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Emergency Medical Services within the Free State Department of Health Responsible for Rendering Inter-Facility and Planned Patient Transport

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PROVINCE: FREE STATE

Summary

Since 2013 the Emergency Medical Services and planned patient transport systems in the Free State province are characterised by long waiting times and a lack of reliability during the most critical moments of life.

The qualitative and quantitative data from this study indicated that, although there are inter facility transfer ambulances, there are very few of these and they are operational only during day shifts. They are not able to attend to all the IFT cases and this results in emergency ambulances being used. In addition, IFT cases often remain outstanding for long periods of time with the IFT cases logged during the day shift only being attended to during the night shift. The participants from the operations group explained that some long distance IFT cases may take the dispatched vehicle an entire 12 hour shift to complete. In addition to these challenges, the receiving doctors often do not just accept the patient and release the vehicle and they make the ambulance wait until they have completed their examination and they are happy to accept the patient. This often takes hours as doctors are not always readily available as they may be in theatre or busy elsewhere when the patient arrives.

The study has aimed to collect and analyse data to determine the IFT and PPT services within the Free State Province in accordance with the national objectives as set out in the legislation.

Contents

1. Introduction

The main determinant for the health outcomes would be to end preventable deaths of newborns and children under 5 years of age aiming to reduce neonatal mortality to at least as low as 12 per 1 000 births and under 5 mortality to at least as low as 25 per 10000 live births. The socio-economic status plays an important role in influencing health outcomes. *(STATSSA: Mid-Year Estimates 2018 & General Household Survey 2017)*. However, a critical determinant of health outcomes is the availability of quality emergency medical services (EMS) in the form of ambulances.

The provisioning of ambulance services consists of multiple components and involves multiple role players and complex intergovernmental relations. For example, policies for the management of the government motor fleet are centrally determined and controlled by the National Department of Transport, while the provincial health departments are held financially accountable “for the costs of transport used for delivery of health services” in terms of the Public Finance Management Act (PFMA). Provincial health departments also rely on the provincial departments of transport, for the repair, maintenance, supply of new and replacement of vehicles. The relationship that exists between the national and provincial departments of transport, health and provincial treasuries as well as the private health sector is a rather complex one and prone to inefficiencies culminating in weakened services.

This study focuses on the pre-hospital emergency medical services within the Free State Department of Health rendering inter-facility transfers and planned patient transport. A budget

allocation on average of between R0.500 and R0.800 million is allocated to this programme annually.

Does the emergency medical service render an efficient and effective inter-facility and planned patient transport service in the five districts of the Free State?

Key issues include:

- Is the EMS providing a reliable inter-facility and planned patient transport service?
- The number rostered ambulances services required.
- How many ambulances service the population per category of uninsured, gender and age?
- What are the key cost drivers for this service?
- Are there any strategies in place to improve this service?

2. Policy and Institutional Information

The Emergency Medical Services is guided by the provisions of applicable Health Sector Legislation:

- The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)
- National Health Act, 2003 (Act 61 of 2003)
- White Paper on the Transformation of Health
- Mental Health Care Act, 2002 (Act No. 17 of 2002)
- Medicine and Related Substance Act, 1965 (Act No. 101 of 1965)
- Pharmacy Act, 1974 (Act No. 53 of 1974)
- Health Professions Act, 1974 (Act No. 56 of 1974)
- Prevention and Treatment of Drug Dependency Act, 1992 (Act No. 20 of 1992)
- Choice on Termination of Pregnancy Act, 1996 (Act No. 92 of 1996)
- Sterilisation Act, 1998 (Act No. 44 of 1998)
- National Health Laboratory Service Act, 2000 (Act No. 37 of 2000)
- Traditional Health Practitioners Act, 2004 (Act No. 35 of 2004)
- Free State Initiation School Health Act, 2004 (Act 1 of 2004)
- Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965)
- Hazardous Substance Act, 1973 (Act No. 15 of 1973)
- Health and Welfare Matters Second Amendment Act, 1993 (Act No.180 of 1993)

- Batho Pele Principles
- Medicines and Related Substances Act, 1965 (Act 101 of 1965)
- Mental Health Care Act, 2002 (Act 17 of 2002)
- Health Professions Act, 1974 (Act 56 of 1974)
- National Health Insurance (green paper)

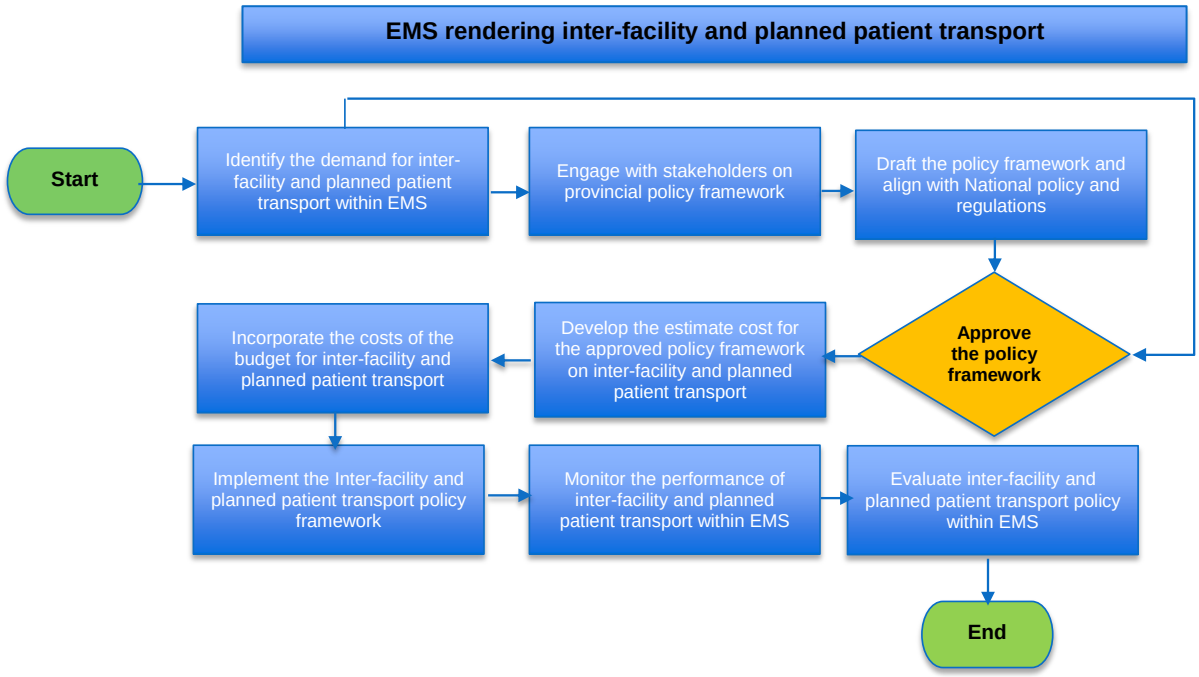
The legislation and policies such as the Constitution of the Republic of South Africa lays the foundation for ensuring that all people are treated equally and that each person is afforded access to basic healthcare rights. These rights are enshrined in Section 27 of the Constitution of the Republic of South Africa and must be adhered to at all times. The National Health Act, 2003 (61 of 2003) together with Emergency Medical Services Regulations of 2017 sets out the regulatory framework for EMS medical practitioners, advisory committees and licensing. The National Emergency Care Education and Training Policy (NECET) aims to ensure the alignment of emergency care education and training with current education legislation, national education and training needs and imperatives of the national Department of Health in order to ensure the rendering of quality healthcare services to the population of South Africa. The current emergency care legislative framework applicable to the profession of emergency care is the Health Professions Act, 1974 (Act 56 of 1974) and the regulations that pertain to this Act. The Health Professions Act makes provision for the establishment of the Professional Board for Emergency Care (PBEC). Furthermore, Section 16 of the Health Professions Act regulates the education, training and practice of members practicing emergency care in the Republic of South Africa. The PBEC is accorded the powers to regulate all emergency care education and training; keep a register of all emergency care personnel practicing in the Republic of South Africa; institute an inquiry and take disciplinary steps for professional misconduct.

Table 1.1: Ambulance Vehicle Distribution in the Free State Province

Vehicle Distribution						
Population	Sector	Total Sum of Number Ambulance	Total Sum of Ambulance Basic	Total Sum of Ambulance ILS	Total Sum of Ambulance ALS	Base Stations
501 166	**Fezile Dabi**	58	6	40	12	6
405 944	Public	41	5	28	8	
666 820	**Lejweleputswa**	67	21	41	5	11
540 124	Public	44	4	42	1	
772 755	**Mangaung Metro**	70	4	60	6	1
625 932	Public	47	4	42	1	
786 928	**Thabo Mofutsanyane**	87	50	36	1	14
637 412	Public	66	50	16	0	
154 035	**Xhariep**	33	12	19	2	11
637 412	Public	32	12	18	2	
2 881 704	**Grand Total**	**315**	**93**	**196**	**26**	**43**

The Emergency Medical Services is structured as a programme within the Free State Department of Health from where the funding is allocated. The inter-facility transfers forms part of the emergency transport responsibility whereas the planned patient transport services receive a separate allocation. EMS services are provided from forty three stations in four rural and one urban district within the Free State Province with a fleet of 315 ambulances for the public sector according to vehicle distribution list as at February 2019. The organisational structure of the public sector for EMS services includes 1 622 operational personnel and 220 supervisors (which includes shift leaders, station managers, district and sub-district managers). Included are 48 personnel for the planned patient transport.

3. Programme Chain of Delivery



The Free State Department of Health is divided into 8 administrative programmes, of which Programme 3 is Emergency Medical Services whose purpose is to provide an equitable, efficient, effective, professional and sustainable service of pre-hospital emergency medical services including inter-hospital transfers and planned patient transport. The programme consists of two sub-programmes, that is, the emergency medical services (EMS) as well as the planned patient transport (PPT). The EMS as a sub-programme is responsible for rendering emergency medical services including ambulance services, special operations, communications and air ambulances. The planned patient transport deals with the planned patient transport including local outpatient transport (within the boundaries of Bloemfontein) which is the five districts namely Fezile Dabi, Lejweleputswa, Mangaung Metro, Thabo Mofutsanyane and Xhariep within Free State Province.

In determining and identifying the demand for inter-facility and planned patient transport the geographic area and population has to be pinpointed. The demand has to be aligned to the EMS regulations which sets out the norms and standards for Emergency Medical Services with regard to the Emergency Regulatory Framework, Advisory Committee and role players, licensing of emergency medical base stations and ambulances, EMS operational affairs and miscellaneous provisions as set out in the regulations. The national objective is to have one staffed emergency ambulance for every 10,000 population for overall ambulance coverage.

According to the Emergency Medical Services Regulations an ambulance should have a minimum of two personnel who have to be registered with the Health Professional Council of South Africa (HPCSA). Based on the nature of the service being offered these personnel will be in possession of a qualification/licence of Basic Life Support (BLS), Intermediate Life Support (ILS) or Advanced Life Support (ALS). The licences will include “an appropriate valid driver’s licence” for the driver of the ambulance, and an additional “valid professional driving permit” (PDP) where the vehicle is for the purposes of carrying patients. The ambulance vehicle used, in compliance with the road traffic act, will also be configured in such a way as to aid the function of carrying patients. The exact fittings of what these ambulances are supposed to look like are elaborated upon in greater detail within the regulations.

The policy mandate of the EMS programme is derived from a number of documents but primarily section 27(3) of the Constitution, Schedule 5 of the Constitution which provides for ambulance services as functional areas of exclusive provincial legislative competence.

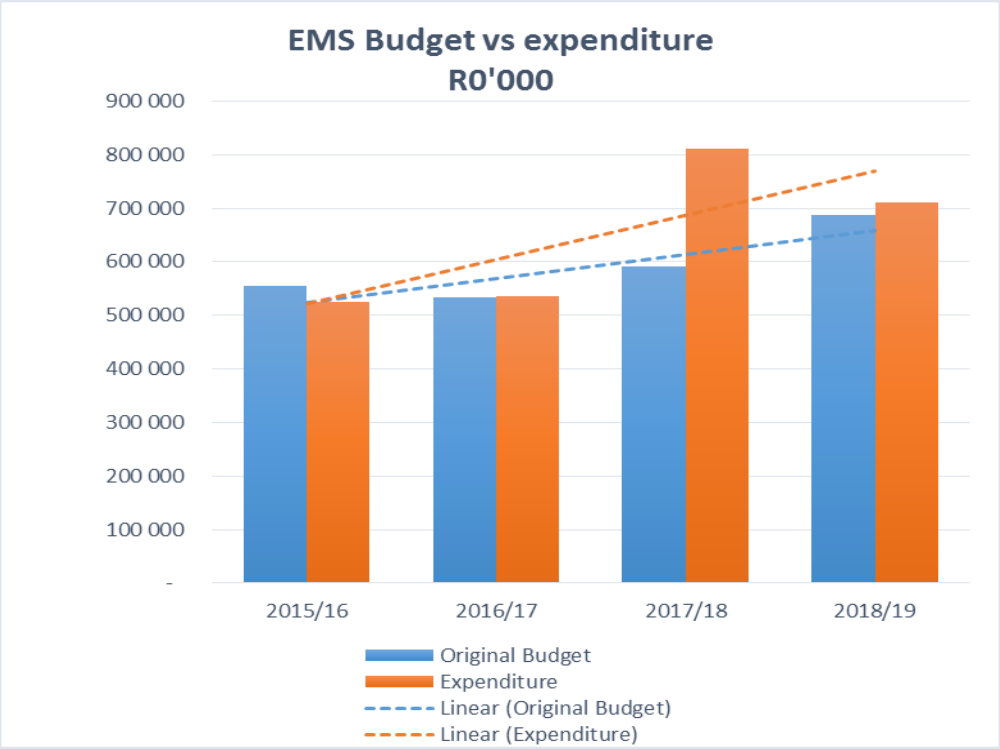
Additionally, section 5 of the National Health Act 6 states that “a health care provider, health worker or health establishment may not refuse a person emergency medical treatment” as already protected within section 27 of the Constitution.

4. Expenditure Observations

The analysis was made based on the EMS programme with the responsibilities namely inter-facility and planned patient transport for financial years 2015-16 to 2018/19 on budget and expenditure dataset. Further analysis included item categories such as claims against the state, compensation of employees, fleet services, inventory medicine, medical equipment, medical supplies, medical training, medical uniform and outsourced medical services. Outsourced medical services which on evaluation was found that expenditure relates to inter-facility transport within the Emergency transport responsibility.

What is observed in the summary below is that over the period the budget allocation and or final appropriation and actual expenditure to the EMS programme have been on an upward trajectory (Figure 1)

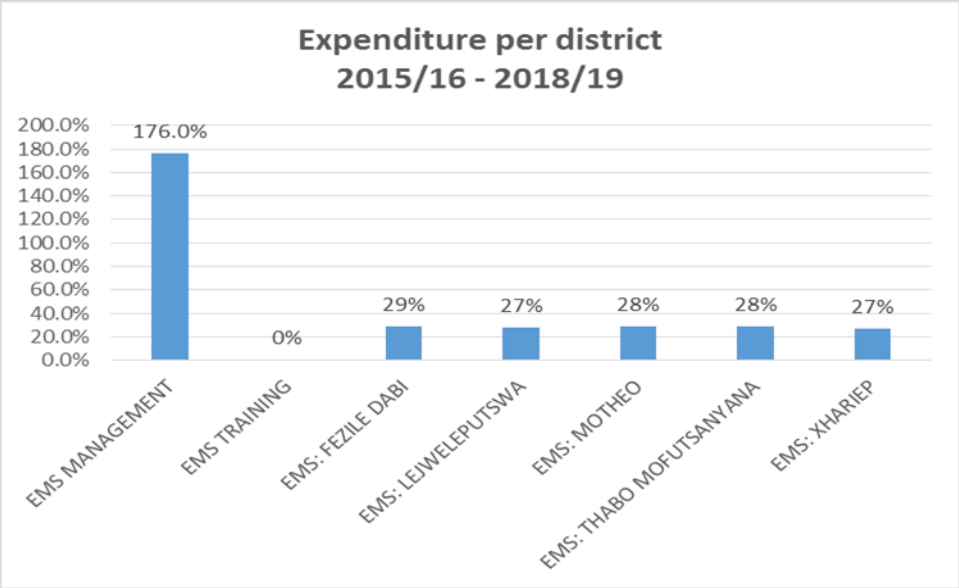
Figure 1: EMS Budget Allocation, Final Appropriation and Actual Expenditure 2015-16 – 2018/19



While the EMS programme has overspent the budget appropriated to it, with exception of the 2015/16 and 2016/17 financial years. The lack of fiscal resources has been cited in Annual Reports for this period as a reason for lack of progress in achieving the national norms of 1

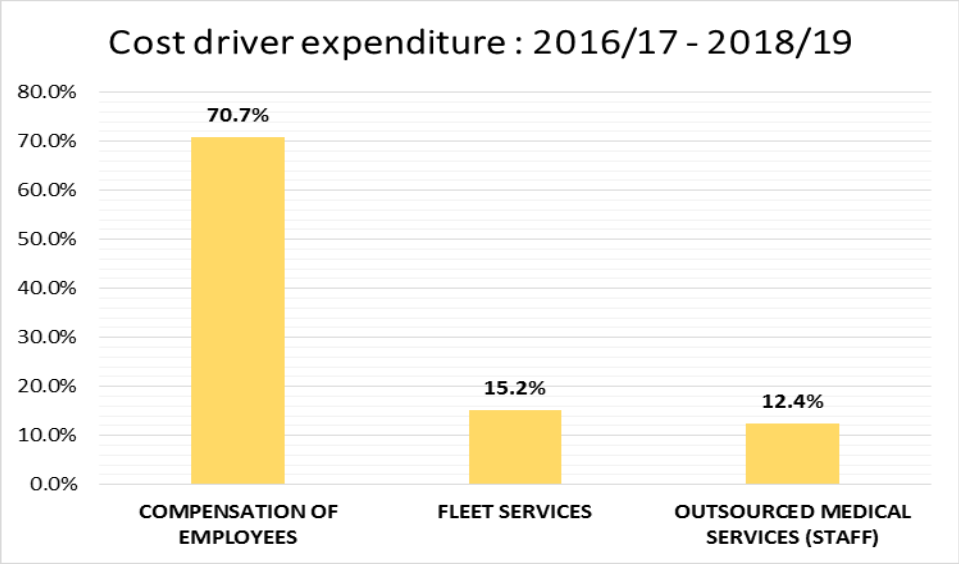
ambulance per 10 000 people and the recruitment of adequate staff to ensure for the provision of a quality, effective and efficient EMS.

Figure 2: EMS Actual Expenditure per district 2015-16 – 2018/19



The average annual growth in expenditure across the period was at 75% of the allocation. The expenditure was consistent for the districts Fezile Dabi at 29%, Lejweleputswa at 27%, Mangaung Motheo at 28%, Thabo Mofutsanayana at 28% and Xhariep at 27% for this period. However there was no expenditure on the EMS training unit but expenditure for EMS Management was at 176% due to the fact that the services were centralised to this unit in the 2017/18 and 2018/19 financial years as seen in Figure 2.

Figure 3: Core cost drivers in EMS for 2015-16 – 2018/19



The main cost drivers within the EMS includes compensation of employees at 70.7% for all 5 districts on planned patient transport, fleet services at 15.2% and 12.4% on outsourced medical services which includes expenditure for all medical services on inter-facility transfers.

5. Performance

The programmes performance indicators is measured against the main purpose of the services which is critical medical service required for planned patients and inter-facility transport. When reviewing the performance indicators against the planned targets and actual achievements the ambulance operational coverage was reached in the financial years 2015/16 – 2017/18. The number of obstetric ambulance was at 19.3%. The availability of rostered obstetric ambulances improves patient's access to obstetrics and other specialised services. The number of planned patient transports vehicles was at 55 for 2015/16 – 2017/18. The 2018/19 actual achievements is still awaited from the audited financial statements and annual report for 2018/19. The EMS response have generally improved for both urban and rural areas in an effort to ensure patients receive timeous access to health facilities.

Table 1: Performance Indicators and targets for Inter-facility and planned patient transport

EMERGENCY TRANSPORT										
Strategic Objective	Strategic Objective Statement	Performance Indicator	Planned Target 2015/2016	Actual Achievement 2015/2016	Planned Target 2016/2017	Actual Achievement 2016/2017	Planned Target 2017/2018	Actual Achievement 2017/2018	Planned Target 2018/2019	Actual Achievement 2018/2019
Provide an effective and efficiency Emergency Medical Services	Increase number of operational ambulances	EMS operational ambulance coverage	0.63	0.65	0.70	0.37	0.52	0.47	0.70	Awating Audited AFS
		Number of rostered obstetric ambulances	18	24	20	12	20	22	24	Awating Audited AFS
PLANNED PATIENT TRANSPORT								Cost of item		
Provide an effective and efficiency Emergency Medical Services	Increase number of operational ambulances	EMS Facility transfer rate	12%	9.3%	10%	23%	8.5%	1.2%	8.5%	Awating Audited AFS
		Number of planned patient transport vehicles	45	46	42	46	40	73	40	Awating Audited AFS

Vehicle Per 10000 Population

Population	Sector	Number Ambulance	Sum of Ambulance Basic	Sum of Ambulance ILS	Sum of Ambulance ALS
501 166	**Fezile Dabi**	1.16	0.12	0.80	0.24
405 944	Public	1.01	0.12	0.69	0.20
666 820	**Lejweleputswa**	1.00	0.31	0.61	0.07
540 124	Public	0.81	0.35	0.46	-
772 755	**Mangaung Metro**	0.91	0.05	0.78	0.08
625 932	Public	0.75	0.06	0.67	0.02
786 928	**Thabo Mofutsanyane**	1.11	0.64	0.46	0.01
637 412	Public	1.04	0.78	0.25	-
154 035	**Xhariep**	2.14	0.78	0.25	-
637 412	Public	**2.56**	0.96	1.44	0.16
2 881 704	**Grand Total**	**1.10**	**0.32**	**0.69**	**0.09**

Source: FSDoH

The vehicle per 10 000 population in the Free State Province according to the Department of Health as reflected above indicates that overall ambulance coverage is in accordance with the national objective of 1:10000 population. However when looking at the three categories of pre-hospital emergency care practitioners namely, basic life support (BLS), intermediate life support (ILS), and advanced life support (ALS) within the actual operations of ambulance services the department has long cited a history of challenges with shortages of a range of categories of EMS required in the operation of ambulance services.

6. Options

A study conducted in the province of KwaZulu-Natal (Hardcastle et al. 2012) determined that the delivery of patients to an inappropriate health facility often resulted in an increased demand for IFT cases and that this impacted negatively on the availability of ambulances which was, in any case, extremely limited. The reasons cited for this included the fact that patients are often transported to the nearest health facility and not necessarily to the most appropriate health facility. However, if the health facilities at the local level are upgraded, the need to transfer patients would be substantially reduced. The delays experienced at hospitals have also been reported as a challenge where the time taken to hand over patients was often extended to such an extent that it resulted in ambulances queuing outside the accident and emergency departments and, thus, they were unable to respond to outstanding cases. The first step in ensuring a service can be provided is to ensure that appropriate resources are available and the second is to utilise these resources efficiently.

Accurate and standardised methods for the screening and triaging of received calls for prioritisation purposes would result in cases receiving the responses required based on either the condition of the patient or the severity of the incident. An option would be implementation of a computerised system for determining the dispatch triage as this would ensure that every case were screened using exactly the same method. This would help to prevent inconsistencies.

In order to meet the demands for Emergency Medical Services (EMS) effectively, appropriate resources and the effective management of such resources are essential. The availability and allocation of resources is suggested as a strategy to improve response times by the participants from all the groups. Resource availability should be based on the population served in the area and that resources should be allocated to the different areas based on demand. In addition, they recommended expanding the service with the establishment of more EMS bases in all communities as well as the inclusion of satellite bases. The expansion of

services also requires additional vehicles and, thus, vehicles should be purchased on a regular basis both in order to replace old vehicles and to expand the services.

The available literature strongly supports the strategy for effective resource allocation and is referred to as systems status management. This is a strategy that has been used widely in EMS to ensure better optimisation levels of resource management while maintaining system costs. This system includes the use of geographic information systems, demand pattern analysis and dynamic location/relocation models in order to improve the travelling

The use of satellite bases in all areas has been found to improve response times due to the emergency vehicles being closer to the patients or incidents.

The availability of vehicles plays a vital role in providing Emergency Medical Services. However, this does not refer only to vehicles that are operational but also pool vehicles which are fully stocked and ready for use. Should a vehicle be stood down because of a breakdown or be involved in a collision, such pool vehicles would ensure that staff could still be operational immediately using a pool vehicle. In addition, during shift changes when a vehicle is out on a late case, the incoming staff would be able to use a pool vehicle and become operational at the start of the shift rather than waiting for the return of the vehicle which is out on a case.

7. Recommendations

Accurate and standardised methods for the screening and triaging of received calls for prioritisation purposes would result in cases receiving the responses required based on either the condition of the patient or the severity of the incident. An option would be implementation of a computerised system for determining the dispatch triage as this would ensure that every case were screened using exactly the same method. This would help to prevent inconsistencies.

The effective management and control of equipment are essential to ensure maximum availability of such equipment. Based on the qualitative data from this study the use of security

systems for the management of equipment is recommended as this would allow for the easy identification of the use, location and condition of equipment. If equipment were readily available and easily accessible at all times the availability of resources would improve as would response times.

The standardisation of services guided by policy, processes and procedures is critical in order to provide a quality service that is of a high standard that is maintained. The need for guiding documents such as Standard Operating Procedures for all areas of operations would have a positive impact on response times.

Health facilities are also clients of the EMS and also require education on how the EMS operates, how to access the service and what to expect when accessing the service. This would assist in the management of inter facility transfer cases and reduce the long waiting times which are being experienced at the time of the study.

Awareness and understanding on the part of both internal and external stakeholders are imperative for the effective functioning, management and utilisation of any organisation.

8. Action

Action	Time-frame
Evaluation of Provisional Draft allocations specifically on the alignment of EMS to the national objective of overall ambulance coverage	September – November 2019
Source information on Inter-facility and planned patient transport with regard to vehicle distribution and base stations and the impact on health outcomes.	September – December 2019
Source information on performance of the IFT and PPT which would include the guiding documents such as Standard Operating Procedures for all areas of operations	September – December 2019
Source information on the human resources and organisational structure of the EMS programme with regard to shortages in the three categories of emergency medical care required in the operation of ambulance services.	September – February 2020

The above action list will be pursued based on the findings of this study. During this study participants highlighted that stringent quality assurance is required to identify shortfalls in the service and provide the opportunity to further improve the service and to ensure a constant striving for improvement. This would not only help to motivate the staff but it would also ensure that personnel at all levels were held accountable.

A suitable staff establishment that caters for all levels of operations and the supervision of these levels is required. All supervisory and management posts should be occupied to ensure that the required responsibilities are performed effectively while the appointment of personnel in an acting capacity should not be a permanent arrangement. Both supervision and discipline are desperately required at all levels within the EMS. If staff members were appointed in positions of interest to them and career pathing were available then they would be more likely to perform better in view of the rewards for such performance.

When new staff are appointed in the EMS there should be standardised, formal, compulsory induction training prior to commencing duties. This would ensure that all staff have a thorough

understanding of what is required of them as individuals, what the service goals are, what the mission and vision is and how they may contribute to improving services.