

2020

**COST EFFICIENCY: A WAY
FORWARD FOR HEALTH CARE**

*Creating economies of scale and cost
efficiencies in the procurement of goods
and services.*

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CLUSTER: HEALTH

NATIONAL TREASURY

Executive Summary













Spending on ancillary services, like medical waste, catering, laundry and security services accounted for 10% of the Health sector goods and services spending, and 22% of the nonmedicine non-laboratory budget for the 2019/2020 financial year. Efficiency gains could be realised through standardised procurement processes that reduce unit costs and achieve economies of scale.

This review looks specifically at the spending on the above four support services for the period 2017/18, 2018/19 and 2019/20. Data from BAS and PERSAL is used in this analysis. Expenditure for the purchase of goods and services is derived from BAS, while the compensation of employees working in the department is derived from payments in PERSAL.

The standardising of procurement processes will enable all provinces to track expenditure consistently. This will enable provinces to identify spending trends, investigate abnormal spending, and identify inefficiencies. This will allow provinces to track expenditure against patient activity, improving the budget allocation to better align with utilisation and encourage cost efficiency.

The expenditure of the services reviewed per health budget programmes is shown in the table below:

Table 1: Health Budget Programmes expenditure for the services under review

HEALTH BUDGET PROGRAMMES	MEDICAL WASTE	LAUNDRY	FOOD AND CATERING	SECURITY
NATIONAL PROGRAMMES				
DOH:HOSPITAL SYSTEMS	0%	8%	0%	0%
PROVINCIAL PROGRAMMES				
ADMINISTRATION	0%	1%	0%	2%
CENTRAL HOSPITAL SERVICES	 23%	 22%	 24%	9%
DISTRICT HEALTH SERVICES	 55%	 26%	 38%	 67%
EMERGENCY MEDICAL SERVICES	0%	1%	0%	3%
HEALTH CARE SUPPORT SERVICES	0%	 21%	2%	1%
HEALTH FACILITIES MANAGEMENT	0%	5%	1%	0%
HEALTH SCIENCE & TRAINING	0%	0%	0%	1%
PROVINCIAL HOSPITAL SERVICES	 22%	 17%	 36%	 17%
GRAND TOTAL	100%	100%	100%	100%

The above data has been extracted from BAS budget programmes¹. These support services directly link to the provision of health care services, therefore it is appropriate that the main drivers of expenditure are the central, district and provincial health service budget programmes. Medical waste, laundry and catering track patient activity at healthcare facilities;

¹ Please refer the Annexure 3 – BAS Data Details

therefore, it is appropriate that these costs link to the central, district and provincial health service budget programmes.

District health services is the largest spending area across all services; this is appropriate for the size of the service delivery platform managed at this level. Health care support services is another significant expenditure driver, this level often relates to initiatives designed to support the system for healthcare provision overall. As the spending on support services is largely at central, district and provincial health services, any interventions should be targeted at these levels.

Patient level data drawn from DHIS is used to estimate the unit cost of services. Patient activity indicates service utilisation and acts as a proxy to the unit cost of providing the service at a given utilisation rate. This allows comparisons between provinces and quantify potential savings.

The detailed expenditure analysis for the goods and services categories under review, revealed the following:

Table 2: Summary of cost per patient day equivalent per category (2019/20)

SUPPORT SERVICE	LOWEST COST PER PDE			HIGHEST COST PER PDE		LOWEST COST AS % OF HIGHEST COST	MEAN COST / SAVINGS AT PDE MEAN	
	COST PER PDE	PROVINCE		COST PER PDE	PROVINCE			
Medical Waste	R 9	FS		R 97	NC	10%	R 31	R 74 395 702
Laundry Services	R 22	MP		R 55	NW	39%	R 37	R 117 765 337
Food and Catering	R 47	LP/MP		R 133	NC	35%	R 85	R 120 015 870
Security Services*	R 76	WC		R 275	NC	28%	R 137	R 535 587 640

*The BAS expenditure for Mpumalanga department of health does not carry the full cost of security services, the expenditure is linked to a different department; therefore, its cost per pde is ignored.

Medical waste

Table 3: Spending on Medical Waste per category (2017/18 – 2019/20)

CATEGORY	2017/18	2018/19	2019/20	AAGR
Compensation Of Employees (Persal)	R 67 487 596	R 69 932 733	R 77 304 654	7%
Outsourced Med & Chem Waste Mgmt	R 480 492 494	R 563 003 170	R 613 604 527	13%
Inventories	R 10 734 086	R 3 120 886	R 6 264 879	15%
Grand Total	R 558 714 175	R 636 056 789	R 697 174 060	12%

Medical wastes are classified into two general classes: the general or, non-hazardous waste and the hazardous waste. The spending on waste, together with any chemicals, transportation or warehousing amounted to R1,9 billion over the period under review, averaging around R630 million annually with almost all (80%) of service being outsourced.

Medical waste spending, and the costs related to its management, should correlate to the patient load experienced in a province; however, the medical waste cost per patient day equivalent ranges significantly between provinces. This suggests that the cost of services across provinces differ significantly. Standardising the cost may provide an opportunity for cost savings and leveraging the best practise across provinces could lead to cheaper contracts.

Table 4: Medical Waste Management spending per patient day equivalent and inpatient day 2019/20 by province.

MED WASTE MNGT SPEND			VARIANCE			COST PER			VARIANCE
	COST PER PDE		FROM MEAN (R)			INPATIENT DAY		FROM MEAN (R)	
Northern Cape	R	97	-R	64	R	148	-R	99	
Mpumalanga	R	45	-R	12	R	73	-R	24	
North West	R	36	-R	3	R	49	R	0	
KwaZulu-Natal	R	27	R	7	R	37	R	11	
Limpopo	R	21	R	12	R	30	R	19	
Western Cape	R	15	R	18	R	20	R	28	
Gauteng	R	14	R	19	R	21	R	28	
Eastern Cape	R	11	R	22	R	16	R	33	
Free State	R	9	R	24	R	12	R	37	
	R	22			R	32			

National bargaining power should be leveraged in the form of a transversal contract, to negotiate cheaper prices and reasonable price escalations. Provinces should submit their active contracts for an in-depth review to inform a policy on the pricing structure for the service, develop a standardised price range for the service, and assess whether a transversal tender is viable. Alternatively, the national Department may issue regulations standardising the pricing.

Laundry Services

Table 5: Laundry services spending per category and the 3-year AAGR 2017/18 - 2019/20

CATEGORIES	2017/18	2018/19	2019/20	AAGR
Consumable supplies:lin & sof furnsh	R 177 740 969	R 172 904 314	R 197 719 809	6%
Compensation of employees	R 638 188 169	R 680 393 273	R 727 056 914	7%
Operational payments:laundry services	R 18 562 964	R 17 728 602	R 21 458 609	8%
Consumable supplies:wash/clean deter	R 221 260 723	R 268 029 100	R 274 813 718	12%
Property payments:laundry services	R 79 965 462	R 87 359 396	R 115 175 012	21%
Laundry equipment	R 8 867 536	R 16 077 960	R 55 516 791	163%
Grand total	R 1 144 585 823	R 1 242 492 645	R 1 391 740 853	10%

Expenditure on laundry services was R3,3 billion for the three years under review accumulating an average annual growth rate of 10% over the three years. The average spend in each year was R1,1 billion with the majority (57%) of the expenditure on public sector employees on PERSAL. Discerning which procurement method is more advantageous (between insourcing and outsourcing laundry services) would require further investigation. In the meantime, the focus should be on opportunities for transversal contracts in attempt to reduce and manage prices. There is significant expenditure on the purchase of laundry detergents, around R200 million annually; to realise savings, there is an opportunity to create a national tender for laundry detergents and laundry equipment. This could improve the management of prices and governance for laundry services procurement.

Food and Catering Services

Table 6: Spending on Food and Catering services per category (2017/18 – 2019/20)

CATEGORY	2017/18	2018/19	2019/20	AAGR
Outsource nutrition services	R 576 565 517	R 572 238 941	R 550 068 953	-2%
Food & food supplies	R 1 009 065 757	R 1 054 216 678	R 1 123 959 779	6%
Compensation of employees (persal)	R 693 602 515	R 769 163 009	R 845 303 564	10%
Crockery & cutlery	R 5 038 913	R 5 342 207	R 8 613 656	34%
Equipment	R 18 874 901	R 42 142 245	R 38 623 076	57%
Grand total	R 2 303 147 603	R 2 443 103 080	R 2 566 569 027	6%

R7,3 billion was spent on food and catering over the three years ended 2019/20, growing at an average rate of 6% over the period and remaining steady at an average of R2,4 billion per year. A significant portion of spending is on the purchasing of inventory and consumables and the compensation of employees.

There is no clear distinction in unit costs at hospitals that outsource their catering services as compared to those that insource. Further investigations into the contracts may shed light on the prices for inputs, unit costs, cost of delivering the service and highlight the opportunities for cost savings in this area.

Table 7: Food and catering cost per bed, PDE and inpatient day by province 2019/20

								COST PER		VARIANCE	
		VARIANCE			VARIANCE			INPATIENT		FROM MEAN	
FOOD & CATERING SPEND	COST PER BED	FROM MEAN %		COST PER PDE	FROM MEAN %		DAY			%	
Mpumalanga	R	1 484	<div></div> 57%	R	47	<div></div> 56%	R	77	<div></div>	65%	
Limpopo	R	1 494	<div></div> 58%	R	47	<div></div> 55%	R	67	<div></div>	56%	
Eastern Cape	R	1 891	<div></div> 73%	R	71	<div></div> 84%	R	99	<div></div>	82%	
KwaZulu-Natal	R	2 177	<div></div> 84%	R	78	<div></div> 92%	R	110	<div></div>	92%	
Free State	R	2 570	<div></div> 99%	R	94	<div></div> 111%	R	122	<div></div>	101%	
Gauteng	R	2 836	<div></div> 109%	R	80	<div></div> 94%	R	116	<div></div>	97%	
Western Cape	R	3 009	<div></div> 116%	R	85	<div></div> 100%	R	114	<div></div>	95%	
North West	R	3 820	<div></div> 147%	R	128	<div></div> 150%	R	172	<div></div>	143%	
Northern Cape	R	4 074	<div></div> 157%	R	133	<div></div> 157%	R	203	<div></div>	169%	
	R	2 595		R	85		R	120			

The provincial average cost to feed a patient per inpatient day is R120 in the 2019/20 financial period, with Northern Cape and North West deviating significantly from that cost. This may indicate a disproportionate allocation to food and catering services given the patient load serviced in these provinces.

The National Department of Health needs to engage Provincial Departments of Health on the process followed for budget allocation for food and catering services. This may identify opportunities to regulate pricing of catering services and areas to improve cost efficiency and realise savings.

Security Services

Table 8: Security Services spending per category (2017/18 – 2019/20)

CATEGORY	2017/18	2018/19	2019/20	AAGR
Outsourced security expenditure	R 80 907 915	R 61 648 776	R 54 027 561	-18%
Contractors: security services	R 8 292 523	R 9 839 971	R 9 273 926	6%
Compensation of employees (persal)	R 457 034 867	R 520 140 065	R 553 640 353	10%
Property payment (security)	R 2 670 459 959	R 3 067 977 444	R 3 479 652 380	14%
Equipment	R 5 359 131	R 10 622 753	R 8 737 058	40%
Inventory & consumables	R 413 292	R 7 996 163	R 1 040 788	874%
GRAND TOTAL	R 3 222 467 687	R 3 678 225 172	R 4 106 372 066	13%

Expenditure on Security services accounted for R11 billion of the health sector budget for the three years ending 2019/20, averaging R3,6 billion per year, with a average annual growth rate of 13%.

While most provinces outsource the service, Free State seems to be the only province that that insources most of their security services. Mpumalanga and Western Cape make use of transversal security contracts; the provincial treasuries have negotiated a provincial security contract that is administered by the Provincial Department of Community Safety and Security

on behalf of all their provincial departments. This has resulted in operating efficiency and cost savings for the whole province.

The average cost per bed for security is R4 147. Mpumalanga and Western Cape have the lowest unit costs, which are– less than half the average.

Table 9: Provincial Security Services expenditure per hospital, per bed, per PDE and inpatient day 2019/20

PROVINCE	SECURITY SPEND PER HOSPITAL	SECURITY SPEND PER BED	SECURITY SPEND PER PDE	SECURITY SPEND PER INPATIENT DAY
Mpumalanga	R 228 476	R 126	R 4	R 7
Free State	R 5 442 775	R 3 366	R 123	R 160
Eastern Cape	R 5 644 079	R 3 145	R 118	R 164
Western Cape	R 6 190 324	R 2 695	R 76	R 103
Northern Cape	R 11 530 981	R 8 409	R 275	R 418
North West	R 13 024 145	R 5 348	R 179	R 241
Limpopo	R 14 108 810	R 6 135	R 192	R 274
KwaZulu-Natal	R 16 526 923	R 4 656	R 167	R 236
Gauteng	R 21 741 069	R 3 447	R 97	R 142
NATIONAL AVERAGE	R 10 493 065	R 4 147	R 137	R 194

The national department, supported by the national and provincial treasuries, should investigate the policy directive of transferring the security services responsibility to the provincial Departments of Community Safety and Security. This will provide the provincial departments of health with financial and administrative savings, while the operating efficiency gains will empower the department to focus on its core mandate – health services.

Recommendations

1. National Department of Health, supported by National Treasury needs to engage the provincial departments of health to attain the service level agreements for the services that have been outsourced. This will allow an in-depth review of the terms of service and make recommendations on pricing and terms of engagement. This will also enable the creation of national online contract registry. This will improve transparency and accessibility of contracts entered into with the state. This will form a database for provinces to access when drafting new contracts, or new specifications.
2. Investigate the viability of transversal contracts for the following items
 - National Tender for washing and laundry detergents
 - National Tender for laundry equipment
 - Provincial tender for medical waste management
 - Provincial tender for security services for all provincial departments;

Alternatively, the national Department, together with provincial departments, can prepare regulations regarding the pricing of these services.
3. Develop a work group to assess the viability of adopting the Department of Community Safety and Security initiative, creating provincial tenders consolidating the responsibility for security services in one department for the benefit of all departments and municipalities within the province. This working group should comprise of security delegation of the South African Police Service (SAPS).
services experts from across departments, community safety representatives and a
4. Invest in systems, technology and training human capacity to enable improved planning of budget allocation, tracking of spending and assist provincial departments of health in identifying and realising cost savings opportunities.

Institutional Analysis

PROBLEM STATEMENT

The procurement of goods and services accounts for 25% of the National Department of Health's budget and 30% of provincial health budgets. However, the value of spending on goods and services for health often does not translate to accessible and quality public health services.

Poor procurement processes contribute to wasteful and/or irregular expenditure. Irregular expenditure at the national Department amounted to R16,8 million², a result of procurement made on expired contracts and procurement processes not followed by the Department. Irregular expenditure at provincial Departments amounted to R7,37 billion³ in 2018/19. These

² Parliamentary Monitoring Group, Portfolio Committee on Health, 2019. Health 2019BRRR
<https://pmg.org.za/page/Health2019BRRR>

inefficiencies directly affect consumers of public health services, primarily by delaying procedures, delivering sub-standard quality treatment or the denial of service.

Identifying the source of efficiencies in procurement processes is challenging; major inefficiencies are caused by budget constraints, personnel challenges and the political climate. A key cause of these inefficiencies is the poor implementation and enforcement of procurement regulations. National Treasury, the Department of Health and the relevant Regulatory Boards have drafted appropriate policies, but implementation requires oversight and support. Understanding this problem, what it affects, and the possible solutions, would lead to improved processes and better value for money.

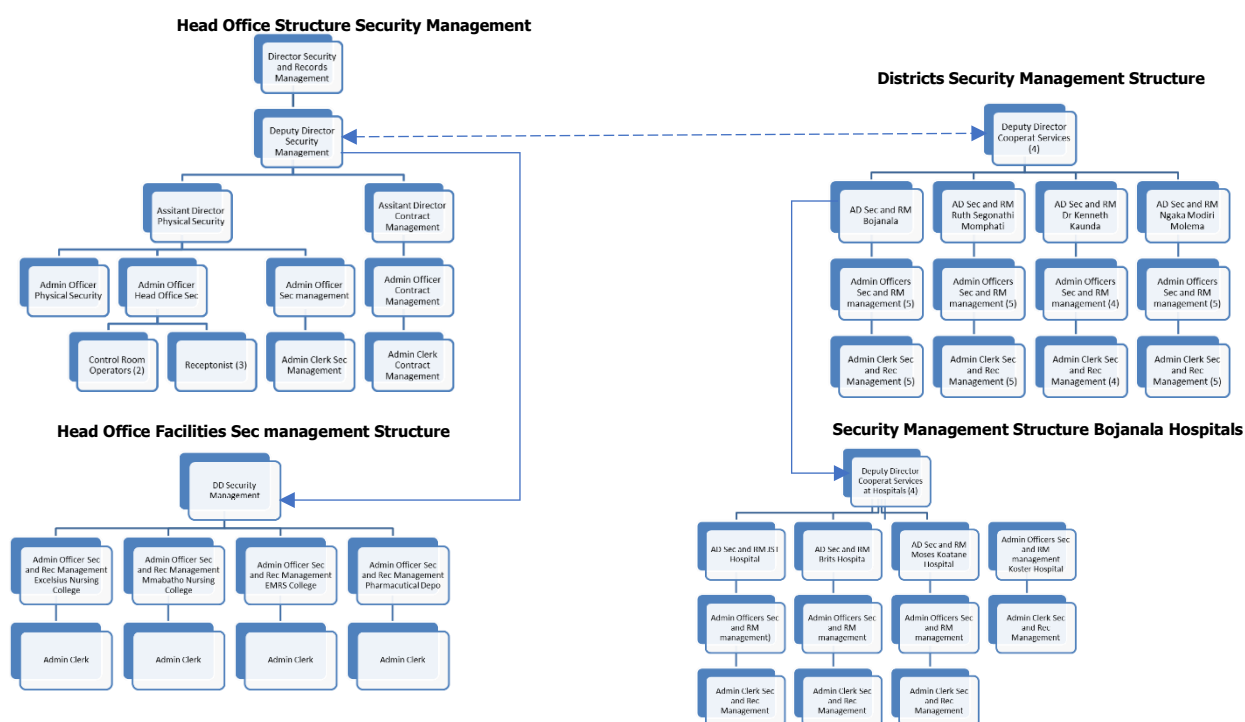
Poor performance in administrative functions results in poor data collection and use of data to draft policies that optimise the procurement process. The inconsistent application of guidelines and policies set at a national level contributes to variable performance across the province. The lack of oversight and accountability in applying regulations, and the lack of standard processes, makes comparisons, identification of inefficiencies and highlighting best practices for procurement difficult. It is in the best interest of the Health System that these issues are understood and resolved. Given the pressure on government budgets, all potential cost savings need to be identified, and the improving the procurement of goods and services can contribute to these savings, without undermining the quality health services.

Considering the planned implementation of the National Health Insurance, it is imperative that all institutions in the public health sector adhere to the same standards for procurement, and that these standards offer the best value. Equitable and effective implementation of NHI rests on the state being an effective single payer, with appropriate procurement processes to support value for money. Ancillary services, like medical waste, catering, laundry and security services, will benefit greatly from standardised procurement processes, as these are often the goods and services for which institutions deviate in applying the procurement guidelines.

POLICY AND INSTITUTIONAL INFORMATION

Procurement of goods and services is an administrative function that affects the administration of budgets, procurement, and service delivery in the health sector. This review looks at the function of procuring four support services in health; namely medical waste, laundry services, food and catering services and security services. The procurement of support services occurs at every level of the health system, and each level has administrators responsible for carrying out the function. Below is an example of the organisational structure of one of the support services included in the review - security services. This illustrates the institutions involved in procuring, administering and delivering security services for the provincial department of health in North West.

Figure 1: Example of the Security Services Organisational Structure for the North West PDOH 2019.

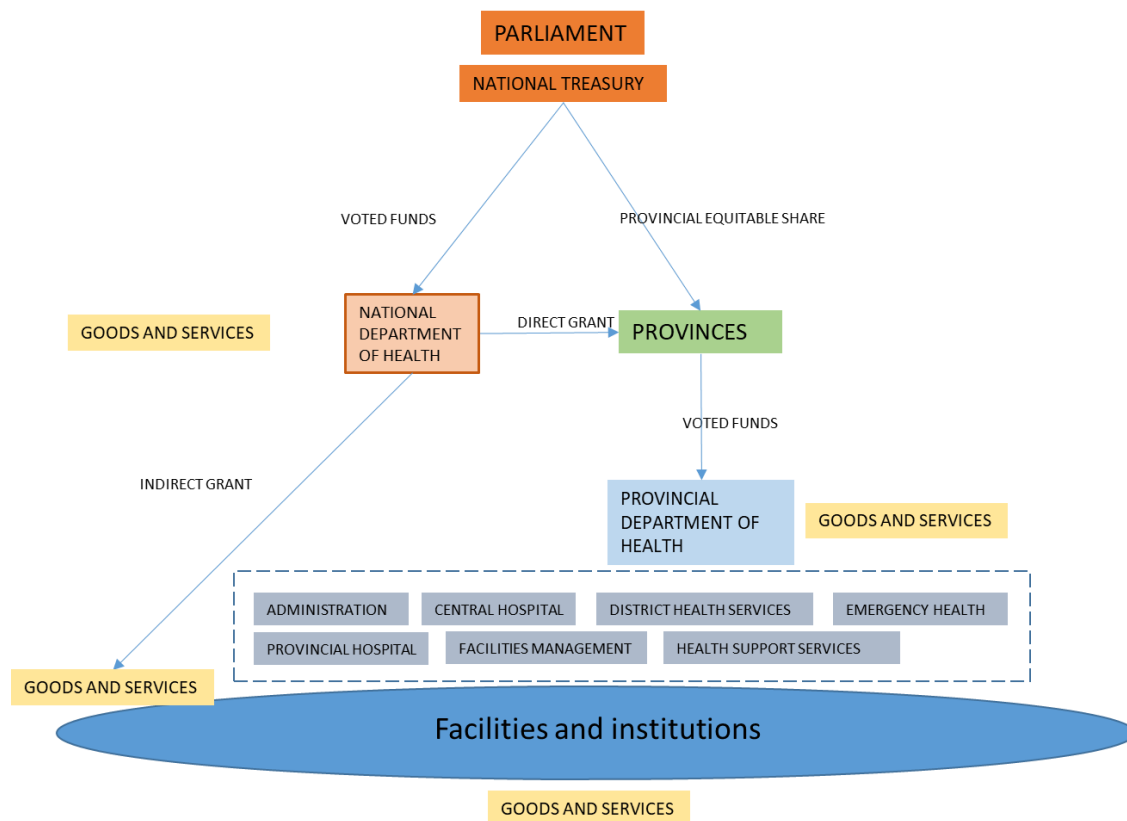


There are administrators at the provincial head office who work together with the district offices to ensure service delivery across the province. In this example, security services are required at the provincial head office, the district offices and health facilities (hospitals and clinics). The Head Office Security Management manages security services strategically at the provincial level, drafts and manages the contracts with external service providers, manages policy around physical security guards and the physical security provided at the provincial office. The Head Office Facilities Security Management is a mandate at the provincial office that manages the security for strategic provincial assets like colleges and pharmaceutical depots. Supporting the provincial office are the district offices, who manage the security services at district offices, clinics and at the cluster hospitals. The lowest level is the security services at the facility level (clinics and hospitals), managing physical guards and reporting to the district. Each of these functions has a financial delegation of authority to approve expenditure or enter into financial commitments. The delegations may differ between provinces.

The main role players in delivering quality health services are the administrators and the support services. Administrators exist at all levels of the health system, from the National Department, as policy makers, to provinces, as implementers, and as staff at health facilities, executing policies and delivering health services to the public.

The primary beneficiaries of this programme are the institutions, as additional value is created through savings if the use of a limited budget is improved. Optimising procurement processes and realising savings will afford institutions more goods, works and services. This means health professionals will have more resources to perform their work in an appropriate environment that adheres to the required health and safety regulations. Optimising spending on supplementary goods and services affords facilities additional funds to procure more medical equipment, medical supplies and medicines. Thus, the secondary beneficiary is the consumer of public health service. Optimising procurement processes, and maximising the use of budgets, means consumers of public health services can get wide and general access to health care, get it on time and at the desired level of quality.

Figure 2: Funding flows to health programmes and facilities that procure goods and services.



The funding flows for health follow the ordinary funding flows between spheres of government. There are three spheres of government: national, provincial and local. Each has responsibility for its own financial management and expenditure planning. The Constitution provides that each sphere of government is entitled to an equitable share (ES) of revenue, raised nationally, to enable them to provide basic services and perform the allocated functions. Provinces receive the provincial equitable share (PES). The PES formula includes a health component, however the components of the formula are not indicative budgets. Provinces have discretion over how they allocate their equitable share and are accountable for its expenditure. Provinces also receive conditional grants, allocated in their budgets according to specific conditions, including compliance with planning and report requirements. The funds flow to health as follows:

- NDOH is a vote of parliament. This budget is voted on, and includes funds for activities the department carries out, direct and indirect conditional grants to provinces. The NDOH transfers direct grants to provinces and provinces allocate those grants to their respective budgets per the conditions. The NDOH implements the indirect conditional grants in the provinces as per the conditions of these grants.
- National Treasury and the National Department agree to the terms of direct and indirect conditional grants. While terms are discussed with the provincial departments and the Provincial Treasuries, NT and the NDOH decide the final terms of the grants.
- The NDOH determines the conditions that govern the use of conditional grants, which account for 20% of the provincial health spend.
- Provinces receive the PES as an unconditional transfer from the fiscus. Unconditional means each province has discretion over how it allocates the PES to its priorities. Each provinces share of the PES is calculated by the PES formula. The PES formula

includes a health component, however the health component is not an indicative health budget for provinces; it is based on historical spending.

The NDOH is responsible for developing policies and regulations and provinces are responsible for implementing them. These policies and regulations are developed through a consultative process, which includes the provinces. Provinces have discretion over how the provincial equitable share is allocated to achieve the objectives set in the national policies. The national department has no mechanisms to force provinces to allocate the provincial equitable share, but can do this indirectly through regulations, including norms and standards, which require provinces to comply with certain standards. The NDOH has the mandate to monitor and enforce compliance with the standards, but provinces have discretion over how they allocate funds in order to achieve that compliance.

It is fundamental for financiers and policy makers to work jointly to prepare budget recommendations for the medium-term expenditure framework. It is important to ensure that budget submissions reflect the Department of Health's strategic direction.

The PES and conditional grants are allocated to the health budget across budget programmes. The budget programmes are aligned with the strategic objectives and mandates of the provincial departments of health. Some budget programmes include both the PES and conditional grants, whereas others are made up predominantly of one of these sources funding. All inputs required for the delivery of health services are procured from the respective budget programmes. The expenditure per budget programme is as follows:

Table 10: Health Budget Programmes expenditure for the services under review

HEALTH BUDGET PROGRAMMES	MEDICAL WASTE		LAUNDRY		FOOD AND CATERING SECURITY	
ADMINISTRATION	R 789	1 084	R 200	3 359	R 453	R 65 288 900
CENTRAL HOSPITAL SERVICES	R 214	140 399	R 761	143 555	R 441	R 314 137 637
DISTRICT HEALTH SERVICES	R 883	340 562	R 083	169 662	R 793	R 2 390 351 787
DOH:HOSPITAL SYSTEMS	R	-	R 264	53 757	R	R -
DOH:NATIONAL HEALTH INSURANCE	R	-	-R	52 699	R	R -
DOH:HEALTH REGULTN & COMPLC MAN	R	-	R	-	R 015	R -
DOH:HIV&AIDS, TB,& MATNL&CHD HTH	R	-	R	-	R 161	R -
DOH:NHI, HLTH PLAN & SYS ENBLMNT	R	-	R	-	R 555	R -
DOH:PRIMARY HEALTH CARE SERVICES	R	-	R	-	R 126	R -
EMERGENCY MEDICAL SERVICES	R 654	1 395	R 781	5 682	R 516	R 90 768 642
HEALTH CARE SUPPORT SERVICES	R 513	2 077	R 597	140 474	R 628	R 37 530 327
HEALTH FACILITIES MANAGEMENT	R	-	R 834	32 553	R 160	R 1 208 515
HEALTH SCIENCE & TRAINING	R 100	9	R 837	2 684	R 571	R 51 288 241
PROVINCIAL HOSPITAL SERVICES	R 252	134 340	R 282	113 006	R 044	R 602 157 612
Grand Total	R 406	619 869	R 939	664 683	R 1 721 265 463	R 3 552 731 662

Spending review methodology

Of the R262 billion in total Health sector spending in 2019/20, the spending on the procurement of goods and services amounted to R65 billion. This review looks specifically at the spending on four support services, namely Medical Waste Management, Laundry Services, Food and Catering Services and Security Services.

These account for 10% of the total Goods and Services spending in Health for the 2019/2020 financial period, and are among the highest non-medical goods and services spending. The spending on these services are relative to the spending on labs testing, medical supplies and medicines as illustrated below:

Table 11: Spending on goods and services and their proportion of G&S expenditure 2019/20

CATEGORY	2019/20	PROPORTION OF G&S
MEDICAL WASTE SPENDING TOTAL	R 619 869 406	1,0%
LAUNDRY SPENDING TOTAL	R 664 683 939	1,0%
FOOD AND CATERING SPENDING TOTAL	R 1 721 265 463	2,7%
SECURITY SPENDING TOTAL	R 3 552 731 713	5,5%
LABS TESTING AND NHLS	R 9 500 769 126	14,7%
MEDICAL SUPPLIES	R 10 495 385 387	16,2%
MEDICINES	R 14 703 247 279	22,8%
TOTAL GOODS AND SERVICES	R 64 611 853 589	

BAS and PERSAL data sources formed the basis for this review. The expenditure data analysed in this review is taken from the government Basic Accounting System (BAS) and PERSAL which reports on the detailed salaries and wages for compensation of employees. The data collected spans three financial years: 2017/18, 2018/19 and 2019/20, across the budget programmes shown below:

Table 12: Health Budget Programmes expenditure for the services under review

HEALTH BUDGET PROGRAMMES	MEDICAL WASTE		LAUNDRY		FOOD AND CATERING SECURITY	
ADMINISTRATION	R 789	1 084	R 200	3 359	R 453	1 584 65 288 900
CENTRAL HOSPITAL SERVICES	R 214	140 399	R 761	143 555	R 441	413 550 314 137 637
DISTRICT HEALTH SERVICES	R 883	340 562	R 083	169 662	R 793	646 271 2 390 351 787
DOH:HOSPITAL SYSTEMS	R	-	R 264	53 757	R	- -
DOH:NATIONAL HEALTH INSURANCE	R	-	-R	52 699	R	- -
DOH:HEALTH REGULTN & COMPLC MAN	R	-	R	-	R 015	22 -
DOH:HIV&AIDS, TB,& MATNL&CHD HTH	R	-	R	-	R 161	40 -
DOH:NHI, HLTH PLAN & SYS ENBLMNT	R	-	R	-	R 555	12 -
DOH:PRIMARY HEALTH CARE SERVICES	R	-	R	-	R 126	18 -
EMERGENCY MEDICAL SERVICES	R 654	1 395	R 781	5 682	R 516	1 224 90 768 642
HEALTH CARE SUPPORT SERVICES	R 513	2 077	R 597	140 474	R 628	27 104 37 530 327
HEALTH FACILITIES MANAGEMENT	R	-	R 834	32 553	R 160	11 793 1 208 515

HEALTH SCIENCE & TRAINING	R 9 100	R 2 684 837	R 2 831 571	51 288 241
PROVINCIAL HOSPITAL SERVICES	R 134 340 252	R 113 006 282	R 616 812 044	602 157 612
Grand Total	R 619 869 406	R 664 683 939	R 1 721 265 463	R 3 552 731 662

The PERSAL is a rich data set that consists of many descriptive elements about each individual employee. One of these elements is the “component” which is a description of the group of employees in suitable posts in the establishment. In this analyses, the “component” in PERSAL has been used as a filter for the purposes of analysing personnel expenditure as illustrated in Table 14.

Other data sources include:

- DHIS Data for the period ended April 2020: This captures the capacity and utilisation of health services in provinces and health facilities. For the purposes of this review, the following data points are considered: ○ Number of hospitals per province; ○ Number of beds per province; ○ Total Patient Day Equivalent (PDE)³ per province; and ○ Total inpatient days (IPD) per province.
- National Treasury Strategic Sourcing executive summaries for the four support services (GTAC, August 2017) and GTAC strategic and technical advisory website.
- Deloitte Technical report on Laundry, Catering and Security services.
- Limited interviews performed to gather information for this spending review; these interviews relate exclusively to the security services spending.

The general assumptions made in this review include:

- Inflation⁴ for the period 2017/18 to 2019/20 ranges between 4,13% and 5,27%.
- Data from all sources is assumed to be correct and complete at the time of this review; while there are data inconsistencies between provinces, it is assumed that provinces have reported on spending in the correct BAS line item and budget programme for the period, and that expenditure report in PERSAL has been correctly allocated to the right component and budget programme;
 - i. The BAS programmes include Administration, Central Hospital Services, District Health Services, Emergency Medical Services, Health Care and Support Services, Health Facilities Management, Health Science and Training and Provincial Health Services.
 - ii. The PERSAL components are the lowest level of a Department that contains a value, and is equal to the component (this may be the provincial department or an institution).
- The DHIS data is combined with expenditure data to estimate the cost of services using different utilisation estimations, to allow comparisons between provinces and serve as a proxy for the unit costs.
- In this analysis, calculating precise unit costs for medical waste, laundry, food and catering, and security services was not possible due to the lack of specific contracts and output data. If the data were available, the service unit costs would have been defined by:

³ Please see Annexure 1 for the definitions of these terms

⁴ From StatsSA September 2020 (<https://www.statista.com/statistics/370515/inflation-rate-in-south-africa/>)
Stats released April 2020.

- Medical waste – kilograms, litres and number of items treated, disposed or stored, and the kilometres travelled to manage the logistics of the service.
- Laundry services – number of items laundered (bed sheets, patient gown, towels, etc.).
- Food and catering services – food items (kilograms of non-perishables, grains and starches, litres of water or milk) and, where applicable, related overheads (electricity, gas, cleaning) per meal.
- Security services – number of physical guards on duty and related overheads.

Instead, the unit costs estimations have been defined by

- o Cost per hospital; o Cost per bed; o Cost per Patient Day Equivalent (PDE); and o Cost per Inpatient Day.

- To estimate the institutional cost allocations, we make the following assumptions:
 - BAS and PERSAL serve as a proxy for the method of procuring the service.
 - For each service, the BAS *item lowest level* was filtered for all the related expenditure items linked to that service.
 - For each service, the PERSAL *component* was filtered for the related expenditure items.
 - To allocate costs to a facility or institution: -

Table 13: The lowest responsibility level on BAS represents costs mapped to a facility or institution

Department	National_Provincial Programme_Level_5	Responsibility_Lowest_Level	2019/20
Vote 03: Health	Eastern Cape	DISTRICT HEALTH SERVICES	BHISHO HOSPITAL *P R 150 000

Table 14: The component to which the PERSAL data maps assigns costs to a facility or institution

functiongronatprov	program_desc	component	2019/20
Health	Free State	Central Hospital Services	011739-Security Service (Pelonomi Hospital) Bloemfontein R 27 020 327
	Western Cape	Central Hospital Service	152465-Food Services Tygerberg Hospital R 1 200 412
	Kwazulu Natal	Provincial Hospital Service	025441-Madadeni Hospital: Laundry Services R 6 286 148
	Western Cape	Central Hospital Service	152381-Environmental & Medical Waste Removal Service Tbh R 2 757 659

Each facility, subject to the respective provincial procurement strategy, has a choice to either insource or outsource the delivery of the respective services. The item descriptions in BAS were used to identify whether the service has been in or out sourced:

The BAS *lowest item level*⁵ indicates whether a service is insourced or outsourced. For facilities and institutions where costs are allocated to the A&S/O/S BAS line item, it is assumed the service is outsourced. This applies to Medical Waste Management, Laundry Services, and Food and Catering Services. For Security Services, the P/P: SAFEGUARD & SECURITY indicates outsourced services.

⁵ Refer to Annexure 3 – BAS Data Details and Build-up

Where an institution has expenditure recognised in other BAS items, and has corresponding PERSAL expenditure, the service is assumed to be insourced.

Medical Waste Estimated Expenditure Analysis

Waste and by-products cover a diverse range of materials including infectious waste, pharmaceutical waste, sharp objects such as surgical instruments and non-hazardous or general waste. In general, waste is created at health facilities, at labs and testing facilities and mortuaries, and is driven by the patient activity at these locations. Poor practices are seen across the country, from the point of medical waste generation to disposal. The challenges include a lack of adequate facilities for temporary storage of waste to final disposal⁶. The absence of a national policy to guide the medical waste management practice in the provinces is a challenge.

For the purposes of estimating Medical Waste Management expenditure, two broad categories from BAS data were analysed in addition to expenditure incurred through PERSAL. The three categories analysed include:

- Outsourced medical & chemical waste management.
- Inventory Fuel & Gas: Chemical.
- Compensation of employees (PERSAL).

The following table shows total medical waste management services expenditure by category as defined above, and the 3 year Compound Annual Growth Rate (CAGR) for each.

Table 15: Total Medical Waste Management Expenditure by Category and AAGR (2017/18 to 2019/20)

CATEGORY	2017/18	2018/19	2019/20	AAGR
Compensation Of Employees (Persal)	R 67 487 596	R 69 932 733	R 77 304 654	7%
Outsourced Med & Chem Waste Mgmt	R 480 492 494	R 563 003 170	R 613 604 527	13%
Inventories	R 10 734 086	R 3 120 886	R 6 264 879	15%
Grand Total	R 558 714 175	R 636 056 789	R 697 174 060	12%

The total medical waste expenditure for the three-year financial period 2017/18 - 2019/20 equated to R1,8 billion, with a AAGR of 12% for the 2019/20 estimated expenditure. Expenditure on Inventories fluctuated over the period, and had an average growth rate of 15%; exceeding outsourced medical and chemical waste management, which experienced an AAGR of 13%, followed by compensation of employees with a AAGR of 7%. Outsourced medical and chemical waste management makes up 88% of total medical waste expenditure, followed by compensation of employees at 11% and inventories at 1%.

The following table shows the year-on-year growth for medical waste management spending over three financial years.

⁶ Olaniyi FC1, Ogola JS2 and Tshitangano TG, 2018. A Review of Medical Waste Management in South Africa. Open Environmental Sciences
https://www.researchgate.net/publication/325879525_A_Review_of_Medical_Waste_Management_in_South_Africa

Table 13: Year on Year medical waste management spend and annual growth for 2017/18 to 2019/20

MED WASTE MNGT SPENDING TOTAL	2017/18	2018/19	2019/20
TOTAL	R 558 714 175	R 636 056 789	R 697 174 060
YEAR-ON-YEAR		14%	10%
% GROWTH: GOODS AND SERVICES		15%	9%
% GROWTH: PERSAL		4%	11%

The year-on-year growth in medical waste management expenditure was greatest during the period 2017/18 and 2018/19 at 14%, decreasing slightly the following year to 10%. The main driver to the yearly increases is the growth in goods and services spending, which increased 15% in 2018/19, and the growth in PERSAL spending, which grew 11% in 2019/20.

Medical waste spending is directly proportional to the patient load experienced at facilities, and as patient numbers did not show a significant increase over the same period, the increase in spending is likely a result of increased prices or possible wasteful expenditure. In this instance, as goods and services spending relates to outsourced services, it is likely that service providers increased their prices over the period.

The majority of provincial medical waste management expenditure is outsourced, with only an average of 7% of expenditure attributable to departmental costs in the 2019/20 financial year, a trend consistent across all three financial years.

The following table shows the proportion of goods and services spending relative to personnel spending at a provincial level.

Table 14: Proportion of goods and services spending to personnel spending on Medical Waste management services per province 2019/20

WASTE MNGT SPEND PER PROVINCE	2019/20	Province's share of total expenditure	Goods and services as a % of total	Personnel expenditure as a % of total
National Department	R 1 084 789	0%	100%	0%
Free State	R 20 393 082	3%	90%	10%
Eastern Cape	R 48 726 130	7%	100%	0%
Northern Cape	R 57 001 867	8%	100%	0%
North West	R 60 630 850	9%	95%	5%
Limpopo	R 63 350 335	9%	100%	0%
Western Cape	R 63 721 332	9%	75%	25%
Mpumalanga	R 83 438 289	12%	100%	0%
Gauteng	R 110 462 938	16%	94%	6%
KwaZulu-Natal	R 188 364 448	27%	74%	26%
Grand Total	R 697 174 060	100%		

KwaZulu Natal and Western Cape make use of more personnel than other provinces, with an average of 25,5% of waste management provided in-house and the rest of the provinces spending more than 90% on goods and services.

While the spending is negligible, it would be interesting to understand why the National Department has spending on medical waste management at all, as no health services that give rise to this type of spending are provided at the national level.

KwaZulu Natal spends the most on medical waste management, contributing 27% of the total expenditure for this service; this amount is appropriate for the patient load of the province. In contrast, Mpumalanga, which serves about 8% of the uninsured population, contributes 12% to the national spending on this service. This is disproportionately high. The province has fully outsourced this service, therefore it is possible that contracts are poorly drafted and/or managed. Significant savings may be found in investigating the efficacy of the medical waste management Service Level Agreements in Mpumalanga.

The table below illustrates the total medical waste management services expenditure by province, and the respective AAGR from the 2017/18 to 2019/20 financial period. Included is also a sum of medical waste management spending at the National Department.

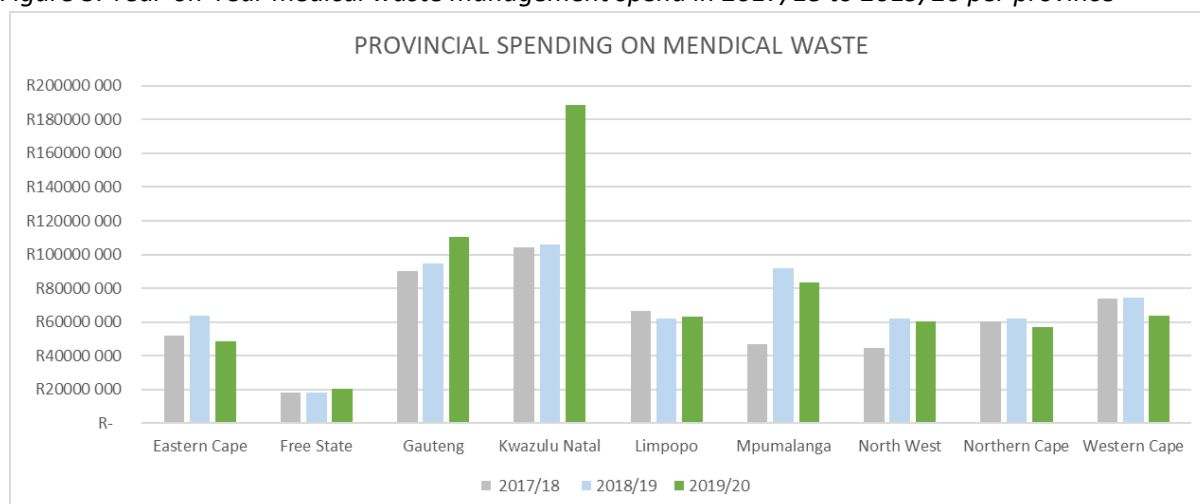
This table is to be read with Figure 3 below, shows medical waste management spend across the three years.

Table 15: Total Medical Waste Management Expenditure by Province and AAGR (2017/18 to 2019/20)

WASTE MNGT SPENDING TOTAL	2017/18	2018/19	2019/20	AAGR
National Department	R 1 588 665	R 1 594 338	R 1 084 789	-16%
Western Cape	R 73 798 696	R 74 224 814	R 63 721 332	-7%
Northern Cape	R 60 221 184	R 61 928 405	R 57 001 867	-3%
Limpopo Province	R 66 472 256	R 62 245 146	R 63 350 335	-2%
Eastern Cape	R 52 195 767	R 63 965 900	R 48 726 130	-1%
Free State	R 18 340 441	R 18 027 786	R 20 393 082	6%
Gauteng	R 90 215 738	R 94 540 277	R 110 462 938	11%
North West	R 44 667 694	R 61 978 377	R 60 630 850	18%
Kwazulu Natal	R 104 087 720	R 105 869 373	R 188 364 448	40%
Mpumalanga	R 47 126 014	R 91 682 374	R 83 438 289	43%
Grand Total	R 558 714 175	R 636 056 789	R 697 174 060	

The National Department, Eastern Cape, Limpopo, Northern Cape and Western Cape showed a decline in their medical waste expenditure, with a 3-Year AAGR ranging from -16% to -1%, while the remaining provinces increased their spending over the same period. Free State has the lowest spend on medical waste management at R20,3 million, which grew a marginal 6% over the period. The spending in Mpumalanga is 2,4 times that of Free State, while the patient numbers between the provinces is comparable. The average annual growth rate experienced in Mpumalanga is also significantly higher, at 43% over the period. There may be significant savings realised if provinces learn from Free State, firstly by reducing the relative spend on medical waste management services and secondly, by managing the spending escalations over time.

Figure 3: Year-on-Year medical waste management spend in 2017/18 to 2019/20 per province



There is a sharp rise in expenditure in KwaZulu Natal in the 2019/20 financial year, with expenditure exceeding R180 million; the other provinces spent below R120 million throughout the period. KwaZulu Natal spending on medical waste management should be investigated in more detail, to understand the reason for the increase in 2019/20.

Medical waste spending can be assessed for the price per kilogram treated, disposed, transported or stored. However, in the absence of the detailed SLA's, the spending has been assessed at a high level using DHIS data points. The medical waste spending was assessed using DHIS data to get a per capita analysis on the spending patterns across provinces.

Table 16 represent spending on waste management costs relative to PDE and inpatient days respectively, across provinces.

Table 16: Medical Waste Management spending per patient day equivalent and inpatient day 2019/20 per province.

MED WASTE MNGT SPEND	COST PER PDE	VARIANCE FROM MEAN (R)	COST PER INPATIENT DAY	VARIANCE FROM MEAN (R)
Northern Cape	R 97	-R 64	R 148	-R 99
Mpumalanga	R 45	-R 12	R 73	-R 24
North West	R 36	-R 3	R 49	R 0
KwaZulu-Natal	R 27	R 7	R 37	R 11
Limpopo	R 21	R 12	R 30	R 19
Western Cape	R 15	R 18	R 20	R 28
Gauteng	R 14	R 19	R 21	R 28
Eastern Cape	R 11	R 22	R 16	R 33
Free State	R 9	R 24	R 12	R 37
	R 22		R 32	

A recent study⁷ on medical waste management in South Africa indicated that waste management practices in Northern Cape are poor; moreover, at the time of publication there were no treatment facilities in the province, thus requiring the transportation of medical waste

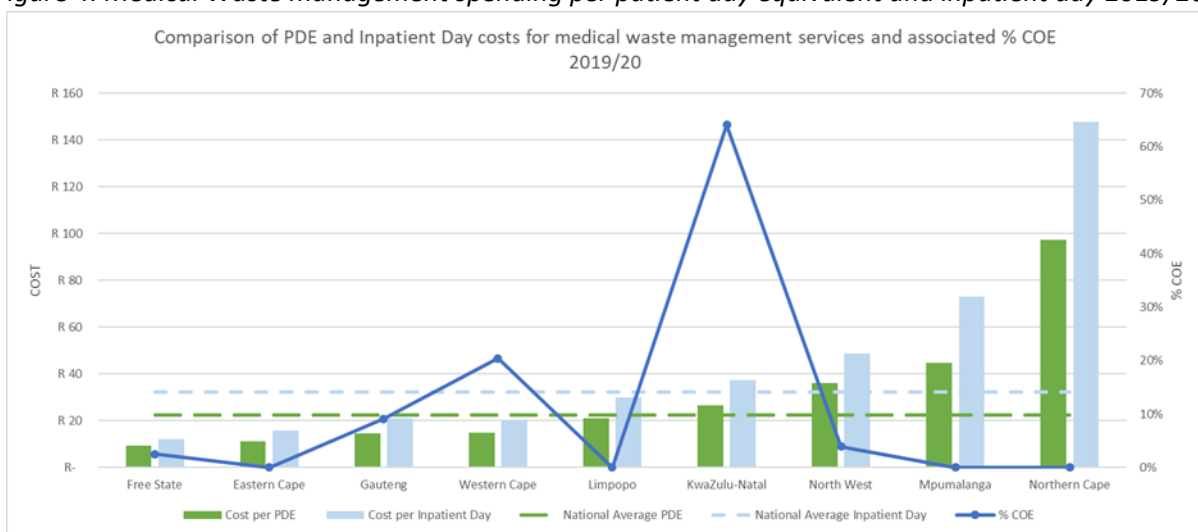
⁷ Olaniyi FC1, Ogola JS2 and Tshitangano TG, 2018. A Review of Medical Waste Management in South Africa. Open Environmental Sciences
https://www.researchgate.net/publication/325879525_A_Review_of_Medical_Waste_Management_in_South_Africa

to neighbouring provinces for treatment. This might account for the marked difference in costs when compared to other provinces.

Mpumalanga has the second highest medical waste management cost per PDE and inpatient day. Although the PDE for Mpumalanga is approximately 25% of that experienced in Gauteng, the associated cost for Mpumalanga is approximately 3,2 times higher. This could suggest a costly waste disposal practices or exorbitant contract prices for outsourced disposal in Mpumalanga. There is evidence that segregation of medical waste at the point of generation is not being satisfactorily done and incineration is being used for final waste disposal in Mpumalanga; this would contribute to increased costs.

The figure below illustrates the medical waste spending per PDE and inpatient day, with the national average spend is represented by the dotted lines respectively.

Figure 4: Medical Waste management spending per patient day equivalent and inpatient day 2019/20



Northern Cape has the highest cost per patient day equivalent and inpatient day, with Mpumalanga and North West costs above the national average. Eastern Cape and Limpopo seem to manage costs effectively, given that the PDE and inpatient day costs compare well to the national average.

Conclusion

While medical waste management only makes up 1% of total goods and services spending for health, there are some valuable opportunities for savings in this expenditure type:

- Standardising unit costs for treatment, disposal, storing and transporting medical waste will realise cost savings for provinces currently spending above the average.
- Investigating the viability of a national transversal contract for medical waste management to regulate the cost of this service would reveal cost efficiencies that are currently underutilised.

The policy recommendations emerging from this analysis focus on contract drafting and price management as regulations and standards regarding the procurement of medical waste are needed.

Overall, the data suggests that there might be a difference in the cost of services agreed in the contracts across provinces, and this may provide an opportunity for cost savings. Leveraging

the best practise across provinces could lead to cheaper contracts. The national bargaining power should be leveraged to negotiate cheaper prices and reasonable price escalations.

Without access to the contracts, and granular data on costs for the different methods of medical waste disposal across provinces, no firm statement can be made on whether a difference in methods of disposal contributes to differences observed in PDE and inpatient costs. An investigation into these cost structures may reveal a possible policy directive; generating a best practise for waste management, feasible to apply across all provinces.

By managing costs in both Northern Cape and Mpumalanga, and bringing them down to the national average for cost per inpatient day, a saving of around R88 million could be realised in these provinces. Moreover, provinces such as Eastern Cape, Western Cape and Free State, with consistently low relative costs, could share their contractual terms with other provinces, thus providing the opportunity for finding efficiencies in the contractual negotiation process.

Laundry Expenditure Analysis

Patients and hospital staff alike benefit from linen that is appropriately sanitised and comfortable. Clean linen and laundry contributes to the prevention and containment of hospital infection. Clean and comfortable bed linen and patient gowns can contribute positively to the patients' stay and healing process, and thus should be cleaned effectively and efficiently.

The amount of linen that needs to be cleaned is directly related to bed utilisation rate, inpatient days and the different ward specific needs.

In the analysis of Laundry Services expenditure, five broad BAS categories were considered, along with expenditure for laundry personnel in PERSAL. The broad categories from BAS were selected based on their proportional contribution to total laundry spending, with larger categories considered in isolation to allow for a comprehensive analysis.

The six categories analysed include the following:

- Consumables: Linen & Soft Furnishing
- Consumables: Detergent
- Laundry Equipment
- Operation Payments: Laundry Services
- Property Payments: Laundry Services
- Compensation of employees (PERSAL)

The following table shows total laundry expenditure by category as defined above, and a 3year Compound Annual Growth Rate for each category.

Table 17: Total Laundry Services Expenditure by Category and AAGR (2017/18 to 2019/20)

CATEGORIES	2017/18	2018/19	2019/20	AAGR
Consumable supplies:lin & sof furnsh	R 177 740 969	R 172 904 314	R 197 719 809	6%
Compensation of employees	R 638 188 169	R 680 393 273	R 727 056 914	7%
Operational payments:laundry services	R 18 562 964	R 17 728 602	R 21 458 609	8%
Consumable supplies:wash/clean deter	R 221 260 723	R 268 029 100	R 274 813 718	12%
Property payments:laundry services	R 79 965 462	R 87 359 396	R 115 175 012	21%
Laundry equipment	R 8 867 536	R 16 077 960	R 55 516 791	163%
Grand total	R 1 144 585 823	R 1 242 492 645	R 1 391 740 853	10%

Total laundry services spending for all expenditure categories across three years equated to R3,3 billion, with a AAGR of 10%. The annual average increase in expenditure on laundry equipment between 2017/18 to 2019/20, was 163%. This is significantly higher than inflation

over the same period, and likely indicates an increase in the quantity of goods and services procured. Laundry equipment is a fixed asset, not purchased annually, so this increase may be atypical and due to provinces replacing old machinery. Property payments also showed a relatively high AAGR of 21%, and these may be attributed to refurbishing buildings and paying outsourced laundry services. Compensation of employees accounts for R727 million, or 52% in 2019/20, and had an average annual growth rate of 7%.

The following tables shows the year-on-year growth for laundry spending over the three financial years.

Table 18: Year-on-year laundry services spend in 2017/18 to 2019/20

LAUNDRY SPENDING TOTAL	2017/18	2018/19	2019/20
TOTAL	R 1 144 585 823	R 1 242 492 645	R 1 391 740 853
YEAR-ON-YEAR			
			9%
% GROWTH: GOODS AND SERVICES			10%
% GROWTH: PERSAL			6%

The year-on-year growth in laundry services expenditure was 9% between 2017/18 and 2018/19, and 12% between 2018/19 and 2019/20. These increases are largely a result of increases in the Goods and Services spending, which exhibit a year-on-year growth rate of 10% and 16% . The year-on-year growth on compensation of employees remained steady at 6% each year.

Total laundry expenditure is comprised of compensation of employees and goods and services across the country. Personnel costs make up 53% of total spend as several provinces have the majority of their spending in compensation of employees. While a major contributor, compensation of employees is the least flexible expenditure item to reduce spending on, as the policies that surround it are stringent.

The table below illustrates the proportion goods, services and compensation of employees make to the total laundry spending in 2019/20.

Table 19: Proportion of Goods and Services expenditure to personnel expenditure on Laundry Services per province 2019/20

LAUNDRY SPEND PER PROVINCE	2019/20	Province's share of total expenditure	Goods and services as a % of total	Personnel expenditure as a % of total
National Department	R 54 464 540	4%	100%	0%
Northern Cape	R 22 177 118	2%	92%	8%
Mpumalanga	R 40 298 114	3%	97%	3%
Limpopo	R 84 061 737	6%	98%	2%
North West	R 96 398 249	7%	39%	61%
Free State	R 104 288 147	7%	25%	75%
Eastern Cape	R 160 910 497	12%	37%	63%
Western Cape	R 168 621 231	12%	64%	36%
KwaZulu-Natal	R 328 517 307	24%	26%	74%
Gauteng	R 332 003 912	24%	46%	54%
Grand Total	R 1 391 740 853	100%		

The following is worth noting

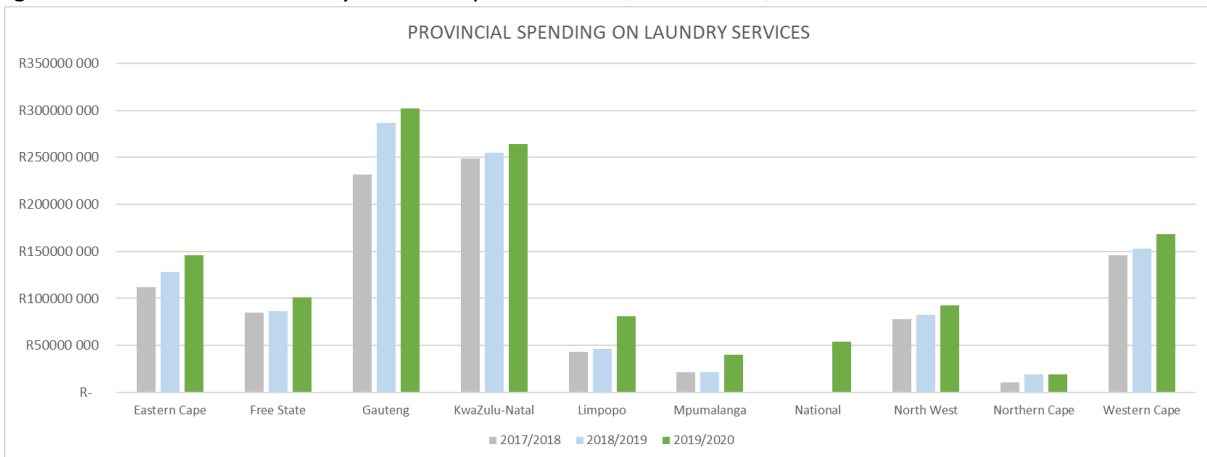
- Compensation of employees accounts for more than 60% of spending in Eastern Cape, Free State, KwaZulu Natal and North West.
- 49% of expenditure in Limpopo is on property payments and 25% is attributable to laundry equipment, while only 2% is spent on compensation of employees. This suggests Limpopo may be outsourcing laundry services on site at facilities.
- KZN makes use of provincial laundry services, where provincial laundry depot serve multiple facilities; this may explain the significant proportion of spending being attributable to compensation of employees.

Table 20: Year on Year laundry services spend in 2017/18 to 2019/20

LAUNDRY SPENDING TOTAL	2017/18	2018/19	2019/20	AAGR
National Department	R 98 723	R 968 697	R 54 464 540	3202%
KwaZulu Natal	R 318 445 532	R 332 486 724	R 328 517 307	2%
Free State	R 94 525 257	R 91 867 658	R 104 288 147	5%
Eastern Cape	R 143 946 846	R 154 621 809	R 160 910 497	6%
Western Cape	R 145 914 837	R 152 925 160	R 168 621 231	8%
North West	R 80 920 799	R 88 290 738	R 96 398 249	9%
Gauteng	R 273 313 959	R 327 720 907	R 332 003 912	11%
Northern Cape	R 13 032 228	R 21 778 645	R 22 177 118	34%
Mpumalanga	R 26 205 868	R 21 303 462	R 40 298 114	35%
Limpopo Province	R 47 550 636	R 50 528 844	R 84 061 737	36%
Grand Total	R 1 144 585 823	R 1 242 492 645	R 1 391 740 853	10%

The National Department had the largest average annual growth rate with 3202% over three years. This was a result of the spending on the NHI Indirect Grant: Beds and Linen Component expended in the 2019/20 financial year. The National Department of Health had a specific drive to purchase beds and linen, and thus initially created a conditional grant to ensure beds and linen (this has been merged with the national health insurance indirect grant: health facility revitalisation component as of 2019/20). This explains the substantial spending by the National Department. Limpopo, Mpumalanga and Northern Cape have the largest provincial AAGR, with 36%, 35% and 34% respectively over three years.

Figure 5: Year-on-Year laundry services spend in 2017/18 to 2019/20.



While Gauteng has a small number of hospitals, the patient load experienced is the second largest in the country, which would explain the high spend in laundry services over the three years; spending the most for laundry in both the 2018/19 and 2019/20 years. Limpopo and Mpumalanga were the only provinces where expenditure increases significantly from 2018/19 to 2019/20, in fact doubling their expenditure on laundry over the period. For both provinces,

investment in laundry equipment was the main driver for increased spending in laundry services, each province procuring equipment in excess of R20 million in 2019/20.

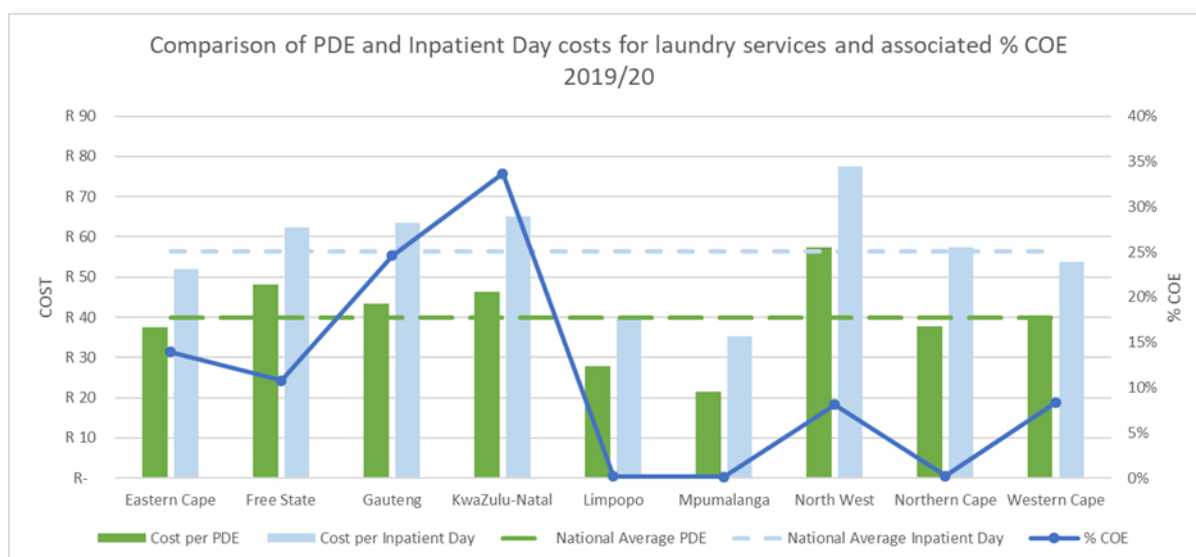
Table 21: Categories of Laundry spending in 2019/20

Consumable supplies for detergent make up most of the goods and services spending, contributing 51% overall. The team recommends that provincial departments, supported by the relevant national bodies, negotiate lower prices for detergent or place this commodity on a National Tender. Cleaning and laundry detergents are uniform and universal; therefore, it may be easy to create a national tender, similar to the national tender on beds and linen.

Table 22: Laundry spending per PDE across provinces 2019/20

LAUNDRY SPEND PER PDE	TOTAL PDE	COST PER PDE	VARIANCE FROM MEAN %
Eastern Cape	4 296 341	R 37	94%
Free State	2 170 925	R 48	120%
Gauteng	7 648 666	R 43	109%
KwaZulu-Natal	7 105 908	R 46	116%
Limpopo	3 012 104	R 28	70%
Mpumalanga	1 870 567	R 22	54%
North West	1 677 925	R 57	144%
Northern Cape	586 237	R 38	95%
Western Cape	4 236 460	R 40	100%
	32 605 134	R 40	

On average, it costs R37 per patient day equivalent to launder items in the public healthcare space. The Free State and North West deviate slightly from the national average, spending R8 and R17 more per patient day equivalent respectively.



Conclusion

Laundry services make up 0,8% of total goods and services spending for the Department of Health, spending a total of R1,3 billion per year, 53% of which is spent on compensation department employees. Understanding the relationship between insourcing and outsourcing services at the facility level would require further investigation. As such, the recommendations in this section focus on opportunities for transversal contracts to reduce and manage prices

The data suggests that there is significant expenditure for the purchase of laundry detergents, around R200 million spent annually. To realise savings, the National Department of Health

can issue regulations on prices for laundry detergents and laundry equipment, improving the price management and governance for laundry services procurement.

Provinces use different methods to provide laundry services and may have the service insourced on-site, insourced off-site, outsourced on-site or outsourced off-site. These would result in different spending patterns, particularly for the spending on compensation of employees. The best practise would differ for each province depending on the spatial disparity, patient movement and the method of providing the service. From the data it seems that Limpopo may be outsourcing the services on-site, as the province has been spending on equipment and property payments, without a corresponding expenditure on compensation of employees. This has proven beneficial to the province, which experienced a low cost per patient day equivalent relative to the national average. Conversely, KwaZulu Natal uses a combination of on-site laundry services at facilities, and regional laundry services managed through Health Care Support Services. Given the spatial composition and rurality of the province, investing in regional laundry facilities (which serve a multitude of facilities) results in economies of scale and realised savings as the province spent the national average cost per patient day equivalent on laundry services.

Food and Catering Estimated Expenditure Analysis

To conduct the food services expenditure analysis, BAS and PERSAL data was built up into related subsections and mapped to the following six expenditure categories:

- Outsource Nutrition Services
- Crockery & Cutlery
- Food and Food Supplies
- Equipment
- Inventory & Consumables
- Compensation of employees (PERSAL)

The following table shows total food and catering services expenditure by category as defined above and a 3 year Compound Annual Growth Rate for each.

Table 23: Total Food and Catering Services Expenditure by Category and AAGR (2017/18 to 2019/20)






CATEGORY	2017/18	2018/19	2019/20	AAGR
Outsource nutrition services	R 576 565 517	R 572 238 941	R 550 068 953	-2%
Food & food supplies	R 1 009 065 757	R 1 054 216 678	R 1 123 959 779	6%
Compensation of employees (persal)	R 693 602 515	R 769 163 009	R 845 303 564	10%
Crockery & cutlery	R 5 038 913	R 5 342 207	R 8 613 656	34%
Equipment	R 18 874 901	R 42 142 245	R 38 623 076	57%
Grand total	R 2 303 147 603	R 2 443 103 080	R 2 566 569 027	6%

The grand total for food and catering services in health facilities was equal to R7,3 billion over three financial years with an overall average annual growth of 6%. Whilst food & food supplies and compensation of employees showed an AAGR of 10% or less across three years, Crockery and Equipment grew significantly, measuring AAGR of 34% and 57% respectively. These constitute a small proportion of the overall spending on food and catering and are likely a non-recurrent cost. Outsourced nutrition services make up 23% of total food and catering expenditure, illustrating that a small proportion of the service is outsourced - the majority of the service is provided in-house.

Outsourced nutrition services is the only category of expenditure that declined.. This suggests there may be some elements of outsource services that were reduced as the decline is seen over both the periods between 2017/18 to 2018/19 and 2018/20 to 2019/20, at -1% and -4%, respectively. This may explain the increased spending on crockery & cutlery and Equipment, as provinces may have opted to insource services over the same period.

The following table shows total food and catering expenditure by category and by province for the period 2017/18 to 2019/20.

Table 24: Food and catering expenditure by category and by province

2019/20	Outsource nutrition services	Crockery & cutlery	Food & food supplies	Equipment	Compensation of employees	Provincial % share of total
National Department	R -	R 14 048	R 99 030	R 151 451	R 11 559 801	0%
Northern Cape	R 29 055 071	R -	R 41 052 534	R 392 960	R 7 700 468	3%
Mpumalanga	R -	R 1 624 917	R 83 129 066	R 3 868 699	R -	3%
Limpopo	R 647 230	R -	R 138 728 642	R 1 495 811	R -	5%
Free State	R 35 722 279	R 9 330	R 63 194 558	R 6 687 787	R 98 033 717	8%
North West	R 139 608 169	R 249 837	R 10 086 729	R 2 225 327	R 61 809 850	8%
Eastern Cape	R 25 874 384	R -	R 144 921 439	R 1 056 697	R 133 576 792	12%
Western Cape	R 38 482 126	R 6 397 923	R 165 552 435	R 7 997 501	R 141 062 610	14%
KwaZulu-Natal	R 278 048 038	R -	R 117 949 569	R 12 320 349	R 148 061 428	22%
Gauteng	R 2 631 658	R 317 602	R 359 245 778	R 2 426 493	R 243 498 899	24%
Grand Total	R 550 068 953	R 8 613 656	R 1 123 959 779	R 38 623 076	R 845 303 564	
Proportion of total	 21%	 0%	 44%	 2%	 33%	

Inventory and consumables make up the bulk of the total food and catering services expenditure with a proportion of 39%. These are goods purchased to prepare food for patients in-house, and so are assumed to be related to insourced services. Compensation of employees makes up 32% of total food and catering services and are assumed to be related to preparing food in-house.

Changing the method of service delivery (and deciding between insourcing and outsourcing) in effort to reduce costs, requires sufficient qualitative and quantitative evidence to support the impetus. Performance reviews may reveal whether outsourced services reap unwarranted opportunity costs, particularly on the service quality as facilities no longer have direct control. At the time of this review, no qualitative study could be identified to address this concern.

The following tables shows the year-over-year growth for total food and catering costs over three financial years.

Table 25: Year-on-Year growth for food and catering services expenditure from 2017/18 to 2019/20

FOOD SPENDING TOTAL	2017/18	2018/19	2019/20
TOTAL	R 2 303 147 603	R 2 443 103 080	R 2 566 596 027
YEAR-ON-YEAR		6%	5%
% GROWTH: GOODS AND SERVICES		4%	3%
% GROWTH: PERSAL		11%	10%

The Year-on-Year growth in food and catering expenditure was greatest between the 2017/18 and 2018/19 period at 6% and decreased by 1% between the 2018/19 and 2019/20 period. This growth is in line with inflation over the period. Growth in expenditure on personnel is the main driver for increased expenditure and, as the bulk of the service is provided in-house, this increase affects most provinces and facilities.

The table below shows the total food and catering services expenditure by province and AAGR from the 2017/18 to 2019/20 financial year period.

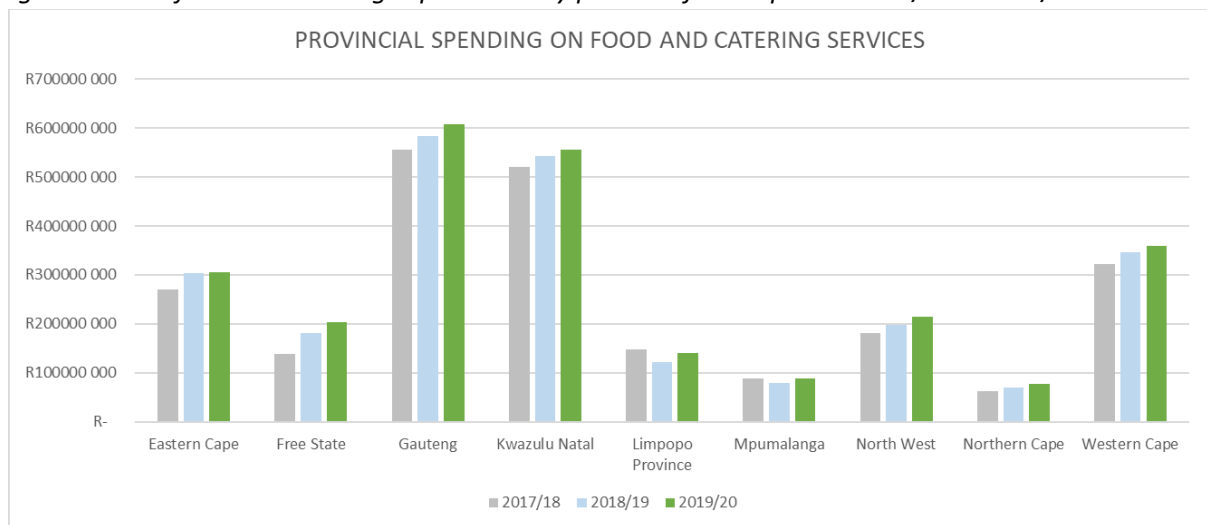
Table 26: Food and catering services spend and the 3-year AAGR for 2017/18 to 2019/20.

FOOD & CATERING SPENDING	2017/18	2018/19	2019/20	AAGR
National Department	R 14 060 338	R 16 120 137	R 11 824 329	-6%
Limpopo Province	R 147 892 931	R 122 695 208	R 140 871 683	-1%
Mpumalanga	R 87 938 235	R 80 053 321	R 88 622 682	1%
Kwazulu Natal	R 520 888 305	R 543 519 591	R 556 379 384	3%
Gauteng	R 556 031 436	R 583 171 336	R 608 120 429	5%
Western Cape	R 322 676 181	R 345 627 173	R 359 492 594	6%
Eastern Cape	R 270 472 117	R 302 901 718	R 305 429 312	6%
North West	R 181 699 276	R 198 118 749	R 213 979 911	9%
Northern Cape	R 61 909 078	R 69 463 410	R 78 201 032	12%
Free State	R 139 579 707	R 181 432 437	R 203 647 671	21%
Grand Total	R 2 303 147 603	R 2 443 103 080	R 2 566 569 027	6%

National Department and Limpopo showed a decline in their average growth at -6% and -1%, respectively. All other provinces steady showed an increase in spending, with average growth rates between 1% and 12%. The Free State is worth noting as an outlier as their average growth rate was significantly higher than other provinces at 21%, driven by increases to the compensation of employees over the period.

The following figure shows food and catering expenditure by province for the period 2017/18 to 2019/20.

Figure 6: Total food and catering expenditure by province for the period 2017/18 – 2019/20



Limpopo and Mpumalanga show fluctuations in their expenditure for food and catering, decreasing in the 2018/19 financial year to increasing again in the 2019/20 financial year. Further investigation into contract and interviews with the provinces will identify the drivers of this spending pattern may reveal interesting insights to how the service is planned for, budgeted and managed.

The following table shows the proportion of expenditure attributable to Goods & Services and to expenditure on personnel

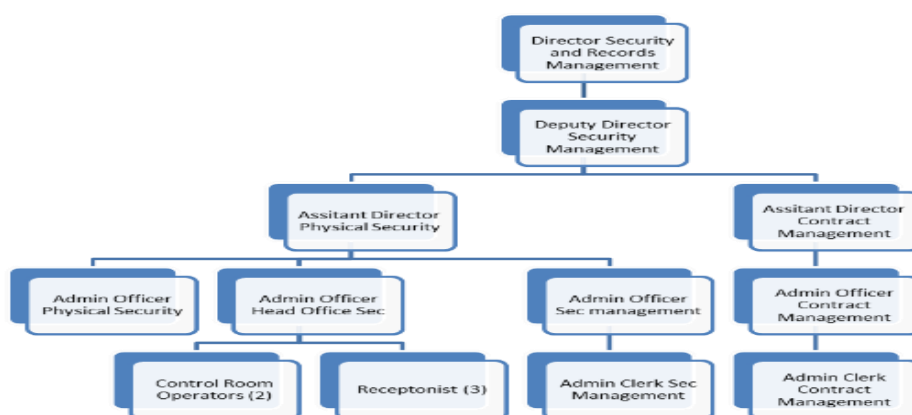
Table 27: Proportion of goods and services expenditure vs personnel expenditure for Food and Catering services 2019/20

FOOD & CATERING SPENDING	2019/20	Province's share of total expenditure	Goods and services as a % of total	Personnel expenditure as a % of total
National Department	R 11 824 329	0%	2%	98%
Northern Cape	R 78 201 032	3%	90%	10%
Mpumalanga	R 88 622 682	3%	100%	0%
Limpopo	R 140 871 683	5%	100%	0%
Free State	R 203 647 671	8%	52%	48%
North West	R 213 979 911	8%	71%	29%
Eastern Cape	R 305 429 312	12%	56%	44%
Western Cape	R 359 492 594	14%	61%	39%
KwaZulu-Natal	R 556 379 384	22%	73%	27%
Gauteng	R 608 120 429	24%	60%	40%
Grand Total	R 2 566 569 027	100%		

Gauteng and KwaZulu Natal each account for more than 20% of total food and catering expenditure. Gauteng has the largest number of full-time employees, earning a higher annual remuneration package than other provinces. Further discussion with the province could help shed light on why the remuneration package is higher and how the scope of their full-time employees differ from other provinces.

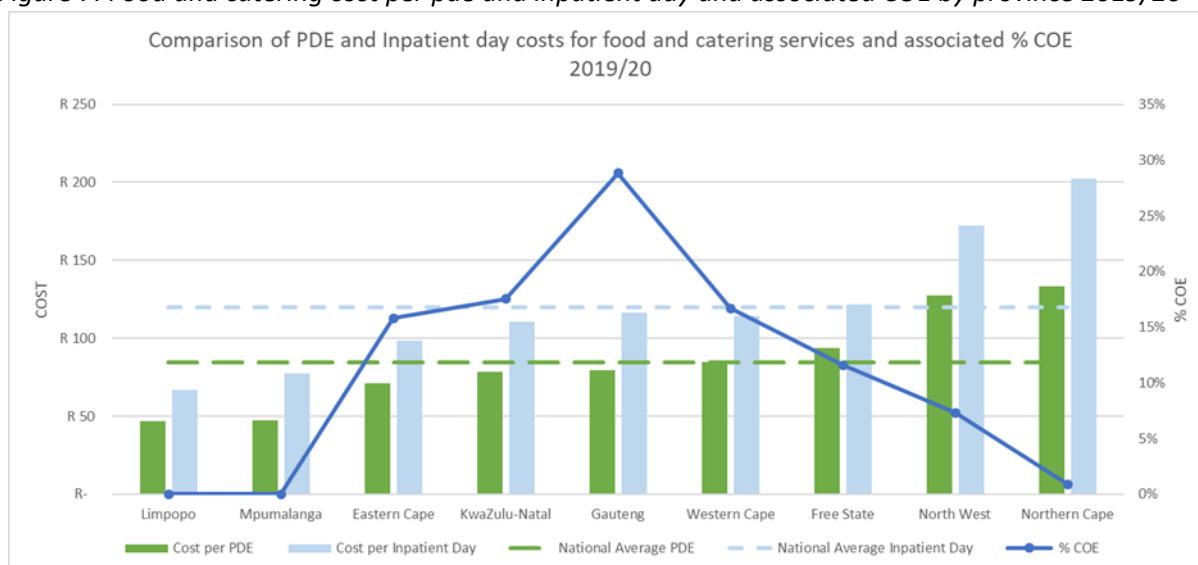
The following tables show the cost per bed, cost per PDE and cost per inpatient days and the respective provincial percentage variance from the national mean.

Table 28: Food and catering expenditure cost per bed, cost per PDE and cost per inpatient day by province



The cost per bed for food services ranges between R1 484 and R4 074, and the Northern Cape has the highest cost per bed for food and catering. The provincial mean for the cost of food services per patient day equivalent is R 85, with a range from R47 in Limpopo and Mpumalanga to R133 in Northern Cape. Northern Cape also had the highest CAGR over the three-year period.

Figure 7: Food and catering cost per pde and inpatient day and associated COE by province 2019/20



For a province that mainly outsource their food services, North West has a high cost per PDE and subsequently high inpatient costs. Analysis of their contracts may shed light on the cost structures and inefficiencies presented by the outsourcing option.

Gauteng and KwaZulu Natal offer interesting insight to the spending pattern for food and catering services. While Gauteng mainly insources their food and catering services, KwaZulu Natal has split the service equally between insourcing and outsourcing. These provinces experience similar patient activity, and have comparable costs per inpatient day. This may suggest that neither method of procuring food and catering services provides distinct advantages, or presents explicit cost savings opportunities. Further investigation into their active contracts would be useful in assessing this observation.

The average cost per inpatient day is R120 with a range from as low as R67 in Limpopo to as high as R203 in Northern Cape. The province that spends closest to the average is Free State and with knowledge sharing allowed across provinces, much could be learnt about the quality of service they offer and how their contracts differ from the rest as an attempt to realise savings in other provinces.

COMPARATIVE STUDY ON COST DIFFERENCES BETWEEN INCOURCING AND OUTSOURCING

FOOD & CATERING SERVICES

The purpose of this analysis is to assess price differences between insourcing and outsourcing for food and catering services in health facilities. Data from PERSAL and BAS was collected for facilities that spend a minimum of R7 million for food and catering, and for which PDE data was available from DHIS.

A key data constraint is the unavailability of contracts and SLA's which would allow an assessment of unit prices. In the absence of this information, the spending has been assessed relative to the demand for health services measured by Patient Day Equivalent and Inpatient Days.

The BAS *lowest item level* indicates whether a service is insourced or outsourced. For facilities and institutions where costs are allocated to the A&S/O/S BAS item, it is assumed the service is outsourced. Where an institution has expenditure recognised in other relevant BAS items, and has corresponding PERSAL expenditure, the service is assumed to be insourced.

Facilities were classified into their bed range capacities which formed the basis of the comparison for insourcing *versus* outsourcing. In addition, facilities were grouped into types of hospitals to give an overall view of the price differences between insourcing and outsourcing for different levels of care. Only a small number of hospitals could be assessed at this level given the unavailability of data for many other facilities. The final sample of hospitals is too small to be representative of the country.

Although PDEs are a used denominator for hospital performance, inpatient days are the most appropriate indicator for this analysis, as only in-patients consume hospital food and drive the expenditure seen above. Nevertheless, similar trends are observed between the two indicators.

Outsource vs Insource services cost per Inpatient Days

The following section looks at cost variations between the inpatient day cost insourced and outsourced food and catering services. The aim of this analysis is to assess whether either method of procuring services provides opportunities for cost savings.

The following table shows highest and lowest cost per inpatient days across different hospital sizes.

Table 29: Comparison of cost per inpatient day for outsourced/insourced food and catering

FOOD & CATERING SERVICES					
BED RANGE: 3000 - 6000	Lowest Cost		Highest Cost	Lowest cost as % of highest cost	
OUTSOURCE	R	86	R	100	86%
INSOURCE		-	R	149	-
BED RANGE: 6000 - 9000					
OUTSOURCE	R	101	R	155	65%
INSOURCE	R	66	R	154	43%
BED RANGE: 9000 - 12 000					
OUTSOURCE	R	93	R	102	91%
INSOURCE	R	79	R	192	41%
BED RANGE: ABOVE 12000					
OUTSOURCE		-	R	84	-
INSOURCE	R	41	R	101	41%

The analysis has been inconclusive in discerning the cheaper method of providing food and catering services. There is significant variation in cost per inpatient day at insourcing and outsourcing facilities; the variance is lower at outsourcing facilities.

Outsourcing facilities with a bed capacity between 3000 and 6000 have an average cost per inpatient days of R80, ranging from R41 in Mthatha General Hospital to R100 in Addington Hospital. Addington Hospital has comparable expenditure and inpatient days, so it would be worth exploring their food and catering contract to understand what drives its high cost per inpatient day. In contrast, Bongani Regional Hospital, which is a facility of similar size, insources its food and catering at a cost of R149 per inpatient day. The total inpatient day cost for Bongani Regional Hospital is driven by its very low total inpatient days and high total expenditure compared to similar sized hospitals. In this instance, caution must be taken when advising insourcing or outsourcing as a preferred method as there is limited representation of hospitals that insource in this bed range.

Table 31: Comparison of the food and catering cost per inpatient day for facilities in the bed range 3000 to 6000

BED RANGE		3000 - 6000	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST	
MTHATHA GENERAL HOSPITAL		R	41
ADDINGTON HOSPITAL		R	100
MAFIKENG PROVINCIAL HOSPITAL		R	92
KHAYELITSHA HOSPITAL		R	86
BONGANI HOSPITAL	R		149

Outsourcing hospitals with a bed range between 6000 and 9000 have an average inpatient days cost of R117. Grey's Central Hospital is above the mean with inpatient day costs of R155. This is because although Grey's Central Hospital has a comparable budget amongst hospitals of similar bed ranges, its total inpatient days is low resulting in a high cost per inpatient day. The average cost per inpatient days for hospitals that insource food with a bed range between 6000 and 9000 is R103, which is lower than the average seen for outsourcing facilities. Helen Joseph and Kalafong Provincial Hospitals drive this average up as outliers sitting at R141 and R154 respectively. In the case of Helen Joseph Provincial Hospital this because of its high total expenditure for relatively low inpatient day. Kalafong has relatively higher total inpatient days for hospitals within this range, and its total expenditure is higher leading to a high cost per inpatient day.

Table 32: Comparison of the food and catering cost per inpatient day for facilities in the bed range 6000 to 9000

BED RANGE		6000 - 9000	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST	
NELSON MANDELA ACADEMIC HOSPITAL		R	106

UNIVERSITAS HOSPITAL		R 101
PELONOMI HOSPITAL		R 102
GREYS HOSPITAL		R 155
KING EDWARD VIII HOSPITAL		R 121
KIMBERLEY HOSPITAL		R 135
CECILIA MAKIWANE HOSPITAL	R 66	
DORAH NGINZA HOSPITAL	R 66	
LIVINGSTONE HOSPITAL	R 89	
HELEN JOSEPH HOSPITAL	R 141	
KALAFONG HOSPITAL	R 154	

Hospitals with a bed capacity above 9000 do not vary significantly between the average inpatient day cost of food and catering, with outsourcing at R93 and R97 for insourcing. The average cost for insourcing is slightly cheaper at large facilities, at R84 but the average is skewed by Steve Biko Academic Central Hospital, which spends R192 per inpatient day. The variance is notable when comparing hospitals within Gauteng; Chris Hani Baragwanath Central Hospital only spends R41 per inpatient days compared to Steve Biko Academic Central Hospital' R192.

Table 33: Comparison of the food and catering cost per inpatient day for facilities in the bed range above 9000

BED RANGE	ABOVE 9000	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST
KLERKSDORP HOSPITAL		R 93
WITRAND HOSPITAL		R 102
PRINCE MSHIYENI MEMORIAL HOSPITAL		R 84
FRERE HOSPITAL	R 79	
LERATONG HOSPITAL	R 80	
STEVE BIKO HOSPITAL	R 192	

GROOTE SCHUUR HOSPITAL	R 122	
CHARLOTTE MAXEKE HOSPITAL	R 97	
CHRIS HANI BARAGWANATH HOSPITAL	R 41	
DR GEORGE MUKHARI HOSPITAL	R 71	
TYGERBERG HOSPITAL	R 101	

Analysis by types of hospitals

The cost per inpatient day for insourcing and outsourcing is comparable across regional hospitals with outsourcing being R5 higher than insourcing. Excluding Bongani Regional Hospital, insourcing facilities reflect lower cost per patient day. The cost per inpatient day is higher in Bongani Regional Hospital because of its low inpatient days; its exclusion from the analysis reduces the average cost per PDE of regional hospitals down from R90 to R71.

Table 34: Comparison of the food and catering cost per inpatient day for Regional facilities

HOSPITAL TYPE	REGIONAL	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST
MTHATHA GENERAL HOSPITAL		R 41
ADDINGTON HOSPITAL		R 100
WITRAND HOSPITAL		R 102
PRINCE MSHIYENI MEMORIAL HOSP		R 84
BONGANI HOSPITAL	R 149	
CECILIA MAKIWANE HOSPITAL	R 66	
DORAH NGINZA HOSPITAL	R 66	
LERATONG HOSPITAL	R 80	

In Provincial hospitals, the cost to outsource per inpatient days is lower than the cost to insource per inpatient days by R21. However, as seen in regional hospitals, the average insourcing cost per inpatient day drops with the exclusion of outliers from the analysis. In this case, when Helen Joseph and Kalafong Provincial Hospitals are excluded from the observation, the average cost per inpatient days drops down to R80, making it cheaper to insource food and catering services.

Table 35: Comparison of the food and catering cost per inpatient day for Provincial facilities

HOSPITAL TYPE	PROVINCIAL
---------------	------------

HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST
MAFIKENG HOSPITAL		R 92
PELONOMI HOSPITAL		R 102
KIMBERLEY HOSPITAL		R 135
KLERKSDORP HOSPITAL		R 93
LIVINGSTONE HOSPITAL	R 89	
HELEN JOSEPH HOSPITAL	R 141	
KALAFONG HOSPITAL	R 154	
FRERE HOSPITAL	R 79	
DR GEORGE MUKHARI HOSPITAL	R 71	

In the case of central hospitals, the price to provide food and catering services is quite high regardless of the method used to procure the service. It is worth noting that insourcing facilities have a larger disparity in prices (ranging from R41 to R192) than outsourcing facilities, which are more comparable.

Table 36: Comparison of the food and catering cost per inpatient day for Central facilities

HOSPITAL TYPE	CENTRAL	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST
NELSON MANDELA ACADEMIC HOSPITAL		R 106
UNIVERSITAS HOSPITAL		R 101
GREYS HOSPITAL		R 155
KING EDWARD VIII HOSPITAL		R 121
STEVE BIKO HOSPITAL	R 192	
GROOTE SCHUUR HOSPITAL	R 122	
CHARLOTTE MAXEKE HOSPITAL	R 97	
CHRIS HANI BARAGWANATH HOSPITAL	R 41	
TYGERBERG HOSPITAL	R 101	

In the absence of granular data, which would illustrate the cost per meal per patient day for outsourcing and insourcing, it is difficult to arrive at a conclusion that gives clear distinction in costs. As such, the decision to insource or outsource should not be a policy directive without further investigation into the different cost structures. Additionally, the qualitative aspects of insourcing and outsourcing should be considered and inform any policy which will mandate the method of procuring food and catering services.

The National Department of Health needs to engage provinces and facilities on the process followed for budget allocation to facilities. In the current dataset, there is no correlation between the hospital size (bed capacity) and their overall expenditure on food. A deeper analysis would answer why hospitals with relatively lower PDE and inpatient days, have higher expenditure or *vice versa*.

Conclusion

Provinces show a significant range for their total expenditure when costs are unitised using the DHIS data. The study would be enriched if a better understanding of the terms and pricing structures in provincial contracts could be analysed. This analysis will be supported by a performance review across all major facilities such as central and provincial tertiary hospitals, to understand if the high unit costs are justified in terms of the quality of services rendered.

Further investigation into the budget planning process would provide useful insight to the planning of services at health facilities. In this analysis, there was no clear relationship between the hospital size (bed range) and the budget allocation; and no correlation between the patient activity (inpatient days) and the expenditure. This investigation would identify opportunities to improve the procurement process for food and catering services; improving the tracking of patients and making data driven procurement decision to curb wasteful expenditure.

Security Estimated Expenditure Analysis

Safety & Security is paramount to the effective and optimal operation of hospitals and other healthcare facilities. The security services provided are dependent on the safety risks experienced in the environment, the facility size (which in this case is denoted by the number of beds in a facility) and the specific patient needs. There are currently no national norms and standards for security services, meaning the application of security services will differ between provinces, and within provinces - some facilities may be underserved while others are spending on more security than they need. Contextualising the security services procured against the safety risks and needs is an important step to recognising the potential for efficiency and savings gains without compromising the safety of the medical staff, patients and community at large.

The expenditure line items from BAS were mapped to five categories, with an additional category from PERSAL included for compensation of employees where relevant. These include:

- Outsourced expenditure;
- Inventories & consumables;
- Contractors services;
- Equipment and security software; □ Property Payments (Capital); and
- Compensation of Employees (PERSAL)

The following table shows total security services expenditure by category as defined above and a 3 year Compound Annual Growth Rate for each.

Table 37: Total Security Services Expenditure by Category and AAGR (2017/18 to 2019/20)

CATEGORY	2017/18	2018/19	2019/20	AAGR
Outsourced security expenditure	R 80 907 915	R 61 648 776	R 54 027 561	-18%
Contractors: security services	R 8 292 523	R 9 839 971	R 9 273 926	6%
Compensation of employees (persal)	R 457 034 867	R 520 140 065	R 553 640 353	10%
Property payment (security)	R 2 670 459 959	R 3 067 977 444	R 3 479 652 380	14%
Equipment	R 5 359 131	R 10 622 753	R 8 737 058	40%
Inventory & consumables	R 413 292	R 7 996 163	R 1 040 788	874%
GRAND TOTAL	R 3 222 467 687	R 3 678 225 172	R 4 106 372 066	13%

The total security expenditure across the three-year financial period (2017/18 - 2019/20) equated to R10,9 billion, with a AAGR of 13% for the 2019/20 estimated expenditure. A major contributor to total spending is the R9,2 billion spent on property payments (safeguard & security); this makes up an average of 85% of total spend over three years. This is followed by compensation of employees making up 14% of total security services spend.

In addition to the specific outsourced security expenditure line item, it is assumed that the property payments to safeguards and security denote outsourced services, where external service providers have provided security guards. Gauteng is the only province to record expenditure against the outsourcing BAS expense item. All provinces use the property payments to safeguards and security expense item. Further analysis is required to understand why Gauteng has expenses in two distinct line items for what seems to be the same expenditure⁸.

All the provinces have some departmental staff for security services. Relative to total expenditure on security services, Free State and KwaZulu Natal have made significant investment in employing security guards, whereas in the other provinces the PERSAL expenditure suggests most of the salary expenditure for this service is for managerial staff

Inventory and consumables showed significant growth over the period with a AAGR of 874%, as well as equipment with a AAGR of 40%. This spending is for miscellaneous items needed in the provision of security services, e.g. flashlights or two-way portable radios.

The following tables shows the year-on-year growth for security spending over three financial years

Table 38: Year-on-Year growth for security services expenditure from 2017/18 to 2019/20

SECURITY SPENDING TOTAL	2017/18	2018/19	2019/20
TOTAL	R 3 222 467 687	R 3 678 225 172	R 4 106 372 066
YEAR-ON-YEAR		14%	12%
% GROWTH: GOODS AND SERVICES		14%	12%
% GROWTH: PERSAL		14%	6%

The Year-on-Year growth in security expenditure was 14% between the 2017/18 and 2018/19 period, and 12% between the 2018/19 and 2019/20 period. The majority of the year-on-year increments is due to increases in Goods and Services spending more so than PERSAL.

⁸ UNDERSTANDING OF THIS SEPARATE EXPENDITURE SHOULD BE DONE THROUGH INTERVIEWING THE PROVINCE. THIS CAN BE DONE AS PART OF THE BUDGET REVIEWS AFTER THE GTAC REVIEWS.

In each year, the increase in goods and services is above 10%, much higher than the inflation reported over the period. These are goods and services procured from external service providers, and so indicates supplier-pricing power. For the size of business the departments provide the service providers, the provincial departments has bargaining power to be price setters, negotiating favourable rates and control price escalations year-on-year; this is an opportunity for cost savings.

The respective provincial spending contributes to overall Security Services spending as detailed below, and each province's expenditure can be disaggregated into goods and services and personnel costs as follows:

Table 39: Proportion of goods and services and personnel expenditure for Security Services by Province 2019/20

SECURITY SPENDING TOTAL	2019/20	Province's share of total expenditure	Goods and services as a % of total	Personnel expenditure as a % of total
National Department	R 33 687 324	1%	26%	74%
Mpumalanga	R 7 539 716	0%	57%	43%
Northern Cape	R 161 433 731	4%	97%	3%
Free State	R 266 695 993	6%	1%	99%
North West	R 299 555 333	7%	94%	6%
Western Cape	R 321 896 851	8%	88%	12%
Eastern Cape	R 507 967 091	12%	98%	2%
Limpopo	R 578 461 204	14%	99%	1%
Gauteng	R 739 196 336	18%	95%	5%
KwaZulu-Natal	R 1 189 938 486	29%	88%	12%
Grand Total	R 4 106 372 066	100%		

Northern Cape has the lowest number of hospitals, beds, PDE and yet its share of total security expenditure is higher than Free State and Mpumalanga. Gauteng and KwaZulu Natal account for 47% of the total spending on security services. For both these provinces, the main cost driver is goods and services rather than personnel expenditure, which underscores the goods and services increments influence on spending increases. Therefore, most of the savings will come from goods and services spending and the provincial contracts on security services.

From the table it is also clear which provinces outsource security services, and which have elected to supply the service in-house. Free State insources the provision of security services, while the other provinces outsource. Mpumalanga spending on security services is notable as it is the lowest amount. This is due to the operating model employed in the province. The security services are managed at the Department of Community Safety and Security, and thus the budget and spending are recorded there.

Table 40: Total Security Services Expenditure by Province and AAGR (2017/18 to 2019/20)

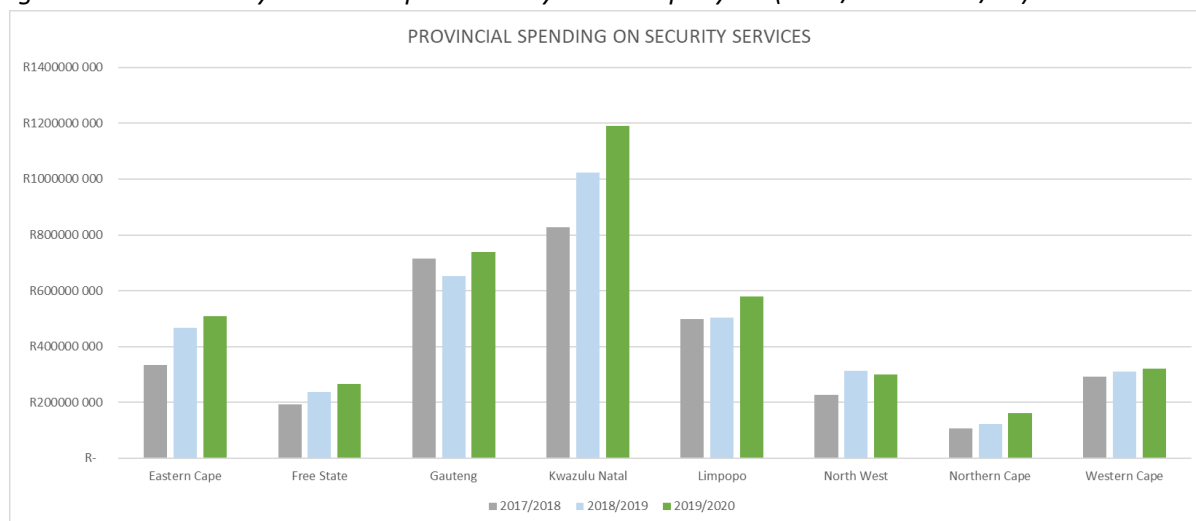
SECURITY SPENDING TOTAL	2017/18	2018/19	2019/20	AAGR
National Departments	R 28 324 625	R 37 834 583	R 33 687 324	11%
Gauteng	R 714 235 651	R 653 790 191	R 739 196 336	2%
Western Cape	R 290 985 359	R 309 440 224	R 321 896 851	5%
Limpopo Province	R 498 265 356	R 504 726 546	R 578 461 204	8%
North West	R 227 471 847	R 313 009 473	R 299 555 333	17%
Free State	R 192 716 465	R 238 337 728	R 266 695 993	18%
Kwazulu Natal	R 828 338 355	R 1 023 902 566	R 1 189 938 486	20%
Northern Cape	R 106 319 854	R 123 513 669	R 161 433 731	23%
Eastern Cape	R 333 025 726	R 466 407 775	R 507 967 091	24%
Mpumalanga	R 2 784 451	R 7 263 418	R 7 539 716	82%
Grand Total	R 3 222 467 687	R 3 678 226 172	R 4 106 372 066	8%

The largest proportional increase in spending was from Mpumalanga, which experience a 82% average annual growth rates over three years. This is due to goods and services increasing from R36 thousand in the 2017/18 financial year (where there were no property payments made), to R4,3 million spent on goods and services in 2019/20. Mpumalanga has low spending on security services as the service is administered at the Department of Community Safety, and the spending is recognised under that department.

Gauteng, Limpopo and Western Cape grew below 10% and all other provinces grew average annual growth rate above 10%. The Western Cape spends relatively low for size of the province. There are likely efficiencies to learn from Western Cape, as the province is larger than Limpopo but is spending about R200 million less on security services.

The following Figure 7 shows a depiction of total security expenditure over three financial years by province. This is also a useful illustration of cost escalations experience between provinces.

Figure 7: Total Security Services Expenditure by Province per year (2017/18 to 2019/20)



The year-on-year increases are best managed in the Western Cape, where spending increased by 4% each year, which is less than the percentage inflation recognised in the same period. KwaZulu Natal had the highest spending and experienced the highest increase at 16%, given the size of the spending; better escalation rates should be negotiated with service providers.

While KwaZulu Natal has spent the highest absolutely, relative to the utilisation of their services, the amount spent is in line with the provincial averages. A per capita analysis is a useful illustrator of cost efficiency and resource effectiveness. The amount spent in relation to the utilisation illustrates provinces that may have allocated too much spending to a commodity. In this analysis, the spending varies widely between provinces and highlights areas of inefficiency and possible cost savings.

The table below details the various per capita spending on security services for the respective provinces.

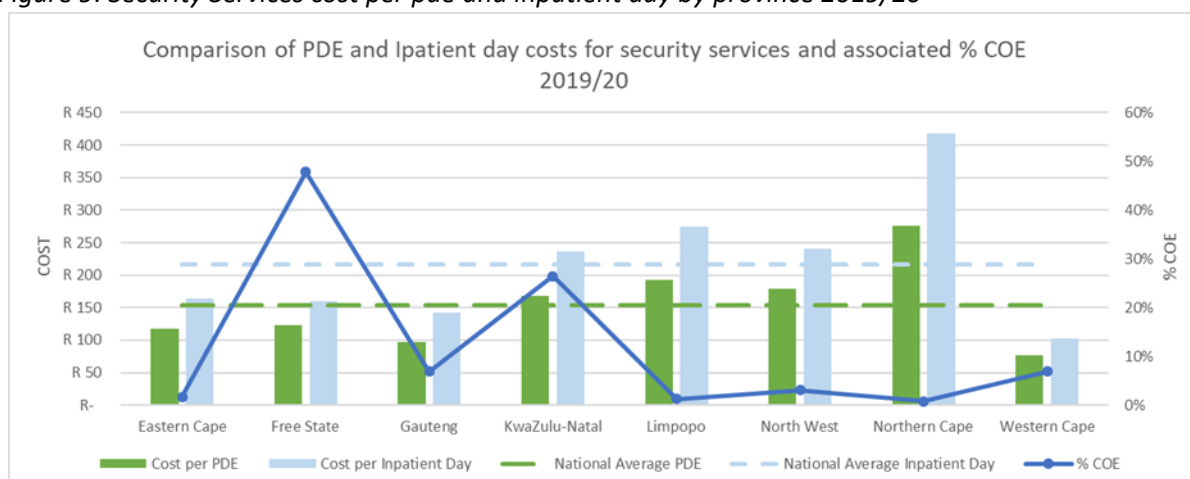
Table 41: Provincial Security Services expenditure per hospital, per bed, per PDE and inpatient day by province 2019/20

PROVINCE	SECURITY SPEND			
	PER HOSPITAL	PER BED	PER PDE	PER INPATIENT DAY
Mpumalanga	R 228 476	R 126	R 4	R 7
Free State	R 5 442 775	R 3 366	R 123	R 160
Eastern Cape	R 5 644 079	R 3 145	R 118	R 164
Western Cape	R 6 190 324	R 2 695	R 76	R 103
Northern Cape	R 11 530 981	R 8 409	R 275	R 418
North West	R 13 024 145	R 5 348	R 179	R 241
Limpopo	R 14 108 810	R 6 135	R 192	R 274
KwaZulu-Natal	R 16 526 923	R 4 656	R 167	R 236
Gauteng	R 21 741 069	R 3 447	R 97	R 142
NATIONAL AVERAGE	R 10 493 065	R 4 147	R 137	R 194

The Northern Cape expenditure per hospital is marginally higher than the national average, however as the province's total spend is low there may not be much room for savings. Although Eastern Cape has the highest number of hospitals, its total security expenditure only makes up 14% of the national total, less than that of Gauteng and KwaZulu-Natal that contribute 20% and 30% to total expenditure respectively. Comparatively, Eastern Cape spend the same per hospital as Free State and Western Cape, which may be indicative of its operational efficiency.

In contrast, Limpopo contributes 16% total security expenditure and its expenditure per hospital and expenditure per bed are double that of Eastern Cape. This is illustrative of poor efficiency and possible overspending on security services.

Figure 9: Security Services cost per pde and inpatient day by province 2019/20



The provincial average spend on security services is R137 per patient day equivalent. The largest variances from the provincial average are from KwaZulu Natal, Limpopo, Northern Cape and North West; if these provinces were to bring down the spend to the provincial average, the provinces would save about R500 million per year, as shown below.

Table 42: Security services expenditure per patient day equivalent by province 2019/20

SECURITY SPEND PER PDE	TOTAL PDE	COST PER PDE	VARIANCE FROM MEAN %	SAVINGS AT AVERAGE COST
Eastern Cape	4 296 341	R 118	86%	
Free State	2 170 925	R 123	90%	
Gauteng	7 648 666	R 97	71%	
KwaZulu-Natal	7 105 908	R 167	122%	R 217 896 385
Limpopo	3 012 104	R 192	140%	R 166 424 868
Mpumalanga	1 870 567	R 4	3%	
North West	1 677 925	R 179	131%	R 70 026 120
Northern Cape	586 237	R 275	201%	R 81 240 267
Western Cape	4 236 460	R 76	56%	
MEAN COST PER PDE	32 605 134	R 137		R 535 587 640

There may be legitimate reasons for the wide variance in provincial security spending per capita. Security is needed for the safety of hospital assets, staff and the community the facility serves. Some areas may have significantly higher risks to safety and security than others, and so may warrant additional security guards or security services at a higher price. Facilities in desolate areas may face higher security risk and so may need additional guards stationed at the facility. The service provider may also decide that to meet the safety needs of such facilities, they need to make additional investments in patrol vehicles or security systems and technology, all of which would raise the price to provide the service. An in-depth analysis on the security of assorted facilities would provide insight on the safety needs, trade-off between investment in physical guards or security systems and the savings to be extracted from best practice.

The security needs of the different types of facilities varies, so a distinction between these facilities would also provide context to the spending on security services. For example, clinics occupy smaller spaces and typically close overnight, so the amount and type of security needed would differ from a hospital. Analysis of the major consumers of security services illustrates the varying needs and how those needs affect overall spending.

Table 43: Security services expenditure per facility type by province 2019/20

PROVINCES	CENTRAL HOSPITAL		CHC	CLINIC		DISTRICT/DISTRICT HOSPITAL		PROVINCIAL HOSPITAL	ADMINISTRATIVE		OTHER		
Eastern Cape	380	39 837	376	37 687	743	156 484	981	163 700	007	73 588	-	997	25 865
Free State	643	58		-		-		-		1 375	-		
Gauteng									929				
	408	136 659	523	94 047	494	135 745	409	109 051	793	129 213	8 165	025	32 858
KwaZulu Natal	789	29 874	610	78 487	359	390 106	586	227 028	614	256 887	16 669	620	40 744
Limpopo Province	636	19 522		-	543	348	163	377 419	737	139 401	7 346	731	25 893
Mpumalanga		-		-		-		-		-	-	110	1 397
National Departments		-		-		-	033	1 286		-	-		-
North West		-	464	8	482	29		-		-	282 072	342	601
Northern Cape	522	8 235	674	19 638	975	30 910	764	81 063	125	10 231	4 499	292	2 637
Western Cape		51 112		32 620		15 093		112 420		61 584	2		10 136
	433		112		746		562		169		059	713	
Grand Total	811	285 300	758	262 489	342	728 719	498	1 071 970	373	672 282	318 755 768		140 134 830

	8%	8%	21%	31%	19%	9%	4%
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FREE STATE HAS INSOURCED THE MAJORITY OF ITS SECURITY SERVICES, THAT IS WHY THE SPENDING RECOGNISED IN GOODS AND SERVICES (DETAILED IN THE TABLE ABOVE) IS SO LOW.

District Health Services, which include Clinics, Community Health Centres, District Hospitals and District offices, consume the majority of security services; therefore, any savings will come from District Health Services. Each province's respective spending patterns should be assessed in relation to the delivery of health services. For example, Gauteng is the only province that spends the majority of its security expenditure in Central Hospitals; this could be due to the number and size of central hospitals in this province. North West has reported all of the province's expenditure under the administrative line item, making it difficult to assess the main drivers for spending from budget data. However, the contract North West has signed may be a single source of data about the distribution of guards and the pricing agreed with service providers in the province.

COMPARATIVE STUDY ON COST DIFFERENCES BETWEEN INSOURCING AND OUTSOURCING SECURITY SERVICES

The purpose of this analysis is to assess price differences between insourcing and outsourcing for security services in health facilities. The data does not show conclusive evidence of either procurement method being definitively advantageous.

The total expenditure in outsourcing facilities is, on average, larger than the expenditure for insourcing facilities. The cost per patient bed for outsourcing facilities is higher than insourcing facilities; however, as the sample size is too small to be representative, this is not conclusive.

In this analysis, data from PERSAL and BAS was collected for facilities that spend a minimum of R9 million for security services, and for which bed numbers were available on DHIS. Bed numbers are used as a proxy for the size of a hospital and the amount of security that is needed.

The BAS expenditure is filtered for the lowest responsibility level, and reviewed for expenditure items in the specific line items. For spending recognised in the property payments line item, the service is assumed to be outsourced; while expenditure recognised in other line items is assumed to be for insourced services. Where facilities have PERSAL expenditure related to security services that exceeds expenditure in BAS, then the service is assumed to be insourced.

Facilities were further classified into their bed range capacities which formed the basis of the comparison for insourcing *versus* outsourcing. As the number of beds in a facility denotes the size of the facility, it is useful to group similar size facilities to compare the total spending. The need for security, and the resultant spending, is driven by the size of the facility and the risk environment the facility operates in. Therefore, grouping similar size facilities allows a comparison of their absolute and relative spending on security services. This makes identifying outliers and anomalies easier.

In addition, facilities were grouped into types of hospitals to give an overall view of the price differences between insourcing and outsourcing for different levels of care.

For the purposes of this analysis an attempt was made to gather information from all provinces for a fair comparison, although there was no facility level data for security services expenditure in Limpopo, Mpumalanga, Northern Cape and North West.

Limitations

Due to unavailability of data resulting in lack of representation for other types of hospitals, no comprehensive analysis for insourcing versus outsourcing could be conducted for the different levels of care.

Outsource vs Insource services cost per Bed

The following section looks at cost variations between outsource and insource per bed for security services. The aim of this analysis is to assess whether it is cost saving to insourcing or outsourcing at a facility level given the bed ranges.

The following table shows cost per Bed for facilities that outsource security services

Table 44: Comparison of security services cost per bed for outsourced/insourced facilities

SAFETY & SECURITY SERVICES					
BED RANGE: 3000 - 6000		Lowest Cost		Highest Cost	Lowest cost as % of highest cost
OUTSOURCE	R	2 864	R	4 911	58%
INSOURCE		-	R	1 594	-
BED RANGE: 6000 - 9000					
OUTSOURCE	R	1 492	R	3 220	46%
INSOURCE	R	3 085	R	3 829	81%
BED RANGE: 9000 - 12 000					
OUTSOURCE	R	1 748	R	2 049	85%
INSOURCE		-	R	1 047	-

The comparison of cost per bed for security services is difficult as there are limited insourcing facilities with suitable data. From this limited analysis outsourcing facilities cost per bed varies greater than insourcing facilities; this highlights pricing inconsistencies from service providers. Standardising the cost for security services may offer savings.

Table 46: Comparison of security services cost per bed

BED RANGE	3000 - 6000	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST
fs Fort Napier Hospital	R 1 594	
ec Mthatha General Hospital		R 2 940
gp Rahima Moosa Hospital		R 4 911
kz Ngwelezana Hospital		R 2 864
wc Khayelitsha Hospital		R 3 335
wc Mitchells Plain Hospital		R 3 348
wc Valkenberg Hospital		R 3 067

Fort Napier Hospital insources its security and spends R1 594 per bed, which is lower than the average cost for outsourcing facilities within the same range. The lower cost per bed in Fort Napier Provincial Hospital is a result of its high inpatient beds; the number of beds is higher than the average number of beds seen in outsourcing facilities.

Facilities with a bed range between 3000 and 6000 that outsource their security services have an average cost per bed of R3 411. For a facility with lower than the average inpatient beds, Rahima Moosa Hospital has the highest security expenditure and highest cost per bed. Facilities in Gauteng such as Rahima Moosa may experience higher security expenditure due to the security risk in the province. Ngwelezana Provincial Hospital has the highest number of inpatient beds, and its cost per bed is below average. This may be because Ngwelezana

Provincial Hospital serves a large population but is located in a low risk environment, resulting in a lower cost per bed rate for providing security services.

Table 47: Comparison of security services cost per bed

BED RANGE		6000 - 9000	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST	
fs Pelonomi Hospital	R 829 3		
fs Universitas (C) Hospital	R 085 3		
ec Cecilia Makiwane Hospital		R 551 1	
ec Dora Nginza Hospital		R 492 1	
kz King Dinuzulu Hospital		R 746 2	
kz RK Khan Hospital		R 220 3	

For facilities that insource their security services, the average cost per bed is R3 457 which is higher than outsourcing. Inpatient beds for these facilities (Pelonomi Hospital and Universitas Hospital) is comparable to outsourcing facilities although their total expenditure is higher, resulting in high costs per bed. Furthermore, for facilities within the same province, an elaborate analysis can highlight why a relatively smaller provincial hospital (Pelonomi Hospital) with a lower total inpatient bed has higher total expenditure than Universitas Central hospital, a larger facility.

For facilities with a bed range between 6000 and 9000, outsourcing facilities have an average cost per bed of R2 252. Cecilia Makiwane Hospital and Dora Nginza Hospital have comparable inpatient beds and total security expenditure hence their similar cost per bed; averaging R1 522 between them. Although RK Khan Hospital has lower inpatient beds, its total expenditure is high which results in a higher cost per bed of R3 220. King Dinuzulu has the highest inpatient days which is proportionate to its total expenditure, resulting in a cost per bed of R2 746 which is slightly higher than the average for facilities in this bed range.

Table 48: Comparison of security services cost per bed

BED RANGE		ABOVE 9000	
HOSPITAL NAME	INSOURCE COST	OUTSOURCE COST	
fs Free State Psychiatric Complex	R 047 1		
gp Thelle Mogoerane Hospital		R 949 1	
kz Edendale Hospital		R 049 2	
kz Prince Mshiyeni Memorial Hospital		R 748 1	

For facilities that outsource their security services with a bed range between 9000 and 12 000, there is an overall comparable costs per bed, averaging at R1 915. Although not as significant, Prince Mshiyeni Memorial Provincial Hospital spends below this average with a cost per bed of R1 748 driven by its high inpatient beds. Edendale Provincial Hospital and Thelle Mogoerane Hospital have comparable costs per bed due to their comparable inpatient bed numbers and comparable security expenditure.

The Free State psychiatric complex hospital has a bed range above 9000 and insources its security services at a cost per bed of R1 047. This is lower than the cost to outsource for similar size facilities. For facilities that outsource, an analysis to explore differences in contracts between facilities and budget allocations, can explain why smaller facilities may be spending more per bed.

Trade-Off Analysis – Potential savings to be realised from investing in Security Services Technology

The deployment of security guards needs to be strategically planned to meet the security needs of facilities. Ensuring the safety of larger facilities, that are located in high security risk areas, necessitates the deployment of numerous guards to patrol the grounds and manage patient flow. At the current rate paid for security guards, this method would be costly.

Instead of employing a number of guards, larger facilities should opt to invest in security systems technology and infrastructure. Investing in security systems technology and infrastructure will mean a change in strategy for how to provide security services at facilities. This will present a trade-off between investing in human guards or security systems. Facilities need fewer guards when the right investment in security systems is made.

Modern security cameras allow people to monitor activities remotely; surveillance camera systems have great features - including motion detection features to let users know when something significant enters a property, sending an alert to the user through a text message or email. This would significantly improve efficiency and the efficacy of security services at facilities, while improving the overall sense of safety for the community. When using physical security guards, there are a number of significant risks – including risk of collusion between the guard and employees, or with external criminals, risk of improper threat detection or prevention and a risk of human error. Security systems directly address these risks, reducing or eliminating the risks in the following ways⁹:

- *Risk of Collusion*
Cameras will deter security guards from forming delinquent relationships with facility staff and community members, as they will know they supervisors are watching. This means the risk of staff theft and burglaries (in collaboration with security guards) is significantly reduced.
- *Risk of improper detection of threats*
Quality security camera and systems, alert users to suspicious activity and take immediate action, even before an event occurs, by allowing the timely detection of threats.

⁹ Kyle Gorham, 2019. Benefits of Investing in Surveillance Camera System Installation.

<https://www.techprosecurity.com/security-articles/security-systems/benefits-of-investing-in-surveillancecamera-system-installation/>

- *Risk of human error*

Security guards are susceptible to false alarms, tiredness and general human error. To reduce human error more advancements in intelligent analytics, modern security camera systems can reduce human errors while increasing the system's effectiveness. What's more, remote accessibility enables multiple users to utilize remote video monitoring services instead of relying on one person who may make mistakes.

A video surveillance system allows effective monitoring of multiple locations simultaneously. It requires limited workforce or labour to keep the property secured. Modern surveillance cameras have low-light capabilities, making night-time surveillance possible and effective. This would mean a security team of two or three people would be able to monitor a facility effectively; this would also free up time so guards can focus on other duties.

The challenges to implementing this policy may include

- Lack of political will to implement security technologies that result in a reduced workforce. 'Employment' provides substantial political capital to local municipalities and provinces, so the promise of 'employment' often secures political parties votes. This is especially true in South Africa, where the unemployment rate¹⁰ was at 28,18% in 2019. A province or municipality would be sensitive to the employment needs of their region and likely oppose a policy that results in increased unemployment.
- The initial investment in these technologies would require a substantial sum of money upfront, while the savings are realised over the medium to long term. This would place cash-flow strain on the provinces, as the availability of cash resources would make the initial investment improbable. If the cash were made available, provinces, and facilities alike, may opt to use the funds to procure other urgent medical needs (like medical equipment or paying of overtime), and so this investment in technology would not be prioritised.

The initial investment in security technology and infrastructure would mean

- Investment in cameras, CCTV and computer monitors for guards to watch from;
- Investment in security information systems to collect, store and disseminate data;
- Fencing and gates and a guardhouse

This would result in immediate cash investment in the technology and infrastructure, which may put pressure on an already constrained budget; but would ultimately result in significant cost savings as guard numbers decrease.

To maximise savings, it is necessary to apply this policy across all provinces. Therefore, both procurement methods available to provinces should be considered. The discussion below looks at the possible savings to be realised from investment in security technology from insourcing provinces and outsourcing provinces respectively.

For insourcing provinces, reducing the staff count would prove more difficult than outsourcing provinces. Outsourcing provinces enter into term contracts, usually over a period of three or five years. This means, then the term contract comes to its end, the province can reduce its

¹⁰ StatsSA, July 2020. South Africa: Unemployment rate from 1999 to 2019.

contracted security services. This would not be as simple for insourcing provinces. State employees often have safeguards and recourse against termination. The relevant labour unions and national bodies must be consulted to understand how this policy may be implemented in the insourcing province.

Substantial analysis into the potential for cost-saving and improved efficiency have been conducted. It is recommended that provinces be involved with the redesign of security services, strategically advising the policy changes that can be implemented.

Conclusion

Security services are the largest spending category of this spending review, with over R4 billion spent in 2019/20. This means significant savings can be made by optimising this service. This analysis has revealed savings on security spending would be achieved by reducing the cost of the security contracts provinces have entered into.

It is imperative that security contracts be scrutinised, for all provinces that have outsourced their security services. There are important policy initiatives that would lead to significant savings, including investing in technology and infrastructure, or yielding community safety to a higher office. Following consultation with some provinces, they concur that savings and efficiencies have realised since the implementation of the initiatives.

Substantial savings can be realised in Limpopo, North West and Northern Cape, provinces that are currently above the national average spending per PDE. There is a potential R 500 million (an average of 4% of these provinces goods and services budget) in cost efficiencies to be realised if these provinces were to reduce their spending down to the national average. These savings would be realised by the respective provinces, reallocated within their own budgets.

Investing in security technology and infrastructure is a necessary policy initiative for reducing security costs. Although this policy may have political opposition, the current budget constraints necessitate decisive policies.

The Mpumalanga Department of Community Safety presents an important discussion (which will affect multiple departments) – the duplication of administrative duties between departments. The establishment of one overarching department of community safety has relieved the department of health of its responsibility to provide safety and security at its facilities; instead, the department has time and money to focus on its core mandate: providing health care. This also reduces the bloated state staff count, so that duplicated roles that exist in multiple departments are held at a provincial level to benefit multiple departments. This will have far-reaching implications and presents an interesting cross-departmental cost-savings initiative that should be investigated.

ANNEXURE 1 – DHIS DATA USED FOR THE PER CAPITAL ANALYSIS

The table below illustrates the DHIS data per province for 2019/20.

Table 49: DHIS Hospital per province and Bed numbers per province data 2019/20

PROVINCE	NUMBER OF HOSPITALS	NUMBER OF BEDS
EASTERN CAPE	90	524
FREE STATE	49	244
GAUTENG	34	454
KWAZULU NATAL	72	562
LIMPOPO	41	284
MPUMALANGA	33	711
NORTH WEST	23	017
NORTHERN CAPE	14	197
WESTERN CAPE	52	455
NATIONAL TOTAL	408	448

The total number of hospitals across the country is 408, the majority of which are in Eastern Cape (90), followed by KwaZulu Natal (72) and Western Cape (52). The average size of a hospital in Eastern Cape is 1795 beds, while Gauteng has an average of 6307 beds per hospital.

The patient day equivalent¹¹ is a weighted combination of inpatient days, day-patient days, and OPD/ emergency total headcount. In-patient days multiplied by a factor of 1, day-patient multiplied by a factor of 0.5 and OPD/ Emergency total headcount multiplied by a factor of 0.33. All hospital activity is expressed as an equivalent to one in-patient day.



Inpatient days is the unit of measure for accommodating and providing services in the Hospital to the patients admitted between the census taking hours (usually at midnight) of two successive days.

The distribution of public health users translates to the patient day equivalent and inpatient days recognised in DHIS for 2019 as illustrated in the tables below.

Table 50: Patient Day Equivalent (PDE) per province 2019/20

PROVINCE	TOTAL PDE 2019	PROPORTION
EASTERN CAPE	4 296 341	13%
FREE STATE	2 170 925	7%
GAUTENG	7 648 666	23%
KWAZULU NATAL	7 105 908	22%

¹¹ ANNEXURE 1(E) ANNUAL PERFORMANCE PLAN 2012/13 <http://www.kznhealth.gov.za/app2010annexe.pdf>

LIMPOPO	3 012 104		9%
MPUMALANGA	1 870 567		6%
NORTH WEST	1 677 925		5%
NORTHERN CAPE	586 237		2%
WESTERN CAPE	4 236 460		13%
NATIONAL TOTAL	32 605 134		100%

The largest patient day equivalent numbers are attributable to Gauteng and KwaZulu Natal, constituting 23% and 22% respectively.

Table 51: Inpatient Day per province 2019/20

TOTAL INPATIENT DAYS 2019		PROPORTION	
PROVINCE			
EASTERN CAPE	3 092 827	<div></div>	13%
FREE STATE	1 671 909	<div></div>	7%
GAUTENG	5 222 018	<div></div>	23%
KWAZULU NATAL	5 041 201	<div></div>	22%
LIMPOPO	2 112 470	<div></div>	9%
MPUMALANGA	1 143 912		5%
NORTH WEST	1 243 813		5%
NORTHERN CAPE	386 068		2%
WESTERN CAPE	3 140 185	<div></div>	14%
NATIONAL TOTAL	23 054 403		100%

The inpatient days recognised in provinces follow the same distribution patterns as the patient day equivalent numbers.

Table 52: Patient Day Equivalent (PDE) per province per year 2017/18, 2018/19 and 2019/20

PROVINCE	NUMBER OF BEDS: PERI/URBAN	NUMBER OF BEDS: RURAL	NUMBER OF BEDS: TOTAL
EASTERN CAPE	136 552	24 972	161 524
FREE STATE	75 908	3 336	79 244
GAUTENG	214 454	-	214 454
KWAZULU NATAL	208 935	46 627	255 562
LIMPOPO	49 788	44 496	94 284
MPUMALANGA	34 629	25 082	59 711
NORTH WEST	48 277	7 740	56 017

NORTHERN CAPE	17	1	19
	233	964	197
WESTERN CAPE	119		119
	143	312	455
NATIONAL TOTAL	904	154	1 059
	919	529	448

The yearly change in patient load across provinces is negligible. The province's patient day equivalent change by 1 or 2% respectively, not a significant change per year. For this reason, the 2019/20 patient numbers have been used as a consistent baseline for patient numbers.

ANNEXURE 2 – PROCESS MAPS AND LOGFRAMES

The process map in this review groups outputs and activities into three implementation areas, namely

- i. Policy Development
- ii. Implementation Planning
- iii. Delivery of Service

This spending review is an update of the performance and expenditure review completed in March 2018. That report focused on the comparative analysis of three support services that are pivotal to the delivery of healthcare services in the nine provinces, namely laundry, security and food services. This analysis includes medical waste, a support service that may present significant opportunities for cost savings.

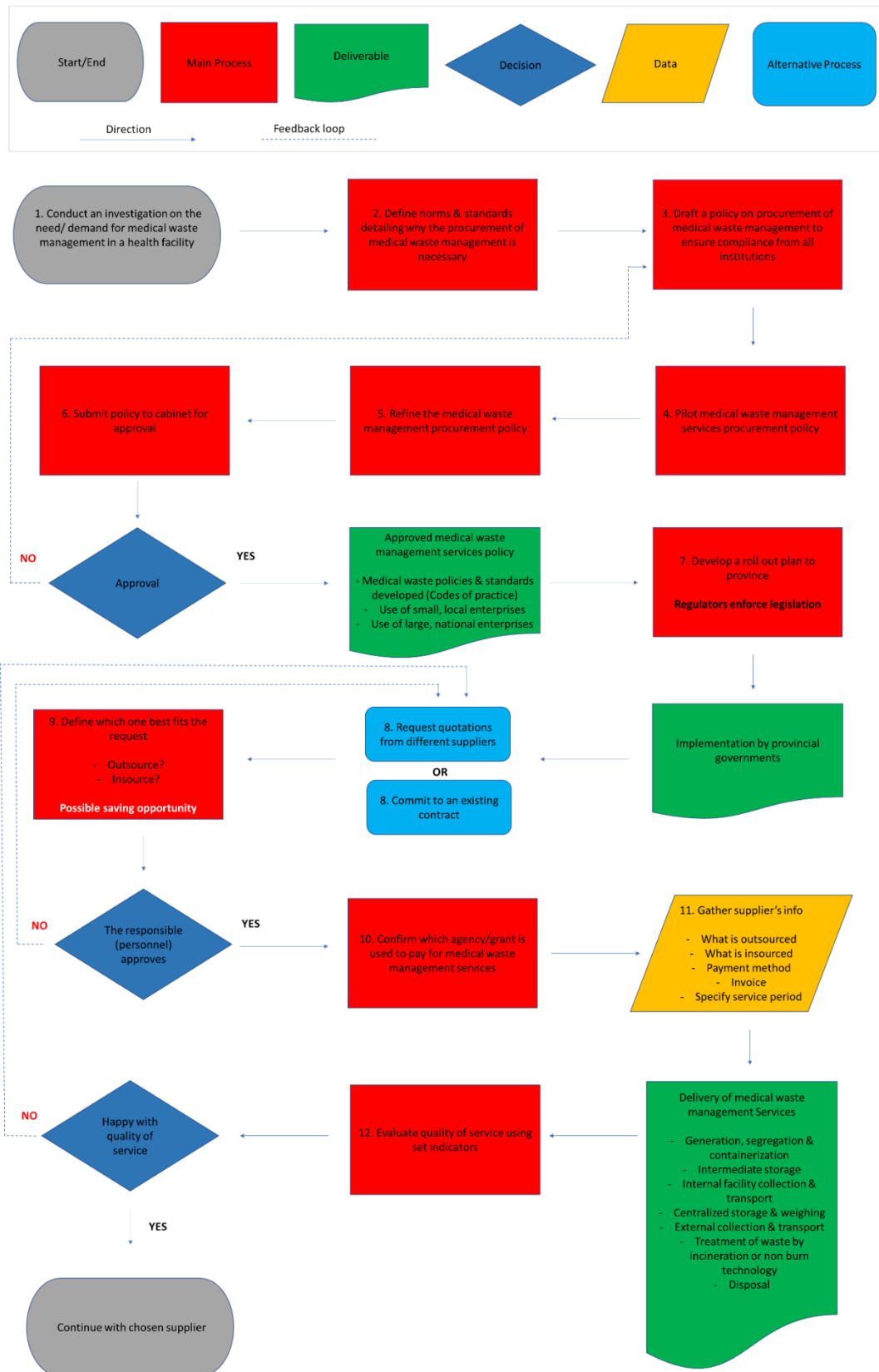
Medical Waste Management Services Process Map and Log frame summary

- i. Policy Development (in this case, guidelines)
 - The waste generated from medical activities can be hazardous and toxic, and thus the formulation of policy surrounding this is paramount.
 - Outlines codes or practices and guidelines for handling and disposal of medical waste.
 - Outlines different technologies for handling waste (incineration, autoclaving, microwave, chemical disinfecting, and irradiation).
- ii. Implementation Planning (roll-out to provinces)
 - Ensure all provinces adhere to policies set by the national department.
 - Health workers receive special training on the management of medical waste.
 - Success depends on provincial departments and their respective districts/local governments.
- iii. Delivery of service
 - During disposal of medical waste, proper occupational health and safety protocols must be adhered to in order to avoid pollution of the environment, which can cause illnesses to the nearby population or community.

Recommendations:

- Provinces should implement technologies – with the lowest capital and installation costs – that perform as effectively as the most efficient methods.
- Enforce strong governance measures to hold officials and managers accountable for service delivery, as part of employee performance management.

Process Map for Medical Waste Management Services



Log Frames for Medical waste services summary

Log frame for medical waste management services			Indicator
6	Impact	No community-medical waste related outbreaks that result from inappropriate disposal of varying kinds of medical waste	Decreased community outbreaks attributed to medical waste
5	Outcome	Limited exposure to health risk by healthcare facility staff, patients and general public	Timely delivery of service on a day
		Residues of treated medical waste that can potentially cause harm are disposed of appropriately	Reduced piles of unattended medical waste
4	Output	Policy on medical waste management services	Well interpreted and functioning policy
3	Intermediate output	Develop protocols for the management of medical waste and its residues, including procedures for treatment, transportation and storage. These protocols should reduce the risk of unsafe handling of waste, and ensure the disposal is not harmful.	
2	Activities		
	Waste management	Collection, transport, treatment and disposal of medical waste	
	Policy	Writing policy and guidelines on medical waste management procurement	
		writing policies and guidelines on medical waste management principles ... consulting with provinces, consulting with industry experts	
1	Inputs		
	Waste management	Containers	
		Liners	
		Boxes	
		Trolleys	
		Waste removers	
	Policy	Managers	
		Policy makers, consultative process and working hours	

Laundry Services Process Map and Log frame summary

i. Policy Development

- Development of policy or guidelines issued by national department on management of used and infected linen
 - i) Clarification of the cycle or route followed for hygienically washing laundry.
 - ii) Policy recognises laundry flows (start – sort – wash – dry/iron – fold – stock – issue – end) as a comprehensive strategy for better hygiene routines.

ii. Implementation Planning (roll-out to provinces)

- Ensure all provinces adhere to policies set by the national department.
- Ensure dirty laundry never comes in contact with clean laundry.

iii. Delivery of service

- Providing safe, clean, adequate and timely supply of linen to user units of hospitals at the right time, right price and right place.

Recommendations: Enforce strong governance measures to hold officials and managers accountable for service delivery, as part of employee performance management.

Log Frames for Laundry services summary

Log frame for laundry services			Indicator
6	Impact	Patient needs are met timeously contributing to a better overall patient experience	Survey on overall patient experience in health facilities
			Number of complaints received
5	Outcome	Enough supply of quality linen and laundry products & services allows facilities to meet requirements of patients coming in for consultation or hospitalisation	Reduced number of infectious diseases resulting from use of dirty linen or contaminated patient clothes
		Provision of clean linen and patient clothes	
		Disinfected and clean patient clothing and bed linen	Timely arrival of clean patient clothing & bed linen
			Availability of linen and patient clothing
4	Output	Policy on laundry services in health facilities and conduct that should be observed	Well interpreted and functioning policy
3	Intermediate output	Design protocols for the management of bed linen and patients clothes, and ensure staff and service providers are trained on these protocols.	
2	Activities		
	Laundry Services	Laundry services includes the sorting, sluicing, washing, extracting, drying, ironing, folding, mending and delivery of linen and patient clothing.	Prompt execution of laundry services
		Equipment maintenance and repairs	
	Policy	Written policy on laundry services procurement	
		Written policy on conduct that should be followed by laundry facilities, consultants etc.	
	Inputs		
	Laundry Services	Patient clothing and Bed Linen	
		Equipment	
		Detergents	
		Laundry workers	

		Transport	
	Policy	Managers, workshops, consultations, travel etc	
		Policy makers, consultative process and working hours	

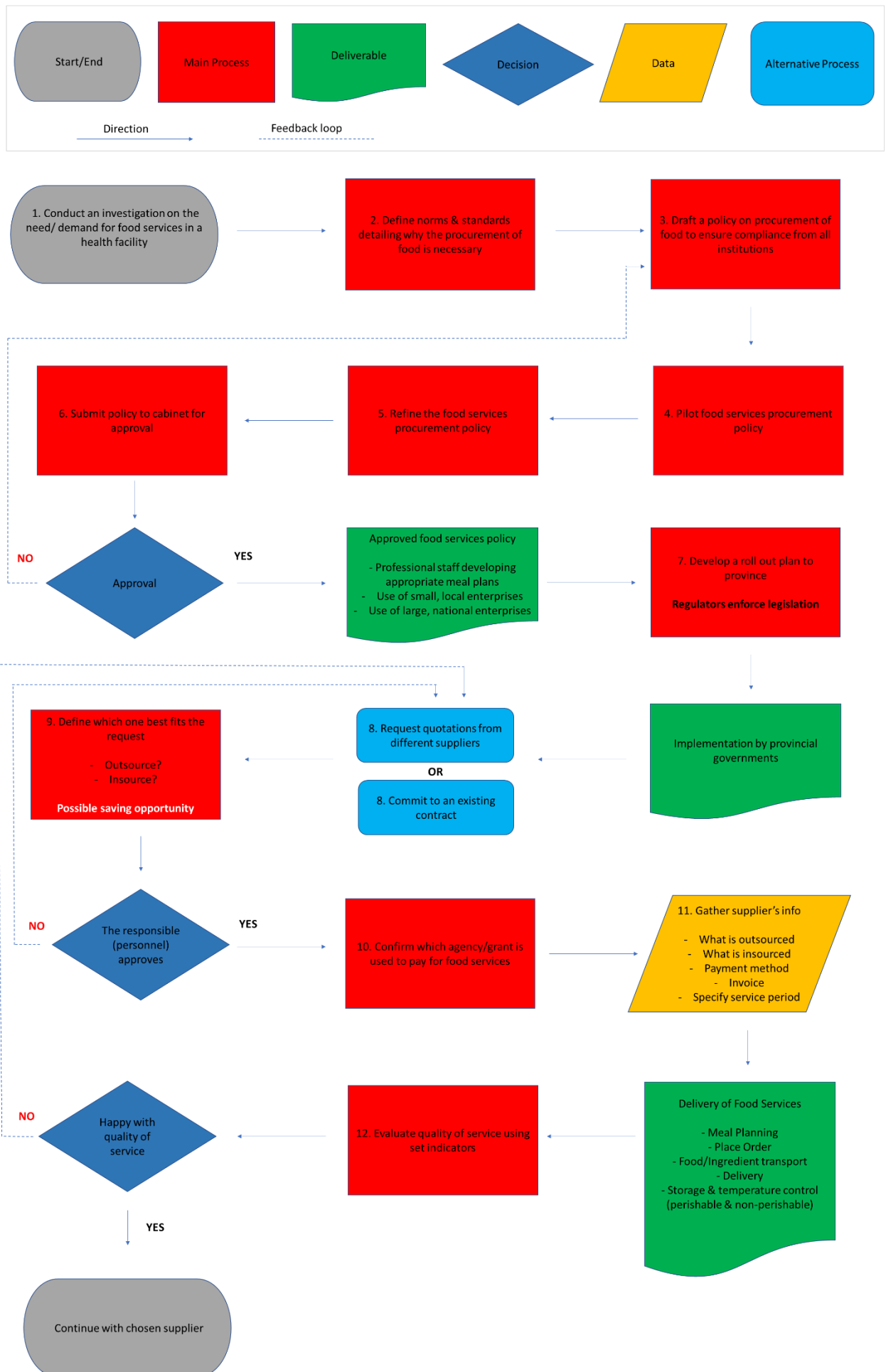
Food & Catering Services Process Map and Log frame summary

- iv. Policy Development
 - The initial white paper was drafted.
 - Policy assists facilities to fashion or create meal plans that are demographic-specific and serve the needs of all patient groups.
- v. Implementation Planning (roll-out to provinces)
 - Ensure all provinces adhere to policies set by the national department.
 - Implementation of these services should not deviate significantly from processes as outlined in the national policy.
 - Policies should allow and encourage provinces to be innovative and autonomous.
 - Success of the policy depends on provincial departments and their respective districts/local governments.
- vi. Delivery of service
 - With comprehensive Standard Operating Procedures followed at all stages of the food service process, there will be no negative health implication for those who are critically ill or immune compromised.
 - Patients will be adequately satiated, aiding their healing and improving health outcomes.

Recommendations:

- Bridge the gap between stakeholders responsible for policy development and those responsible for implementation.
- Involve the provincial departments in policy or guideline development to enhance adherence by provincial departments to these guidelines.
- Hold officials and managers accountable as part of their employee performance management framework.

Process Map for Food Services



Log Frames for Food services summary

Log frame for food services			Indicator
6	Impact	Well-nourished patients. Enhanced and speedy recovery of patients that can be integrated back into society	Healthy people that can contribute to the economy
5	Outcome	Healthy nutritious meals to patients that meet their dietary requirements	All patients fed according to their dietary requirements
4	Output	Policy on nutrition of patients and health and safety of catering on-site or off-site, to ensure healthy safe meals reach patients.	
3	Intermediate output	Design guidelines and protocols for ordering, preparing, storing and serving food to patients. Train staff on appropriate cleanliness and timeliness of preparing and serving food.	Well interpreted and functioning policy
2	Activities	Implementing the nutrition strategy of the dieticians. Ordering food, preparing meals, serving patients and adhering to the health and safety requirements.	Efficiency indicator (e.g. food delivered on time)
		Installation & maintenance of kitchen equipment	
	Food prep	Food preparation labour	Prompt execution of food services
		Delivery of food to patients	
	Cleaning	Cleaning of kitchen area	
		Cleaning of kitchen equipment and eating utensils	
	Policy	Written policy on food services procurement	
		Written policy on meal plans and menus	
1	Inputs		
	Food prep	Facility Kitchen Staff	
		Ingredients (should suit patient demographic and quantity)	Price paid for ingredients
		Health care worker (nurse)	
	Cleaning	Cleaners	
	Policy	Managers	
		Policy makers, consultative process and working hours	Time spent on policy development

Safety & Security Services Process Map and Log frame summary

vii. Policy Development

- The white paper was drafted with various committees in place, including provincial stakeholders, national portfolio committee members, local government and internal consultations with South African Police Service.
- Authorisation of the white paper was passed post submissions presented by cabinet committee members.
- The policy has fundamental guidelines that guide provinces in ensuring health facilities are a conducive environment for rendering services to the public.

viii. Implementation Planning (roll-out to provinces)

- Ensure all provinces adhere to policies set by the national department.
- Implementation of these services should not deviate significantly from processes as outlined in the national policy, should provinces choose to be innovative and autonomous.
- Success of the policy depends on provincial departments and their respective districts/local governments.

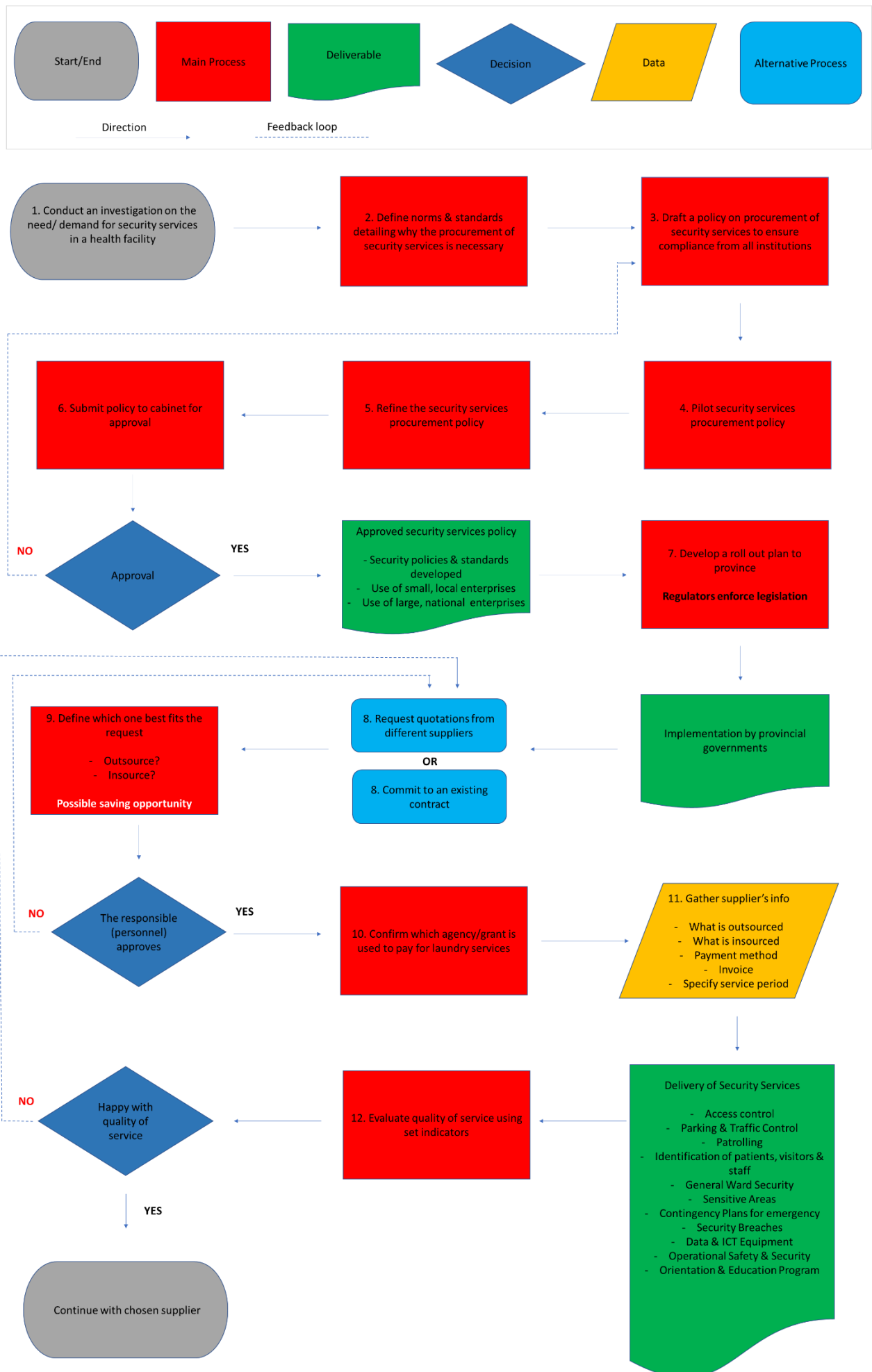
ix. Delivery of service

- With comprehensive Standard Operating Procedures followed in providing safety and security, facilities can focus on nursing patients back to health.

Recommendations:

- Developing policies that support use of modern technology can enhance security and potentially save costs.
- Hold officials and managers accountable as part of their employee performance management framework.

Process Map for Security Services



Log Frames for Security services summary

Log frame for security services			Indicator
6	Impact	Improved confidence of patients and the public in seeking care or services rendered at the hospital	Overall improved and safe environment
5	Outcome	Protection of staff and patients against any identified threats or criminal activity	Reduced number of incidents reported in health facilities and improvement of how incidents are resolved.
			Visibility of security services
4	Output	Policy on security services	Well interpreted and functioning policy
3	Intermediate output	Protocols and guidance on security services, that detail the tasks expected of guards. Training of security guards to ensure adherence to the protocols.	Well trained staff that performs in line with the designed protocols.
2	Activities		
	Security Services	Monitoring or remote monitoring of electronic alarm systems such as burglar or security alarms	Timely response to any security threats
		Installation and maintenance of security systems	
	Policy	Written policy on security services procurement	
		Written policy on security services principles	
1	Inputs		
	Security Services	Security Manager	
		ICT Manager	
		Security Officers	
		Equipment	
		Security Committee	
	Policy		
		Policy makers, consultative process and working hours	
		Managers	

ANNEXURE 3 – BAS DATA DETAILS AND BUILD-UP

BAS PROGRAMMES DETAILS – how the programmes are built up for the respective activities:

The National Budget Programmes with Sub-Programmes are as follows:

National Programme 1- Administration: The purpose of this programme is to provide human resources development and management, labour relations, information communication technology, property management, security, legal, supply chain management and financial management services to the national Department.

- N1S1: Ministry
- N1S2: Management
- N1S3: Corporate Services
- N1S4: Office Accommodation
- N1S5: Financial Management

National Programme 2 – NHI, Health Planning and System Enablement: The purpose if this programme is to improve access to quality health services through the development and implementation of policies to achieve universal health coverage, health financing reform, integrated health systems planning, monitoring and evaluation, and research.

- N2S1: Programme Management
- N2S2: Technical Policy and Planning
- N2S3: Health Information Management, Monitoring and Evaluation
- N2S4: Sector-wide Procurement
- N2S5: Health Financing and National Health Insurance
- N2S6: International Health and Development

National Programme 3 – HIV/AIDS, TB and Maternal and Child Health: The purpose of this programme is to develop and monitor implementation of national policies, guidelines, norms and standards, and targets for the national responses needed to decrease the burden of disease associated with burden of HIV and TB epidemics; to minimise maternal and child mortality and morbidity; and to optimise good health for children, adolescents and women; and monitor and evaluate the outcomes and impact of these.

- N3S1: Programme Management
- N3S2: HIV and AIDS
- N3S3: Tuberculosis
- N3S4: Women's Maternal and Reproductive Health
- N3S5: Child, Youth and School Health

National Programme 4 – Primary Health Care Services: The purpose of this programme is to develop and oversee the implementation of legislation, policies, systems, and norms and standards for a uniform well-functioning district health system, environmental health services, communicable disease control, non-communicable disease control as well as health promotion and nutrition programmes.

- N4S1: Programme Management
- N4S2: District Services and Environmental Health
- N4S3: Communicable Disease
- N4S4: Non-communicable Diseases
- N4S5: Health Promotion and Nutrition
- N4S6: Violence. Trauma and EMS

National Programme 5 – Hospital, Tertiary Health Services and HR Development: The purpose of this programme is to develop policies, delivery models and clinical protocols for hospitals and emergency medical services (EMS). It is also to ensure alignment of academic medical centres with health workforce programmes, training of health professionals and to ensure the planning of health infrastructure meet the health needs of the country. This programme is meant to assist the government to achieve the population health goals of the country through nursing and midwifery, by the provision of expert policy and technical advice and recommendations on the role of nurses in attainment of desired health outputs.

- N5S1: Programme Management
- N5S2: Health Facilities Infrastructure Management
- N5S3: Tertiary Health Care Planning and Policy
- N5S4: Hospital Management
- N5S5: Human Resources for Health
- N5S6: Nursing Services
- N5S7: Forensic Chemistry Laboratories

National Programme 6 – Health Regulation and Compliance Management: The purpose of this programme is to regulate the sale of food and to ensure accountability and compliance by public entities and statutory health professional councils in accordance with applicable legislative prescripts. There are two sub-programmes: Compensation Commissioner for Occupational Diseases (CCOD) and Occupational Health, and Public Entities Management.

- N6S1: Programme Management
- N6S2: Food Control
- N6S3: Pharmaceutical Trade and Product Regulation
- N6S4: Public Entities Management
- N6S5: Office of Standard Compliance
- N6S6: Compensation Commissioner for Occupational Diseases and Occupational Health

The Provincial Budget Programmes with Sub-Programmes are as follows:

Provincial Programme 1 – Administration: The purpose of this programme is to conduct the strategic management and overall administration of the Department of Health.

- P1S1: MEC's Office
- P1S2: Management
- P1S3: Corporate Services (not in BAS)
- P1S4: Property Management (not in BAS)

Provincial Programme 2 – District Health Services: The purpose of this programme is to render Primary Health Care Services and District Hospital. Planning and administration of services and the co-ordinating and management of the Day Hospital Organisation and Community Health Services rendered by Local Authorities and Non-Governmental Organisations within the Metro. Rendering a primary health service through community health centres and clinics.

Services.

- P2S1: District Management
- P2S2: Clinics
- P2S3: Community Health Centres
- P2S4: District Health Services
- P2S5: Community-Based Services
- P2S6: Other Community Services
- P2S7: HIV and AIDS
- P2S8: Nutrition
- P2S9: Coroner Services
- P2S10: District Hospitals
- P2S11: Global Fund

Provincial Programme 3 – Emergency Medical Services: The purpose of this programme is to render prehospital Emergency Medical Services, including Inter-hospital Transfers and Planned Patient Transport.

- P3S1: Emergency Transport
- P3S2: Planned Patient Transport

Provincial Programme 4 – Provincial Hospital Services: The purpose of this programme is to deliver hospital services, which are accessible, appropriate, and effective and provide general specialist services, including a specialized rehabilitation service, as well as a platform for training health professionals and research.

- P4S1: General (Regional) Hospitals
- P4S2: Tuberculosis Hospitals
- P4S3: Psychiatric Hospitals
- P4S4: Sub-acute, step down and chronic medical hospitals
- P4S5: Dental Training Hospitals
- P4S6: Other Specialised Hospitals

Provincial Programme 5 – Central and Tertiary Services: The purpose of this programme is to provide tertiary health services and create a platform for the training of health workers. This entails rendering of a highly specialised medical health and quaternary services on a national basis and a platform for the training of health workers and research.

- P5S1: Central Hospitals
- P5S2: Tertiary Hospitals

Provincial Programme 6 – Health Sciences and Training: The purpose of this programme is to render training and development opportunities for actual and potential employees of the Department of Health. This includes training of nurses, rescue and ambulance personnel, PHC personnel and the provision of bursaries for health science training programmes.

- P6S1: Nurse Training Colleges
- P6S2: EMS Training Colleges
- P6S3: Bursaries
- P6S4: PHC Training
- P6S5: Other Training

Provincial Programme 7 – Health Care Support Services: The purpose of this programme is to render support services required by the Department to realise its aims. These include laundry services, engineering services, forensic services, orthotic and prosthetic services and the medicine trading account.

- P7S1: Laundries
- P7S2: Engineering
- P7S3: Forensic Services
- P7S4: Orthotic and Prosthetic Services
- P7S5: Medicines Trading Account

Provincial Programme 8 – Health Facilities Management: The purpose of this programme is the provision of new health facilities and the refurbishment, upgrading and maintenance of existing facilities.

- P8S1: Community Health Facilities
- P8S2: EMS
- P8S3: District Hospitals
- P8S4: Provincial Hospital
- P8S5: Central Hospitals
- P8S6: Other facilities

LOWEST ITEM LEVEL INCLUDED IN THE SERVICE ANALYSIS

For each service, the BAS *item lowest level* was filtered for all the related expenditure items linked to that service.

Table 54: The BAS line items included in each service category review

MEDICAL WASTE MANAGEMENT	A&S/O/S:MED & CHEM WASTE REM
	INV F&G:CHEMICALS
FOOD AND CATERING SERVICES	A&S/O NUTRITION SER:PATIENTS
	CONS HOUS SUP:CROCKERY & CUTLERY
	CONS HOUS SUP:GROCERIES
	CROCKERY & CUTLERY
	EQP<R5000:KITCHEN APPLIANCES
	F&O/EQP<R5000:CROCKERY & CUTLERY
	INV FOOD SUP:BABY&SPEC FOODS
	INV FOOD SUP:BREAD&CONFECTION
	INV FOOD SUP:EGGS&EGG PRODUCT
	INV FOOD SUP:FRUIT&VEGETABLE
	INV FOOD SUP:GROCERIES
	INV FOOD SUP:MEAT,POULT,FISH
	INV FOOD SUP:MILK&MILK PRODUCT
	KITCHEN APPLIANCES
LAUNDRY SERVICES	CONS HOUS SUP:LIN&SOFT FURNISH
	CONS HOUS SUP:WASH/CLEAN DETE
	EQP<R5000:LAUNDRY EQUIPMENT
	F&O/EQP<R5000:LINEN&SOFT FURNISH
	INV MAT&SUP:HH:LIN&SOFT FURNISH
	INV MAT&SUP:HH:WASH/CLEAN DETE
	LAUNDRY EQUIPMENT
	LINEN & SOFT FURNISHING
	O/P:LAUNDRY SERVICES
	P/P:LAUNDRY SERVICES
SECURITY SERVICES	A&S/O/S:SECURITY SERVICES
	CONS:SECURITY ACCESS CONSUMABLES
	CONTRACTS:SECURITY SERVICES
	EQP<R5000:SEC EQP,SYS,MATER:FIX
	EQP<R5000:SEC EQP,SYS,MATER:MOV

	P/P:SAFEGUARD&SECURITY
	SECURITY EQUIPM,SYS,MATER:FIX
	SECURITY EQUIPM,SYS,MATER:IT
	SECURITY EQUIPM,SYS,MATER:MOV