

CASE STUDY NOTES FOR THE INSTRUCTOR

This is a case study of the jurisdiction of Metropolis. It is designed as a final summation of the course. Thus, it should "pull together" what the student has learned. It also shows a logical connection between EMS planning and successful EMS disaster operations.

A total of three hours is allocated for this unit. Allow the student sufficient time to complete each of the two parts of the case study; but also insure that time is left for questions and answers at the end of the case study.

This instructor guide includes sample answers for the questions contained in Part 1 and Part 2 of the Case Study. Use the final discussion of these answers as a last opportunity to drive home the major points of this course.

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CASE STUDY ACTIVITY

Orientation

This case study is designed to provide an opportunity for you to test your knowledge of Emergency Medical Services (EMS). The case study is in two parts. The first part deals with EMS planning issues. In particular it gauges your understanding of EMS system design. The second part deals with EMS during a disaster. During both parts of the case study you will work individually first; then in groups. If you have any questions or require assistance at any point please ask your instructor.

At the conclusion of the case study some time has been set aside for discussion. You are encouraged to make comments or suggestions on the case study.

The following pages provide a scenario on the jurisdiction of Metropolis. Take approximately 15 minutes to read about it. Also included is a map with major community features noted. Once you have completed your reading you will fill in the community features information sheets using the data from the scenario, just as you did on Day One with your own jurisdiction.

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A. Scenario Orientation

Metropolis is a city of 200,000 population and 88 square miles, located in a rural farming region. The city is transected by a river and a major interstate highway. Chamber of Commerce advertisements boast a large industrial park, college, Medical Center, and retirement community, all located within city boundaries.

The residential portions of the city are of diverse character. The fashionable West Side is a lightly populated section, home to high-income families and many of Metropolis' most influential citizens. Center City, by contrast, is a densely populated, low-income area containing several housing projects occupied primarily by Spanish-speaking people. While Metropolis has a mayor that is elected every three years, the majority of municipal business is conducted by a seven-person City Council made up primarily of Metropolis' business leaders. Of the many civic organizations whose logos are displayed on roadside sign posts, the most politically influential are the Rotary Club and the newly formed Hispanic Citizens Association.

The Metropolis Police Department has a staff of 365; the Fire Department a staff of 311. Within the past month both departments have altered their dispatch and communications functions as Metropolis' Communication center became operational. The Center was created to relieve the Police and

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Fire Departments of a majority of their dispatch duties, while providing a new 911 emergency telephone number for Metropolis' citizens. This 911 system is Metropolis' only disaster communications network. Also taking advantage of the new Communication Center are White's Ambulance Service, the city's primary BLS transportation provider and Jimmy's Ambulance Service, a smaller, primarily non-emergency transport service. Despite the ambulance services' new dispatching capability, both continue to advertise a seven-digit number for "emergency" ambulance requests.

Metropolis' most critical medical needs occur in Central City and in the retirement community. The housing projects of Central City have a high incidence of trauma and an above average incidence of cardiovascular ailments.

While the medical needs of the retirement community are within normal ranges for people above the age of 65, the concentration of elderly into a small, densely populated area results in a high incidence of acute medical emergencies. Another medical concern that has recently surfaced is the improper disposal of industrial wastes on the northeast border of the industrial park. Apparently, highly toxic wastes buried in the early 1960's are beginning to rise above ground level. Although no housing units are located in the immediate area, children playing near the waste site have received chemical burns. The area was fenced off over a year ago, but toxic chemicals have

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recently surfaced outside the fence's perimeter.

Ambulance patients are generally transported to the nearest of Metropolis' two hospitals, Metropolis Medical Center and Municipal Hospital. The Metropolis Medical Center is a substantial medical facility with a well staffed Emergency Department; its ICU, CCU, Surgery, Orthopedic, and Burn units are generally regarded as the best in the State. The Medical Center is closely associated with State College and performs many teaching functions. By contrast, Municipal Hospital is a tax-supported institution much smaller than the Medical Center, with a twenty-four hour Emergency Department that has a minimum physician staffing. Although Municipal has a highly regarded obstetrics department, other hospital units are smaller and less sophisticated than those at the Medical Center.

The EMS demands at the Medical Center's Emergency Department vary greatly from those at Municipal. While the Medical Center receives most of the acute emergencies from the retirement community and State College, Municipal's Emergency Department receives the majority of patients from Central City to Municipal only to have Jimmy's Ambulance Service transfer the patient from Municipal to the Medical Center within an hour.

Currently, Metropolis has a BLS transportation service with poor coordination between providers. This condition however

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is changing. With the backing of the State Office of EMS and considerable support from Dr. Perry, Emergency Department head of Metropolis Medical Center, an EMS Council has been organized. The first accomplishment of the Council was to locate a State grant to add a 12-channel medical communications system to the city's Communication Center. The new system includes compatible equipment for both Metropolis' hospitals.

B. EMS System Providers

The primary pre-hospital provider in Metropolis is White's Ambulance Service. Currently, White's operates under contract with the city and provides three fully staffed BLS ambulances in return for a fixed annual contract fee and city reimbursement for all uncollectable billings. White's service is logging over thirty calls per day; many are needless calls generated by citizen abuse of the ambulance service. Despite revenue from the city, billing for services and reimbursement for uncollected billings, White's Ambulance Services is in financial difficulty. There are low wages, high turnover of employees, and complaints about violation of fair labor standards. The pre-hospital care provided by White's is not highly regarded by physicians at either the Medical Center or at Municipal Hospital. The services' average response time of 8-10 minutes has been stretched to

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more than 30 minutes in many documented cases.

Jimmy's Ambulance Service is a family-owned business that has one fully equipped BLS ambulance and one partially equipped "spare." Jimmy's receives no city subsidy and generates income mainly from scheduled transfer of patients and occasional emergency calls received at their office or relayed from White's when their units are committed.

The Police Department, under the direction of Chief Henderson, has frequently dispatched police cruisers to medical emergencies, in many cases arriving several minutes ahead of the ambulance. Although the police cruisers carry medical equipment and the police officers are not trained above basic first aid, the chief regards the patrol-car dispatch as a good source of "PR" and is very protective of the practice. Traditionally, the Fire Department's only EMS role was the dispatching of a Rescue Unit from the Headquarter's station from extrication purposes. Metropolis has a fairly young Fire Department, and members have been taking EMT training classes at State College on their own time. Currently, 40 firefighters are State-certified EMTs; another 12 are receiving training. The local firefighters' union is supportive of an increased EMS role and anticipates an opportunity for more manpower and higher salaries. The EMS effort is also supported by Fire Chief Kent who was appointed just one year ago. Chief Kent and Dr. Perry are in agreement on many EMS issues; both are active members of the EMS council.

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The fire department does not have quality data on response times from station locations to incident scenes. The rough rule used by headquarters is that fire apparatus response to incidents averages 30 miles per hour over Metropolis roads and highways. Mutual Aid agreements are in place for all nearby jurisdictions, but have not been reviewed in ten years.

C. The EMS Council

In addition to Chief Kent from the Fire Department and Dr. Perry of the Medical Center, EMS Council members include: Chief Henderson of the Police Department; Caesar White of White's Ambulance Service; Juan Lopez of the Hispanic Citizens Association; Michael Buck, Vice President of National Bank; Mike Olsen, owner of Olsen Chemicals; Arthur Fonzarelli, administrator of Municipal Hospital; Olivia George, current President of the Metropolis Emergency Department Nurses's Association (EDNA), and Tom Magnum, regional EMS representative. The city's mayor, Joe Harris, is also a member of the Council, but rarely attends meetings.

The Council's energy and credibility was enhanced by their ability to coordinate a state EMS communications grant with the opening of Metropolis' Communication Center. Dr. Perry informally chairs the meetings and has stated his desire to move Metropolis toward well coordinated ALS delivery system in the next few years. There is little Council debate

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over Dr. Perry's goal; few Council members currently agree on a single method to achieve the goal.

Chief Kent is a vocal advocate for the enhanced fire service EMS role. He envisions all ALS will be provided by the Fire Department within 3 years.

Dr. Perry, although he privately supports Chief Kent, publicly takes a more even-handed approach to the ALS issue. Dr. Perry feels the Medical Center will have ample facilities to train both White's Ambulance and MFD personnel.

Chief Henderson thinks that although paramedic service is desirable, he doubts his men will have time for the required training and retraining. He thinks Chief Kent is primarily interested in "showmanship" when he advocates Fire Department ALS. Chief Henderson believes the police should retain their preesent medical response patterns.

Caesar White of White's Ambulance Service was the only EMS Council member that voted against the State's communication grant. He pointed out that the State grant carried a list of requirements for use of the system, including mutual aid plans, required participation in disaster planning and communication protocols. Not only will his service now have to conform to these requirements, but also will have to finance ALS communications equipment to compete with other providers. He feels these external requirements may put

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him out of business.

Juan Lopez of the Hispanic Citizens Association views Caesar White's Ambulance Service as an employer of many Hispanics. Relations between White's and the Hispanic community have been good because large number of Spanish-speaking employees has removed language barriers from the service White performs. Lopez feels that the Anglo-dominated Fire Department will not be as responsive to Central city's needs.

Michael Buck of National Bank supports Dr. Perry. Buck wants ALS and he wants it soon. Noting that Metropolis lags behind cities of similar size, Buck says he will use all of his influence to support Dr. Perry, both through the Rotary Club and personal contact with City Council members.

Mike Olsen of Olsen Chemicals shares Buck's concerns for ALS system development. Olsen, however, feels he has less political pull, since wastes from his company's disposal units are causing community-wide concern.

Olivia George, President of Metropolis EDNA, is supportive of improvements in the city, but she realizes that her membership is divided on the issue. Nurses in the city are not very well paid, and a news reporter recently broadcast an incident in which Mary Hanson, the EDNA training coordinator, had an argument about a patient's care with a

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Metropolis Rescue Squad firefighter at the Municipal Hospital Emergency Department doorway. The firefighter referred to Ms. Hanson as a 'frustrated old dinosaur'; she referred to the firefighter as a 'smart-assed, pretentious young pup', and the media have begun follow up stories on the relationship between the two agencies.

Arthur Fonzarelli administrator of Municipal Hospital, is concerned about "where all this is heading." He views Dr. Perry's Medical Center as a competitor that threatens the survival of Municipal Hospital. Mr. Fonzarelli is quick to remind the committee that Municipal Hospital is tax-supported and the employer of many of the city's citizens. He has reminded the Council that the mayor is aware of his concerns.

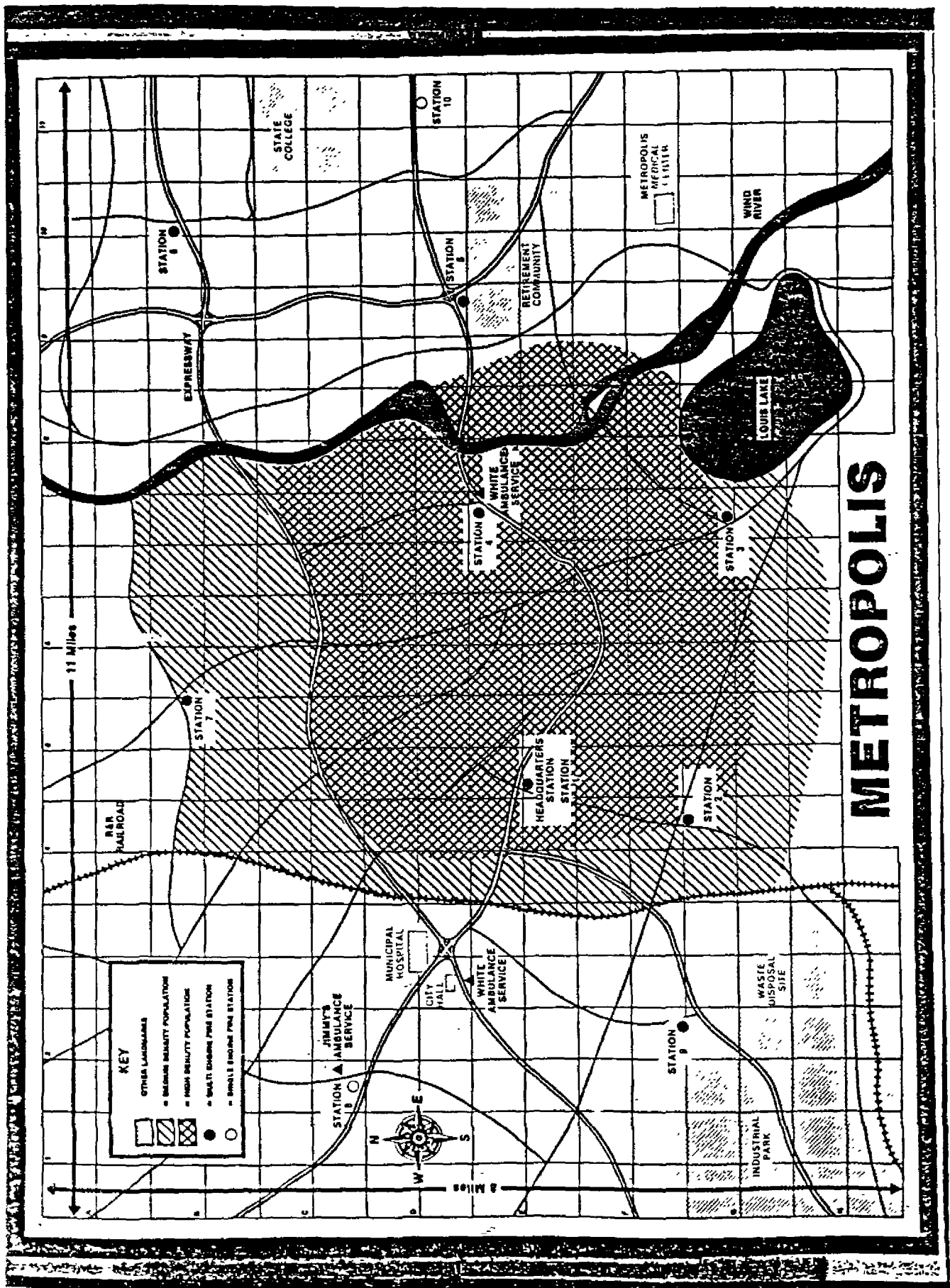
Tom Magnum, the regional EMS representative, is interested in ALS development. He points out that the State made the communications grant based on the expectation that Metropolis would move toward an operational ALS system in the next 3-5 years. Magnum's EMS region is currently receiving a small amount of state block grant funding and is anxious to show implementation progress, especially in a population center as large as Metropolis. Magnum sees the possibility of additional funding for training if Metropolis' ALS system is designed to existing State guidelines.

Publicly, Mayor Harris is in favor of any decision the EMS Council makes to improve health care to the citizens

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of Metropolis. The mayor is sensitive to Mr. Fonzarelli's concerns about Municipal Hospital and to White's Ambulance Service having to compete with a public agency, such as the Fire Department. The mayor also realizes, however, that public awareness of Metropolis' inefficient service is growing and may become a major political issue. He will practice some fence-sitting until he is able to gauge the political consequences of taking a strong position.

Events recently have been moving rapidly. Chief Kent and Dr. Perry approached several City Council members informally and received support for strong fire service involvement in an expanded EMS program. A majority of the Council members state they would support the repeal of the city ordinance that mandates "ambulance service" as a private-sector function. In addition, Chief Kent and Dr. Perry were advised that the City Council would appropriate "reasonable" funds for fire service ALS implementation. It appears that much needed ALS service (now provided by nearby communities) will soon become a reality. Note that the EMS Council also serves as the jurisdiction's disaster planning committee; although meetings on this subject are only held annually.



METROPOLIS

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PART ONE

Listed below are eight categories of community features. The list should not be considered complete for all communities. Analyze Metropolis by listing briefly the type of features found there. Each space does not necessarily have to be completed if the feature does not apply to Metropolis.

Community features

1. Physical characteristics

terrain: Not specifically noted; 88 square miles

water: Wind River, Louis Lake

mountains: N/A

special hazards: Waste disposal site

transport facilities: Railroad, no airport

2. Demographics

population size: 200,000

densities: Center City is dense area

age distribution: Elderly retirement community

growth rates: Not specifically stated

land-use characteristics: Not specifically stated

rural-urban patterns: Not specifically stated

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3. Medical needs/demands

ambulance demand: Increasing, high abuse
heart attacks: Up in elderly community & Center City
motor vehicle accidents: Several interstate roads

4. Prehospital providers

first responders: police respond; but are untrained
volunteer services: Not specifically stated
basic life support (EMT) personnel: F.D. has 40 EMTs
trained; but no operational program except rescue
paramedic-trained (or ALS-trained) personnel: Not
specifically stated; apparently none

5. Hospital services

24-hour facilities: Metropolis & Municipal Hospitals
full-time emergency departments: Both of the above
trauma center: Metropolis Hosp. has best facility
burn facilities: " " " " "
blood/X-ray/pharmacy: Apparently both hospitals
ancillary services: Not specifically stated

6. Emergency communications

radio-telemetry capabilities: None
centralized dispatch systems: Yes
police/fire communication systems: Yes, 911
mutual aid system: Yes, but needs revision
disaster communications: Apparently via 911
interhospital communication system: Not stated

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7. Political/organizational

EMS Council: Yes; and active

medical/professional societies: Yes

HSA, EMS budgets: No HSA; regional & departmental
budget

disaster planning committees: Part of EMS Council

8. Special features

community colleges: No, but State College in area

medical/health education programs: Not stated

mental health facilities: Not stated

neighborhood health clinics: Not stated

rehabilitation centers: Not stated

Case Study--Part 2

Now that you have completed your review of the Metropolis community features the second part of our case study begins. A commercial airliner crashes in Metropolis. Here is the situation:

A Boeing 747 has experienced in-flight engine trouble. Although Metropolis does not have an airport both the city's police and fire departments are alerted to the aircraft's difficulties, as it proceeds over Metropolis in a South-to-North direction.

The plane drops an engine over Lake Louis, and veers to the east, in the vicinity of the retirement community and Metropolis Medical Center. By now police units are en-route and apparatus is responding from fire stations 3,4, 5, and 10. The 747 is trailing smoke and quickly losing altitude.

The fire communications center has received several telephone calls on their emergency line from citizens who have witnessed the plane's descent.

Metropolis Medical Center is advised by the fire communications center that an aircraft may impact in the vicinity of the Center. The hospital administrator decides to take a "wait-and-see" attitude, and remains inactive. No internal or external disaster plan is put into effect at the Center.

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The 747, minus one engine, attempts to make a soft impact landing in a field near the retirement community. At the last moment the pilot loses power and steering ability; the 747 crashes near a five story building on the southeast corner of the retirement community. Debris and bodies are scattered across its point of impact. There is smoke visible but no apparent fire. Passengers exit via slides.

Responding police and fire units are beginning to converge on the scene. The first arriving unit is a police cruiser with two patrolmen. They begin to cordon off the area. The first arriving fire units are a pumper and an ambulance from Station 5. They make a "size-up" of the situation and report this assessment to the fire communications center:

1. Smoke showing on the aircraft.
2. Several injured passengers are milling about.
3. Proximity of the crash to the retirement community presents an "exposure" problem.
4. Additional equipment and personnel are requested.

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Part Two--Case Study

Using the scenario and map provided answer the following questions individually:

1. What are the responsibilities of the first arriving EMS officer?
 - A. Assess situation
 - B. Assign personnel to triage functions
 - C. Request additional personnel and equipment, as necessary
 - D. Advise communications center on medical matters

2. What do the first EMS personnel on the scene do?

If no officer is present, senior EMT should do items A-D in question 1. Other personnel start triage.

3. Describe the major steps that these first on-scene EMS personnel would perform during triage.

1. Rapid assessment
2. Immediate, but brief, life sustaining care
3. Triage tag and sort
4. Treat most critically injured

4. A command post has been set up. They are advised that a team of doctors from the Metropolis Medical Center has arrived (unrequested) on the scene. The doctors have begun issuing medical treatment orders to EMS personnel. Describe your understanding of the actions involved in the handling of these personnel.

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- A. Stop intervention, until
- B. Positive identification
- C. Refer to command post or Incident Commander/Senior EMS Officer

5. You have been delegated the responsibility for organizing on-scene communication. How would you organize this system for maximum interpersonal and electronic communications?

Maximum interpersonal communication should result from doing cooperative disaster planning, exercising the plan, and training together. Solicit on-scene methods of maximizing communication from the class.

6. Ten auxiliary deputies have arrived on the scene. They have all completed the Red Cross Standard First Aid course. How would you manage this resource? And what kinds of functions could these personnel perform?

If not needed for law enforcement duties (securing the scene, etc.) pair one deputy with one EMT to form triage team. The deputy is the information recorder; while the EMT does the patient assessment.

7. A hysterical woman arrives on the scene. She explains that she is an apartment manager at the nearby retirement community. Several elderly people from her building were on

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a picnic in the vicinity of the crash. She expected them back at the building by now. She demands that you conduct an immediate search for them. What do you do?

1. You may have to refuse due to limited availability of personnel. However, those auxillary deputies may prove useful here.
 2. If you do refuse a suit may be brought for abandonment.
8. Describe your understanding of the legal ramifications of the hospital administrator's failure to activate the Metropolis Medical Center disaster plan. (Note: Several deceased have now been found in the aircraft, along with 18 seriously injured patients.)

A suit may be brought against him for detrimental reliance (equitable estoppel). The cause of action would be based on the necessary elements of: commitment, substantial, knowledge, damage, and proximate cause--see legal issues chapter.

9. Carefully review the material you completed on the Metropolis community features. Which of them are especially important to the success of a disaster operation?
1. Pre-hospital providers
 2. Hospital services
 3. Emergency communications
 4. Political/organizational

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10. The final question: Again using the community features information determine what Metropolis needs to do to improve their EMS system: both in day-to-day operations and during disasters.

1. Physical Characteristics: Develop hazardous materials response team, and water rescue capabilities.
2. Demographics: Initiate ALS service with units located in both Center City and the elderly retirement areas.
3. Medical Needs/Demands: These clearly show the need for ALS, especially cardiac skills.
4. Pre-Hospital Providers:
 - A. Train the police as First Responders
 - B. Determine volunteer resources: Red Cross, etc.
 - C. The F.D. and private ambulance company need formal EMT programs
 - D. An ALS program is definitely indicated
5. Hospital: Both hospitals need to assist in coordination of pre-hospital and in-hospital disaster resources so that medical intervention occurs only when requested.
6. Emergency Communication: Upgrade entire system; include "back-up" generators, etc.
7. EMS Council: The Emergency Program Manager should be serving with this group.
8. Special Features: An inventory of resources should be developed. Metropolis needs to initiate some type of mental health/crisis intervention capability to handle potential victim (and rescuer) psychological effects of disasters.

SUMMARY: Metropolis has not "done its homework" as far as disaster planning.