

Long-term survival after ART initiation and association of age with mortality at 6 sites in  
the Caribbean, Central, and South America Network  
SIMULATED DATA

(mock-ccasanet-data-2016-12-21)

Results are not to be interpreted substantively, but are provided to make our study quasi-reproducible by allowing others to verify the analysis code used for the original report on publicly available simulated data.

February 14, 2017

**Inclusion Criteria**

Adults ( $\geq 18$  years) initiating first ART regimen after Dec 31, 2000 (previously without use of any antiretroviral agent) participating in the CCASAnet cohort.

We received data from 24914 unique patients from Argentina (4718), Brazil (4954), Chile (2410), Haiti (7119), Honduras (1123), Mexico (1068), and Peru (3522). In this report, 16450 met inclusion criteria (i.e., 8464 were excluded). The total number of patients included and reasons for exclusion by site are given in Table 1.

Tables 2 contains summaries of patient characteristics by site. Clinical stage is categorized as AIDS or not AIDS. Clinical AIDS is defined as CDC stage C, WHO IV, or a specification of AIDS. Haiti and Peru use WHO staging; Brazil, Chile, Honduras, and Mexico use CDC staging; and Argentina primarily classifies as AIDS or not AIDS. Haiti categorizes patients as WHO I, II-III, or IV (i.e., they do not distinguish between stages II and III). Brazil does not distinguish between stages A and B. Argentina, Chile, and Peru primarily only have clinical stage recorded at enrollment. Any record of AIDS before ART initiation or within 30 days after is considered AIDS at baseline. If there is no mark of AIDS in the record during that time period and if there is indication of not having AIDS within one year or 30 days after ART initiation, then the patient is classified as not having AIDS. Otherwise, clinical AIDS at ART initiation is unknown. Nadir CD4 Pre-ART was defined as the lowest measured CD4 prior to or no more than 7 days after initiating ART. Pre-ART HIV-1 RNA was defined as the measurement closest to initiating ART but no more than 180 days before. Any HIV-1 RNA measurement after initiating was not included. Haiti does not record HIV-1 RNA, nor do they record probable route of infection. In combined risk factor analyses, these variables will therefore not be included.

Tables 4 shows hazard ratios – unadjusted and adjusted – for death. All analyses were performed using Cox proportional hazards models. All models (both unadjusted and adjusted) are stratified by site. The adjusted models are adjusted for sex, age at start of ART, nadir pre-ART CD4, year of ART initiation, clinical stage of disease at ART initiation, and class of ART regimen. Age, pre-ART CD4, and year of ART initiation were included in the models using restricted cubic splines with 4 knots (CD4 measurements were also square root-transformed in the models). For most continuous variables (e.g., age), I have chosen to present results using a single reference level for comparisons. For example, in Table 4, the adjusted HR for age=20 years is numeric(0), indicating that the hazard of death for someone 20 years old is numeric(0) times greater than someone who is 40 years old (40 years is the reference age). The p-value for age in this analysis is  $< 0.001$ , which assesses the overall association between age and death (and does not compare two specific ages). For some of the categorical variables (e.g., reason for changing regimens), I report an overall p-value that tells whether the variable in general is a good predictor of the event (e.g.,  $p=0.09$  for initial

regimen class) and then separate p-values comparing to a reference category (e.g.,  $p=0.12$  for boosted PIs vs. NNRTIs – NNRTIs are the reference group). Hopefully, this is somewhat clear.

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Table 1: Numbers and reasons for exclusion or inclusion

	argentina	brazil	chile	haiti	honduras	mexico	peru
Age unknown	0	0	0	0	0	0	0
Age < 18	50	74	7	41	15	3	40
ART started before 2000	172	1147	178	0	9	4	34
Not known to be ART naive at enrollment	2190	745	253	700	119	0	545
First Regimen not HAART	159	872	111	1	33	22	153
ART started before 2005 in Peru	0	0	0	0	0	0	218
ART started after closing date	33	44	56	132	36	26	242
Included	2114	2072	1805	6245	911	1013	2290

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Table 2: Summary of Patient Characteristics by Site

	Argentina (n=2114)	Brazil (n=2072)	Chile (n=1805)	Haiti (n=6245)	Honduras (n=911)	Mexico (n=1013)	Peru (n=2290)	Combined (n=16450)
Sex, n(%)								
female	567 (26.8%)	802 (38.7%)	192 (10.6%)	3545 (56.8%)	421 (46.2%)	125 (12.3%)	630 (27.5%)	6282 (38.2%)
male	1547 (73.2%)	1270 (61.3%)	1613 (89.4%)	2700 (43.2%)	490 (53.8%)	888 (87.7%)	1660 (72.5%)	10168 (61.8%)
Probable Route of Infection, n(%)								
heterosexual	457 (21.6%)	150 (7.2%)	150 (8.3%)	0 (0.0%)	92 (10.1%)	126 (12.4%)	490 (21.4%)	1465 (8.9%)
homo/bisexual	466 (22.0%)	1154 (55.7%)	701 (38.8%)	0 (0.0%)	148 (16.2%)	306 (30.2%)	689 (30.1%)	3464 (21.1%)
IDU	506 (23.9%)	99 (4.8%)	189 (10.5%)	0 (0.0%)	142 (15.6%)	395 (39.0%)	0 (0.0%)	1331 (8.1%)
other	347 (16.4%)	274 (13.2%)	744 (41.2%)	0 (0.0%)	463 (50.8%)	135 (13.3%)	313 (13.7%)	2276 (13.8%)
unknown	338 (16.0%)	395 (19.1%)	21 (1.2%)	6245 (100.0%)	66 (7.2%)	51 (5.0%)	798 (34.8%)	7914 (48.1%)
Age	36 (30, 43)	36 (30, 43)	36 (30, 43)	38 (32, 45)	37 (30, 43)	38 (31, 45)	34 (28, 41)	37 (30, 44)
Clinical Stage before ART, n(%)								
AIDS	76 (3.6%)	470 (22.7%)	532 (29.5%)	751 (12.0%)	34 (3.7%)	245 (24.2%)	609 (26.6%)	2717 (16.5%)
not AIDS	650 (30.7%)	558 (26.9%)	405 (22.4%)	1856 (29.7%)	272 (29.9%)	137 (13.5%)	578 (25.2%)	4456 (27.1%)
Unknown	1388 (65.7%)	1044 (50.4%)	868 (48.1%)	3638 (58.3%)	605 (66.4%)	631 (62.3%)	1103 (48.2%)	9277 (56.4%)
Nadir CD4 Pre-ART <sup>a</sup>	255 (132, 422)	217 (106, 350)	138 (57, 256)	162 (71, 288)	117 (40, 232)	146 (60, 252)	144 (60, 246)	168 (73, 299)
Missing nadir cd4 pre-art, n(%)	1179 (55.8%)	668 (32.2%)	689 (38.2%)	2553 (40.9%)	534 (58.6%)	522 (51.5%)	955 (41.7%)	7100 (43.2%)
VL, Pre-ART(x1000)	29 (8, 120)	37 (8, 126)	35 (8, 122)	-	32 (6, 100)	38 (7, 124)	36 (8, 120)	34.8 (7.8, 120)
Missing vl, pre-art(x1000), n(%)	1467 (69.4%)	1142 (55.1%)	1065 (59.0%)	6245 (100.0%)	642 (70.5%)	649 (64.1%)	1316 (57.5%)	12526 (76.1%)
Undetectable	20 (0.9%)	37 (1.8%)	23 (1.3%)	0 (0.0%)	9 (1.0%)	11 (1.1%)	38 (1.7%)	138 (0.8%)
Year of initial regimen	2005 (2002, 2008)	2007 (2005, 2010)	2007 (2004, 2010)	2008 (2005, 2009)	2006 (2004, 2008)	2008 (2005, 2010)	2010 (2007, 2011)	2008 (2005, 2010)
Initial Regimen Class, n(%)								
NNRTI	1292 (61.1%)	1321 (63.8%)	1401 (77.6%)	5870 (94.0%)	864 (94.8%)	785 (77.5%)	2107 (92.0%)	13640 (82.9%)
Boosted PI	437 (20.7%)	460 (22.2%)	217 (12.0%)	265 (4.2%)	23 (2.5%)	184 (18.2%)	129 (5.6%)	1715 (10.4%)
Unboosted PI	274 (13.0%)	244 (11.8%)	160 (8.9%)	27 (0.4%)	22 (2.4%)	19 (1.9%)	36 (1.6%)	782 (4.8%)
Other	111 (5.3%)	47 (2.3%)	27 (1.5%)	83 (1.3%)	2 (0.2%)	25 (2.5%)	18 (0.8%)	313 (1.9%)

<sup>a</sup> Continuous variables are reported as medians (interquartile range).

Table 3: Outcomes

	Argentina (n=2114)	Brazil (n=2072)	Chile (n=1805)	Haiti (n=6245)	Honduras (n=911)	Mexico (n=1013)	Peru (n=2290)	Combined (n=16450)
Death	18 (0.9%)	112 (5.4%)	47 (2.6%)	257 (4.1%)	104 (11.4%)	53 (5.2%)	108 (4.7%)	699 (4.2%)
Lost to Follow-up	908 (43.0%)	1018 (49.0%)	888 (49.1%)	2021 (32.3%)	270 (29.3%)	460 (45.9%)	979 (43.2%)	6544 (39.8%)
Follow-up Time	3.9 (1.3, 8.1)	3.1 (1.2, 6.3)	2.9 (0.8, 7)	3.4 (1.5, 5.5)	3.3 (1.1, 6.7)	3.4 (1.2, 6.5)	2 (0.6, 4.4)	3.2 (1.2, 6)

Table 4: Outcomes

	Argentina (n=2114)	Brazil (n=2072)	Chile (n=1805)	Haiti (n=6245)	Honduras (n=911)	Mexico (n=1013)	Peru (n=2290)	Combined (n=16450)
Incidence of death (per 1000 person-years)								
Overall	1.8	13.3	6.3	11	28.2	12.9	17.5	11
During year 1	0.6	24.8	14.5	21.9	69	26	27.4	22.3
After year 1	2	10.3	4.3	7.7	17.2	9.3	13.4	7.8

Figure 1: CD4 at ART initiation. The radius of each circle is proportional to the number of patients starting ART for a given site and year.

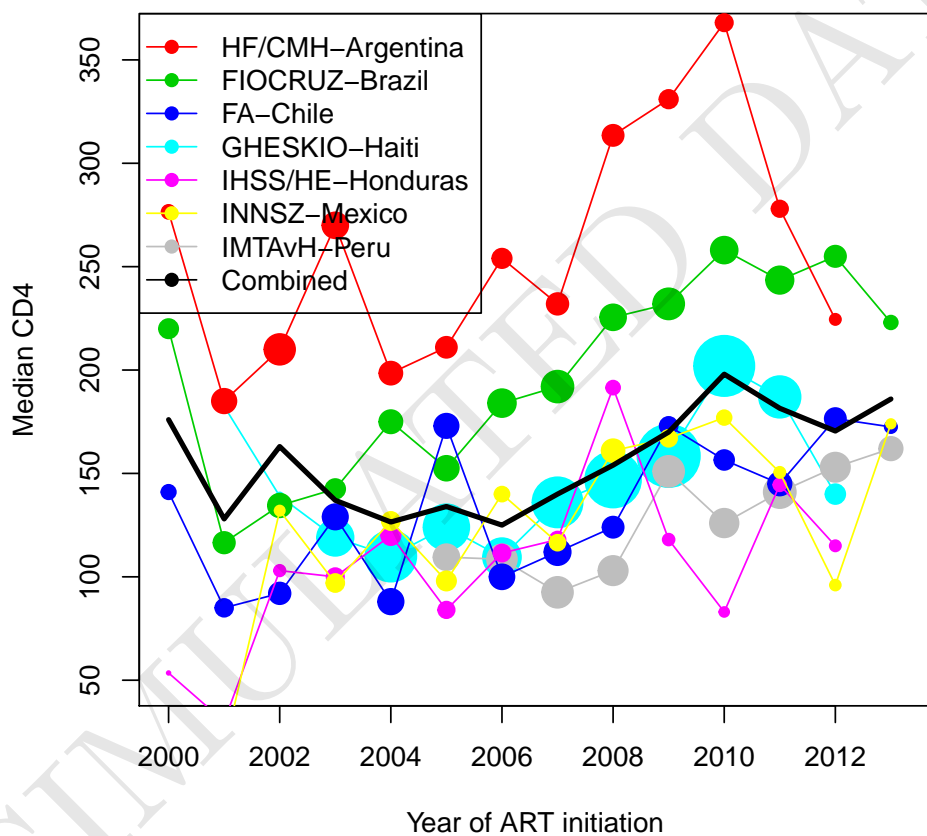


Figure 2: Probability of Mortality after starting ART.

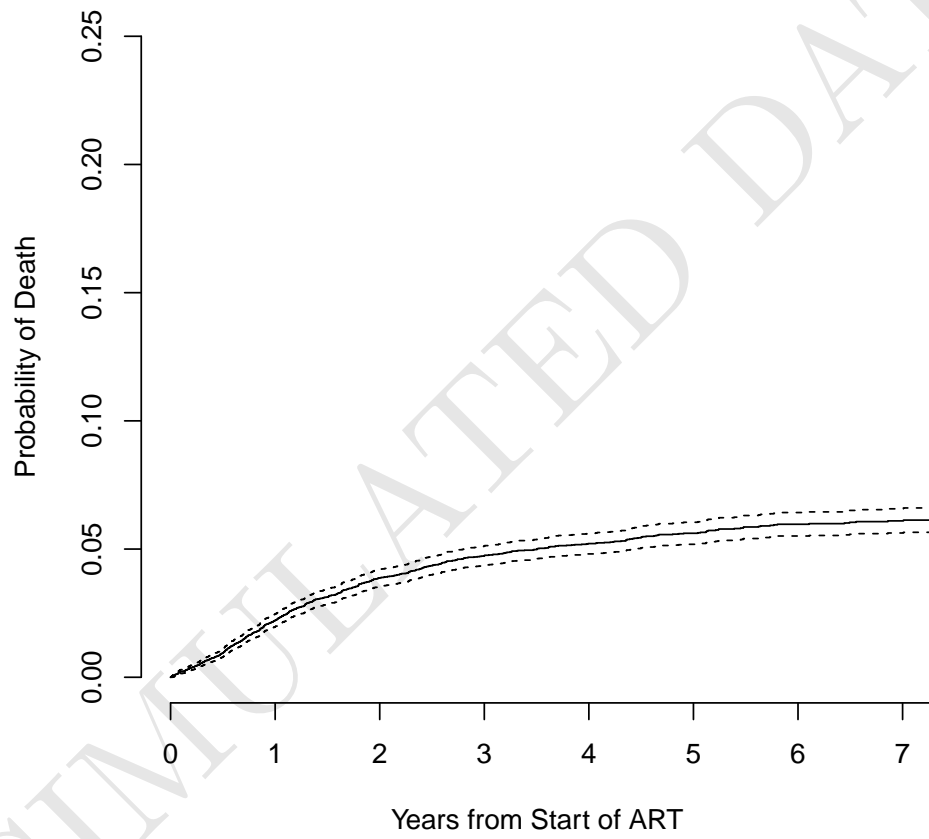
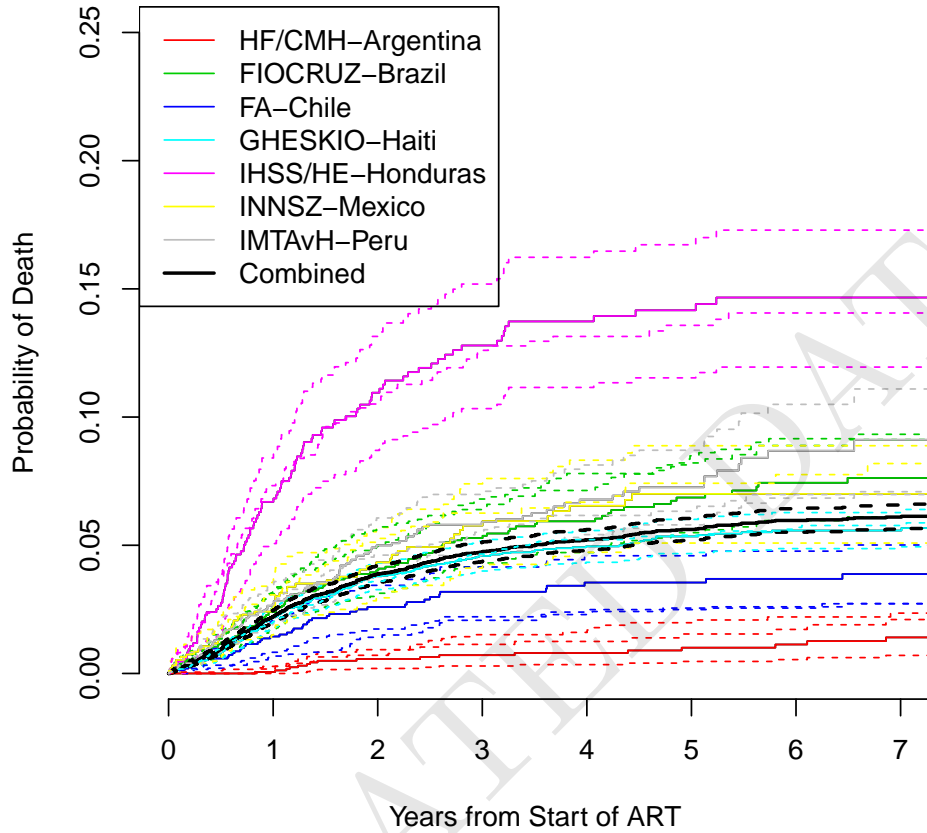




Figure 3: Probability of Mortality from Start of ART by Site.



The estimated overall probability of death 1, 3, 5, and 7 years after starting ART were 0.022 (95% CI 0.02, 0.025), 0.047 (95% CI 0.044, 0.051), 0.056 (95% CI 0.052, 0.06), and 0.061 (95% CI 0.056, 0.066), respectively.

The estimated probabilities of death 3 years after starting ART for each site were 0.007 (95% CI 0.003, 0.011) for Argentina, 0.059 (95% CI 0.042, 0.064) for Brazil, 0.032 (95% CI 0.022, 0.042) for Chile, 0.046 (95% CI 0.04, 0.052) for Haiti, 0.128 (95% CI 0.103, 0.152) for Honduras, 0.058 (95% CI 0.041, 0.074) for Mexico, 0.059 (95% CI 0.047, 0.071) for Peru.

The estimated probabilities of death 5 years after starting ART for each site were 0.01 (95% CI 0.005, 0.015) for Argentina, 0.069 (95% CI 0.055, 0.082) for Brazil, 0.035 (95% CI 0.025, 0.046) for Chile, 0.053 (95% CI 0.047, 0.06) for Haiti, 0.142 (95% CI 0.115, 0.167) for Honduras, 0.07 (95% CI 0.051, 0.089) for Mexico, 0.073 (95% CI 0.058, 0.087) for Peru.

The cumulative incidence of LTFU at 3 years was 16.9% for Argentina, 24.2% for Brazil, 23.7% for Chile, 15.3% for Haiti, 14.7% for Honduras, 23.6% for Mexico, 28.9% for Peru, and 19.3% for the combined cohort.

The cumulative incidence of LTFU at 5 years was 27.3% for Argentina, 37.3% for Brazil, 33.3% for Chile,

Figure 4: Probability of Mortality from Start of ART by Site and CD4.

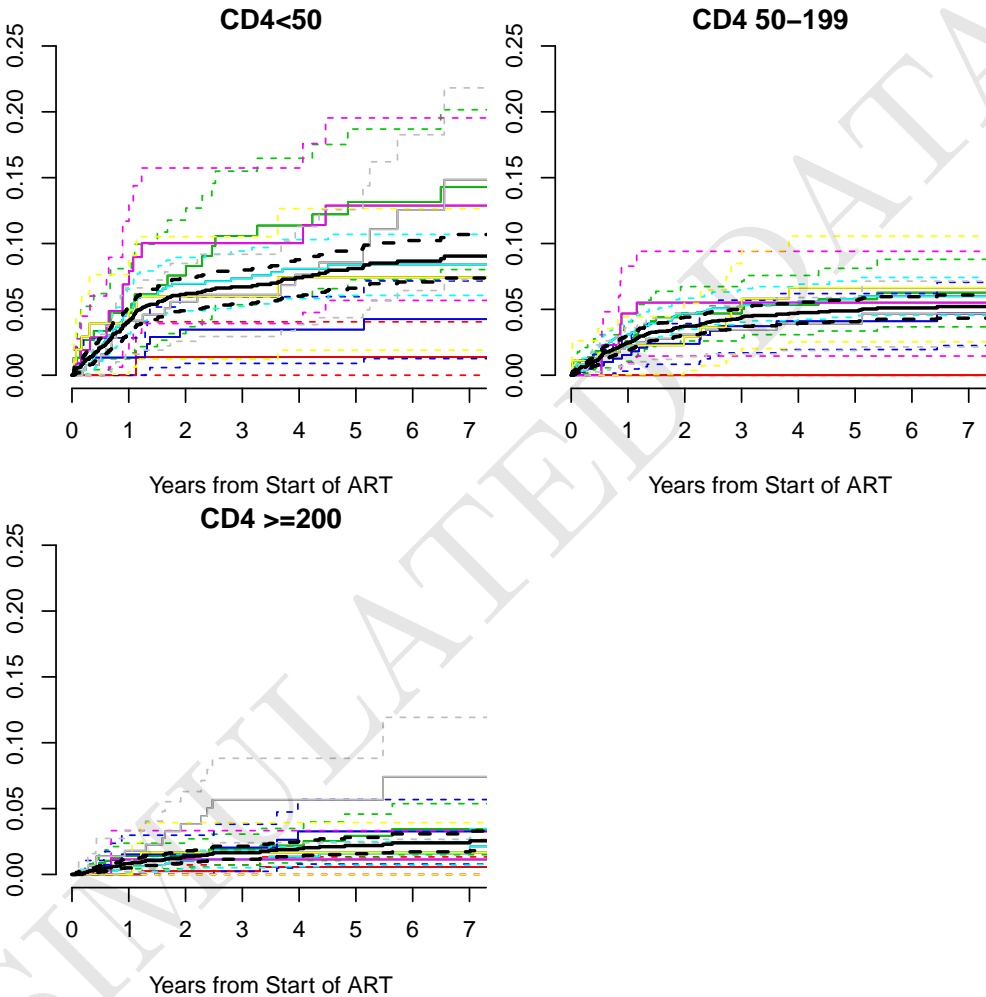


Figure 5: Probability of Mortality by Nadir CD4 prior to ART Initiation.

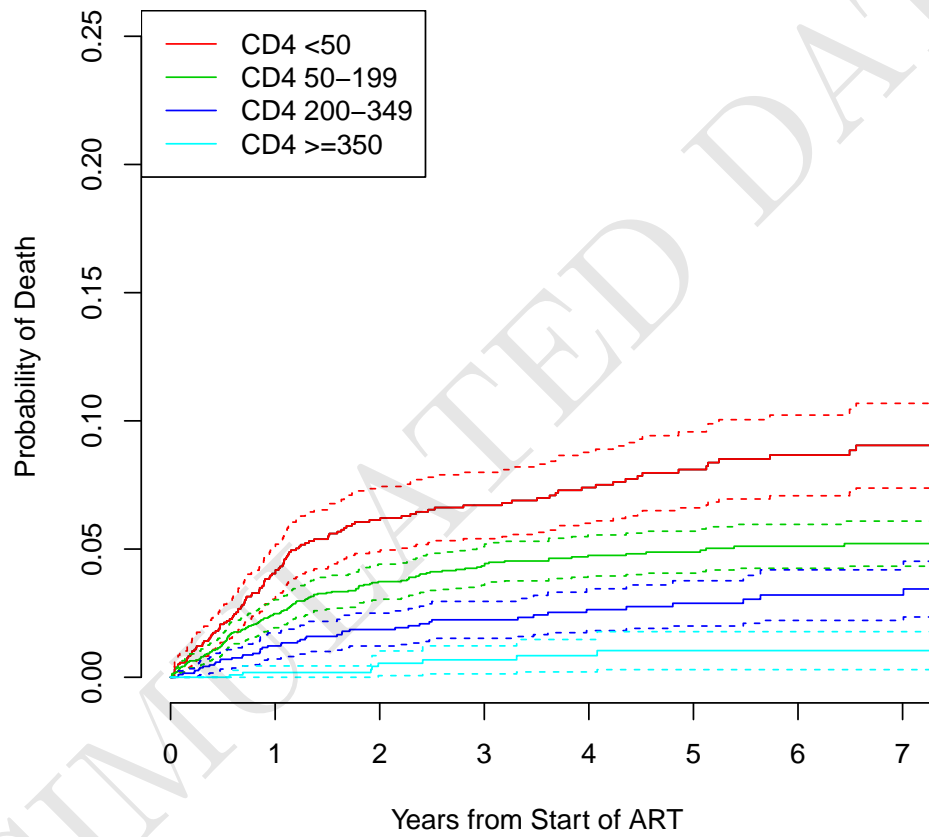


Figure 6: Cumulative Incidence of Loss to Follow-up by Site.

4040 cases omitted due to missing values  
4040 cases omitted due to missing values

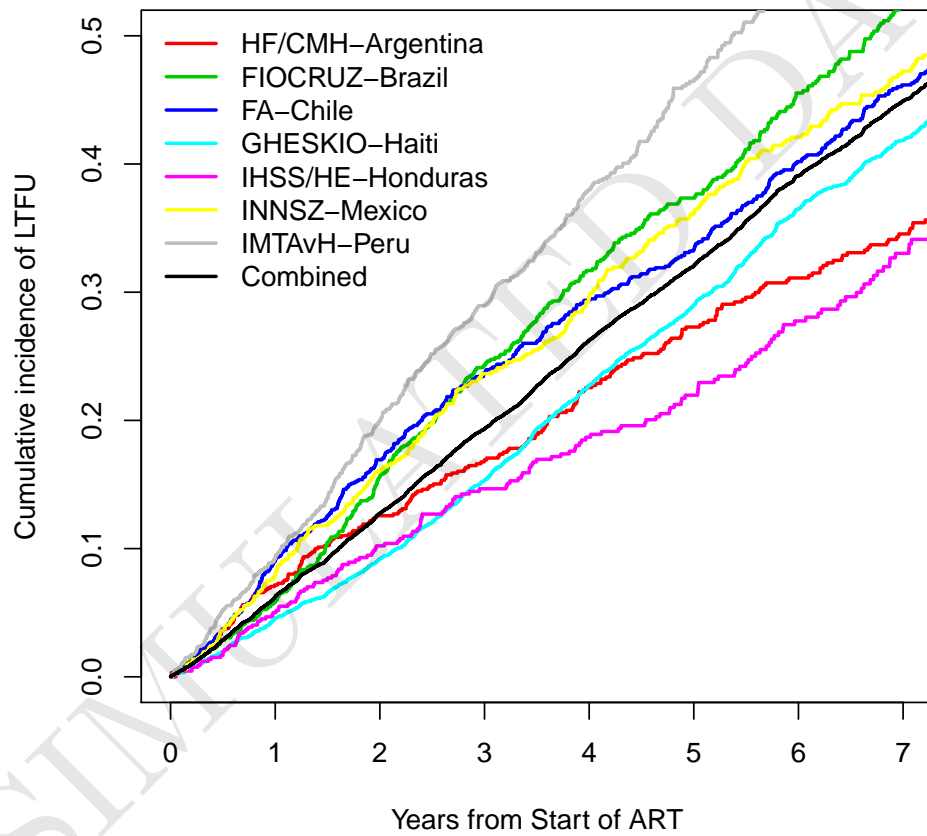
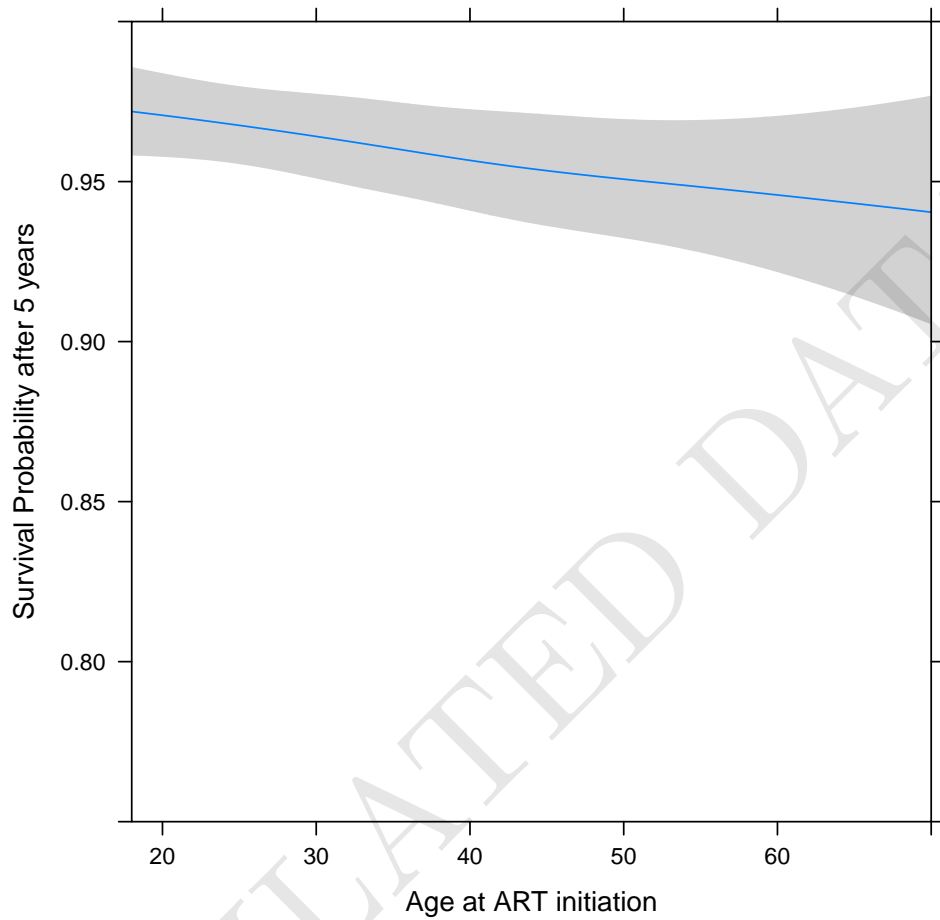


Figure 7: Predicted 5-year survival probability as a function of age at ART initiation. The predictive model is adjusted for the following variables (set at the corresponding representative levels): site (Peru), sex (male), clinical stage at baseline (not AIDS), baseline CD4 (200 cells), and initial ART regimen (NNRTI).



29% for Haiti, 22% for Honduras, 36.1% for Mexico, 46.4% for Peru, and 32% (95% CI 31%, 33.1%) for the combined cohort.

Figure 8: The impact of each variable on the predicted 5-year survival probability. The predictive model is adjusted for the following variables (set at the corresponding representative levels): site (Peru), sex (male), age (40 years), clinical stage at baseline (not AIDS), baseline CD4 (200 cells), and initial ART regimen (NNRTI).

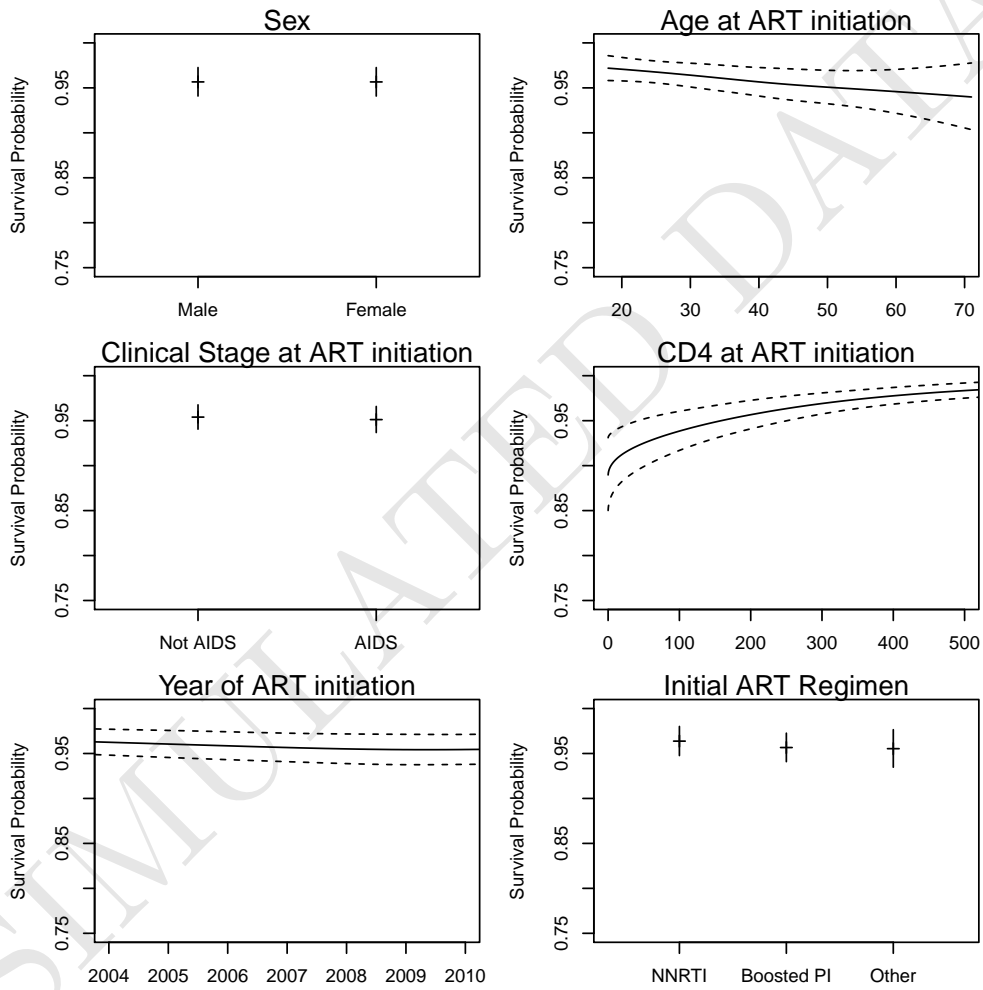


Table 5: Hazard ratios for mortality after ART initiation. Analyses are stratified by study site.

	Unadjusted		Adjusted	
	HR (95% CI)	p-value	HR (95% CI)	p-value
Male	1.34 (1.14, 1.57)	<0.001	1.13 (0.96, 1.33)	0.14
Age (years)		<0.001		<0.001
20	0.77 (0.56, 1.05)		0.82 (0.6, 1.12)	
30 (ref)	1		1	
40	1.3 (1.11, 1.52)		1.22 (1.04, 1.44)	
50	1.5 (1.23, 1.82)		1.4 (1.15, 1.71)	
60	1.62 (1.22, 2.14)		1.55 (1.17, 2.07)	
AIDS before ART	1.18 (0.9, 1.55)	0.23	0.96 (0.73, 1.27)	0.78
Nadir pre-ART CD4		<0.001		<0.001
50	3.21 (2.22, 4.63)		2.65 (1.89, 3.71)	
100	2.62 (1.84, 3.72)		2.11 (1.54, 2.89)	
200	1.76 (1.35, 2.28)		1.53 (1.23, 1.89)	
350 (ref)	1		1	
Year of starting ART		0.53		0.069
2000	0.8 (0.54, 1.2)		0.72 (0.48, 1.09)	
2002	0.87 (0.69, 1.09)		0.81 (0.64, 1.02)	
2004	0.87 (0.69, 1.09)		0.9 (0.83, 0.98)	
2006 (ref)	1		1	
2008	0.94 (0.86, 1.02)		1.09 (0.94, 1.25)	
2010	1.02 (0.89, 1.18)		1.09 (0.9, 1.33)	
Initial Regimen		0.25		0.09
NNRTI (ref)	1		1	
Boosted PI	1.06 (0.85, 1.33)	0.59	0.81 (0.61, 1.06)	0.12
Other	1.22 (0.96, 1.55)	0.1	1.06 (0.77, 1.45)	0.73

The unadjusted hazard ratio for patients  $\geq 50$  years versus  $< 50$  years was 1.34 (95% CI 1.09, 1.65).

The adjusted hazard ratio for patients  $\geq 50$  years versus  $< 50$  years was 1.31 (95% CI 1.06, 1.61).

Figure 9: Predicted 4-year survival probability as a function of age at ART initiation without Haiti. The predictive model is adjusted for the following variables: site (Peru), sex (male), AIDS, baseline CD4 (200 cells), and initial ART regimen (NNRTI), probable route of infection (heterosexual), and HIV-1 RNA (100,000 copies).

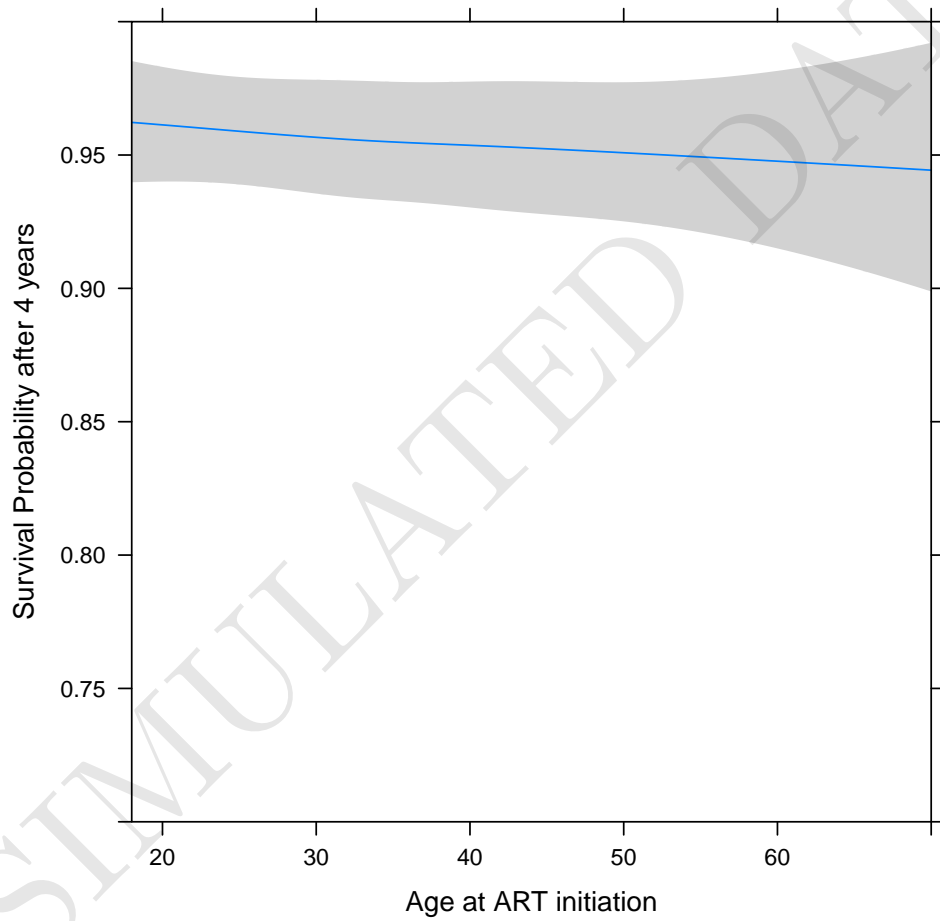




Table 6: Hazard ratios for mortality after ART initiation (after removing Haiti). Analyses are stratified by study site.

	Unadjusted		Adjusted	
	HR (95% CI)	p-value	HR (95% CI)	p-value
Male	1.49 (1.2, 1.86)	<0.001	1.23 (0.97, 1.55)	0.08
Age (years)		0.055		0.52
20	0.81 (0.56, 1.16)		0.89 (0.62, 1.28)	
30 (ref)	1		1	
40	1.16 (0.94, 1.43)		1.09 (0.87, 1.35)	
50	1.27 (0.99, 1.62)		1.14 (0.88, 1.48)	
60	1.36 (0.93, 2.01)		1.18 (0.79, 1.77)	
AIDS before ART	1.09 (0.79, 1.49)	0.61	1.02 (0.68, 1.52)	0.93
Nadir pre-ART CD4		<0.001		<0.001
50	2.02 (1.31, 3.14)		1.92 (1.35, 2.72)	
100	1.67 (1.1, 2.54)		1.58 (1.14, 2.19)	
200	1.42 (1.08, 1.86)		1.34 (1.13, 1.6)	
350 (ref)	1		1	
Year of starting ART		0.5		0.19
2000	0.71 (0.45, 1.13)		0.63 (0.39, 1.01)	
2002	0.83 (0.65, 1.05)		0.78 (0.61, 0.99)	
2004	0.83 (0.65, 1.05)		0.92 (0.83, 1.03)	
2006 (ref)	1		1	
2008	0.94 (0.85, 1.05)		1 (0.85, 1.17)	
2010	0.99 (0.84, 1.17)		1 (0.8, 1.26)	
Initial Regimen		0.08		0.02
NNRTI (ref)	1		1	
Boosted PI	1.08 (0.86, 1.36)	0.5	0.73 (0.53, 0.99)	0.045
Other	1.34 (1.03, 1.76)	0.03	1.06 (0.76, 1.48)	0.71
Probable route of infection		<0.001		<0.001
Heterosexual (ref)	1		1	
Homosexual	0.95 (0.68, 1.34)	0.79	0.84 (0.59, 1.19)	0.33
IDU	1.58 (1.08, 2.31)	0.02	1.26 (0.84, 1.89)	0.27
Other/Missing	1.58 (1.16, 2.15)	0.004	1.4 (1, 1.96)	0.048
Pre-ART log-viral load		0.062		0.071
3	1.02 (0.61, 1.71)		0.88 (0.58, 1.31)	
4	1.03 (0.67, 1.59)		0.95 (0.72, 1.26)	
5 (ref)	1		1	
6	0.55 (0.33, 0.9)		1.35 (1.02, 1.8)	

The unadjusted hazard ratio for patients  $\geq 50$  years versus  $< 50$  years was 1.24 (95% CI 0.94, 1.65).

The adjusted hazard ratio for patients  $\geq 50$  years versus  $< 50$  years was 1.18 (95% CI 0.89, 1.56).

Table 7: Characteristics of Patients LTFU, Alive, and Dead in HF/CMH-Argentina

	Alive (1170)	LTFU (908)	Dead (32)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	36 (30, 43)	36 (30, 43)	41 (36, 49)	0.6	0.007
Nadir pre-ART CD4	239 (137, 382)	279 (150, 454)	289 (152, 396)	0.012	0.74
Year of Starting ART	2005 (2003, 2009)	2004 (2002, 2007)	2003 (2002, 2006)	<0.001	0.43
Male	864 (73.8%)	660 (72.7%)	26 (81.2%)	0.59	0.38
Clinical AIDS before ART	36 (3.1%)	28 (3.1%)	2 (6.2%)	1	0.18
Initial Regimen				0.43	0.81
NNRTI	732 (62.6%)	545 (60%)	19 (59.4%)		
Boosted PI	233 (19.9%)	200 (22%)	6 (18.8%)		
Other	205 (17.5%)	163 (18%)	7 (21.9%)		

Table 8: Characteristics of Patients LTFU, Alive, and Dead in FIOCRUZ-Brazil

	Alive (920)	LTFU (1018)	Dead (139)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	37 (30, 44)	35 (29, 43)	37 (31, 44)	0.006	0.1
Nadir pre-ART CD4	201 (100, 333)	250 (114, 403)	128 (65, 254)	<0.001	<0.001
Year of Starting ART	2008 (2005, 2011)	2007 (2005, 2010)	2007 (2004, 2008)	<0.001	0.005
Male	585 (63.6%)	610 (59.9%)	91 (65.5%)	0.11	0.24
Clinical AIDS before ART	207 (22.5%)	214 (21%)	34 (24.5%)	0.46	0.17
Initial Regimen				0.3	0.44
NNRTI	559 (60.8%)	653 (64.1%)	85 (61.2%)		
Boosted PI	226 (24.6%)	230 (22.6%)	30 (21.6%)		
Other	135 (14.7%)	135 (13.3%)	24 (17.3%)		

Table 9: Characteristics of Patients LTFU, Alive, and Dead in FA-Chile

	Alive (888)	LTFU (888)	Dead (34)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	36 (30, 43)	37 (31, 44)	30 (24, 35)	0.002	<0.001
Nadir pre-ART CD4	134 (60, 240)	171 (77, 304)	114 (12, 205)	<0.001	0.019
Year of Starting ART	2008 (2004, 2011)	2006 (2003, 2009)	2006 (2004, 2009)	<0.001	0.82
Male	779 (87.7%)	795 (89.5%)	30 (88.2%)	0.26	1
Clinical AIDS before ART	300 (33.8%)	248 (27.9%)	13 (38.2%)	0.23	0.28
Initial Regimen				0.93	0.85
NNRTI	700 (78.8%)	706 (79.5%)	27 (79.4%)		
Boosted PI	103 (11.6%)	98 (11%)	3 (8.8%)		
Other	85 (9.6%)	84 (9.5%)	4 (11.8%)		

Table 10: Characteristics of Patients LTFU, Alive, and Dead in GHESKIO-Haiti

	Alive (3968)	LTFU (2021)	Dead (266)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	38 (31, 46)	38 (31, 45)	42 (36, 47)	0.024	<0.001
Nadir pre-ART CD4	156 (65, 279)	198 (90, 318)	70 (28, 134)	<0.001	<0.001
Year of Starting ART	2008 (2006, 2009)	2007 (2005, 2009)	2007 (2005, 2009)	<0.001	0.1
Male	1719 (43.3%)	871 (43.1%)	127 (47.7%)	0.89	0.17
Clinical AIDS before ART	497 (12.5%)	248 (12.3%)	25 (9.4%)	0.43	0.11
Initial Regimen				0.6	0.42
NNRTI	3737 (94.2%)	1897 (93.9%)	249 (93.6%)		
Boosted PI	165 (4.2%)	83 (4.1%)	14 (5.3%)		
Other	66 (1.7%)	41 (2%)	3 (1.1%)		

Table 11: Characteristics of Patients LTFU, Alive, and Dead in IHSS/HE-Honduras

	Alive (549)	LTFU (270)	Dead (104)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	37 (30, 43)	35 (29, 41)	41 (33, 47)	0.018	<0.001
Nadir pre-ART CD4	128 (40, 216)	164 (66, 296)	36 (16, 140)	0.023	<0.001
Year of Starting ART	2006 (2004, 2009)	2005 (2003, 2007)	2005 (2003, 2008)	<0.001	0.38
Male	258 (47%)	134 (49.6%)	68 (65.4%)	0.53	0.009
Clinical AIDS before ART	32 (5.8%)	20 (7.4%)	4 (3.8%)	0.53	0.65
Initial Regimen				0.62	0.31
NNRTI	515 (93.8%)	256 (94.8%)	101 (97.1%)		
Boosted PI	19 (3.5%)	6 (2.2%)	0 (0%)		
Other	15 (2.7%)	8 (3%)	3 (2.9%)		

Table 12: Characteristics of Patients LTFU, Alive, and Dead in INNSZ-Mexico

	Alive (486)	LTFU (460)	Dead (57)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	40 (32, 49)	37 (30, 44)	39 (34, 48)	<0.001	0.11
Nadir pre-ART CD4	133 (54, 247)	164 (72, 278)	38 (9, 148)	0.08	0.003
Year of Starting ART	2009 (2005, 2011)	2007 (2004, 2009)	2006 (2004, 2009)	<0.001	0.51
Male	416 (85.6%)	409 (88.9%)	51 (89.5%)	0.15	1
Clinical AIDS before ART	110 (22.6%)	119 (25.9%)	8 (14%)	0.69	0.26
Initial Regimen				0.69	0.23
NNRTI	377 (77.6%)	346 (75.2%)	46 (80.7%)		
Boosted PI	90 (18.5%)	95 (20.7%)	7 (12.3%)		
Other	19 (3.9%)	19 (4.1%)	4 (7%)		

Table 13: Characteristics of Patients LTFU, Alive, and Dead in IMTAvH-Peru

	Alive (1187)	LTFU (979)	Dead (98)	p-value (Alive vs. LTFU)	p-value (Dead vs. LTFU)
Age (years)	34 (27, 42)	34 (28, 41)	37 (31, 43)	0.5	0.005
Nadir pre-ART CD4	136 (57, 250)	154 (50, 270)	50 (10, 124)	0.18	<0.001
Year of Starting ART	2011 (2008, 2012)	2009 (2007, 2010)	2008 (2007, 2010)	<0.001	0.19
Male	877 (73.9%)	678 (69.3%)	81 (82.7%)	0.02	0.008
Clinical AIDS before ART	293 (24.7%)	291 (29.7%)	22 (22.4%)	0.13	1
Initial Regimen				0.86	0.18
NNRTI	1086 (91.5%)	897 (91.6%)	95 (96.9%)		
Boosted PI	69 (5.8%)	59 (6%)	2 (2%)		
Other	32 (2.7%)	23 (2.3%)	1 (1%)		

# 1 Appendix - R/Package Versions

- R version 3.2.1 (2015-06-18), x86\_64-apple-darwin13.4.0
- Base packages: base, datasets, graphics, grDevices, methods, stats, stats4, utils
- Other packages: cmprsk 2.2-7, Formula 1.2-1, ggplot2 2.1.0, Hmisc 3.17-4, lattice 0.20-31, Matrix 1.2-1, mi 1.0, mvtnorm 1.0-3, plyr 1.8.3, rms 4.5-0, SparseM 1.6, survival 2.38-1
- Loaded via a namespace (and not attached): abind 1.4-3, acepack 1.3-3.3, arm 1.8-6, chron 2.3-47, cluster 2.0.1, coda 0.18-1, codetools 0.2-11, colorspace 1.2-6, data.table 1.9.6, foreign 0.8-63, grid 3.2.1, gridExtra 2.0.0, gtable 0.1.2, latticeExtra 0.6-26, lme4 1.1-10, MASS 7.3-40, minqa 1.2.4, multcomp 1.4-1, munsell 0.4.2, nlme 3.1-128, nloptr 1.0.4, nnet 7.3-9, polyspline 1.1.12, quantreg 5.11, RColorBrewer 1.1-2, Rcpp 0.12.0, rpart 4.1-9, sandwich 2.3-3, scales 0.4.0, splines 3.2.1, TH.data 1.0-6, tools 3.2.1, zoo 1.7-12

SIMULATED DATA