



## Supplementary Materials

**Table S1.** Adjusted demographic and clinical characteristics of PLWHA with IPD who died in hospital.

	Levels	Total	HR (IC95%)	P-value	aHR (CI95%)	P-value
AI		8				
ICU Admission	ICU Admission	8	Ref.	Ref.	Ref.	Ref.
Sex at Birth	Male	6	Ref.	Ref.	Ref.	Ref.
	Female	2	0.497 (0.1–2.46)	0.392	NC	NC
Smoking	Yes	5	2.143 (0.509–9.017)	0.298	NC	NC
Drinking	Yes	6	6.994 (1.387–35.279)	0.018	NC	NC
Drug Use	Cocaine/crack	3	1.039 (0.248–4.349)	0.958	NC	NC
	Cannabis	0	NC	NC	NC	NC
COPD	Yes	2	0.858(0.172–4.28)	0.851	NC	NC
DM	Yes	0	NC	NC	NC	NC
Liver Cirrhosis	Yes	5	8.278 (1.972–34.756)	0.003	NC	NC
Steroid Use	Yes	1	3.047 (0.366–25.365)	0.302	NC	NC
New Case HIV	Yes	1	1.08 (0.123–9.452)	0.944	NC	NC
ART Use	Not	1	1.07 (0.131–8.729)	0.949	NC	NC
CD4 ( cells/mm <sup>3</sup> )	<100	3	Ref.	Ref.	Ref.	Ref.
	100–200	2	2.425 (0.38–15.489)	0.439	NC	NC
	>200	2	0.27 (0.045–1.62)	0.152	NC	NC
Prophylaxis for OI	Yes	5	1.383 (0.323–5.909)	0.662	NC	NC
Pneumo Vaccine	Yes	0	NC	NC	NC	NC
Respiratory Failure	Yes	7	6.409 (0.788–52.118)	0.082	NC	NC
IVM	Yes	8	4977135370.714 (0–Inf)	0.998	NC	NC
Vasoactive Drugs	Yes	8	4977135370.714 (0–Inf)	0.998	NC	NC
Hemodialysis	Yes	3	4.304 (1.021–18.153)	0.046	NC	NC
Adrenal Insufficiency	Yes	2	9.768 (1.865–51.174)	0.006	NC	NC

PLWHA = people living with the human immunodeficiency virus /acquired immunodeficiency syndrome; IPD = Invasive pneumococcal disease; HIV = human immunodeficiency virus; COPD = chronic obstructive pulmonary disease; DM = diabetes mellitus; ART = antiretroviral treatment; OI = opportunistic infection; IVM = invasive mechanical ventilation; NC = Not Calculated. HR (CI95%) = Hazard-ratio of progression to death after hospitalization from an infection (IPD) among levels of the features related to the reference and its 95% confidence intervals estimated by Cox proportional-hazards regression models. aHR (CI95%) = HRs adjusted for confounding variables (i.e., patients' age, birth sex, race/colour, level of education, household income, Nadir T-CD4+ count, T-CD4+ count, and viral load (the latter two being measured in the last six months of follow-up) and its 95% confidence intervals estimated by Cox proportional-hazards multiple regression mode.

**Table S2.** Data on hospitalized PLWHA with and without IPD.

Variables	Total (n = 132)	IPD (n = 38)	Not IPD (n = 94)	P-value
Admission to ICU	41 (31.1%)	15 (39.5%)	26 (27.7%)	0.263
Length of ICU Stay (days)	8 [3.75;14]	5 [3.5;11.5]	8 [5;14]	0.327
Respiratory Failure	54 (40.9%)	21 (55.3%)	33 (35.1%)	0.053
NIVM	32 (24.2%)	10 (26.3%)	22 (23.4%)	0.897
Invasive Mechanical Ventilation	31 (23.5%)	11 (28.9%)	20 (21.3%)	0.833
Acute Renal Failure	68 (51.5%)	32 (84.2%)	36 (38.3%)	< 0.001
Hemodialysis	17 (12.9%)	5 (13.2%)	12 (12.8%)	1
Vasopressor Use	33 (25%)	11 (28.9%)	22 (23.4%)	0.657
Cardiac Arrhythmia	23 (17.4%)	6 (15.8%)	17 (18.1%)	0.951
Gastrointestinal Bleeding	11 (8.3%)	3 (7.9%)	8 (8.5%)	1
Intracranial Mass Effect	11 (8.3%)	0 (0%)	11 (11.7%)	0.064
Adrenal Insufficiency	15 (11.4%)	2 (5.3%)	13 (13.8%)	0.271

<b>In-Hospital Death</b>	22 (16.7%)	8 (21.1%)	14 (14.9%)	0.547
<b>Death at Last Follow Up</b>	63 (41.2%)	19 (42.2%)	44 (40.7%)	1

PLWHA = people living with the human immunodeficiency virus/acquired immunodeficiency syndrome; IPD = Invasive pneumococcal disease; ICU = intensive care unit; NIVM = non-invasive mechanical ventilation; *P*-values were calculated for absolute (relative) frequencies by chi-squared tests.

**Table S3.** Demographic and clinical characteristics of PLWHA with IPD who died in hospital.

	Levels	IPD Hospital Death			<i>P</i> -value
		Total 38	Yes ( <i>n</i> = 8)	No ( <i>n</i> = 30)	
<b>Age (years)</b>	Age	42 [35;47]	43.5 [38;51]	40 [35;46]	0.327
<b>Sex at Birth</b>	Male	28 (62.2%)	6 (75%)	22 (59.5%)	0.675
	Female	17 (37.8%)	2 (25%)	15 (40.5%)	
<b>Smoking</b>	Yes	22 (48.9%)	5 (62.5%)	17 (45.9%)	0.646
<b>Drinking</b>	Yes	16 (35.6%)	6 (75%)	10 (27%)	0.031
	Cocaine/Crack	15 (33.3%)	3 (37.5%)	12 (32.4%)	
<b>Drug Use</b>	Cannabis	3 (6.7%)	0 (0%)	3 (8.1%)	0.701
	No	27 (60%)	5 (62.5%)	22 (59.5%)	
<b>COPD</b>	Yes	13(28.9%)	2 (25%)	11 (29.7%)	1
<b>Liver Cirrhosis</b>	Yes	9 (20%)	5 (62.5%)	4 (10.8%)	0.005
<b>Steroid Use</b>	Yes	3 (6.7)	1 (12.5%)	2 (5.4%)	1
	No	41 (91.1%)	7 (87.5%)	34 (91.9%)	
<b>New Case of HIV</b>	Yes	4 (8.9%)	1 (12.5%)	3 (8.1%)	0.113
	<100	12 (27.3%)	3 (42.9%)	9 (24.3%)	
	100-200	5 (11.4%)	2 (28.6%)	3 (8.1%)	
<b>CD4 (cells/mm<sup>3</sup>)</b>	>200	27 (61.4%)	2 (28.6%)	25 (67.6%)	0.033
	Nadir	117.5 [49.25;316.75]	<b>53.5 [12;93.5]</b>	<b>151.5 [80.75;334]</b>	
<b>CD4/CD8</b>	CD4/CD8	0.4[0.14;0.68]	0.41 [0.19;0.7]	0.39 [0.12;0.64]	0.741
<b>Viral Load (copies/mL)</b>	Detectable	793 [39;24821]	810 [39;7371.5]	751.5 [39;43780.25]	0.657
<b>Use of ART</b>	Yes	40 (88.9%)	7 (87.5%)	33 (89.2%)	1
<b>Prophylaxis for OI</b>	Yes	27 (60%)	5 (62.5%)	22 (59.5%)	1
	PPV23	9 (21.8%)	0 (0%)	9 (24.3%)	
<b>PCV13</b>	Yes	1 (2.2%)	0(0%)	1 (2.7%)	1
<b>ICU Admission</b>		15 (39.5%)	<b>8 (100%)</b>	<b>7 (23.3%)</b>	<b>&lt; 0.001</b>
<b>Days in the ICU</b>		5 [3.5;11.5]	4.5 [2.75;6]	13 [6.5;14]	0.062
<b>Respiratory Failure</b>		21 (55.3%)	7 (87.5%)	14 (46.7%)	0.096
	NIVM	10 (26.3%)	0 (0%)	10 (33.3%)	
<b>IVM</b>		11 (28.9%)	8 (100%)	3 (10%)	< 0.001
<b>Acute Renal Failure</b>		32 (84.2%)	8 (100%)	24 (80%)	0.405
<b>Hemodialysis</b>		5 (13.2%)	3 (34.5%)	2 (6.7%)	0.088
<b>Vasoactive Drugs</b>		11 (28.9%)	<b>8 (100%)</b>	<b>3 (10%)</b>	<b>&lt;0.001</b>
<b>Cardiac Arrhythmia</b>		6 (15.8%)	<b>5 (62.5%)</b>	<b>1 (3.3%)</b>	<b>&lt;0.001</b>
<b>Adrenal Insufficiency</b>		2 (5.3%)	<b>2 (25%)</b>	<b>0 (0%)</b>	<b>0.055</b>

PLWHA = people living with the human immunodeficiency virus/acquired immunodeficiency syndrome ; IPD = Invasive pneumococcal disease; HIV = human immunodeficiency virus; COPD = chronic obstructive pulmonary disease; ART= antiretroviral treatment; OI = opportunistic infection; NIVM = non-invasive mechanical ventilation; IVM= invasive mechanical ventilation; PPV23 = 23 valent pneumococcal vaccine; PCV13 = 13 valent pneumococcal vaccine; AST = Aspartate aminotransferase; ALT = Alanine aminotransferase; CRP = C-reactive protein; *P*-values were calculated for absolute (relative) frequencies by chi-squared tests.

**Table S4.** Syndromes presented by PLWHA with and without IPD.

Variables	All Patients ( <i>n</i> = 153)	IPD ( <i>n</i> = 45)	Not IPD ( <i>n</i> = 108)	<i>P</i> -value
Respiratory Syndrome	71 (46.4%)	36 (80%)	35 (32.4%)	< 0.001
Neurological Syndrome	23 (15%)	1 (2.2%)	22 (20.4%)	
Digestive Tract Syndrome	15 (9.8%)	6 (13.3%)	9 (8.3%)	

PLWHA = people living with the human immunodeficiency virus/acquired immunodeficiency syndrome IPD = Invasive pneumococcal disease. *P*-values were calculated for absolute (relative) frequencies by chi-squared tests.

**Table S5.** Main opportunistic diseases in PLWHA with and without IPD.

Variables	IPD		OR (CI95%)	<i>P</i> -value	aOR (CI95%)	<i>P</i> -value
	Yes ( <i>n</i> = 45)	No ( <i>n</i> = 108)				
Tuberculosis	4 (10.53%)	29 (30.85%)	0.26 (0.09–0.81)	0.020	0.45 (0.1–1.95)	0.284
Pneumocystis Pneumonia	3 (7.89%)	13 (13.83%)	0.53 (0.14–1.99)	0.350	1.09 (0.18–6.72)	0.926
Neurotoxoplasmosis	0 (0%)	10 (10.64%)	NC	NC	NC	NC
Cryptococcal Meningitis	2 (5.26%)	6 (6.38%)	0.81 (0.16–4.23)	0.807	1.82 (0.24–13.67)	0.562

PLWHA = people living with the human immunodeficiency virus /acquired immunodeficiency syndrome. IPD = Invasive pneumococcal disease; NC = Not Calculated. OR (CI95%) = Odds-ratio of having an infection (IPD) among levels of the features related to the reference and its 95% confidence intervals estimated by Logistic (Binomial) regression models. aOR (CI95%) = ORs adjusted for confounding variables (i.e., patients' age, birth sex, race/colour, level of education, household income, Nadir T-CD4+ count, T-CD4+ count, and viral load (the latter two being measured in the last six months of follow-up) and its 95% confidence intervals estimated by multiple Logistic (Binomial) regression models.

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