

2021

Medicine and Medical Supplies Efficiency Gains

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CLUSTER: HEALTH

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1. Key points

In 2020/21, the Eastern Cape Department of Health spent R3.67 billion on medicines and medical supplies. Expenditure on medicines accounted for 74% of this and expenditure on medical supplies accounted for 26% of this. In contrast in 2016/17, aggregated expenditure was R1.74, and expenditure on medicines accounted for 80% of the total.

Over the period 2016/17 and 2020/21, total expenditure on medicines and medical supplies grew at an annual rate of 21% per annum which is significantly higher than the average medical inflation of 8-11% per annum. Expenditure on medicines grew at a rate of 18% per annum, whilst expenditure on medical supplies grew at a rate of 28% per annum.

The above inflation growth rate for expenditure on medicines is mainly due to above inflation growth in expenditure in antiretroviral medicines, other medicines, and children immunisation vaccines. Respective average annual growth rates in each category were 16%, 28% and 11%. To put these numbers in context, participation in the province's ARV, immunisation, and TB programmes respectively grew by 4.8%, -21% and -1.3%.

The above inflation growth for expenditure on medicines is mainly due to a spike in year-on-year growth between 2019/20 and 2020/21. Prior to the covid pandemic, in 2019/20, year-on-year growth was 2.4%. In 2020/21, year-on-year growth accelerated to 48% per annum. This growth was due to high year-on-year growth in expenditure on PPE (3,210%), surgical medical gas (164%), surgical medical supplies (53.6%) and surgical consumables (38.5%).

In terms of expenditure per facility, the average expenditure on medicines per bed at the top ten facilities, ranged from R70,000-R86,000 per annum in 2020/21, compared to a 3 year average of R42,000 to R64,000 per annum. The higher-than-average range in 2020/21 illustrates the impact of the covid pandemic.

Due to a lack of access data from the MEDSAS system which would have allowed a more granular analysis of any potential wastage along the medicines and medical supply chain, further expenditure analysis focused on benchmarking the relationship between expenditure on ARV, vaccines and TB medicines and their key performance information. These group of medicines accounted for 59% of the province's expenditure on medicines.

The key findings from the review were as follows:

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1. A comparison of the Eastern Cape's expenditure per patient remaining on ARV treatment to other provinces, showed that the ECDoH could potentially have saved on the amounts paid in 2018/19 and 2020/21 as its expenditure per patient was significantly above the average cost of all the provinces. The amount that could have been saved is estimated at R166.4 million in 2018/19 and R206.6 million in 2020/21.
2. *With respect to expenditure on vaccines for children immunisation*, when comparing expenditure per number of doses, the Eastern Cape spent R791 more per dose administered when compared to the benchmark group average of R1,499 per dose. Considering the number of vaccines that were administered in 2019/20 (184,168) the potential savings were estimated at R145.6 million.
3. *With respect to expenditure on TB Medicines*, the analysis showed that in 2019/20 the Eastern Cape was one of the top performers in terms of expenditure per patient. Its expenditure of R1,458 per patient was significantly below the average of R2,125 per patient. However, whilst there was no benchmark data available for 2020/21, the province's expenditure per patient had increased above the 2019/20 average across the benchmark group.

Based on the above findings, the following is recommended:

1. The department should review and analyse the reasons why there was so much abnormality in expenditure for ARV's in 2018/19 and 2020/21, and vaccines in 2019/20 in comparison to other provinces, this will ensure that the department realises the savings of R166 million and R206 million is possible for medicine and R145 million for vaccines.
2. The department's budget allocation should be based on a standardised expenditure per patient which should be based on a national average or the best performing provinces.
3. The department should report on the quantities of medicines purchased and disposed off (i.e., stock written off) so that the level of waste in the supply chain can be quantified. This could explain the discrepancies in the expenditure per patient and/or actual doses administered. It was anticipated that this information would be available in the MEDPAS data that was not provided to the project team.

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2. Executive Summary

Medicine and medical supplies are key expenditure components for the Department of Health. On average, the department annual spend on medicine and medical supplies amounts to R1.98 billion and R630 million respectively.

The original intent of this spending review was to determine if there is:

- Wastage in this area by analysing the stock at the 2 depots on the MEDSAS system to find out amongst others the stock availability to both depots, frequency of stockouts, and disposals due to expiration of stocks.
- Overstocking of certain items which results in the crowding out of resources for other goods and services.
- Savings to be realised in these items based on the medicine that expires or based on using a National transversal contract or awarded tenders in the case of medical supplies.

The above analysis was to be done by comparing the actual budgets, actual expenditure, and opening and closing stock data from the MEDSAS system. The analysis was also meant to be supported by an expenditure analysis of the past three years, site visits, and virtual interviews with depots managers and health facilities management

Due to the lack of access to data from the MEDSAS system, the analysis of the expenditure was restricted to benchmarking province's expenditure and expenditure outcomes against the other provinces. This was done for the province's expenditure on ARV, vaccines for children immunisation programmes, and TB programmes. These group of medicines accounted 59% of the province's expenditure on medicines.

Over the last three years the province has had an average of 522,656 patients per year staying on ARV treatments, 188,585 children receiving 1st and 2nd doses measles doses, and 32,490 patients who started TB programmes. These indicators are key expenditure drivers for this expenditure category.

Prior to the benchmarking analysis, the following observations were made with regards to the key trends within the expenditure category:

1. Between 2016/17 and 2020/21, total expenditure on medicines and medical supplies grow at an annual rate of 21% per annum which is significantly higher than the average

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medical inflation of 8-11% per annum. Expenditure on medicines grew at a rate of 18% per annum and expenditure on medical supplies grew at a rate of 28% per annum.

2. The above inflation growth rate for expenditure on medicines is mainly due to above inflation growth in expenditure in antiretroviral medicines, other medicines, and children immunisation vaccines. Respective average annual growth rates in each category were 16%, 28% and 11%. In contrast, participation in the province's ARV, immunisation, and TB programmes respectively grew by 4.8%, -21% and -1.3% between 2017/18 and 2020/21.
3. The above inflation growth for expenditure on medicines is mainly due to a spike in year-on-year growth between 2019/20 and 2020/21. Prior to the covid pandemic, in 2019/20, year-on-year growth was 2.4%. In 2020/21, year-on-year growth accelerated to 48% per annum. This growth was due to high year-on-year growth in expenditure on PPE (3,210%), surgical medical gas (164%), surgical medical supplies (53.6%) and surgical consumables (38.5%).
4. In terms of expenditure per facility, the following facilities made up the top ten facilities in terms of expenditure on medicines Livingstone Tertiary Hospital, Frere Tertiary Hospital, Nelson Mandela Academic Hospital, Dorah Nginza Hospital, PE Provincial Hospital, Buffalo City Clinics, Frontier Hospital, Cecilia Makiwane Hospital, Mthatha General Hospital. The average expenditure on medicines per bed at these facilities ranged from R70,000-R86,000 per annum, compared to a 3-year average of R42,000 to R64,000 per annum. This change in the expenditure per bed, illustrates the impact of the Covid pandemic on the province's expenditure on medicines.

Due to a lack of access to data from the MEDSAS system which would have allowed a more granular analysis of any potential wastage along the value chain, further expenditure analysis focused on benchmarking the relationship between expenditure on ARV, vaccines for children immunisation programmes, and TB programmes and their key performance information. These group of medicines accounted 59% of the province's expenditure on medicines.

The key findings from this benchmarking were as follows:

1. A comparison of the Eastern Cape's expenditure per patient remaining on ARV treatment to other provinces, showed that the ECDoH could potentially have saved on the amounts paid in 2018/19 and 2020/21 as its expenditure per patient was significantly above the average cost of all the provinces. The amount that could have been saved is estimated at R166.4 million in 2018/19 and R206.6 million in 2020/21.
2. *With respect to expenditure on vaccines for children immunisation*, when comparing expenditure per number of doses, the Eastern Cape spent R791 more per dose

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administered when compared to the benchmark group average of R1,499 per dose. Considering the number of vaccines that were administered in 2019/20(184,168) the potential savings were estimated at R145.6 million.

3. ***With respect to expenditure on TB Medicines***, the analysis showed that in 2019/20 the Eastern Cape was one of the top performers in terms of expenditure per patient. Its expenditure of R1,458 per patient was significantly below the average of R2,125 per patient. However, whilst there was no benchmark data available for 2020/21, the province's expenditure per patient had increased above the 2019/20 average across the benchmark group.

Based on the above findings, the following is recommended:

1. The department should review and analyse the reasons why there was so much abnormality in expenditure for ARV's in 2018/19 and 2020/21, and vaccines in 2019/20 in comparison to other provinces, this will ensure that the department realises the savings of R166 million and R206 million is possible for medicine and R145 million for vaccines.
2. The department's budget allocation should be based on a standardised expenditure per patient which should be based on a national average or the best performing provinces.
3. The department should report on the quantities of medicines purchased and disposed off (i.e., stock written off) so that the level of waste in the supply chain can be quantified. This could explain the discrepancies in the expenditure per patient and/or actual doses administered. It was anticipated that this information would be available in the MEDPAS data that was not provided to the project team.

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3. Introduction

Medicine and medical supplies are key expenditure components for the Department of Health. On average, the department spend on medicine, medical supplies and blood products amounts to R2.324 billion per year R1.068 billion per year and R147 million per year respectively

The original intent of this spending review was to determine:-

- if there is a wastage in this area by analysing the stock at the 2 depots on the medsas system to find out amongst others the stock availability to both depots, frequency of stockouts, and disposals due to expiration of stocks.
- if there is overstocking of certain items which results in the crowding out of resources for other goods and services.
- if there could be savings realised in this item based on the medicine that expires or based on using a National transversal contract or awarded tenders in the case of medical supplies.

The above analysis was to be done by comparing the actual budgets, actual expenditure, and opening and closing stock data from the MEDSAS system. The analysis was also meant to be supported by an expenditure analysis of the past three years, site visits and virtual interviews with depots managers and health facilities management

Due to the lack of access to data from the MEDSAS system, the analysis of the expenditure was restricted to benchmarking province's expenditure and expenditure outcomes against the other provinces. This was done for the province's expenditure on ARV, vaccines for children immunisation programmes, and TB programmes. These group of medicines accounted 59% of the province's expenditure on medicines.

4. Policy and Institutional Information

Policy Framework

The key pieces of legislations that govern the provision of medicines, medical supplies and blood products include:

- Section 27 of the Constitution which states that no one may be refused emergency medical treatment.

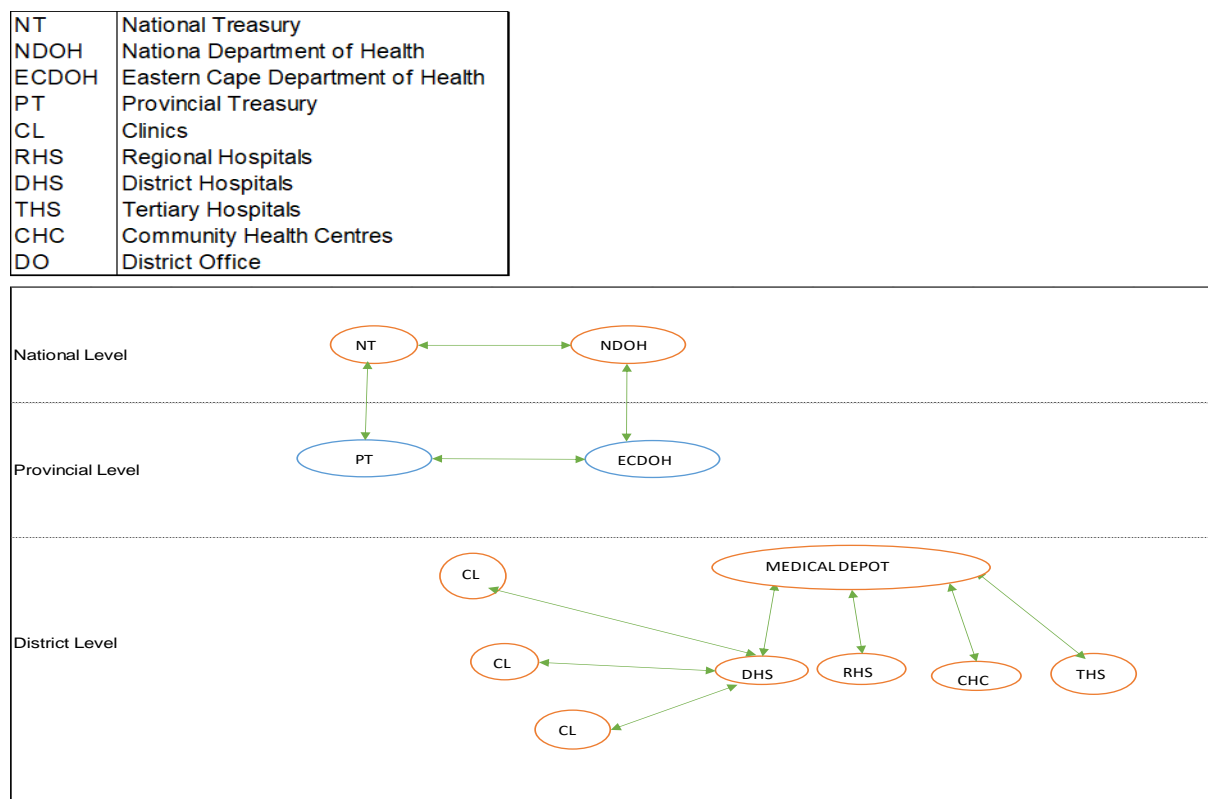
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- The National Health Act, 2003 (Act no 61 of 2003) which provides a framework for a structured uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial, and local spheres of government with regard to health services.
- The Medicines and Related Substances Act, 1965 (Act no 101 of 1965) which provides for the registration of medicines and other medicinal products to ensure their safety, quality, and efficacy, and also provides for transparency in the pricing of medicines.
- The Pharmacy Act, 1974 (Act no 53 of 1974) which provides for the regulation of the pharmacy profession, including community service by pharmacists.

The key role players in the medicines and medical supplies value chain are shown in the figure below.

Figure 1: Medicines and Medical Supplies Institutional Map



With regards to the powers to make decisions on, and implement savings at a department or programme level, the Chief Director: Pharmaceuticals Services and the Chief Director: Clinical Support Services are responsible for budget approvals and allocations to the districts, sub districts, and facilities. It is also the responsibility of the above Chief Directors to ensure that the budget is spent as per PFMA and is monitored on a monthly basis.

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The Chief Directorates require the following resources in order to ensure that services are rendered:

1. Skilled personnel;
2. Reliable systems to capture budget;
3. LOGIS system to create order, BAS system to pay suppliers; and
4. Reliable monitoring tool.

On average, the annual budget allocations for medicine and medical supplies are R2 billion and R1 billion respectively.

The Director: Pharmaceutical Services is responsible for the preparation of procurement plans, and consultation with the relevant consultants and experts (e.g., Legal, Medical) and the National Department of Health. The Directorate is also responsible for the review, renewal, and cancellation of contracts.

Depot Managers, are responsible for:

1. Monitoring the stock levels of obsolete, acute (chronicle), and non-chronicle goods;
2. Monitoring orders received from facilities, orders placed with service providers, orders dispatched to facilities, orders that have not reached hospitals / lost in transit and orders outstanding from the service provider;
3. Recruitment for pharmaceutical posts at depots and institutions;
4. Roll out of the remote demand management module for electronic medicines and consumables ordering;
5. Monitoring distribution contract performance in all depots;
6. Monitoring the maintenance of essential medicine buffer stock at depots and facilities;
7. Monitoring the improvement of infrastructure facilities to meet good pharmacy practice;
8. Expanding direct delivery to facilities; and
9. Purchase of vaccine fridges and cooler boxes.

5. Delivery Processes and Logical Frameworks

With reference to the logical framework and business process maps shown in appendices, the key outputs associated with the medicine and medical supplies delivery process include:

1. Budget for medicine and medical supplies is determined;
2. Procurement plans are developed;
3. Contracts for medicine, medical supplies including blood products are concluded;
4. Medical supplies and medicine available in depots;

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5. Medical supplies and medicine available in health facilities; and
6. Medical supplies and medicine issued to the patients.

The key performance indicators associated with these outputs include:

1. the number of contracts renewed /reviewed or cancelled
2. the % of stock level at depots; and
3. the number of medical implants including wheelchairs and hearing aids issued.

6. Non-Financial Performance Analysis

Key drivers of the quantities of medicines and medical supplies used at the provinces health facilities include:

1. Average length of (patient's) stay at a health hospital
2. Inpatient (approved) bed utilisation rate
3. Inpatient beds approved - total
4. Patient Day Equivalent
5. Day patient - total
6. Inpatient days - total
7. Inpatient deaths - total
8. OPD headcount - sum

An overview of these indicators for regional, district, and tertiary hospitals is provided in the tables below. The expenditure analysis attempts (pending data availability) assesses the variation in expenditure with these indicators across a number of locations.

Table 1: Drivers of expenditure on medicines and medical supplies at regional hospitals

Data Element	Facility Type	Facility	Unit	FY 20/21 Results
Average length of stay – total	Regional Hospital	Cecilia Makiwane Hospital	Days	6
Average length of stay – total	Regional Hospital	Dora Nginza Hospital	Days	6
Average length of stay – total	Regional Hospital	Frontier Hospital	Days	5
Average length of stay – total	Regional Hospital	Mthatha General Hospital	Days	5
Average length of stay – total	Regional Hospital	St Elizabeth's Hospital	Days	5
Inpatient (approved) bed utilisation rate	Regional Hospital	Cecilia Makiwane Hospital	Percentage	48
Inpatient (approved) bed utilisation rate	Regional Hospital	Dora Nginza Hospital	Percentage	70
Inpatient (approved) bed utilisation rate	Regional Hospital	Frontier Hospital	Percentage	54
Inpatient (approved) bed utilisation rate	Regional Hospital	Mthatha General Hospital	Percentage	56

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Data Element	Facility Type	Facility	Unit	FY 20/21 Results
Inpatient (approved) bed utilisation rate	Regional Hospital	St Elizabeth's Hospital	Percentage	57
Inpatient days - total	Regional Hospital	Cecilia Makiwane Hospital	Number	37 153
Inpatient days - total	Regional Hospital	Dora Nginza Hospital	Number	49 858
Inpatient days - total	Regional Hospital	Frontier Hospital	Number	19 805
Inpatient days - total	Regional Hospital	Mthatha General Hospital	Number	21 760
Inpatient days - total	Regional Hospital	St Elizabeth's Hospital	Number	18 774
Inpatient deaths - total	Regional Hospital	Cecilia Makiwane Hospital	Number	628
Inpatient deaths - total	Regional Hospital	Dora Nginza Hospital	Number	743
Inpatient deaths - total	Regional Hospital	Frontier Hospital	Number	397
Inpatient deaths - total	Regional Hospital	Mthatha General Hospital	Number	310
Inpatient deaths - total	Regional Hospital	St Elizabeth's Hospital	Number	189
Inpatient discharges - total	Regional Hospital	Cecilia Makiwane Hospital	Number	4 977
Inpatient discharges - total	Regional Hospital	Dora Nginza Hospital	Number	7 454
Inpatient discharges - total	Regional Hospital	Frontier Hospital	Number	3 875
Inpatient discharges - total	Regional Hospital	Mthatha General Hospital	Number	3 967
Inpatient discharges - total	Regional Hospital	St Elizabeth's Hospital	Number	3 488
OPD headcount - sum	Regional Hospital	Cecilia Makiwane Hospital	Number	43 970
OPD headcount - sum	Regional Hospital	Dora Nginza Hospital	Number	20 087
OPD headcount - sum	Regional Hospital	Frontier Hospital	Number	21 870
OPD headcount - sum	Regional Hospital	Mthatha General Hospital	Number	20 452
OPD headcount - sum	Regional Hospital	St Elizabeth's Hospital	Number	11 409

The Programme overspend its budget every year because of a demand for services.

Table 2: Drivers of expenditure on medicines and medical supplies at tertiary hospitals

Data Element	Facility Type	Facility	Unit	FY 20/21 Results
Average length of stay - total	Provincial Tertiary Hospital	Frere Hospital	Days	5
Average length of stay - total	Provincial Tertiary Hospital	Livingstone Hospital	Days	6
Average length of stay - total	Provincial Tertiary Hospital	Port Elizabeth Provincial Hospital	Days	6
Inpatient (approved) bed utilisation rate	Provincial Tertiary Hospital	Frere Hospital	Percentage	61
Inpatient (approved) bed utilisation rate	Provincial Tertiary Hospital	Livingstone Hospital	Percentage	47
Inpatient (approved) bed utilisation rate	Provincial Tertiary Hospital	Port Elizabeth Provincial Hospital	Percentage	33
Inpatient days - total	Provincial Tertiary Hospital	Frere Hospital	Number	78 597
Inpatient days - total	Provincial Tertiary Hospital	Livingstone Hospital	Number	36 717
Inpatient days - total	Provincial Tertiary Hospital	Port Elizabeth Provincial Hospital	Number	9 784
Inpatient deaths - total	Provincial Tertiary Hospital	Frere Hospital	Number	887

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Inpatient deaths - total	Provincial Hospital	Tertiary	Livingstone Hospital	Number	646
Inpatient deaths - total	Provincial Hospital	Tertiary	Port Elizabeth Provincial Hospital	Number	45
Inpatient discharges - total	Provincial Hospital	Tertiary	Frere Hospital	Number	11 377
Inpatient discharges - total	Provincial Hospital	Tertiary	Livingstone Hospital	Number	4 537
Inpatient discharges - total	Provincial Hospital	Tertiary	Port Elizabeth Provincial Hospital	Number	1 505
OPD headcount - sum	Provincial Hospital	Tertiary	Frere Hospital	Number	99 624
OPD headcount - sum	Provincial Hospital	Tertiary	Livingstone Hospital	Number	30 066
OPD headcount - sum	Provincial Hospital	Tertiary	Port Elizabeth Provincial Hospital	Number	17 877

In addition to the above facility level expenditure drivers for expenditure on medicines and medical supplies, table 3 below provides an overview of key expenditure drivers for the province's expenditure on its ARV, TB, and immunisation medicines.

Table 3: Expenditure drivers for outpatient medicine expenditure

Province	2016/17	2017/18	2018/19	2019/20	2020/21
Patients remaining on ARV Treatment	412 559	452 072	493 810	531 804	542 355
No of 1st and 2nd measles doses		-	234 228	184 868	146 658
Patients who started TB Programme			33 746	30 836	32 893

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8. Expenditure Observations

Overview of province's expenditure on medicines and medical supplies

The table below shows expenditure for the past 5 years for both medicine and medical supplies products. Medicine expenditure has grown from R1.386 billion in 2016/17 to R2.705 billion in 2020/21. This represents an average annual growth rate of 18% per annum which is significantly higher the medical inflation rate of 8-11% p.a. Expenditure on medical supplies grew from R354.7 million in 2016/17 to R968.5 million in 2020/21. This represents an average annual growth of 29 % per annum.

Table 4: Expenditure on medicines and medical supplies
(Rand)(2016/17 to 2020/21)

Expenditure Category	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	5 Year CAGR
Medicines	1 386 477 278	1 993 381 331	1 672 165 789	2 138 522 082	2 705 122 668	18%
Medical Supplies	354 751 794	538 972 617	635 758 398	651 040 481	968 467 529	29%
Total	1 741 229 072	2 532 353 948	2 307 924 187	2 789 562 563	3 673 590 197	21%

Source: BAS Analysis

With reference to the tables below, expenditure on medicines can be grouped into 5 categories - antiretrovirals, vaccines, anti-TB medicines, large volume parentals, contraceptives, and other medicines. Expenditure on antiretrovirals (43% of the 2020/21 total), other medicines (40%), vaccines (13.3%) and anti-TB medicines (2.6%) collective account for 99% of the province's expenditure on medicines.

Table 5: Categorisation of expenditure on medicines

Expenditure category	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	20/21 Share of total
Antiretroviral medicine	633 195 823	713 940 210	950 373 645	744 379 897	1 165 621 379	43%
Other medicine	406 448 441	919 173 274	311 756 086	895 959 370	1 078 193 585	40%
Vaccines	242 281 445	235 985 109	321 012 344	423 435 663	361 761 672	13%
Anti-TB medicines	85 904 240	102 363 776	62 372 514	44 963 959	70 471 938	3%
Large volume parenterals	18 647 329	21 239 690	25 179 893	25 310 230	23 300 441	1%
Contraceptives*	0	679 272	1 471 307	4 472 963	5 773 653	0%
Total	1 396 429 535	2 007 545 572	1 672 320 556	2 138 874 430	2 705 122 668	100%

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In terms of expenditure growth, only TB medicines showed a negative growth of -5 per cent when comparing expenditure from 2016/17 to 2020/21. Expenditure on other medicines and ARV's have grown significantly higher than medical inflation rate of 8-11% over the period. Amongst others, a reason for the high growth in expenditure on ARVs is the increase of patients remaining on ART care, which grew from 452,072 in 2017 to 2020/21 to 542,355 respectively.

Table 6: Year on Year and Average Annual Growth in expenditure on medicines

Expenditure category	16/17 - 17/18 YoY	17/18 - 18/19 YoY	18/19 - 19/20 YoY	19/20 - 20/21 YoY	5 Year CAGR
Antiretroviral medicine	12.8%	33.1%	-21.7%	56.6%	16.5%
Other medicine	126.1%	-66.1%	187.4%	20.3%	27.6%
Vaccines	-2.6%	36.0%	31.9%	-14.6%	10.5%
Anti-TB medicines	19.2%	-39.1%	-27.9%	56.7%	-4.8%
Large vol parenterals	13.9%	18.6%	0.5%	-7.9%	5.7%
Contraceptives*	-	116.6%	204.0%	29.1%	104.1%
Total	43.8%	-16.7%	27.9%	26.5%	18.0%

*CAGR based on 4 years

Expenditure on medical supplies can be grouped into 5 categories. Using 2020/21 as the reference year, the most significant categories are surgical consumables(37% of the total spend), surgical medical supplies (19%); blood products (15%); and personnel protective clothing (12%). These categories accounted for 83% of the total expenditure on medical supplies in 2021.

Table 7: Categorisation of expenditure on medical supplies

Expenditure Category	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	20/21 share of total
Surgical consumables	233 586 759	212 688 018	261 245 318	257 355 372	356 445 089	37%
Surgical/medical supplies*		98 819 561	123 143 619	120 804 774	185 532 035	19%
Blood products & platelets	115 945 985	130 789 515	136 863 388	142 996 885	147 240 372	15%
Disposal gloves and sundries	5 219 050	4 762 845	7 182 686	3 487 115	115 425 144	12%
Surgical implants and prothesis*	0	71 984 414	85 130 798	97 130 428	86 484 592	9%
Medical gas*	0	19 928 264	22 192 589	29 265 907	77 340 297	8%
Total	354 751 794	538 972 617	635 758 398	651 040 481	968 467 529	100%

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In terms of expenditure growth from 2016/17 to 2020/21, year on year growth for each category of medical supplies has been fairly erratic. Whilst the double digit growth between 2017/18 and 2018/19 was reduced to single digit year on year growth in 2019/20, there was significant acceleration in expenditure growth in 2020/21 due to the covid pandemic. As a result, the year on year growth of 48% per annum between 2019/20 and 2020/21 is the main reason behind the higher 5 year annual growth rate of 28%. The growth in expenditure in PPE from R3.4 million in 2019/20 to R115 million in 2020/21 accounted for a third of the 2020/21 year on year growth. The remainder was due to significant growth in surgical consumables and surgical medical supplies. Expenditure on medical gases also had high growth, albeit from a relatively lower base.

Table 8: Year on Year and Average Annual Growth in expenditure on medical supplies

Expenditure category	16/17 - 17/18 YoY	17/18 - 18/19 YoY	18/19 - 19/20 YoY	19/20 - 20/21 YoY	5 Year CAGR
Surgical consumables	-8.9%	22.8%	-1.5%	38.5%	11.1%
Surgical/medical supplies*		24.6%	-1.9%	53.6%	23.4%
Blood products & platelets	12.8%	4.6%	4.5%	3.0%	6.2%
Disposal gloves and sundries	-8.7%	50.8%	-51.5%	3210.0%	116.9%
Surgical implants and prothesis*		18.3%	14.1%	-11.0%	6.3%
Medical gas*		11.4%	31.9%	164.3%	57.1%
Total	51.9%	18.0%	2.4%	48.8%	28.5%

*CAGR based on 4 years

Breakdown of expenditure by district and facility type

The table below shows expenditure from 2016/17 to 2020/21 by district for medicine. All the districts showed huge growth with Buffalo City and OR- Tambo Nelson Mandela growing at 20 % and Alfred Nzo at 19%.

Table 9: Distribution of expenditure on medicines by districts (Rand) (2016/17 to 2020/21)

DISTRICTS	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	5 Year CAGR
Head Office	667 084 254	804 397 954	994 781 473	947 005 452	1 274 146 187	18%
Alfred Nzo	66 790 156	93 853 557	75 824 068	104 056 576	132 229 408	19%
Amatole	92 251 748	119 667 643	90 719 450	120 071 206	145 189 744	12%
Buffalo City	96 846 914	169 174 061	84 442 658	203 387 676	205 309 125	21%
Chris Hani	84 855 154	131 629 536	86 580 748	132 406 180	163 329 407	18%
Joe Gqabi	36 282 069	41 515 485	33 136 764	44 390 592	54 846 951	11%

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Nelson Mandela Bay	160 942 329	307 487 877	94 786 753	281 804 403	334 496 154	20%
O.R. Tambo	145 235 232	268 162 586	164 448 038	235 807 401	311 675 254	21%
Sarah Baartman	46 141 679	71 656 874	47 600 605	69 944 944	83 900 439	16%
Total	1 396 429 535	2 007 545 572	1 672 320 556	2 138 874 430	2 705 122 668	18%

The table below shows medical supplies expenditure by district. Head Office, in which the COVID-19 expenditure was centralised, shows an expenditure growth 46% per annum. This is mainly attributed to the exponential growth in expenditure in 2020/21. Expenditure in Alfred Nzo and OR Tambo grew by an average of 12 % per annum and Sarah Baartman grew at 10 per cent.

Table 10: Distribution of expenditure on medical supplies by districts (Rand) (2016/17 to 2020/21)

DISTRICTS	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	5 Year CAGR
Head Office	63 496 252	68 762 366	54 361 976	64 275 029	292 040 044	46%
Alfred Nzo	22 179 969	21 105 166	27 996 589	24 840 597	34 710 632	12%
Amatole	30 044 564	25 235 033	35 616 185	32 146 171	37 112 294	5%
Buffalo City	158 027 187	132 781 792	159 324 249	168 218 391	175 116 795	3%
Chris Hani	37 553 260	33 678 604	43 780 951	44 694 363	43 032 699	3%
Joe Gqabi	11 394 981	10 618 358	13 154 704	13 891 134	14 938 272	7%
Nelson Mandela Bay	221 307 955	209 520 507	246 270 684	255 707 304	245 623 236	3%
O.R. Tambo	148 421 539	155 789 118	166 749 896	158 699 805	235 189 170	12%
Sarah Baartman	22 185 797	23 058 056	26 020 379	26 026 401	32 179 664	10%
Total	714 611 505	680 549 001	773 275 613	788 499 195	1 109 942 806	12%

In terms of expenditure at the top 10 hospital facilities, when comparing expenditure from 2016/17 to 2020/21 for medicine, only Buffalo City Clinics, Nelson Mandela Academic Hospital, and PE Provincial had negative growths of -9%,-5% and -3% respectively. Expenditure growth at other facilities was positive.

Table 11: Expenditure trends on medicines at the top 10 facilities

FACILITIES	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	5 Year CAGR	Expenditure Per Bed	
							2020/21	3year average

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DIR: HIV/AIDS & STD MANGT	666 707 661	796 455 183	971 772 846	922 701 645	1 254 252 546	17%		
Livingstone Tertiary Hospital		61 929 522	11 016 946	60 619 224	76 553 912	5%	85 919	55 440
Frere Tertiary Hospital		55 001 119	17 989 718	83 754 726	65 115 935	4%	75 018	64 078
Nelson Mandela Academic Hosp		53 068 651	10 614 352	51 356 081	43 074 491	-5%	74,782	60,789
Dorah Nginza Hospital		33 633 718	7 558 217	34 343 089	39 923 124	4%	70 041	47 851
PE Provincial Hospital		43 692 769	6 977 979	44 159 335	39 311 146	-3%	n/a	n/a
Buffalo City Clinics	40 742 006	23 906 623	19 415 383	21 190 832	27 867 862	-9%	n/a	n/a
Frontier Hospital	12 996 236	17 437 449	3 114 486	15 903 438	23 408 128	16%	78 815	47 616
Cecilia Makiwane Hospital	11 674 208	24 926 236	- 1 206 832	26 117 591	23 077 084	19%	39 381	27 297
Mthatha General Hospital	6 312 861	18 117 043	4 070 851	12 124 939	22 008 994	37%	72 877	42 169
TOTAL MEDICINE	1 396 429 535	2 007 545 572	1 672 320 556	2 138 874 430	2 705 122 668	18%		

The table above also shows the expenditure per bed at these facilities in 2020/21 and over the three preceding years. In 2020/21 Livingstone Hospital had the highest expenditure per bed of R86,000 per bed. In general, in 2020/21 expenditure per bed ranged from R70,000 – R86,000 per bed with the exception of Cecilia Makiwane Hospital where the expenditure per bed was as low as R39,000. The 2020/21 expenditure per bed was significantly higher than the 3-year average at each facility. This was most pronounced at Mthatha General Hospital, Frontier Hospital, and Dorah Nzinga Hospital.

Comparison of expenditure to key performance indicators

Interprovincial benchmarking of expenditure on anti-retroviral medicines

The Eastern Cape has had one of the fastest growth in expenditure on ARV medicines over the period 2016/17 to 2020/21. The fastest growth rate of 20% was in Mpumalanga. The second fastest growth rates of 16% per annum were recorded in the Eastern Cape and Free State. The average growth rate across all provinces for the 5 year period was 12% per annum.

Table 12: Expenditure on ARV Medicines across the benchmark group

Province	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	5 year CAGR
Eastern Cape	633 195 823	713 940 210	950 373 645	744 379 897	1 165 621 379	16%
Free State	332 815 242	410 350 018	415 169 248	409 032 873	597 430 784	16%
Gauteng	1 432 525 677	1 635 047 190	1 666 530 705	1 760 197 257	1 895 205 235	7%
KwaZulu Natal	1 616 230 071	1 894 401 241	2 070 442 361	2 090 559 611	2 411 169 074	11%
Limpopo	361 530 830	443 137 197	607 376 623	511 389 818	626 893 552	15%
Mpumalanga	547 256 535	782 785 756	933 825 113	911 219 510	1 148 099 474	20%
North West	273 788 765	333 729 827	321 153 896	392 751 929	465 995 226	14%
Northern Cape	94 744 563	136 793 083	96 950 019	121 401 975	122 746 301	7%
Western Cape	293 143 816	384 092 997	340 387 359	333 593 307	418 147 263	9%

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Province	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	5 year CAGR
Grand Total	5 585 231 323	6 734 277 518	7 402 208 970	7 274 526 177	8 851 308 287	12%

With reference to the figure below, the average expenditure growth across all provinces for the period 2016/17 to 2020/21 exceeded the growth in the number of patients remaining on ART over the same period by 4%. However, provinces such as Mpumalanga (11%), Eastern Cape (9%), and Limpopo (8%) had significantly higher differentials between the expenditure growth and the growth in the number of programme beneficiaries.

Figure 2: Comparison of ARV expenditure growth and patients remaining on ART

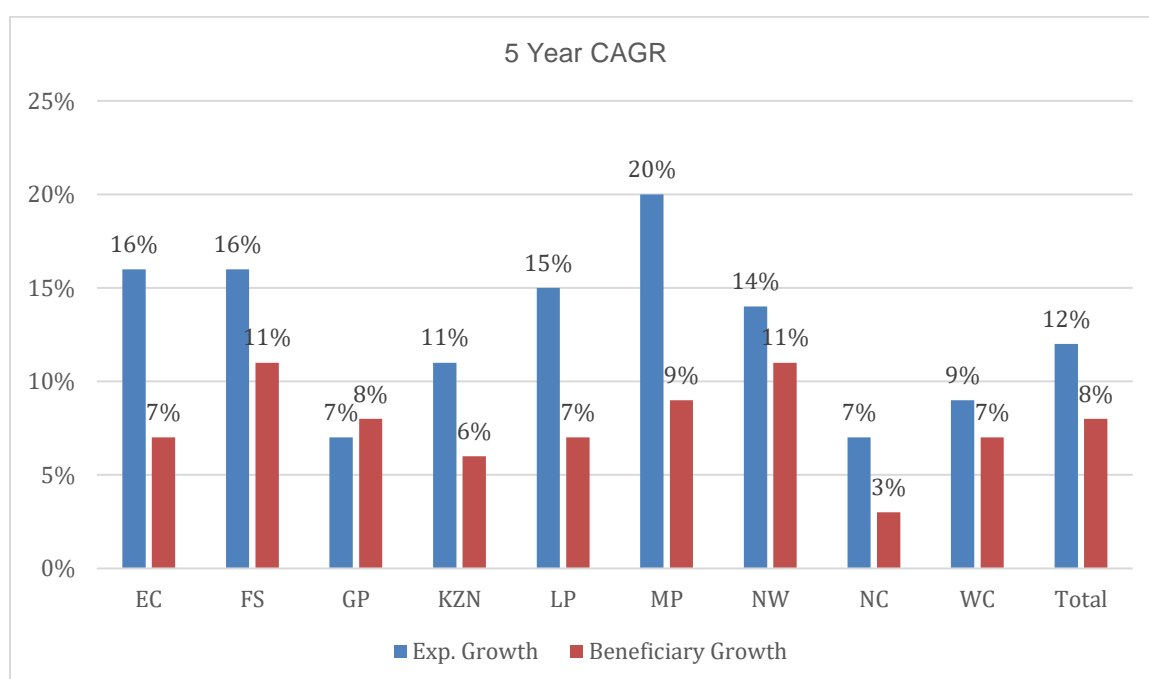


Table 13: Patients remaining on anti-retroviral treatment across benchmark group

Province	2016/17	2017/18	2018/19	2019/20	2020/21	5 Year CAGR
EC	412 559	452 072	493 810	531 804	542 355	7%
FS	197 756	246 002	273 392	294 188	296 971	11%
GP	823 170	926 829	1 037 212	1 119 685	1 136 662	8%
KZN	1 181 691	1 271 116	1 387 688	1 486 821	1 508 336	6%
LP	305 421	329 044	356 915	381 792	394 335	7%
MP	377 288	411 905	464 562	514 605	531 276	9%

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NW	222 865	236 856	278 802	315 074	339 672	11%
NC	55 181	57 429	59 347	65 592	62 471	3%
WC	230 263	256 821	278 290	300 470	299 357	7%
Total	3 806 194	4 188 074	4 630 018	5 010 031	5 111 435	8%

Table 14: ARV Expenditure per ART Beneficiary (Rands per annum) (2016/17 to 2020/21)

Province	2016/17	2017/18	2018/19	2019/20	2020/21	5 Year CAGR
EC	1 535	1 579	1 925	1 400	2 149	8.8%
FS	1 683	1 668	1 519	1 390	2 012	4.6%
GP	1 740	1 764	1 607	1 572	1 667	-1.1%
KZN	1 368	1 490	1 492	1 406	1 599	4.0%
LP	1 184	1 347	1 702	1 339	1 590	7.6%
MP	1 451	1 900	2 010	1 771	2 161	10.5%
NW	1 228	1 409	1 152	1 247	1 372	2.8%
NC	1 717	2 382	1 634	1 851	1 965	3.4%
WC	1 273	1 496	1 223	1 110	1 397	2.4%
Average	1 464	1 671	1 585	1 454	1 768	4.8%

The table below shows the cost per beneficiary for ART programmes by comparing the number of patients remaining on ART to the expenditure on ARV medicines over the 2016/17 to 2020/21. The table shows that the average growth in expenditure per beneficiary for the country was 4.8% per annum. However, in Mpumalanga (10.5%), Eastern Cape (8.8%), and Limpopo (7.6%) were significantly higher than the average. In 2018/19, the Eastern Cape paid R337 more per beneficiary, compared to the National Average of R1,585. Similarly in 2020/21 the province spent R381 more per patient compared to the National average of R1,768. Matching the national average in these years would have generated savings of R166.413 million in 2018/19 and R206.637 million 2020/21.

Interprovincial benchmarking of expenditure on vaccines

The table below shows the combined number of measles dose issued by provinces for provinces where data is available. The table shows that in 2019/20 the Eastern Cape vaccinated 184,868 patients which was the 3rd highest after KwaZulu Natal(457,002) and Gauteng(432,036). Eastern Cape achieved 40% of what KZN could achieve.

Table 15: Combined number of 1st and 2nd Measle Doses

Year	2017/18	2018/19	2019/20	2020/21
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Eastern Cape	-	234 228	184 868	146 658
Gauteng	389 585	424 162	432 636	-
KwaZulu Natal	-	438 479	457 022	-
Limpopo Province	201 512	197 061	200 440	-
Mpumalanga	-	-	157 171	-
Western Cape	85 822	172 772	175 351	86 800
Grand Total	676,919	1,466,702	1,607,488	233,458

Source: Provincial Annual Reports

The table shows the expenditure by province on vaccines from 2017/18 to 2020/21. The table shows that in 2019/20, where there is performance information available for each province, the Eastern Cape, had the 3rd highest expenditure at R 423.4 million after Gauteng(R580.4 million).

Table 16: Expenditure on vaccines across benchmark group (R)

Year	2017/2018	2018/2019	2019/2020	2020/2021
Eastern Cape	235 985 109	321 012 344	423 435 663	361 761 672
Gauteng	504 322 683	683 217 489	705 714 767	730 718 268
KwaZulu Natal	409 290 861	530 370 418	580 383 777	695 284 755
Limpopo Province	268 523 536	317 598 997	272 803 527	320 866 228
Mpumalanga	57 309 619	10 994 417	233 139 750	255 511 743
Western Cape	135 329 524	156 531 950	168 880 258	204 937 657
Grand Total	1 863 392 043	2 335 602 635	2 607 273 007	2 892 122 612

Source: Provincial BAS Data

When comparing expenditure for the vaccines against the number of vaccine doses issued it shows that in 2019/20 the Eastern Cape spent R2,290 per dose which is significantly higher than Gauteng and KZN which respectively spent R1,631 per dose and R1,270 per dose. The average expenditure per dose across the benchmark group was R1,499. The Eastern Cape exceeded this average by R791 per dose.

Table 17: Expenditure per dose on children's vaccines

Year	2017/2018	2018/2019	2019/2020	2020/2021
Eastern Cape	-	1 371	2 290	2 467
Gauteng	1 295	1 611	1 631	-
KwaZulu Natal	-	1 210	1 270	-
Limpopo Province	1 333	1 612	1 361	-
Mpumalanga	-	-	1 483	-

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Western Cape	1 577	906	963	2 361
Grand Total	1 401	1 342	1 4990	2 414

Source: Team Analysis

Interprovincial benchmarking of expenditure on TB Medicine

The table below shows the number of TB patients who started on treatment amongst the benchmark group. In 2019/20 Eastern Cape had 30,826 patients who started treatment. This was the 3rd highest in the group behind KwaZulu Natal and Western Cape which respectively had 52,423 and 34,064 patients.

Table 18: Number of patients who started TB Treatment across benchmark group

Year	Eastern Cape	Gauteng	KwaZulu Natal	Limpopo Province	Western Cape
2017/18		30998		12346	33694
2018/19	33 746	28 705	58 411	10 340	32 886
2019/20	30 836	27 955	52 423	9 085	34 064
2020/21	32 893				

Source: Provincial Annual Reports

The table below shows expenditure on TB medicine from 2017/18 to 2020/21. The table shows that in 2019/20 Gauteng had the highest expenditure at R148.8 million, followed by KZN at R105.7 million. Western Cape was the 4th highest at R44.9 million, followed by the Eastern Cape which spent R51.6 million.

Table 19: Expenditure on TB medicines across benchmark group

Year	Eastern Cape	Gauteng	KwaZulu Natal	Limpopo	Western Cape	Grand Total
2017/2018	102 363 776	98 777 500	127 604 895	5 801 678	64 785 311	
2018/2019	62 372 514	87 729 461	95 190 791	4 787 293	38 655 794	288 735 853
2019/2020	44 963 959	148 797 523	105 723 758	2 809 647	51 636 935	353 931 823
2020/2021	70 471 938	74 306 927	93 466 879	2 827 001	49 644 935	290 717 680

Source: Provincial BAS Data

The table below shows the expenditure on TB medicine per person starting treatment. It shows that in 2019/20 Gauteng had the highest expenditure of R5,323, followed by KZN and Western C at R2 017 and R1 516 respectively. Eastern Cape was 4th R1,458.

Table 20: Expenditure on TB medicines per person starting treatment

Year	Eastern Cape	Gauteng	KwaZulu Natal	Limpopo Province	Western Cape	Average
2017/2018	-	3 187	-	470	1 923	1 860
2018/2019	1 848	3 056	1 630	463	1 175	1 634

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2019/2020	1 458	5 323	2 017	309	1 516	2 125
2020/2021	2 142	-	-	-	-	2 142

Source: Team Analysis

9. Summary of key findings and recommendations

Based on the preceding analysis the following findings are highlighted:

4. **With respect to expenditure on anti-retroviral medicines:** The non-availability of data has had a negative impact on the analysis of expenditure vs performance information. However, looking at the expenditure for ARVs across the benchmark group, and the average patient cost, the ECDoH could potentially have saved on the amounts paid in 2018/19 and 2020/21 as its expenditure per patient was significantly above the average cost of all the provinces. The amount that could have been saved is estimated at R166.4 million in 2018/19 and R206.6 million in 2020/21.
5. **With respect to expenditure on vaccines for children immunisation,** when comparing expenditure per number of doses, the Eastern Cape spent R791 more per dose administered when compared to the benchmark group average of R1,499 per dose. Considering the number of vaccines that were administered in 2019/20(184 168) the potential savings were estimated at R145.6 million.
6. **With respect to expenditure on TB Medicines,** the analysis showed that in 2019/20 the Eastern Cape was one of the top performers in terms of expenditure per patient. Its expenditure of R1,458 per patient was significantly below the average of R2,125 per patient. However, whilst there was no benchmark data available for 2020/21, the province's expenditure per patient had increased above the 2019/20 average across the benchmark group.

Based on the above findings, the following is recommended:

4. The department should review and analyse the reasons why there was so much abnormality in expenditure for ARV's in 2018/19 and 2020/21, and vaccines in 2019/20 in comparison to other provinces, this will ensure that the department realises the savings of R166 million and R206 million is possible for medicine and R145 million for vaccines.

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5. The department's budget allocation should be based on a standardised expenditure per patient which based on a national average.
6. The department should also report on the quantities of medicines purchased and disposed off (i.e., stock written off) so that the level of waste in the supply chain can be quantified. This could explain the discrepancies in the expenditure per patient and/or actual doses administered. It was anticipated that this information is available in the MEDPAS data that was not provided to the project team.

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