The role of the ambulance service as part of the health profession

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Summary

The provincial ambulance services have developed into highly trained professional emergency medical services over the last few years. This rapid development seems to have caught the medical profession by surprise, so much so that in recent months some medical practitioners were of the opinion that ambulance personnel were being trained to do more than they should. Unfortunately many doctors still seem to view the ambulance service as mainly a patient transport service and not as the emergency medical service it has become. It would be in the interest of the patient if a sound working relationship between pre-hospital, hospital and private medical practitioners could be established and that each group becomes familiar with the capabilities of the other. It is equally important that ambulance personnel be welcomed into the health profession of which they are now an integral part.

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A look at the past

South Africa was very much a part of the British Empire at the turn of the century, and in line with British tradition of that time, ambulance services were linked to the fire services. Combined services remained fashionable until well after World War II. Up to that time, an ambulance was associated with little more than rapid patient transport. The technique of 'scoop and scoot' was commonplace. Very little more than basic first aid was administered to the patient. After World War II the value of the ambulance service as a formal health service was realised and Britain systematically established ambulance services as health services independent from fire departments. The colonies, however, maintained combined services.

During the Korean War the value of treatment before transportation was illustrated. The value of the helicopter as a means of rapid patient transportation was particularly dramatic. Mobile Army Surgical Hospitals (MASH), close to the battle-front, minimised the time spent getting the injured to specialised facilities.[1] The Vietnam War gave birth to the paramedic concept and firmly established the use of the helicopter as an ambulance. The impact of the time lapse prior to commencement of treatment on survival of the injured was finally realised.[1]

During the 1970s the concept of the paramedic caught on in the RSA and the Emergency Medical Assistant Course came into being. It consisted of more advanced first aid and intravenous fluid administration. This was a sought-after qualification in the combined services.

At the same time a young Cape Town doctor pioneered the concept of the ambulance service as an independent health service under medical supervision in the RSA.

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The Health Act of 1977 made ambulance services the responsibility of the provincial administrations after the local authorities found it difficult to finance the service.

What has happened to ambulance services in the RSA since the Provinces took over?

Local authorities still render ambulance services on an agency basis on behalf of the Transvaal, the Orange Free State and the Cape Provincial Administrations. Natal has opted to provincialise their ambulance service. A percentage of the local authorities in the Transvaal (especially in the PWV area) and the OFS, opted to render the ambulance service as a combined service with their fire department and not as an independent health profession. This probably plays a major role in an evident identity crisis of the ambulance service in the eyes of the layman, because it is not clearly linked to a health service. In the Cape and Natal the ambulance services are run as purely health services and structured accordingly.

Major changes have taken place in the ambulance service in recent years. Training has played a vital role in the upgrading of pre-hospital emergency care since the Provinces took responsibility in the 1980s. An Ambulance Training College was established in each Province. Training courses presented by these provincial colleges are appropriate to the needs of the service, of high quality, concentrated and practically orientated. The courses include aspects such as basic and advanced life support, emergency medical rescue, disaster management, administration, advanced driving and instructors' modules, aeromedical evacuation and water-related rescue. A National Diploma in Ambulance and Emergency Care is presented by several Technikons in conjunction with the Ambulance Training Colleges. All training courses include strict action and treatment protocols to which ambulance personnel are to adhere. This provides a significantly reduced margin for error, especially considering the high stress levels under which ambulance personnel work.[2] It also enables ambulance personnel to carry out fairly advanced lifesaving procedures in the field. These protocols are drawn up by experts, and are reviewed by the Ambulance Training Colleges on a regular basis.

Ambulance training in South Africa compares well with that in the Western world, and this country has probably taken the lead in certain aspects of this field. The more advanced ambulance qualifications now entitle the holder to register with the South African Medical and Dental Council as supplementary health services personnel.

Vehicles and equipment have been vastly upgraded. Much has been done to improve the important emergency medical communication networks in each province. Standardisation and co-ordination apply not only at provincial but also at national level.

The role ambulance personnel play as part of the health team

Ambulance personnel now probably play a more important role in pre-hospital care of the sick and injured than ever before. A fact that is sometimes easily overlooked is that the

ambulanceman is usually the first suitably qualified person on the scene to deal with medical emergencies. Ambulance personnel work under difficult and often extreme conditions, mostly without the benefit of the direct supervision of a medical doctor, which stands in sharp contrast to the normal situation in a hospital. Owing to the unique circumstances under which the people work, it is essential that the rest of the medical profession take note of their expertise and acquaint themselves with the care being given before passing judgement or criticisms.

A large part of the so-called 'golden hour', in which it is essential to commence effective treatment of seriously injured patients in order for them to survive, is usually taken up by the extrication or transportation of the patient. The quality of treatment provided by ambulance personnel during this period may well dictate the prognosis of the patient after arrival at an appropriate hospital.[2] The relationship between the ambulance crew and the rest of the health team has become extremely important: a poor understanding or disrespect for each other's capabilities, profession or circumstances can affect the quality of treatment of the patient adversely. On the other hand, it has been found that a healthy relationship between the pre-hospital and hospital teams fosters a mutual sense of belonging that culminates in a combined team effort, to the advantage of the patient. In the interests of proper patient care, hospital staff should familiarise themselves with the capabilities of their local ambulance crews, the circumstances and protocols under which they work, as well as the equipment they use. It is now more important than ever that ambulance crews be made to feel part of the health team.

A friendly word of advice, acknowledgement, or encouragement to become involved in assisting the hospital team with the patient they have just brought in, will generate far more goodwill and a better working relationship than a scathing attack on the way that treatment was given or withheld. Ambulance crews work mostly in a hostile and dangerous environment as far as pre-hospital emergency care is concerned. It is therefore important and in the interests of all concerned that they do not feel alienated from the other health services on arrival at the hospital's protected environment.

Actions by protocol

Most actions and procedures carried out by ambulance personnel are done according to predetermined protocols as laid down by the Ambulance Training Colleges. To the layman or the uninformed certain decisions may seem unorthodox at first. A typical example would be if an ambulance crew with a seriously injured patient were to bypass certain hospitals in favour of another.[2,3]

In the Transvaal the emergency/casualty sections of the provincial hospitals have been graded into four levels according to their capabilities. Particularly in urban areas, where hospitals are situated in relatively close proximity, it may be in the interest of a severely injured person to be taken directly to a specialised trauma unit (only at level 1 hospitals) rather than to a level 3 (smaller or regional) hospital, only to be transferred an hour later because of inadequate facilities or unavailability of specialised personnel.[3] Obviously this decision would be dependent on proper treatment being administered at the scene and on board by a highly qualified ambulance crew.[2]

At other times the helicopter ambulance might for instance be preferred to the conventional road ambulance. This decision will often be based on the Trauma Score (Fig. 1) or the Glasgow Coma Scale (Fig. 2) rating being below a certain level.[2,4] Usually such a patient will require the attention of a level 1 centre or trauma unit.

Trauma Score[4]

The Trauma Score is a numerical grading system for estimating the severity of injury. The score is composed of the Glasgow Coma Scale (reduced to approximately one third total value) and measurements of cardiopulmonary function. Each parameter is given a number (high for normal and low for impaired function). Severity of injury is estimated by summing the numbers. The lowest score is 1, and the highest score is 16.

Respiratory Rate	10-24/min	**4**
	25-35/min	**3**
	36/min or greater	**2**
	1-9/min	**1**
	None	**0**
Respiratory Expansion	Normal	**1**
	Retractive	**0**
Systolic Blood Pressure	90 mm Hg or greater	**4**
	70-89 mm Hg	**3**
	50-69 mm Hg	**2**
	0-49 mm Hg	**1**
	No Pulse	**0**
Capillary Refill	Normal	**2**
	Delayed	**1**
	None	**0**

Fig. 1. The Trauma Score.

Glasgow Coma Scale

Eye Opening	Spontaneous	4	**Total Glasgow Coma Scale Points**
	To Voice	3	14-15=**5**
	To Pain	2	11-13=**4**
	None	1	8-10=**3**
Verbal Response	Oriented	5	5- 7=**2**
	Confused	4	3- 4=**1**
	Inappropriate Words	3	
	Incomprehensible Words	2	
	None	1	
Motor Response	Obeys Command	6	
	Localizes Pain	5	
	Withdraw (pain)	4	
	Flexion (pain)	3	
	Extension (pain)	2	
	None	1	

Fig. 2. The Glasgow Coma Scale.

Conclusion

The ambulance service has become a professional health service and forms the first link in the chain that starts with the despatch of the ambulance and ends when the rehabilitated patient is discharged. It is essential that all members of the health care family work together as a team to ensure the best interests of the patients we serve.

REFERENCES

1. Trunkey DD. Trauma. *Sci Am* 1983; **249**(2): 20-27.
2. West JG, Williams MJ, Trunkey DD *et al.* Trauma systems: current status — future challenges. *JAMA* 1988; **259:** 3597-3600.
3. Eastman AB, Lewis FR, Champion HR *et al.* Regional trauma system design: critical concepts. *Am J Surg* 1987; **154:** 79-87.
4. Champion HR, Sacco WJ, Carnazzo AJ *et al.* Trauma score. *Crit Care Med* 1981; **9:** 672-676.