EMSP 2434
Medical Emergencies
Research Paper

Description
You will research the medical literature related to a specific intervention or the management of a disease process, develop a conclusion about potential applications in a hypothetical EMS system, and write a paper stating and defending your conclusions.

Objectives
This exercise will help the student to gain:

1. Experience in researching and critically evaluating medical literature
2. Experience in technical and persuasive report writing
3. Knowledge of current and future development and advances in medical therapies

Directions
You are a paramedic with the Superior County EMS organization [See attached System Profile]. Your EMS Director is interested in a new treatment/procedure that she feels may have prehospital applications. She has asked you to thoroughly research this new type of treatment/procedure and develop a paper outlining your findings. The paper will be presented to the County's Board of Public Health for their review and possible approval for implementation.

The EMS Director has asked that your report contain (at a minimum) the content elements described below. The paper's format must also conform to the requirements listed below.

The deadline for submittal of this paper is indicated on your course schedule. Papers that are late or that do not satisfy all conditions of the assignment will not be accepted.

Content Elements
The elements of each paper may vary based upon the nature of the topic. However, the following content elements are things that you may wish to consider in writing your paper. You may have to modify some of these elements to fit the type of paper you are writing.

1. Identify your topic (REQUIRED ELEMENT). If you are using a persuasive argument as the theme of your paper, your title should reflect the specifics of your idea (argument).
   a. What is the new or proposed therapy/procedure?
   b. What evidence or data support or discount the new therapy/procedure?
2. Provide background information for your topic (REQUIRED ELEMENT). This may include:
   a. Background information or a description of the disease/condition (What is the disease? What are its causes? How does it affect the person?)
   b. Epidemiological data (How big is the problem?)
   c. Current therapeutic trends (How is this disease/condition being managed today?)
   d. Historical data (How has this disease/condition been managed in the recent past?)
3. Discuss (in detail) the value or potential harm of this new therapy/procedure (REQUIRED ELEMENT)
   a. What is the potential impact of this new therapy/procedure on the patient?
   b. What is the potential importance of this new therapy/procedure to the practice of Medicine?
   c. What is the potential importance/advantage of this new therapy/procedure to EMS / Prehospital care?
4. Discuss the anticipated future of this new therapy/procedure
   a. Does this appear to be a promising new therapy/procedure for EMS use? Why?
   b. Does it appear to be a cost-effective new therapy/procedure for EMS use? Why?
   c. Are there potential problems or complications with the new therapy/procedure? Any specific to EMS?
5. Discuss your conclusions (REQUIRED ELEMENT)
   a. Arrive at a conclusion as to whether this new therapy/procedure shows promise for use in EMS.
   b. Should it be introduced into the Superior EMS system (or why not)?
   c. Summarize why the Board of Health should agree with your conclusions.

Format

The paper must meet the following format requirements:

1. Typed, double-spaced, single sided with a standard font size (10 – 12 pt is standard)
2. Margins of 1 inch for Top, Bottom and both Sides
3. Minimum of 4 full pages and a maximum of 8 pages (Excludes separate pages of charts, tables, attachments, cover page and references.)
4. Minimum of 4 individual references. Internet references may count for no more than 2 of the references. Encyclopedias, Dictionaries, Paramedic/EMS textbooks may be used to write the paper but will **NOT** count towards the 4 references. References are expected to be published medical articles (peer-reviewed journals), research papers, or medical textbooks (Non-EMS such as physician level or physician-assistant level textbooks or reference books).
5. References used do not have to be specifically targeting EMS applications. However, if they do not, you must demonstrate how this reference's data could be used to support an EMS application of your topic.
6. **ALL** references used must be noted in the paper using a standard referencing format. **Footnotes and bibliography are required**.
7. The paper should be stapled (single staple) in the upper left-hand corner (No other binding material please).

Topics

Your topic will be randomly selected from the following list. Each topic includes some specific issues to consider and address in your paper. For each topic, include whether or not this should be incorporated into the Superior EMS Medical Treatment Guidelines (What changes to the system may be necessary?). If yes or no, support your conclusion with evidence. Note any potential obstacles, concerns, education and training requirements, costs, risks, and benefits to incorporating the therapy/procedure.

1. ***Rapid Sequence Intubation*** **(Poor name choice but this is what everyone calls it):** Should we be using drugs to assist in the intubation of patients with an intact gag reflex? What drugs and dosages should be used and why? When are they used? For what specific patients would this therapy be most useful? What would be a sample protocol to use?

2. ***Treatment Guidelines for Tricyclic Antidepressant Overdoses***: We need to update our treatment guidelines to address TCA overdoses. What should be in the guidelines? What drug therapies? Other therapies? Why (Explain from a physiologic and/or pharmacologic standpoint so that our trainers know why we will be doing this.)

3. ***Use of CPAP***: Should we add the ability to provide CPAP to our patients? If so, what patients would benefit from this? Have other EMS systems evaluated the use of CPAP in these types of patients? What did they learn?

4. ***Treatment for ongoing/recurrent Pediatric Seizures*****:** We currently carry diazepam for seizure treatment. Are there other drugs we should add? What are they? What advantages do they have over diazepam? Are there storage issues that we can overcome if we choose to carry these additional drugs?

5. ***Management of CVA*****:** Considering the increased use of thrombolytics in the treatment of stroke, what changes should we make (if any) to our EMS system so that our stroke patients get the best care possible? Why should we make these changes?

6. ***Paramedic Exposure to HIV infected Blood***: We may need to update our infection control plan to reflect current recommendations for assessment and treatment of a paramedic who has most likely been exposed to HIV. What are the current recommendations for determining when the paramedic should get further assessment and when to begin prophylactic treatment? What drugs are currently recommended for prophylactic treatment? Any other policy changes that may be needed? What other things should we be doing with respect to paramedic exposures.

7. ***Management of Acute Symptomatic Hypertension***: We currently carry nifedipine for use in acute hypertensive crisis. We could also use sublingual nitroglycerin or nitropaste since we carry these drugs also. First, should we even be treating acute symptomatic (neuro or cardiac symptoms) hypertension? If so, why and using what therapies (what medications)? What new and existing medications (include route, dosing, etc)?

Which specific patients with this presentation should and should not be treated? Support your conclusions with evidence.

8. ***Treatment Guidelines for Hyperkalemia in Cardiac Arrest or Near Arrest****:* We currently do not have any treatment guidelines for the management of hyperkalemia in cardiac arrest. What should these guidelines be? What specific therapies (including medications, dosages, routes of administration) should be included? Why? Support your conclusions. In order to educate our paramedics in these new guidelines, what elements should be included in the education program?

Tips

1. The paper should flow logically from each paragraph and section to the next.
2. The paper should not appear as if you simply answered each question or covered each element. It should persuade the reader that this new therapy/management technique has promise in EMS or should not be used in EMS.
3. Your paper should support your conclusion. It should include scientific data to support your conclusion.
4. The paper should be your work. If you plan to use ideas or words that belong to someone else, be sure you adequately reference the source.

Grading Criteria

The following will be used to determine the final grade of your paper. This is a guide. Additional credit will be given for work that meets some but not all of the next grade level. Additional credit may also be given for creativity, depth of research, and unique ideas.

A grade of 100% will be given for a presentation that shows an outstanding effort with:

- **All** conditions of the assignment met
- A valid, completely supported conclusion
- A clear, well-organized and concise presentation
- Minimal or no grammatical or spelling errors
- Proper format

A grade of 90% will be given for a presentation that shows an excellent effort with:

- **All** conditions of the assignment met
- A valid, moderately supported conclusion
- A clear, organized presentation with some drift in the topic
- Some grammatical or spelling errors
- Minor deviations of format

A grade of 80% will be given for a presentation that shows a good effort with:

- **All** conditions of the assignment met
- A valid, minimally supported conclusion
- Significant drift in the topic and/or slight disorganization
- Some grammatical or spelling errors
- Some deviation of format

A grade of 70% will be given for a presentation that shows a minimal effort with:

- **All** conditions of the assignment met
- An invalid or poorly supported conclusion
- Significant drift in the topic and/or disorganization
- Many grammatical or spelling errors
- Much deviation of format

A grade of 0% will be given for a presentation that:

- Shows no effort
- Does not meet all conditions of the assignment
- Is not submitted prior to the deadline

SYSTEM PROFILE FOR SUPERIOR COUNTY EMS

Your EMS agency, Superior EMS is a service of the Superior County (Texas) Public Health Agency. (The Public Health Agency also includes the county public health unit.) The County Board of Public Health oversees the operations and medical aspects of your EMS organization. Both your EMS Director and your Medical Director report directly to the Board. The Board controls major expenditures, approves prehospital research trials, and approves Treatment Guidelines for patient care. The Medical Director is a board-certified emergency physician who holds the position half-time and maintains a half-time clinical practice in the emergency department of the Level I Trauma Center.

Superior EMS is the primary 911 responder for the City of Superior, smaller communities within the county, and the surrounding unincorporated areas. The EMS agency serves a population of 300,000 persons using 15 ALS trucks and 15 BLS trucks. The population is divided between the City of Superior (approx. 230,000 residents) and the rural areas of Superior County (approx. 70,000 residents). Average urban area ALS unit response and transport times are 5 minutes and 15 minutes (greater for Level I Trauma Center), respectively. Average rural area ALS unit response and transport times are 8 minutes and 25 minutes (greater for Level I Trauma Center), respectively. The county portion of the system includes first responders trained to the Basic EMT level. These non-transport capable responders are trained in the use of AEDs, assistance with SL nitroglycerin and EPI-Pens, and administration of oral glucose. The city portion of the system does not have first responders at this time. The system is very customer service oriented and prides itself in delivering state-of-the-art prehospital medical care and transport.

The system may transport patients to the hospital of the patient's choice within the County. Medical control permission or a standing order (protocol) is required to bypass a closer hospital when transporting emergent or critically ill patients. At this time, a standing order for bypass is written only for major trauma patients so they are all transported to the Level I Trauma Center. The hospitals in the county are: one Level I trauma center, two Level II trauma centers with full diagnostic (scanning) and surgical capabilities, and two Level IV trauma centers with some on call staff.

Your system only hires paramedics who have successfully completed training from a 2-year, college-based paramedic program meeting National DOT Paramedic curriculum guidelines (for ALS trucks). EMTs are hired for the BLS trucks. All personnel hold State certifications and must go through a local process to become credentialed to practice both initially and on a recurring basis. The average length of service at Superior EMS is 8 years. The service provides generous support for CE and maintains an active QA/QI program. In-house CE programming is based on information obtained from the system's QA/QI program. The system includes a full-time education department.