Research Article

The role of online medical direction in emergency medical services in India

Abhinav Dileep Wankar*

Department of Hospital Administration, Yashoda Hospital, Hyderabad, Andhra Pradesh, India

*Correspondence:
Dr. Abhinav Dileep Wankar,
E-mail: abhinav.wankar@gmail.com

ABSTRACT

Medical direction is a system of physician-directed quality assurance that provides professional and public accountability for medical care provided in the prehospital setting. In an Emergency Medical Services (EMS) system, medical direction provides the operational framework and authorization for EMTs and others to provide emergency treatment outside the hospital. While attending and transporting critical patients to a definitive care setting, there is a need for advanced interventions and administration of drugs to the patients, this will alleviate patient suffering and ultimately allow the patient to be delivered to a receiving hospital in an already improved clinical state whenever possible. The Emergency Medical Technician (EMT) in the ambulance is not licensed to administer drugs to the patient on his own. As EMTs are not aware of administering drugs to the patients in critical situation, there is an urgent need to increase the percentage of critical cases with ERCP advice handled by EMT. The current descriptive study has been conducted to identify the hurdles and gaps preventing communication among the EMT and ERCP among a sample of 40 Emergency Medicine staff through a structured questionnaire. The study showed that there are substantial hurdles when the EMT wants to talk to the emergency physician, which can be removed by a few changes like adopting a new method of enhancing skills and training activities, revision of policies and protocols and a few managerial activities.

Keywords: EMT - Emergency medical technician, PCR - Pre hospital care record, ERCP - Emergency response center physician, OLMD - On line medical direction

INTRODUCTION

Medical direction is a system of physician-directed quality assurance that provides professional and public accountability for medical care provided in the prehospital setting. In an Emergency Medical Services (EMS) system, medical direction provides the operational framework and authorization for EMTs and others to provide emergency treatment outside the hospital. Ultimate responsibility and authority for patient care remains with the physician, as EMTs work as an extension of the physician's practice.[1] Quality improvement is important and should be developed through clear delegation of authority and responsibility for the specific components of medical direction to appropriate individuals.[2]

Medical direction is an essential component of a prehospital care system.[3] It is a method of ensuring quality and accountability of the care provided and thus provides a method of risk management for the system.

The national research council's subcommittee on medical direction in EMS systems defines three basic functions of medical direction:

- to ensure that field personnel have immediately available expert direction for emergency care

- to ensure continuing high-quality field performance

- to provide the means for monitoring the quality of field performance and medical direction itself

There are two different types of medical direction. Direct medical direction, often called on-line medical direction, where care is rendered under direct orders of the base station physician, usually over the radio or telephone.[1] The other is indirect medical direction, or off-line medical direction, which includes the development of a set of written instructions, known as protocols. These can also be called standing orders. While attending and transporting critical patients to a definitive care setting, there is a need for advanced interventions and administration of drugs to the patients, this will alleviate patient suffering and ultimately allow the patient to be delivered to a receiving hospital in an already improved clinical state whenever possible. The Emergency Medical Technician (EMT) in the ambulance is not licensed to administer drugs to the patient on his own. Hence there is a need for an Emergency response center physicians direction, who will provide him an On-Line Medical Direction (OLMD). Medical direction to the EMT is given by Emergency Response Center Physician (ERCP), who is essentially an expert in emergency field. Online medical direction after seeking adequate details about the patient/victim has to be within the scope of the EMT skills and available equipment and pharmacological agents within the ambulance. The medical direction is given after the initial standing orders/offline medical direction, which the EMTs follow for a particular presentation. Although off line guidance is given to the emergency technicians during the training curriculum, it is restricted only to the essential skills component.

Significance of the study

On-line medical direction is the medical direction provided directly to out-of-hospital providers by the medical director or designee, generally in an emergency situation, either on-scene or by direct voice communication. The mechanism for this contact may be radio, telephone or other means as technology develops, but must include person-to-person communication of patient status, and orders to be carried out. Ultimate authority and responsibility for concurrent medical direction rests with the medical physician.[4] The study has been conducted to identify the hurdles and gaps in Online Medical Direction among a sample of EMTs through a structured questionnaire.

Aims and objectives

1. Identify the hindrances in using OMLD and cause identify causes of low OMLD

2. Emphasize the need of OMLD for critical cases being handled.

3. Emphasize the need of revising the processes and protocols of OMLD

4. Identify the need of training

5. Improve the percentage of critical cases for which OMLD used.

METHODS

Study location

This was a descriptive study conducted in Yashoda hospital, which is a tertiary level superspecialty hospital. The hospital has well trained emergency medicine staff and well equipped emergency ambulance.

Study population/patients

1. Personnel working as emergency technicians in emergency management and research institute

2. Emergency physician working in emergency management and research institute

Inclusion criteria

3. EMTs who have completed their entire training program.

4. Emergency physicians who have completed their training program.

5. Emergency personnel who is willing to participate.

Exclusion criteria

1. Emergency personnel who has not completed training

2. Emergency personnel who are not willing to perform in study

Study duration: One year

Sample size

40 participants (10 emergency physicians and 30 emergency technicians) working in Yashoda hospital in shifts were chosen for study. Calculation was made with 95% CI, with a margin of error of 5%.

Methodology

The study is a descriptive study with primary data collection through a structured questionnaire. Data was

collected from EMTs and emergency physicians in hospital. This was done during the departmental meets and the mentoring activities. A briefing of the purpose that the survey will capture the voice of the EMT on why he is not able to take ERCP conference while handling a critical case was explained to all the participants answering the questionnaire. The observations were recorded using a structured questionnaire consisting closed end questions (Dichotomous). A briefing on the formal protocols and policies was given to each and every respondent before their responses were recorded.

The study was conducted among the emergency physicians and emergency medical technicians working in shifts to provide pre hospital care to critically ill patients. The basic criteria considered among the study population are emergency technicians working for Yashoda hospital only.

Data collection

The study was conducted across 40 participants (10 emergency physicians and 30 emergency technicians) with a structured questionnaire. All the members were asked to answer the questionnaire in person. The survey was conducted during the mentoring activities by the physicians, and during the departmental meets. The EMTs were given time at the end of the meeting.

Data analysis

Since this research study is a study among a particular group, there were no assumptions and no hypothesis was formulated. Thus, the analysis does not involve use of any statistical tests. Data processing and analysis was done in an excel sheet to ensure proper analysis of the data obtained.

Expected outcome

It was expected to improve percentage of OLMD in handling of critical cases and remove hindrances in OLMD.

Blinding/masking

No blinding can be done in this study as it is an interventional procedure.

Limitations of study

a) Single center and system

b) Lack of hospital discharge diagnosis

c) No follow up on patients refusing transport that stayed home

RESULTS

The study was conducted across 40 participants (10 emergency physicians and 30 emergency technicians) with a structured questionnaire. All the members were asked to answer the questionnaire in person.

Table 1: Do you feel that EMT needs OLMD to provide PHC for critical cases?

| Do you feel that EMT needs OLMD to provide PHC for critical cases?	
Yes	100
No	0
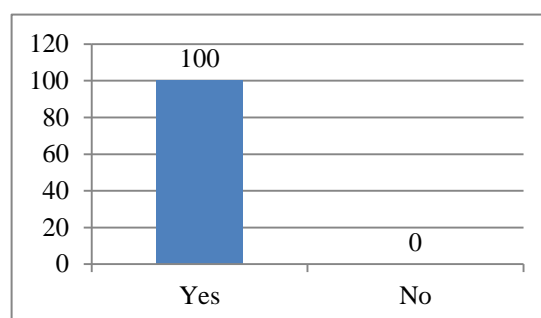
Figure 1: Do you feel that EMT needs OLMD to provide PHC for critical cases?

All 40 participants agreed that there is a definitive need for OLMD to provide pre hospital care for critical cases.

Table 2: Is the average transport time for shifting victim from scene to the hospital more than 20 minutes?

| Is the average transport time for shifting victim from scene to the hospital more than 20 minutes?	
Yes	74
No	26
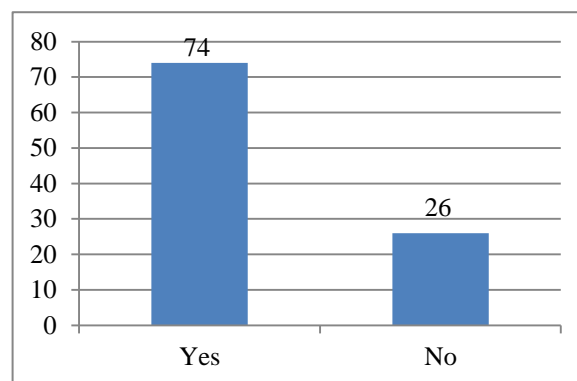
Figure 2: Is the average transport time for shifting victim from scene to the hospital more than 20 minutes?

29 participants of 40 agreed that the average transport time for shifting the victim from scene to hospital is more than 20 minutes. 11 of them concluded that the average time is less than 20 minutes to transport the patient to the hospital.

Table 3: Is it true EMTs are not being updated with protocol/process updates?

| Is it true EMTs are not being updated with protocol/process updates?	
Yes	67
No	33
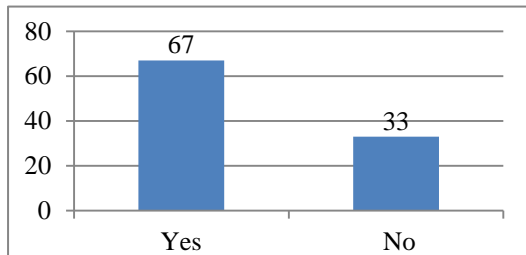
Figure 3: Is it true EMTs are not being updated with protocol/process updates?

27 participants of 40 said that EMTs are not being updated with the current protocols. 13 of them said that they were updated with the current protocols and processes.

Table 4: While shifting victim to the hospital is the moving ambulance hindering in performing essential skills?

| While shifting victim to the hospital is the moving ambulance hindering in performing essential skills?	
Yes	20
No	80
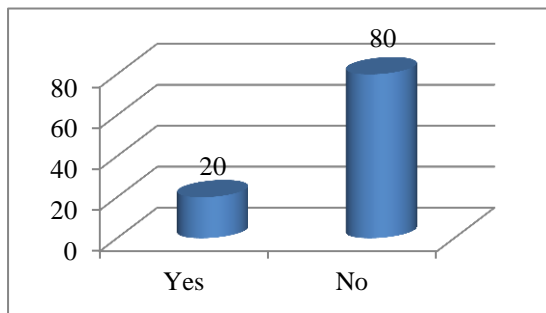
Figure 4: While shifting victim to the hospital is the moving ambulance hindering in performing essential skills?

8 participants said that while shifting victim to the hospital the moving ambulance is hindering in

performing essential skills. 32 concluded that they were comfortable in performing essential skills in the moving vehicle.

Table 5: Are you comfortable with the current equipment to perform the essential skills and interventions required?

| Are you comfortable with the current equipment to perform the essential skills and interventions required?	
Yes	47
No	53
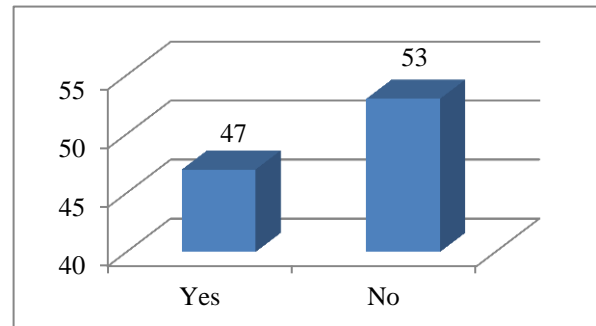
Figure 5: Are you comfortable with the current equipment to perform the essential skills and interventions required?

19 Participants of 40 said are comfortable with the current equipment to perform the essential skills and interventions required. The other 21 participants said that they were not comfortable with the current equipment to perform the essential skills and interventions required.

Table 6: Will automation of the patient care record contribute to your performance?

| Will automation of the patient care record contribute to your performance?	
Yes	16
No	84
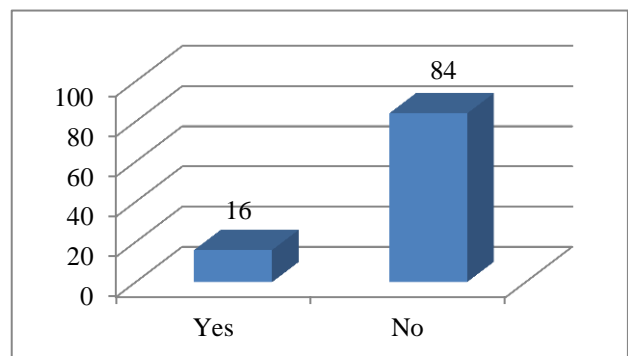
Figure 6: Will automation of the patient care record contribute to your performance?

6 Participants said that automation of the patient care record contribute to their performance, 34 said that automation of PCR would not contribute to their performance.

Table 7: Is it true that there is no connectivity or you have signal problems when you need OLMD?

| Is it true that there is no connectivity or you have signal problems when you need OLMD?	
Yes	38
No	62
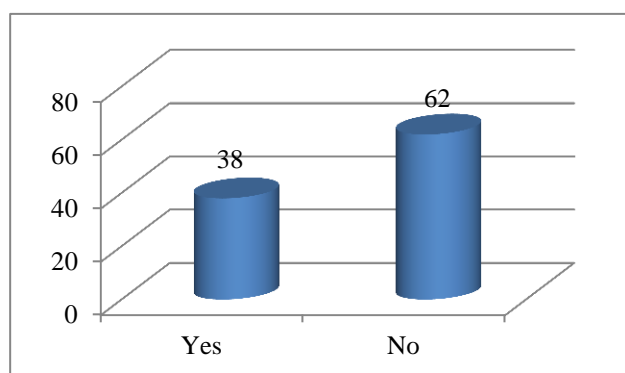
Figure 7: Is it true that there is no connectivity or you have signal problems when you need OLMD?

15 participants of 40 said that it true that there is no Connectivity or they have signal problems when OLMD is needed. 25 did not face any problem with the connectivity or signal.

Table 8: Is the time taken to perform essential skills to long reducing time to take OMLD?

| Is the time taken to perform essential skills to long reducing time to take OMLD?	
Yes	10
No	90
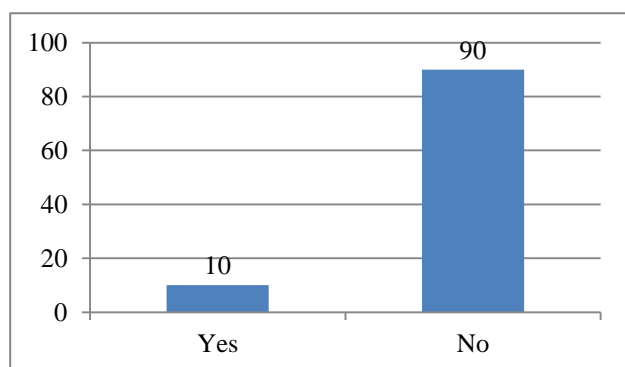
Figure 8: Is the time taken to perform essential skills to long reducing time to take OMLD?

4 Participants of 40 said that the time taken to perform essential skills to long reducing time to take OMLD.36 said that the time taken to perform essential skills is not reducing the time to take OLMD.

Table 9: Are you able to assess the criticality of the victim in order to take OLMD?

| Are you able to assess the criticality of the victim in order to take OLMD?	
Yes	86
No	14
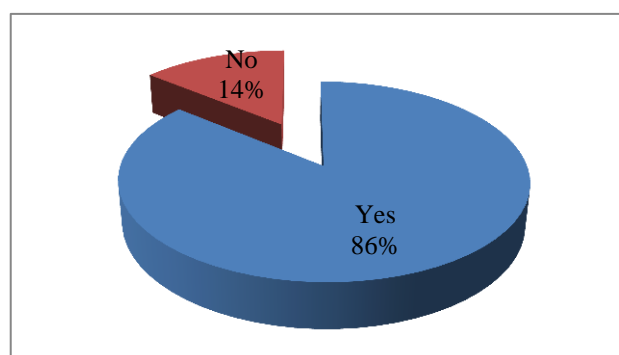
Figure 9: Are you able to assess the criticality of the victim in order to take OLMD?

34 participants of 40 said that they are able to assess the criticality of the victim in order to take OLMD. 6 of them said that they were not able to assess the criticality of the patient to take OLMD.

Table 10: While shifting victim to the hospital is handling attendants interrupting you from taking OLMD?

| While shifting victim to the hospital is handling attendants interrupting you from taking OLMD?	
Yes	42%
No	58%
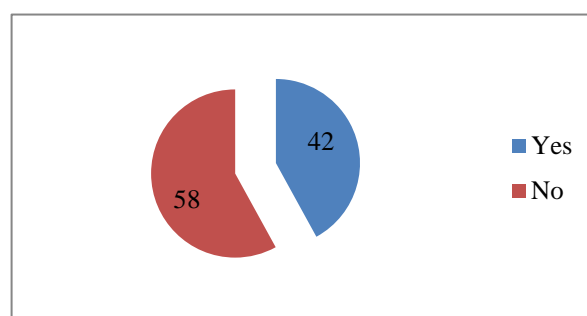
Figure 10: While shifting victim to the hospital is handling attendants interrupting you from taking OLMD?

17 participants of 40 said that while shifting victim to the hospital, handling attendants interrupting them from taking OLMD.23 said that handling attendants is not interrupting them from taking OLMD.

Table 11: Are you aware of the conditions where an OLMD is mandatory?

| Are you aware of the conditions where an OLMD is mandatory?	
Yes	78
No	12
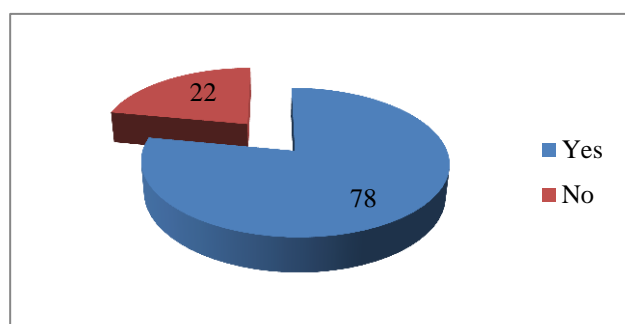
Figure 11: Are you aware of the conditions where an OLMD is mandatory?

31 participants of 40 said that they were aware of the conditions where an OLMD is mandatory. 9 stated that they were not aware of the conditions where OLMD is mandatory.

Table 12: Do you feel that the existing mobile handsets need some modification for better delivery of PHC?

| Do you feel that the existing mobile handsets need some modification for better delivery of PHC?	
Yes	80%
No	20%
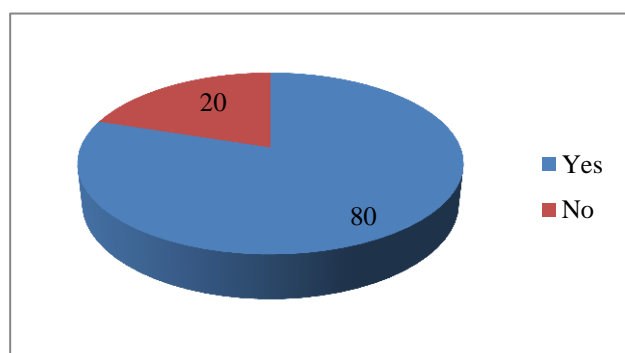
Figure 12: Do you feel that the existing mobile handsets need some modification for better delivery of PHC?

32 participants of 40 felt that the existing mobile handsets need some modification for better delivery of PHC, as providing care and talking OLMD simultaneously was not possible. 8 participants said they were comfortable with the present handsets for PHC deliverability.

Table 13: Is enhancement of skills required for EMTs from time to time to be in touch with the current guidelines?

| Is enhancement of skills required for EMTs from time to time to be in touch with the current guidelines?	
Yes	92%
No	8%
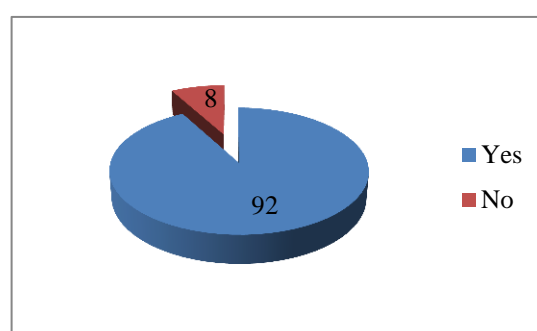
Figure 13: Is enhancement of skills required for EMTs from time to time to be in touch with the current guidelines?

37 participants of 40 said that enhancement of skills required for EMTs from time to time to be in touch with the current guidelines. 3 of them said that enhancement of skills is not required.

Table 14: Do you feel that the mob pressure at scene is hindering you from taking OLMD?

Do you feel that the mob pressure at scene is hindering you from taking OLMD?	
Yes	78
No	12
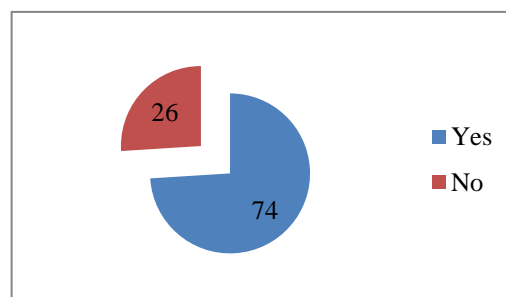
Figure 14: Do you feel that the mob pressure at scene is hindering you from taking OLMD?

30 participants of 40 felt that the mob pressure at scene is hindering you from taking OLMD. 10 of them did not face any problem with the mob.

DISCUSSION

Although EMTs need to follow the process of taking online medical direction for critical cases, many hurdles seem to be interrupting them from doing so. OLMD while handling emergency critical cases will alleviate patient suffering and ultimately allow the patient to be delivered to a receiving hospital in an improved state and may also decrease the duration of his stay in hospital. Few major hurdles were identified and removing them may improve the chances of increase in OLMD and also increase the quality of pre hospital care delivered to certain extents. Few results have shown a good direction to improve scope, as there has been strong evidence in the analysis drawn.

The study conducted among selected sample of emergency physician and emergency medical technicians showed that there is a significant gap in the EMT and emergency physicians conference frequency. However there is a strong positive attitude among the selected sample to remove hurdles preventing OLMD. The emergency department staff also need to know the importance of OLMD, its need, and application in practice.[5] It also consolidates on the Statement "Training is directly related to performance".[6] Many of the participants felt that handling attainders and mob is a challenge. Many areas have a problem with connectivity and signal problems especially in the rural areas. Apart from that many have stated that talking to the physician while performing essential skills was practically difficult as one of their hands was engaged in holding the mobile phone. The current equipment is not up to the mark in performing essential skills, and is consuming a lot of time especially when the vehicle is moving. My conclusion on the subject is, in the context of low conference rate of EMT and emergency response center physician can be improved with appropriate training interventions, policies and protocols and enhancement of equipment and coordination of police with the ambulance to encourage and support the EMT in handling the mob and attainders at scene.[7,8]

Recommendations

Based on the conclusions of the study conducted among a sample of emergency medical technicians Following recommendations are made

1. Adopting the a new method of enhancing skills and training activities on regular basis

2. Distribution of revised policies and evidence based protocols to all EMTs

3. Developing a customized counseling program at a national level by respective authorities to the public to cooperate with the ambulance staff in order to facilitate continuum of care

4. Management should consider the replacement of mobile handsets with ones which support the blue tooth technology to free hands of the EMT while performing essential skills, along with good medical equipment

5. Developing a mandatory policy for police to accompany the ambulance where scene is not safe even for medical dispatches.

REFERENCES

1. Peterson T. The role of state medical direction in the comprehensive EMS system. Prehosp Emerg Care. 2004;8:98.
2. San Francisco Emergency Medical Services Agency. Quality assurance plan. Report No.: policy ref No. 2000, 1991. Available at: http://www.sfdem.org/Modules/ShowDocument.aspx?documentid=1560.
3. Ministry of Health, Jamaica. National health policy. In: Ministry of Health Policy. Jamaica: Ministry of Health, Jamaica; 1991: 124.
4. Segree W. Pre hospital emergency medical services. Review of services in twelve Caribbean countries. Prepared for the Pan American Health Organization. 2003. Report No.:PAHO/CAR/61.2/04.02
5. US Department of Transportation, National Highway Traffic Safety Administration. EMS agenda for the future. In: Technology Transfer Series No. 134. Washington DC: NHTSA; 1996: 1-2.
6. Hickling F, Kahwa I, Munroe T, Shepherd V, Wint A. Strategic challenges confronting UWI Mona: an analysis and response. In: Hickling F, Kahwa I, Munroe T, Shepherd V, Wint A, eds. Book Whole. Kingston, Jamaica: University of the West Indies Press; 2003: 4-52.
7. Segree W. Situational analysis of the pre hospital emergency services in Jamaica at the turn of the century, 2000 - 2001. In: Segree W, eds. Department of Community Health and Psychiatry, University of the West Indies. Mona, Kingston 7, Jamaica: West Indies Press; 2002: 2-60.
8. Department of Community Health & Psychiatry to the Ministry of Health. Final report, 1996. Available at: caribbean.scielo.org.
9. Judith E. Tintinalli. Pre hospital care: The American college of emergency physicians. In: Judith E. Tintinalli, Gabor D. Kelen, J. Stephan Stapczynski,

O. John Ma, David M. Cline, eds. Tintinalli's Emergency Medicine. A Comprehensive Study Guide. 6th ed. New York, NY: McGraw Hill Professional; 2009: 1-26.

10. American Heart Association. Advanced cardiovascular life support provider manual, 2007. Available at: www.heart.org/.