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EMERGENCY MEDICAL SERVICES; PREVENTION AND ECONOMY



DR. MUHAMMAD SHUJA TAHIR, FRCS, FCPS

Professor of Surgery
Punjab Medical College, Faisalabad.

ABSTRACT.... editor@fsd.paknet.com.pk. Emergency Medical Services (EMS) are the most important and effective services giving encouragement and satisfaction to the patients, attendants and the community as a whole and boosting the morale of health care staff (Doctors, Nurses, Paramedics and Managers). It elevates the status of health care of any country. **Objectives:** 1-To collect and analyze the data. 2-To help in planning of future strategies for improvement of EMS. **Study Design:** Recent retrospective study. **Setting:** Emergency department Allied Hospital, Faisalabad. **Period:** One year; (1st July 2003 to 30th June 2004). **Material & Methods:** The data of all patients who presented to emergency during one year was collected and analyzed. **Results:** A total of 45990 patients attended the emergency department during the year under study. An average of 126 patients per day were seen in emergency. An average of 35 patients per day required hospitalization and 91 patients did not require hospitalization.. An average cost of non admitted patient was over 400 hundred rupees and for every operative case an average of over 4000 rupees. No preventive strategies were functional. **Conclusions:** Emergency services are at their best when effective and feasible. Preventive strategies must be organized and government may be advised for legislation and implementation of public safety rules. Injury Prevention and Prioritizations Scoring (IPPS) helps to improve the capability of emergency medical services.

Key words: Emergency Medical Services; Prevention; Economy

INTRODUCTION

Emergency services are the most important part of health care. These services deal with effective management of emergencies. These offer encouragement and satisfaction to the patient, their attendants and the community as a whole and boost the morale of health care staff (Doctors, Nurses, Paramedics and Managers). It elevates the status of health care of any country.

The emergency medical services have been a serious concern for the Government and department of health in Pakistan as well as all over the world.

Patient care and satisfaction are the main yard sticks for its success or failure.

The quality of care and economic cost for that care is essential part of the internal audit of quality of emergency services.

Emergency services are at their best when these are effective and feasible. Ideal emergency medical services are organized with following objectives;

To Provide health care all the time (24 hours a day/365 days/year).

To provide medical care to the public at an appropriate place (Easy approach).

To continue development and improvement of emergency services.

To evaluate the requirements for future emergency services

To establish a continuous training system for the staff (doctors, nurses, paramedics and managers).

To plan and establish the teams for disaster management.

To co-ordinate with various specialities and government.

To document the records of emergencies and to analyze the local emergency problems.

To economize the services

To establish research in emergency medical services.

To advise and plan prevention of emergencies.

MATERIAL & METHODS

The data of all patients who reported to emergency Department Allied Hospital Faisalabad during one year (From 01 Jul 2003 to 30 Jun 2004) period was collected and analyzed.

It is a recent retrospective study conducted at emergency department Allied Hospital Faisalabad during 01 Jul 2003 to 30 June 2004. (1 year)

RESULTS

A total of 45990 patients reported during the year. Although daily attendance of patients showed a wide variation between 40-184, an average of 126 patients reported to emergency every day.

65 patients presented with medical problems and 61 patients presented with surgical problems (Table I).

	Yearly No. of pts	Daily avg No. of pts	%age
Medical	23725	65	51.59%
Surgical	22265	61	48.42%
Total	45990	126	

A total of 12775 patients were admitted during the year and 33215 patients did not require hospitalization. It comes to an average of 35 patients per day admission to various surgical, medical, orthopaedics, neuro-surgical, plastic surgery, paediatric surgical and urology wards. 91 patients not requiring hospitalization who were discharged after treatment and observation (Table II).

	Yearly No. of pts	Daily avg No. of pts	%age
Admitted	12775	35	28%
Discharged after treatment	33215	91	72%
Total	45990	126	

A total number of 12410 surgical emergencies were from the city and 9855 were from rural area. Urban to rural ratio is 5:4. (Table III)

Area	Yearly No. of pts	Daily avg No. of pts	%age
Urban	12410	34	55.79%
Rural	9855	27	44.21%
Total	22265	61	

A total number of 16425 patients presenting with surgical emergencies were males. 5840 surgical emergencies were female patients. The males were

three times more common than females. Male to female ratio was 3:1. (Table IV)

Sex	Yearly No. of pts	Daily avg No. of pts	%age
Male	16425	45	74%
Female	5840	16	26%
Total	22265	61	

7665 patients were below 20 years of age (34%). 70% patients were below 40 years of age. 81% patients were below 50 years of age (Table V).

Age group	Yearly No. of pts	Daily avg No. of pts	%age
0-20	7665	21	34%
21-29	4745	13	21%
30-39	3285	9	15%
40-49	2555	7	11%
50-60	3285	9	15%
70 and above	730	2	3%
Total	22265	61	

More than half (12045) 54.5% of surgical emergencies required hospitalization. (Table VI)

	Yearly No of pts	Daily avg No of pts	%age
Discharged after treatment	10220	28	46.5%
Admitted	12045	33	54.5%
Total	22265	61	

17520 patients (79%) presented with some kind of

trauma (Table VII).

	Yearly No. of pts	Daily avg No. of pts	%age
Trauma	17520	48	78.68%
Disease	4745	13	21.32%
Total	22265	61	

Trauma patients presented with following types of injuries. (Table-VIII).

Injuries	Yearly No. of pts	Daily avg No of pts	%age
Head and Neck	8395	23	48%
Limbs	5840	16	34%
Chest	1095	3	7%
Abdomen	2190	6	11%
Total	17520	48	

4745 patients were admitted with acute surgical emergencies during the year.(Table-IX)

	Yearly No. of pts	Daily avg No. of pts	%age
Bowel perforation	665	1.82	14%
Appendicitis	759	2.07	16%
Chest disease	711	1.94	15%
Empyema, effusion etc	510	1.39	12%
Miscellaneous	2040	5.58	43%
Total	4745	13	

8395 patients required some sort of surgical intervention during the year. Majority of patients had minor injuries (59%) and were treated under local

anaesthesia.

About 40% patients required general anaesthesia for surgical intervention (Table X).

A total of Pak Rs. 71000000/- were spent during the year. Daily per patient cost was over fifteen hundred rupees. Details of expenditure are given in Table XI.

Type of anaesthesia	Yearly No. of patients	Daily avg No. of pts	%age
G.A	3285	9	41%
L. A	5110	14	59%
Total	8395	23	

Establishment	Yearly exp Rupees	Daily exp Rupees	Per patient
Establishment	10126000/-	27742/-	220/-
Purchase of equipment	33396000/-	91496/-	726/-
Purchase medicine	22500000/-	61644/-	490/-
Repair & maintenance	4978000/-	13638/-	108/-
Total	71000000/-	194520/-	1544/-

DISCUSSION

Emergency patients who present for help have either a medical or a surgical problem.

Only 21% of surgical emergencies presented with acute surgical problems such as appendicitis, peritonitis, haemo or pneumothorax.

79% of surgical emergencies were due to some kind of trauma (Roadside accidents, industrial, household and sports injuries, gunshot or stab injuries).

There is no doubt that our roads are killers and mayhem is only getting worse. The conditions of our roads are such as these are waiting for the accidents to happen. These roads are in fact a highways to hell resulting in accidents which are more common in Pakistan like any other Asian country. It is partly due to dangerous drivers, too many cars and corrupt cops¹.

Unsafe industrial units, unsafe residences and public places cause unwanted injuries and disabilities to public. These injuries and resulting morbidity and mortality can be reduced or abolished by taking appropriate steps¹.

The injury rates are higher in low income and less developed countries with higher population. These are the places where injury control measures should be improved².

Impaired driving skills continue to be a major factor in many injuries and fatalities on highways. Emergency physicians and surgeons must try to prevent such problems³.

Unintentional injuries are the cause of death and disabilities in millions of children of low socio-economic countries. Challenging living conditions, heavy traffic, lack of play space and an absence of child care options, together with disproportionate vulnerability to injury, combine to put children at high risk. Inaccessible and unaffordable emergency services add to the number of resulting deaths and impairment. This major problem receives little attention.

A regular monitoring of type of emergencies, extent of emergencies and cause of emergencies helps in planning of both preventive and curative emergency services.

Trauma demands professional care. Most of emergency medical services resources are spent on clinical care of non critical but catastrophic injuries⁴.

The burden of trauma patients is enormous on

emergency medical services. The prevention of trauma is less often thought about. Scientific basis of trauma can be easily translated into programs of prevention of trauma. These measures include;

Environmental modification.
Improved engineering features of vehicles.
Promotion of improved social behavior.
Public safety legislation.
Law enforcement.

The multi-dimensional approach is required to prevent injuries. Its focus is on;

- Education
- Engineering
- Enforcement

The advanced emergency services help to prevent most of the emergency situations by creating public awareness, legislation and implementation of public safety acts.

It is important to convert emergency problems/situations into well organized routine health care.

The campaigns of prevention of emergencies cost much less in terms of money, human life, property, public resources and human effort and suffering. It will help to decrease the load on emergency services in the long term⁵.

An injury surveillance system for persons having disabilities should be developed to identify injury risk factors. They should be monitored as a separate risk group. All concerned should be aware of the cognitive level of such persons and its influence or injury risk. An awareness and education program may be developed for such persons⁶.

Campaigns should be initiated to teach warnings of stroke, help to treat this third leading cause of death and disability due to medical problems⁷.

Treatment plans of emergency medical services need

to be high yield and should have essential health services. The strengthening of emergency services leads to research in injury risk factors and deficiencies in injury management.

Development of preventive measures may not be satisfactory due to lack of funds and to see injuries as random, unpredictable and uncontrollable events lacking due attention on part of medical personnel. Research of injuries is likely to contribute to awareness and targeted preventive measures⁸.

Professionals from various discipline should participate in injury prevention plan such as;

- Nurses
- Physicians
- Health educators
- School teachers
- Social workers
- Police officer
- Fire fighters
- Emergency medical technicians
- Coaches .

They all must be well educated. They must have collaborative approach. The plans must be improved all the time⁹.

The plan should be designed to offer most cost effective means of care of population and more efficient utilization of finite resources⁹.

The standards in emergency medical services care are developed by developing existing technologies and these can be effectively disseminated and implemented¹⁰.

Patient is of core value to any health care system. Many health problems continue despite effective preventive measures.

A significant burden of disease in developing countries is caused by illness and injuries. Timely treatment of life threatening situations may not be available in many health care centers specially in

developing countries.

There is lack of structural model for these services, inappropriate training foci, financial problems sustain ability and higher demands. An effective level of emergency medical care responds to perceived and actual community¹¹.

A relatively simple, objective, and quantitative method is needed for prioritizing local injury prevention initiatives based on both injury frequency and severity. IPPS is a tool that uses data available in trauma center registries to rank injury causes according to both frequency and severity. It helps in local, evidence based prioritization of injury prevention initiatives. IPPS uses a computational method that balances the influence of frequency and severity in ranking the relative importance of different injury mechanisms¹².

An advantage of using trauma registry data is that the score is dynamic, allowing its users to detect shifts in relative importance of different injury causing mechanisms and emergence of new trends¹².

Computation of the IPPS requires minimal software and the simplicity of the calculation facilitates ease of use by centers with limited statistical support¹².

Interestingly these programs are directed towards injury prevention issues that have gained national notoriety, including smoke detector and fire safety programs, seat belt and child safety seat awareness campaigns and check points and bicycle helmet promotion programs¹².

Application of IPPS can improve the capability of trauma centers and policy makers to prioritize injury prevention program initiatives in accordance with the needs of the population they serve¹².

Structured guidelines must be prepared for management protocols of various emergency problems. These must be displayed and widely publicized for effective control of emergencies.

Availability of emergency medical services at an easily accessible site, availability of staff, medicine and equipment all the time, is an important step.

Immediate medical help and advice makes the patients very satisfied when they face an emergency situation.

Patient attendance, counseling and adequate care are the essential features of the emergency medical services. All these aspects can be achieved by proper organization and deputing very clear responsibilities to various people.

The emergency medical services need following components for effective outcome;

Building for emergency services should be adequate as per requirements of that area, number of people living and traveling in that area, its nearness to motor way, airport, industries and atomic installations etc.

The staff should be always fresh and fit to work during duty hours which should not be more than six hours at all. The staff should be sufficient but not excessive. It must be very professional and dedicated.

Some acceptable arrangement of the emergency staff should be made in advance for management of disasters.

The staff must be given very clear responsibilities. Duplication of responsibilities must be avoided for better care.

One trained nurse is made available for every five emergency beds for optimal nursing care.

Associated secretarial, paramedical and cleaning staff is also made available for smooth running of the emergency department.

Well trained statistical specialist staff should also be available for record keeping, record analysis and data interpretation and internal quality audit of the emergency department.

Public relations staff of the department should also be active in campaigning various public welfare strategies and producing public awareness against various problems.

Upto-date and adequate equipment should be available to the staff for standard care of the patients.

CONCLUSIONS

- The emergency medical services should be available at an appropriate and easily accessible place all the time.
- The development and improvement in the existing emergency medical services should always continue.
- Steps must be taken to make the emergency medical services more economical and cost effective.
- Preventive strategies and future development plans must always be organized to improve the quality of services.

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