



Resource Utilization and Caring Cost of People Living with Human Immunodeficiency Virus (PLHIV) in Saudi Arabia: A Tertiary Care University Hospital Experience

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Introduction

The human immunodeficiency virus (HIV), the etiological agent of acquired immunodeficiency syndrome (AIDS), has led to a significant burden throughout the world, in terms of both medical and economical levels.

In Saudi Arabia, resource utilization and the cost of healthcare associated with medical care for People Living with Human Immunodeficiency Virus (PLHIV) is not yet available.

Examining the HIV epidemic through an economic lens

can enable healthcare payers and decision-makers to form better budgeting plans to serve the needs of their patients; facilitate assessment of the value of new HIV treatments and treatment strategies; and provide information about the cost of HIV that may augment the prioritization of research efforts and create a process of evidence-based policy development. Therefore, the purpose of this study was to determine the healthcare and treatment costs (direct medical costs) of caring for PLHIV at one of the tertiary care university hospitals in Riyadh, Saudi Arabia.

Objective

To calculate the direct medical costs of caring of PLHIV patients from perspective of a tertiary care university hospital in Riyadh, Saudi Arabia,

Methods

This was a retrospective, observational study that included all adult confirmed HIV-positive patients who visited King Saud University Medical City (KSUMC), a 1200-bed tertiary care university-based referral hospital in the period from 1 January 2015 to 31 December 2018. The study included all. The costs attributed to PLHIV care was estimated from the payer's perspective. The unit costs of all healthcare services and antiretrovirals (ARTs) for included patients were estimated by a detailed bottom-up (micro-costing) approach to arrive at the most precise cost estimates. The study was approved by the King Saud University's College of Medicine Research Ethics Committee. Statistical significance was defined by the two-sided test with a p-value < 0.05. All statistical calculations were performed using IBM®SPSS® Version 24.0

Results

A total of 42 PLHIV were included in this study. Overall, the main cost-driver was antiretroviral medications, which cumulatively represented more than 64% of the total cost. Patients who developed opportunistic infections had a statistically significant (p = 0.033) higher financial impact, both as a total and on a patient level, than those presented without opportunistic infections. On a patient level, the mean and median costs were higher and statistically significant for those with co-morbidities than those without co-morbidities (p = 0.002).

Table 1: Patient's Sociodemographic and Clinical Characteristics

Mean age ± (SD)	38.76 ± 11.47	
Mean age at diagnosis ± (SD)	33.73 ± 11.63	
Mean disease duration ± (SD)	5.27 ± 4.81	
Patients socio-demographics	N (42)	%
Gender		
Female	6	14.3
Male	36	85.7
Marital status		
Single	15	35.6
Married	26	62.4
Unknown	1	2.4
Employment status		
Employed	4	9.5
Non-employed	21	50
Unknown	17	40.5
CD₄ Count		
>500	25	59.5
351-500	9	21.4
200-350	2	4.8
Unmeasured	6	14.3
HIV mode of transmission		
Sexual	11	26.2
Blood transfusion	1	2.4
Needle stick	1	2.4
Undisclosed	29	69
Co-morbidities		
Yes	15	35.7
No	27	64.3
Mortality	1	2.4
Developed opportunistic infection	21	50
Regimen Type		
Single-tablet regimen	26	61.9
multiple-tablet regimen	12	28.6
Switched from initial therapy	10	23.8

Figure 2. Percentage Impact Per Year of the Cost Categories from 2015 to 2018

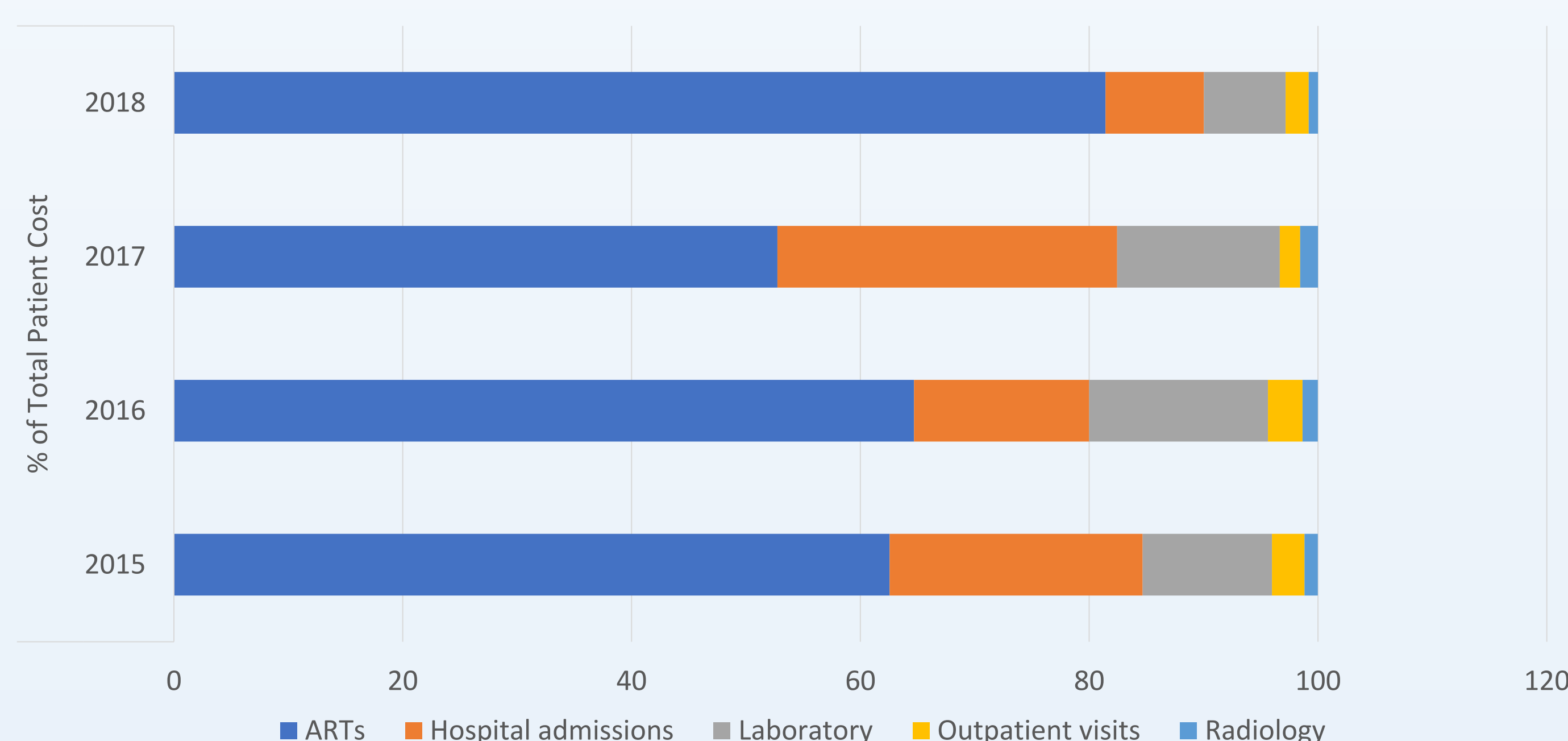


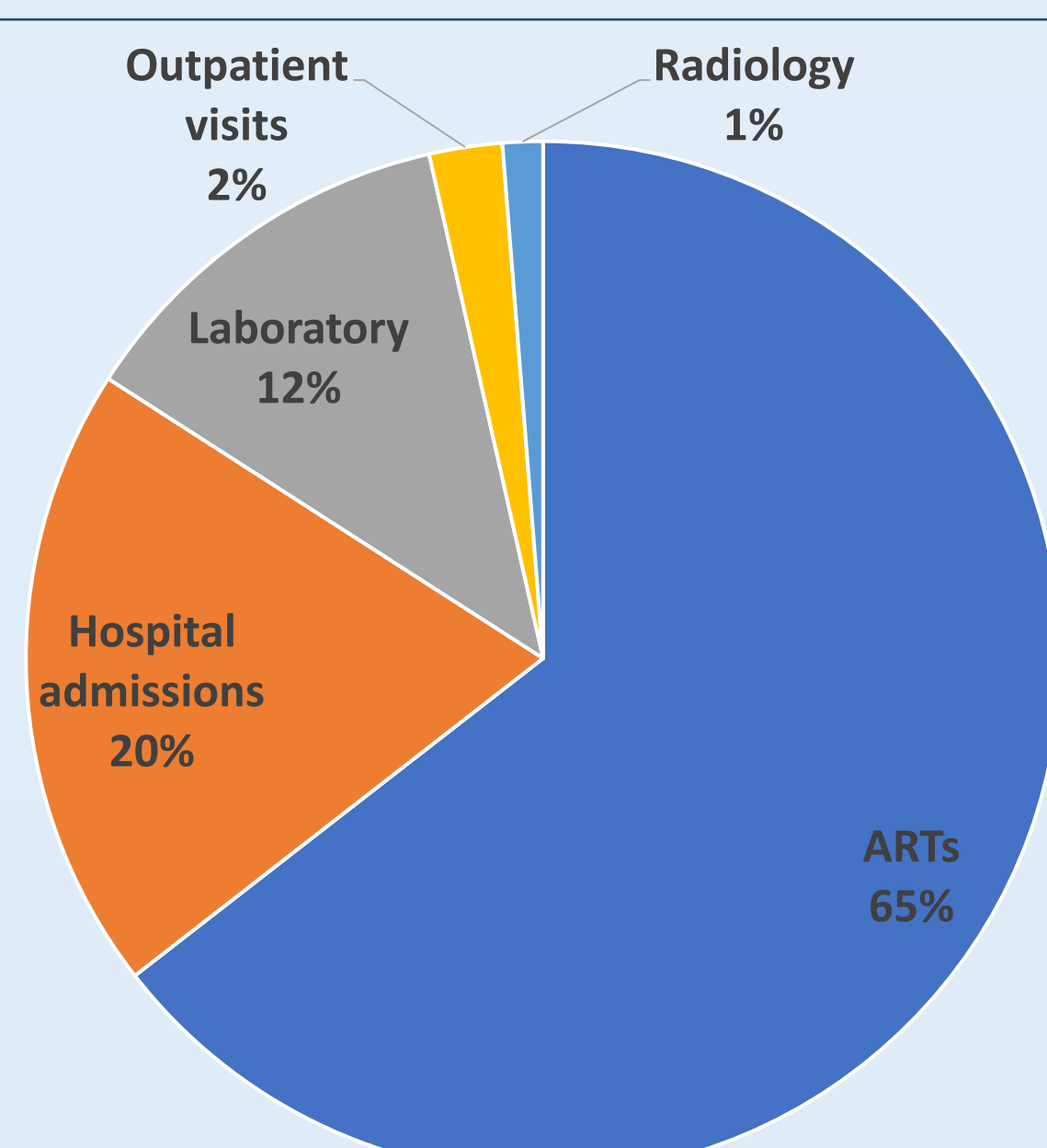
Table 2: Healthcare Resources and Medication Costs (US\$) According to PLHIV Characteristics

Cost		Co-morbidities		Opportunistic Infection	
		No (n=27)	Yes (n=15)	No (n=21)	Yes (n=21)
Outpatient Visits	Total	20,088.00	21,080.00	19,674.67	21,493.33
	p-value	0.022		0.91	
Radiology	Total	6,944.00	15,771.20	543.07	17,282.13
	p-value	0.011		0.084	
Laboratory	Total	98,135.55	124,946.93	73,062.67	150,019.81
	p-value	0.083		0.013	
ARTs	Total	713,942.40	449,546.93	549,776.00	613,713.33
	p-value	0.62		0.46	
Hospital Admissions	Total	88,748.80	265,186.67	47,544.00	306,391.47
	p-value	0.001		0.13	
Total	All	927,858.67	876,531.73	695,490.40	1,108,900.27
	p-value	0.002		0.033	

Conclusions

The total costs of HIV-related healthcare in a tertiary care hospital in Saudi Arabia continue to be high, and vary greatly depending on the patient's clinical characteristics. The majority of the economic burden of PLHIV is attributable to antiretroviral therapy. The study provides significant information on healthcare resource utilization for HIV-infected patients in Saudi Arabia. Additional research, with the involvement of different centers and the use of patient-specific data, is recommended to consolidate the findings of this analysis.

Figure 1. Total Cost and Percentage of the Cost Categories from 2015 to 2018



Cost Category	Total Cost (US\$) from 2015 to 2018
ARTs	1,163,489
Hospital admissions	353,935
Laboratory	223,082
Outpatient visits	41,168
Radiology	22,715
Total	1,804,390

References

