. This was not received and acknowledged by the County. So this important order fell out of the system twice.