Healthcare resource utilization and cost of renal replacement therapy in Brazil: a five-year procedure-level analysis.

RWD171

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INTRODUCTION

- Patients with end-stage kidney disease (kidney failure) imperatively require life-saving renal replacement therapy (RRT) which includes modalities such as peritoneal dialysis, hemodialysis and kidney transplant, consequently incurring high costs.(1)
- In Brazil, patients can claim health services from SUS (Unified Health System) or SH (Supplementary Heath System – health plans and insurances) or from both, according to their work status, financial conditions, or availability of health services.
- Both SUS and SH provide RRT-related procedures as part of their standard care. (2)
- When a patient with private health insurance uses public health services, the private insurance reimburses SUS for its cost. (3)

METHODS

- This patient-level retrospective analysis was conducted over a 5-year period, from Jan-2015 to Dec-2019.
- We used publicly available administrative claims data from the SUS and SH.
- Costs were in Brazilian real (BRL) and converted to US dollar (USD); 1 USD = 4.0943 BRL, in mid-December 2019.

OBJECTIVE

- To investigate the healthcare resource utilization (HCRU) and associated direct medical costs of renal replacement therapy (RRT) across SUS and SH.

RESULTS

- Of all kidney transplants during the study period, 95% (25,530 procedures) were performed in the public setting corresponding to USD 260 million; Table 1.
- Of those,12.8% were reimbursed by the SH accounting for USD 48 million. Hemodialysis was frequently performed at both SUS (72 million procedures) and SH (2.9 million procedures), with expenditure of USD 3.2 billion and USD 57.4 million, respectively; Table 1.
- There were 6,837 pre-kidney and 1,858,426 post-kidney transplant care consultations in SUS, in contrast to 8,548 post-kidney transplant follow-up consultations in SH. Less than 10% (181,641) of the post-kidney transplant follow-ups were reimbursed by SH.

Table 1- RRT utilization and cost of procedures from SUS and SH perspectives, including reimbursed values, in USD.

Variable	2015	2016	2017	2018	2019	Total (5 years)
KIDNEY TRANSPLANT – total N (USD)						
At SUS	4,858 ($ 47,445,928)	4,866 ($ 48,955,863)	5,136 ($ 52,611,725)	5,196 ($ 53,353,920)	5,474 ($ 57,172,371)	25,530 ($ 259,539,808)
At SH	129 ($ 1,556,432)	225 ($ 2,962,682)	338 ($ 4,235,540)	310 ($ 4,508,874)	320 ($ 12,555,634)	1,322 ($ 25,819,162
Reimbursed*	818 ($ 11,509,011)	781 ($11,604,674)	813 ($ 12,381,908)	713 ($ 10,785,090)	143 (2,097,044)	3,268 ($ 48,377,727)
KIDNEY TRANSPLANT, AVERAGE PER HOSPITALIZATION – median (IQR)						
SUS	$ 9,704 ($ 7,893 – $ 11,687)	$ 10,235 ($ 8,655 – $ 11,681)	$ 10,887 ($ 8,886 – $ 11,754)	$ 11,009 ($ 8,840 – $ 11,774)	$11,049 ($9,203 – $ 11,759)	$10,854 ($ 8,802 – $ 11,753)
SH	$ 10,389 ($ 5,164 – $ 14,637)	$ 11,108 ($ 7,967 – $ 16,830)	$ 11,107 ($ 8,818 – $ 15,640)	$ 12,467 ($ 9,380 – $ 16,741)	$12,225 ($ 9,043 – $15,385)	$ 11,654 ($ 8,708 – $ 15,910)
Reimbursed*	$ 13,579 ($ 11,324 – $ 17,290)	$ 15,290 ($ 12,759 – $ 17,445)	$ 16,055 ($ 13,013 – $ 17,598)	$ 16,518 ($ 12,591– $17,657)	$ 16,057 ($11,574 – $17,263)	$ 15,326 ($ 12,385 – $ 17,485)
DIALYSIS – total N (USD)						
SUS						
Peritoneal dialysis	$ 83,936	$ 111,014	$ 118,644	$ 110,031	$ 112,912	$ 536,538
Hemodialysis	$ 563,415,471	$ 575,785,730	$ 647,181,077	$ 686,627,079	$ 719,506,846	$ 3,192,516,203
Other	$ 43,750,457	$ 44,859,183	$ 44,063,503	$ 44,671,476	$ 45,457,255	$ 222,801,874
Dialysis access	$ 7,963,961	$ 8,117,061	$ 8,593,210	$ 9,360,253	$ 10,199,770	$ 44,234,255
SH						
Peritoneal dialysis	$ 507,157	$ 709,923	$ 920,825	$ 813,611	$ 592,066	$ 3,543,582
Hemodialysis	$ 7,151,326	$ 9,544,441	$ 14,089,150	$ 13,753,721	$ 12,827,656	$ 57,366,294
Other	$ 24,047	$ 33,574	$ 39,693	$ 48,502	$ 49,817	$ 195,634
Dialysis access	$ 2,542,247	$ 20,009,726	$ 4,235,511	$ 4,207,811	$ 1,945,508	$ 32,940,804
Reimbursed*						
Peritoneal dialysis	14 ($ 5,633)	20 ($ 5,850)	16 ($ 5,695)	24 ($ 8,698)	3 ($ 1,247)	77 ($ 27,122)
Hemodialysis	62, 343 ($ 52,412,463)	71,753 ($ 61,573,062)	68,055 ($ 62,582,179)	64,817 ($ 59,690,349)	25,300 ($ 22,888,637)	292,268 ($ 259,146,690)
Other	9,217 ($ 8,384,966)	4,081 ($ 3,376,793)	2,359 ($ 1,787,576)	2,032 ($ 1,535,405)	709 ($ 538,123)	18,398 ($ 15,622,863)
Dialysis access	2,042 ($ 478,719)	2,291 ($ 553,265)	2,086 ($ 501,978)	2,238 ($ 534,326)	865 ($ 208,076)	9,522 ($ 2,276,363)

Notes
IQR: interquartile range, SH: Supplementary Health, SUS: Unified Health System, USD: United States Dollar..
Cost was in Brazilian real (BRL) and converted to USD using the currency of mid-December 2019 (1 USD = 4.0943 BRL).
*Reimbursed: procedure performed in SUS but later reimbursed by SH.

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CONCLUSIONS

- RRT represents a burden for the Brazilian health system, particularly for the public sector where the total costs of kidney transplant corresponded to around USD 260 million over the 5-year analyzed period.
- Although some resources were not originally used in private health facilities, SH paid SUS for RRT care approximately USD 48 million over the analyzed period

Poster presented at ISPOR Europe 2023 (12-15 November 2023, Copenhagen, Denmark)