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EMERGENCY MEDICAL SERVICES/ AMBULANCE SERVICES RESPONSIVENESS AND COVERAGE IN THE NORTH WEST PROVINCE 2015/16 – 2018/19

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PROVINCE: NORTH WEST

SAVINGS@WORK
GOVERNMENT SPENDING REVIEWS

Summary

The responsiveness of ambulance services and the provincial coverage rate is a key indicator of the efficiency of Emergency Medical Services. Access to ambulance services are critical in cases where the patient's condition is life threatening. This PER examines how much resources are required to meet the 75% coverage of both urban and rural response time based on the National Norms. Currently, the North West Department of Health attends to 45.6% of urban Priority 1 (P1) patients in 15 minutes and 55.9% of rural P1 patients within 40 minutes. This is far below the national norm of 75% coverage, attributed by factors such as delays in ambulance dispatch, inadequate ambulances/resources, poor road conditions and /or prioritisation of priority patients.

Part of the challenges stems from the lack of reliable information on the response time and coverage of EMS within the province. According to the 2018/19 Estimates of Provincial Revenue and Expenditure, the Communication Centres collect data on call volumes manually and therefore this information is not fully reliable and credible. Delays is noted in the Communication Centres from the time the call was received until an emergency vehicle is dispatched and the time taken for an ambulance to arrive at the incident. None of the EMS vehicles have tracking devices installed, digital communication or computer aid dispatch system. This may contribute to inefficient use or abuse of EMS vehicles and poor response time.

Currently, the total ambulance fleet stands at 126. While a total of 89 ambulances are functional and available for operations of which 62 are operational while 27 is not operational due to staff shortages. The remaining 37 ambulances are dormant due to various factors such as high mileage, accidents and breakdowns.

The total EMS Programme has a staff compliment of 904 personnel of which the bulk is on Ambulance and Related workers of 840, with a vacancy rate of 10.5% or 99 personnel based on the organisational structure. However, if the National Norm of 1 ambulance is to 10 000 is implemented, EMS will require 374 ambulances. This is not possible based on the fiscal constraint. Though a phased-in approach by procuring 40 ambulances per year over the 2019 Medium Term Expenditure Framework (MTEF), only 56% will be achieved.

Emergency Transport's year-on year spending grows with 10.78% in 2016/17, decline with -3.80% in 2017/18 and then increase to 19.07% in 2018/19. The decline growth in 2017/18 is attributed to the utilisation of private ambulance services that could not be paid and accruals were carried over to the 2018/19 financial year, hence the increase.

Contents

1. Introduction

Public Emergency Medical Services (EMS) or ambulance services are essential, with responsiveness and coverage at the top of the list.

Emergency patient transport includes emergency response to, stabilisation of and transportation of all patients involved in trauma, medical emergencies, maternal and other emergencies. EMS is imperative for both the health sector and South Africa at large, as it provides emergency care which is crucial for a healthier South Africa. The citizens of the North West are the beneficiaries of the programme in both urban and rural areas

The national norms and standards (75% ambulance coverage) set for the responsiveness and coverage is not achieved based on the ruralness of the province and the poor road conditions which delay the timing and impact on the coverage. Integrated planning with the Road Sector and municipalities is key to minimise the fatalities and mortality on the roads.

This Performance Expenditure Review uses performance data from the 2018/19 Annual Performance Plan and the progress reported in the 4th Quarterly Performance Report (QPR) for 2018/19 submitted to National Treasury. The expenditure data is sourced from the BAS financial system and other information were sourced from the National Health Act 61 of 2003 (Emergency Medical Service Regulations) and Annual Performance Plan of NW Health.

In analysing the complexity of response times in Emergency Medical Services (EMS), quantitative or qualitative methods is required to adequately capture the holistic insight. However, the quantitative data (cases on the total ambulance transfers in urban and rural areas) were not available at the time of the report. The 2018/19 actual outputs against the planned targets were also not yet validated and will only be validated in the 1st quarter of the 2019/20 financial as per timeline. Limitations in terms of minimum information received, challenged the analysis, but did not deter me from my observation and recommendations. Presumably, it means that it could not accurately calculate the demand for EMS in urban versus rural areas.

Presently 37 ambulances are dormant and need to be replaced, however, due to the shortage of ambulance workers, the replacement vehicles need to be operationalise.

While looking at the responsiveness which evaluates the health system, patient satisfaction is just as important as it focuses on clinical interaction. Therefore, a clear correlation between the two should be maintained to achieve efficiency, effectiveness and value for money in terms of individual and universal care expectations and experience.

2. Policy and Institutional Information

Emergency Medical Services with the emphasis on ambulance services are influenced by firstly by the Constitution of SA Section 27 that point out the right of access to health care services and that “no persons may be refused emergency treatment”. The EMS is also governed by The National Health Act 61 of 2003, Emergency Medical Service Regulations, 2017 that outline the regulatory framework in terms of the establishment of the EMS Advisory Committee, Licencing, Inspection, EMS Operational Affairs and Miscellaneous

Provisions highlighting the delegations, offences and penalties, transitional provision and repeal.

The Standard Operational Procedure on EMS outlines how the Communication Centre should be operated, explains the different modes of transport, describes the steps taken at the scene, outlines the principles of on-scene coordination, describes how to use parking zones and demarcate safety zones. Safety standards is a key component in the design of ambulance, how it's constructed and maintained.

The right not to be refused emergency medical treatment is laid out in section 27(3) of the Constitution and government is obliged to prioritise emergency treatment in its planning and budgeting.

While the Health Department attempt to move towards Primary Health Care where health problems are prevented through early intervention. EMS will always be required and will remain a fundamental component of any functional health system.

The World Health Organisation (WHO) has endorsed the importance of EMS and the need and priority for development of EMS system worldwide, but there is no intentional standard for MS systems. EMS systems differ greatly around the world depending on context which include the level of national development, geography, social and health priorities and capabilities.

The National Development Plan (NDP) sets out nine (9) long-term health goals for South Africa. Some of these goals relate to improving the health and well-being of the population which is inclusive of emergency medical services as explained below: -

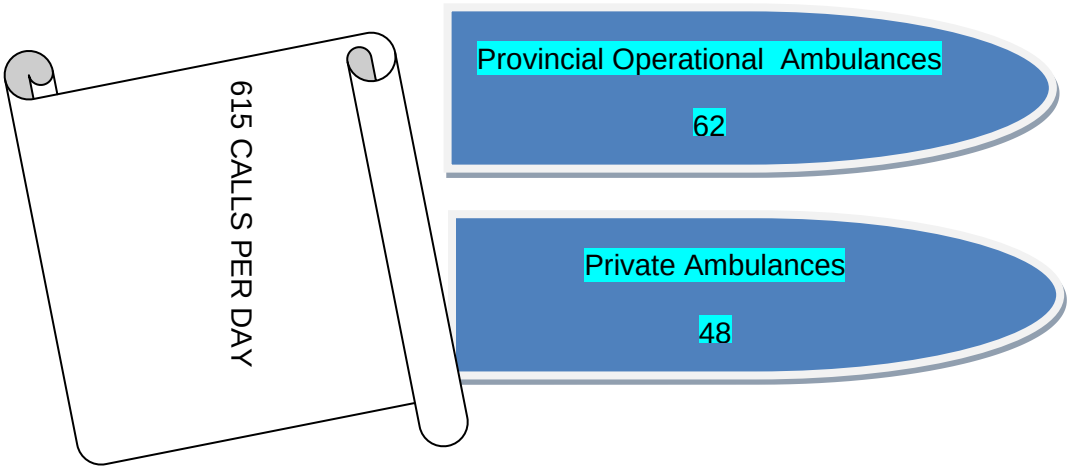
- In order to increase the life expectancy of South Africans to at least 70 years, EMS need to play a vital role in ambulance coverage and response time. Maternal, infant and child mortality can be reduced when women and children have immediate access to emergency care.
- A completed Health system reforms is to address the needs of communities for provision of equitable emergency healthcare services. These reforms are influenced by Population growth, increasing poverty, unemployment, volatile socio-economic and fragile governance.
- With the universal health care coverage, EMS represents equity in access to health services (everyone who needs services should get them, not only those who can pay for them. The quality of health services should be good enough to improve the health of those receiving the service. People should be protected against financial risk, ensuring that the cost of using the service does not put people at risk of financial harm.
- Human resources and capacity building form part of job creation and a skilled workforce with the aim in improving ambulance coverage and response time.

3. Programme Chain of Delivery

This PER focuses on the Provincial Department of Health's EMS programme, that establishes and maintains well-functioning emergency medical services throughout the North West province. There are two sub-programmes: emergency transport and planned patient transport. This analysis examines the emergency transport services also known as

ambulance services. EMS receives on average 615 calls per day that is serviced by 62 provincial operational ambulances and 48 private EMS ambulances

Currently, the Emergency Transport Programme attends to 615 calls per day delivered by 62 provincial operational ambulances and 48 private EMS ambulances. It would be helpful if information on the percentage call distribution between public and private ambulances were available to measure effectiveness and efficiency.



There are limitations to access of EMS services due to resource shortage, lack of telephone services in rural areas and poor or absent road infrastructure. Staff shortage is attributed to:

- The shortage of EMRS staff due to the ruralness in the province;
- The inability to recruit appropriate staff because of their ability to demonstrate satisfactory driving techniques;
- Inadequate knowledge of Basic Life Support;
- The fiscal constraint the department is facing.

The department should make do within the fiscal framework and resources without compromising the responsiveness and coverage of emergency ambulance services. Another consideration is to improve integrated planning with Department of Roads and municipalities to improve the poor road conditions. Some roads are inaccessible and in a bad state which leads to increased mortality rates.

The EMS programme is delivered through a set of processes that begins with setting provincial targets for emergency transport. The targets are informed by National Norms and population, which are tailored to the provincial context. These norms influence the number of ambulances and paramedics needed to achieve the desired provincial responsive times and coverage. The budget for EMS is drawn up based on the costed norms, and the five-year Strategic Plan.

Requirements are set in of registration of EMS personnel with the Health Professions Council of SA. EMS Advisory Committee must be appointed by the Head of Department in terms of Regulation 3 of the National Health Act 61 of 2003. Their task is to advise and make

recommendations on licence applications and advise the HOD on matters concerning licensing of Emergency Medical services.

Procurement of EMS equipment (ambulances and medical equipment), medical consumables, medical supplies and medicine. The recruitment, selection and appointment of emergency personnel process start. Appointments is based on minimum of 2 personnel per ambulance as required and skills such as emergency driving skills and Basic Life Support.

Once appointments are made, emergency medical training needs are identified and trained in Intermediate Life Support and Advance Life Support. Training is done in-house at the Emergency Medical Training Centre.

Approved routes are identified and mapped out to Health Facilities (District, Provincial, Tertiary Hospitals). The Communication Centre monitors and manage the callouts and dispatch ambulances to Priority 1 patients in rural and urban areas.

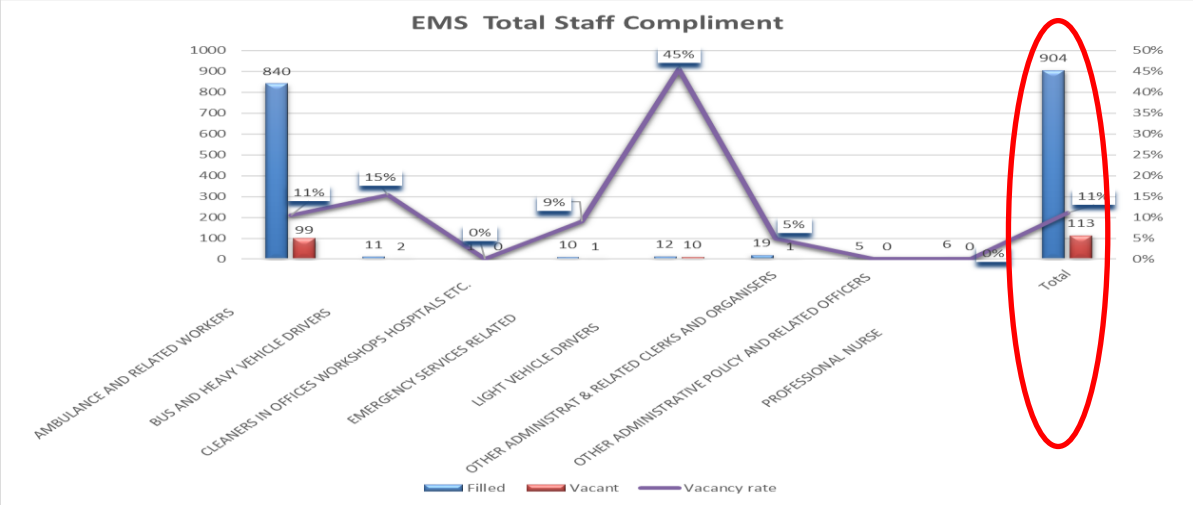
Monitoring, evaluation and reporting is done based on the deliverables, priorities and performance indicators. This includes the following: -

- Monitoring and Evaluation of routes;
- Number of patients transferred;
- Evaluate the response time for urban and rural areas.

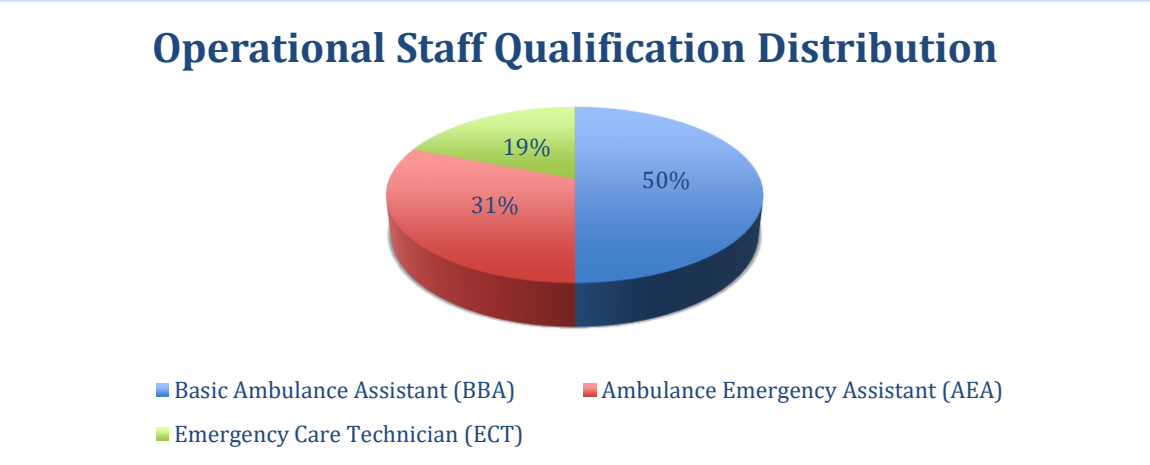
The outcomes include timeous and responsiveness of Emergency Health Care services by improving the response times and improve fleet availability. The department plans to procure 40 ambulances in the 2019/20 financial year inclusive of the replacement of non-functional ambulances. It should be noted that with this initiative there are cost implication in both the procurement of ambulances and associated operational costs.

Currently the province, service one ambulance per 50 000 population which is 5 times less than the national norm (1 ambulance per 10 000 population). To conform to the national norm, the department need a total ambulance fleet of 374, compared to the 89 functional ambulances. It indicates that the budget should be increase with 76%, which is impossible to achieve in a few years. Signed Service Level Agreements (SLA) with local Emergency Medical Services Providers is a necessity as a backup service in case of emergencies or a disaster as the current red fleet in not adequate.

The table below, display the full Emergency Medical Services staff component in the different dispensations. The current vacancy rate is 11% amounting to 113 personnel of which 99 relates to ambulance and related workers. This further suggests that if the 99 employees are appointed, it will only operationalise 49,5 ambulances, of which 27 of the existing is not operational due to staff shortage. Leaving 22.5 ambulances to be procured based on the Organisational Structure that cannot be exceeded.



Of the 904-total staff compliment, 520 is emergency operational staff. The staff qualification distribution is 50% for Basic Ambulance Assistant (BAA), 31% for Ambulance Emergency Assistant (AEA) and 19% for Emergency Care Technician (ECT). There are no operational Paramedics or Emergency Care Practitioners (ECP). Posts have not been filled for the last 3 financial years. Below chart, highlight the operational staff qualification distribution for the EMS Programme per category.



4. Expenditure Observations

Emergency Transport is funded from the Equitable Share. The demand for emergency services is caused by the increase in population (from 2 727 223 in in 1996 to 3 748 436 in 2016 with a mid-year estimate of 3 979 000 in 2018), in the North West Province.

National_Provincial	North West
Department	Vote 03: Health
Programme_Level_5	EMERGENCY MEDICAL SERVICES

Sum of Total_Expenditure	Column Labels				
Row Labels	2015/2016	2016/2017	2017/2018	2018/2019	Grand Total
EMERGENCY TRANSPORT	**256 559 570.26**	**284 226 862.57**	**273 422 119.85**	**325 559 616.58**	**1 139 768 169.26**
Compensation of Employees	203 489 139.87	239 409 390.51	234 342 758.11	251 287 171.15	928 528 459.64
Ambulance services	2 306 115.47	1 354 053.00	8 575 490.30	20 623 076.06	32 858 734.83
Equipment	-	668 146.38		-	668 146.38
Fleet Service	23 635 960.80	7 985 539.27	3 765 379.89	10 583 539.72	45 970 419.68
Medical Supplies	857 289.42	603 844.55	616 019.30	1 029 025.01	3 106 178.28
Medicine	150 675.99	291 330.32	129 757.87	1 596.25	573 360.43
Other	25 562 665.53	33 887 487.26	25 587 300.68	41 377 545.64	126 414 999.11
Uniform	557 723.18	27 071.28	405 413.70	657 662.75	1 647 870.91
Grand Total	**256 559 570.26**	**284 226 862.57**	**273 422 119.85**	**325 559 616.58**	**1 139 768 169.26**

Compensation of employees contributes to the largest share of expenditure and cost driver of the Emergency Transport sub-programme. The Drivers for Planned Patient Transport (PPT) vehicles are accommodated for in the CoE allocation, hence the high expenditure. Expenditure items have been misallocated and should be corrected in 2019/20. This has an adverse effect on the credibility of the expenditure data and the forecasting.

A decline is evident on fleet services in 2016/17 with a further decline in 201718. This is attributed to the spending on kilometre travels which does not give a credible view as this is a core item for the delivery of ambulance service. Information on the number of trips and kilometre travelled per public and private ambulances could not be obtained from the department.

Spending increased significantly from R8.575 million in 2017/18 to R20.623 million in 2018/19 because of the increased use of private ambulance services as well as payment of 2017/18 accruals for private ambulance services. The Department of Health has a huge challenge with payment within 30 days which is one of the key findings in the Audit Report.

There is a sharp increase in 2018/19 on medical supplies mainly attributed by surgical consumables This suggest that the demand for EMS services has increase as well as the cost increases for the medical and surgical supplies. Duplications on the SCOA items create room for misallocation and lead to misclassifications of items. The department of Health took a decision to centralise medicine budget from 2018/19 to Programme 7: Health Care Support Services, hence the decline in the medicine expenditure under Emergency Transport.

Expenditure per EMS facilities

Facilities								
EMERGENCY MEDICAL SERVICES					Trend Analysis			
Row Labels	2015/2016	2016/2017	2017/2018	2018/2019	2016/2017 YOY	2017/2018 YOY	2018/2019 YOY	4 CAGR
EMS Station	135 254 364.51	158 341 405.18	154 201 910.30	163 420 441.22	17.07%	-2.61%	5.98%	6.51%
EMS	95 079 393.75	105 280 612.06	112 521 174.42	131 503 086.60	10.73%	6.88%	16.87%	11.42%
Other	26 225 812.00	20 604 845.33	6 699 035.13	30 631 760.76	-21.43%	-67.49%	357.26%	5.31%
EMS College				4 328.00	0.00%	0.00%	0.00%	0.00%
Grand Total	256 559 570.26	284 226 862.57	273 422 119.85	325 559 616.58	10.78%	-3.80%	19.07%	8.26%

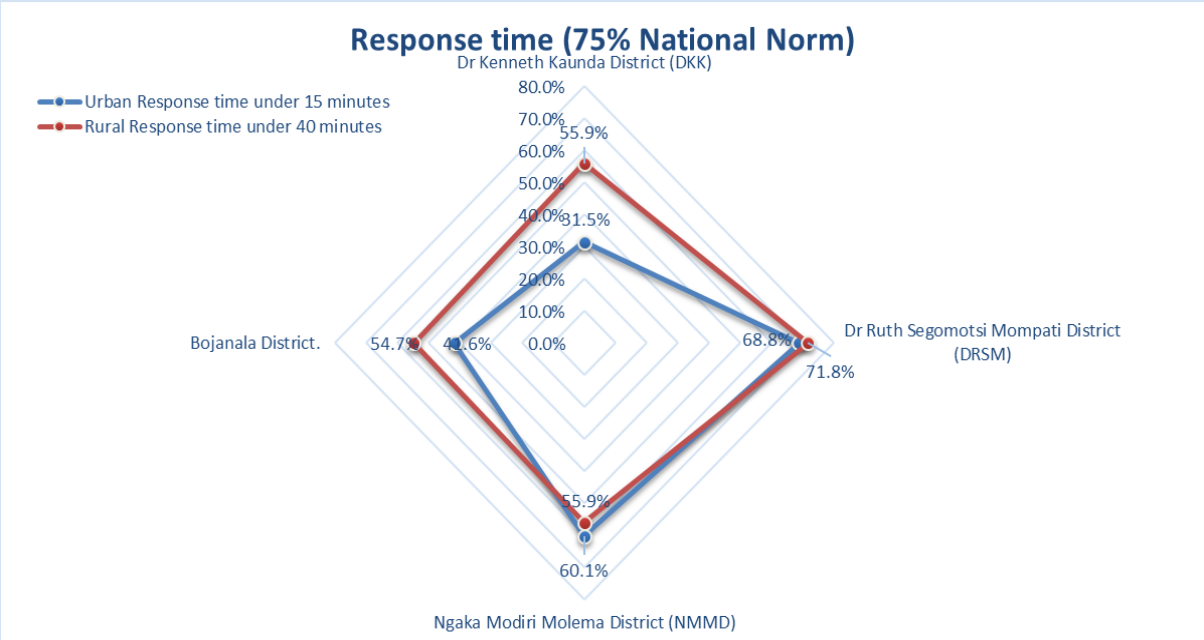
The table records the facilities trend analysis from 2015/16 to 2018/19. The 2016/17 financial year registers a growth of 10.78% while spending decreased negatively in 2017/18 with 3.80%. This is because accruals for private ambulance services were only paid in 2018/19, hence the high growth of 19.07%.

2018/19 registers a significant high spending in 2018/19 of 357.26% attributed by the payment for printing and publications services of R6 million and business and advisory services on project management of R4.1 million that should be investigated further as information could not be sourced at the time of the report.

To address some of the determinants, the department planned the centralisation of the 4 Communication Centres into a single centre to improve the callout system and emergency medical dispatch with experienced trained staff. Staff retention is also a major challenge. However, retention strategies include the review of the job content of the Advance Life Support (ALS) practitioners and intense in-service training programme for all potential employees.

5. Performance

The information is sourced from the 2018/19 Annual Performance Plan and 2018/19 Estimates of Provincial Revenue and Expenditure. The primary response times of the EMS in both rural and urban areas need to improve in order that the national standards are met. The national standard for EMS response time is that Priority 1 (P1) patients should be reached within 40 minutes in rural areas and within 15 minutes in urban areas. The target is that 75% of P1 patients should be reached within the time. Currently 55% of rural patients and 50% of urban patients are serviced within the North West province. The national norm for ambulances is one ambulance per 10 000 population, presently the province has one ambulance per 50 000 population. Therefore, there is a need to improve EMS in the North West Province. The North West province is a predominantly rural province with a population of 3 738 642 with a mid-year estimate of 3 979 000.



The province of North West is divided into four districts namely, Dr Kenneth Kaunda District (DKK), Dr Ruth Segomotsi Mompati District (DRSM), Ngaka Modiri Molema District (NMMD) and Bojanala District. The urban response time under 15 minutes coverage for these districts are 31.5%, 68.8%, 60.1% and 41.6% respectively.

It indicates that Dr Ruth Segomotsi Mompati District cover a wide range of the population in urban areas compared to other districts. For rural response time the coverage is 55.9% for DKK, 71.8% for DRSM, 55.9% and 54.7% for Bojanala. Based on the information, all districts are under the national target of 75% of P1 patients to be reached. The challenges relate mainly to the resource availability (red fleet vehicles) as well as the shrinking staff that impacted heavily on the ability to provide optimum services.

It is observed that the national norms for both rural and urban areas are unachievable in the North West Health Department based on the previous years' actual outcomes. However, based on the previous years' performance outcomes, these norms should be revised. Access to EMS is lifesaving and every minute that goes by is often a question of life or death. Perhaps, what need is a more nuanced norm that categorises the emergency.

Elements that measure responsiveness includes dignity, autonomy, confidentiality, prompt attention, social support networks, basic amenities and choice of care provider.

6. Options

In my analysis most of the information could not be sourced based on the time constraint and therefore could not be fully costed but is based on assumptions and research. I have attempted to cost the ambulance services, however not all the information could be sourced from the department. I mapped out the Costing Model to reflect the Departments totals, programme on emergency medical services as well as the sub-programme emergency transport. The focus of the costing model is to cost the key priorities, such as procurement of ambulances plus the conversions, emergency equipment, medical consumables, medical supplies and medicine.

Because the emergency services is of such a critical nature, training is key for implementation. The costing also include training on Basic Life Support, Intermediate Life Support, Advance Life Support and Emergency Driving Skills. Other costs include administration and operational costs incurred by the Communication Centres that handle the high call volumes. Other key costs include compensation of employees, licencing costs, fleet services etc.

Due to the fiscal constraint on a National, Provincial and Departmental sphere, funding must be utilised in an economical, efficient and effective manner within its current allocation. This is based on the principle, "Doing more with less" still enforcing value for money.

The Department has three options in the procurement of ambulances for efficiency gains. Option 1 include the procurement of 40 new ambulances, which will include operational and associated costs (staffing, licencing, training, equipment etc). These ambulances should replace the 37 dormant ones, while 3 is new. The rationalisation of the communication centres will create access staff amounting to 96, whereby some can be deployed and trained as emergency workers.

Option 2, firstly, repair ambulances involved in accidents with low millage and still in good condition which will reduce costs and generate revenue on ambulances with high millage by

means of sale/auctions. Establish the number of ambulances that need to be replaced in a phased-in approach and redirect staff from the rationalisation to man them.

Option 3, include the procurement of 40 new ambulances, scraping all dormant ambulances and generate revenue on the sales of the scrap and vehicle parts. Redeploy the access staff with no or few new appointments to man these ambulances.

If planning is effective, and these trade-offs implemented, a saving can be realised in the context of increased response time. The other savings can be generated from the decreased used in private ambulance services. Based on my analysis the best option is Option 2 as it is economical, cost effective and sustainable. This principle can be applied over the MTEF of future procurement.

7. Recommendations

The following is recommended:

- Integrated planning with the Department of Roads and municipalities to improve access roads;
- Cost benefit analysis to be done on the procurement of private ambulance services v/s public ambulance services in order to realise savings and feasibility;
- National Health to support, enhance and fund the EMS communication system to enable access to emergency services;
- Access staff from the rationalisation of the Communication Centres be deployed and trained as emergency workers to operationalise ambulances;
- Adopt the EMS Culture of Safety as a core value and support it in their programs and policies;
- Reconsider to change the performance outputs to be in line with the performance indicator on the response time and not coverage rate;
- Quality assurance should be strengthened on the reliability and validity of data captured by Communication Centre/s;
- That the Department consider, repairing ambulances involved in accidents with low millage and still in good condition which will reduce costs and generate revenue on ambulances with high millage by means of sale/auctions.
- Establish the number of ambulances that need to be replaced in a phased-in approach and redirect staff from the rationalisation to operate them.
- The mindset of EMS practitioners and other related staff need to be an embodiment of this critical emergency care service;
- Department of Health to do a feasibility study on the cost of public and private ambulance services;
- Supply chain processes should already be in place for the procurement of the replacement ambulances as well as the advertisement of key personnel and the implementation in the 2019/20 financial year;
- A plan of action should be devised to operationalise a few of the 27 ambulances within the 2019/20 financial year within budget.

8. Action

- Submit to Director: Budget Management,
- Present the Performance and Expenditure Review to the Senior Managers and Staff of Provincial Treasury: Sustainable Resource Management and Department of Health's Budget Committee Meeting;
- Follow up with Department of Health on the implementations of the findings and recommendations.