

Prolonged hospital stay and associated factors in patients receiving care in an HIV/AIDS Clinic in Mexico City

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BACKGROUND

- Data on number of hospitalizations and length of stay provide information on morbidity and health care utilization among people living with HIV.
- We assessed rates of hospitalization and length of stay, as well as risk factors associated with prolonged hospitalization (PHS) in a cohort of people receiving care for HIV at the *Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán* in Mexico City.

METHODS

- Study period: January 2000 - November 2017
- We classified hospitalization events according to length of stay in prolonged (PHS; defined as ≥ 21 days) or regular hospitalization stay (RHS; defined as < 21 days).
- We created diagnostic categories based on the ICD-10 codes and compared the distribution of reasons for hospitalization.
- We used logistic regression models to identify factors associated with PHS as a function of sex, age, CD4 counts and viral suppression (HIV RNA < 400 copies/uL), and use of ART.

RESULTS

- We included 3,421 patients contributing to 20,397 patient-years of follow-up.
- There were 2,581 hospitalizations accounting for 12.6 hospitalizations per/100patients-year.
- We identified 295 (11.42%) PHS events.

Table 1. Comparison of characteristics of hospitalized patients with regular hospitalization stay (RHS) and prolonged hospitalization stay (PHS).

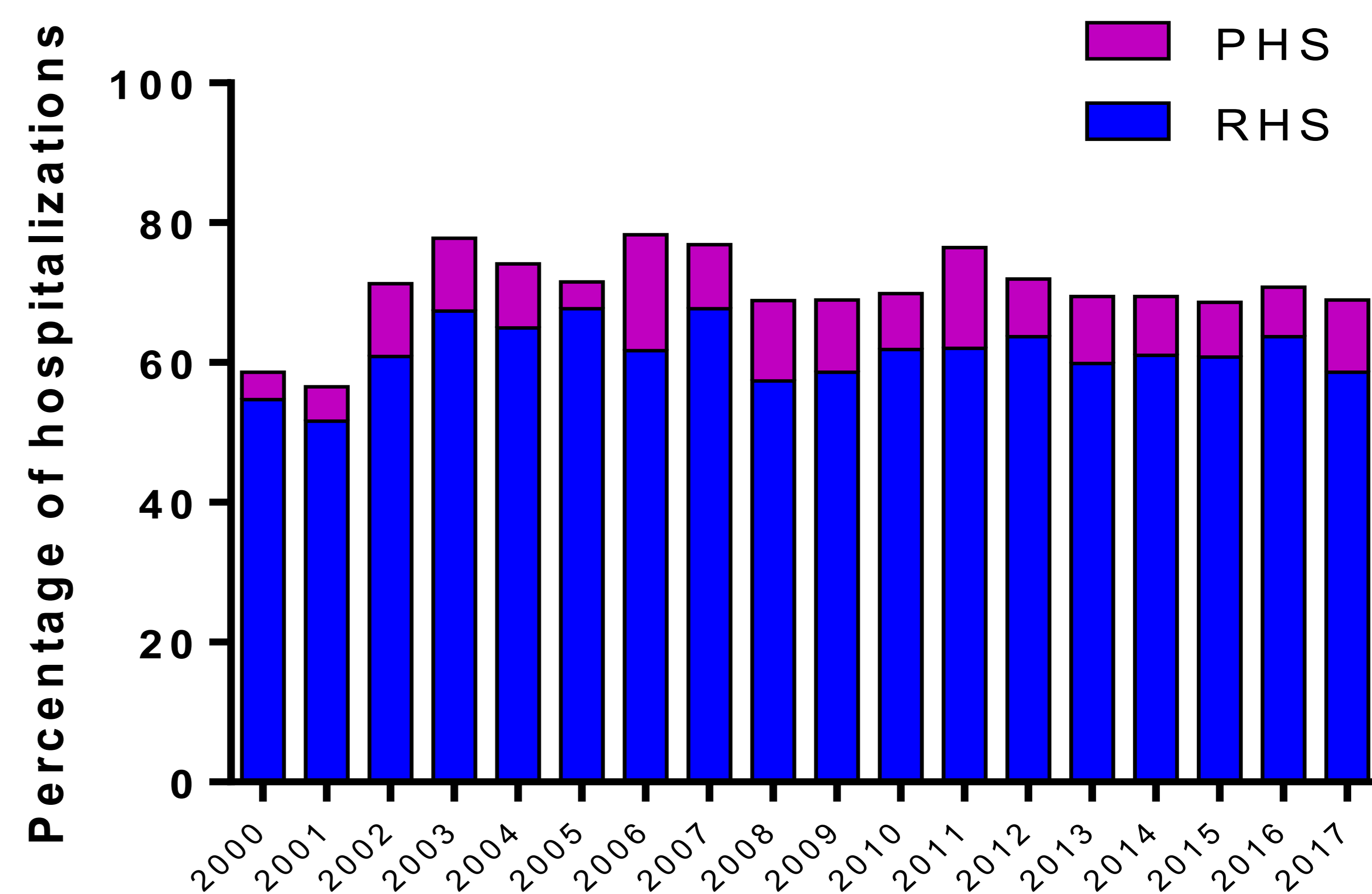
Category	RHS (<21 days) (n = 2286)	PHS (≥ 21 days) (n = 295)	P value
Days of stay during hospitalization episode – Mean (SD)	7.78 (5.19)	34.44 (18.50)	-
Male sex	1967 (86.05)	250 (84.75)	0.773
Age (years) – Mean (SD)	39.90 (12.28)	39.05 (11.16)	0.253
Socioeconomical status			
Low	1691 (83.10)	212 (83.79)	0.679
Middle	260 (12.78)	36 (14.23)	
High	84 (4.13)	5 (1.98)	
Transmission route			
Heterosexual	647 (32.51)	70 (28.46)	0.431
MSM	1286 (64.62)	169 (68.70)	
Other	57 (2.86)	7 (2.85)	
Enrolment period			
2000-2004	574 (25.14)	56 (19.05)	0.429
2005-2008	411 (18.00)	65 (22.11)	
2009-2012	674 (29.52)	97 (32.99)	
2013-2017	624 (27.33)	76 (25.85)	
CD4 count at hospitalization (cells/ml) – Mean (SD)			
> 500 (cells/ml)	163 (7.78)	11 (3.99)	<0.001*
350-500 (cells/ml)	184 (8.78)	12 (4.35)	
< 350 (cells/ml)	1748 (83.44)	253 (91.67)	
Viral load logarithm at hospitalization (copies/ml) – Mean (SD)			
≤ 400 (copies/ml)	987 (43.18)	83 (28.14)	<0.001*
> 400 (copies/ml)	1299 (56.82)	212 (71.86)	
On ART at hospitalization	1371 (59.97)	150 (50.85)	0.003*
Time on ART (days) – Median (IQR)	17 (0 - 690)	0 (0 - 149)	0.099
AIDS-related cause for hospitalization			
Time in follow-up (months) – Median (IQR)	3.31 (0 - 33.8)	0 (0 - 0.518)	<0.001*
≤ 6 months	1307 (57.17)	223 (75.59)	<0.001*
> 6 months	979 (42.83)	72 (24.41)	
First time hospitalizations	1140 (49.87)	185 (62.71)	<0.001*

Each hospitalization episode contributes to the total (a single patient can contribute multiple times in each category)
Reported values correspond to frequency (percentage), unless otherwise specified.
P value calculated with student t test in variables reported as mean (SD), otherwise the test used was a χ^2 test.
*Statistically significant (P < 0.05)

- Patients with PHS had lower CD4 counts, higher HIV RNA, were less likely to be on ART at hospitalization, had less time in follow-up and were more likely to be on their first hospitalization episode.

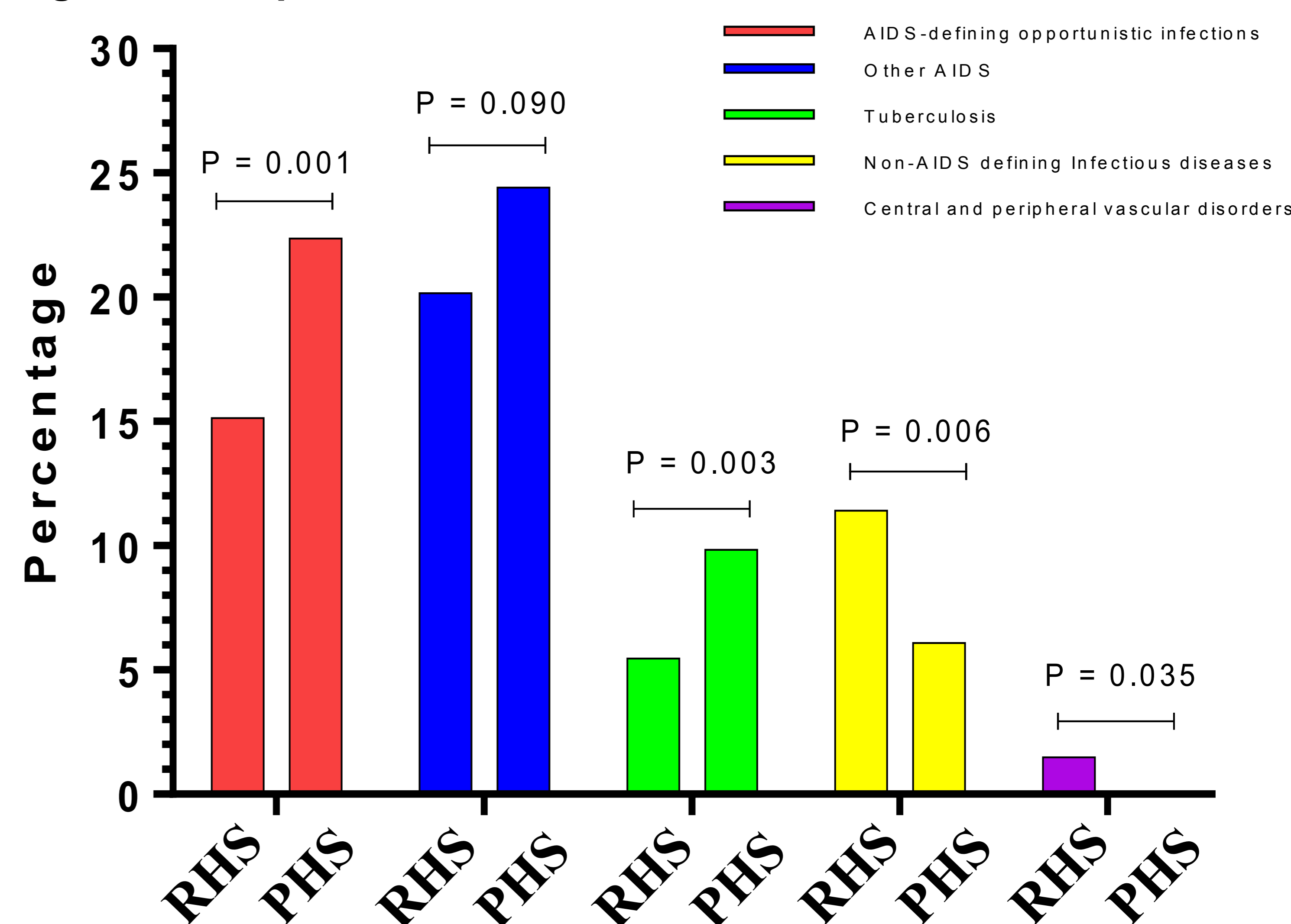
RESULTS

Figure 1. RHS/PHS Hospitalization rates across time in AIDS related causes of hospitalization.



Denominator represents total hospitalizations regardless of cause in HIV patients in that year.

Figure 2. Hospitalization causes associated with PHS.



- AIDS-defining opportunistic infections and TB were associated with PHS.
- Non-AIDS defining infectious diseases and vascular disorders were associated with a decreased risk of PHS

Table 2. Multivariate logistic regression of risk factors associated with PHS

Category	Odds Ratio	95% CI	P value
Male sex	0.867	0.580 – 1.296	0.488
Age (years)	1.005	0.991 – 1.016	0.463
Socioeconomical level			
Low	1	-	-
Middle	1.167	0.772 – 1.763	0.463
High	0.537	0.194 – 1.439	0.212
Enrolment period			
2000-2004	1	-	-
2005-2008	1.553	0.977 – 2.469	0.062
2009-2012	1.254	0.825 – 1.905	0.286
2013-2017	1.223	0.797 – 1.876	0.356
Time in follow-up > 6 months	0.593	0.424 – 0.830	0.002*
Viral load logarithm at hospitalization (copies/ml)	1.160	1.059 – 1.270	0.001*
CD4 count at hospitalization (cells/ml)	0.986	0.974 – 0.997	0.015*
Non-AIDS related cause of hospitalization	0.777	0.550 – 1.098	0.153

- Longer time in care, increasing CD4 and lower HIV-RNA were associated with a lower risk of PHS.

Conclusions

- Similar incidence of hospitalizations to other reports in LatAm.
- 1 in 10 hospitalizations lasted more than 21 days.
- AIDS-related events were the most frequent cause of hospitalization.
- PHS due to advanced HIV disease associated to late enrollment in care continue to be high in our setting and this has an important impact in length of hospitalization.