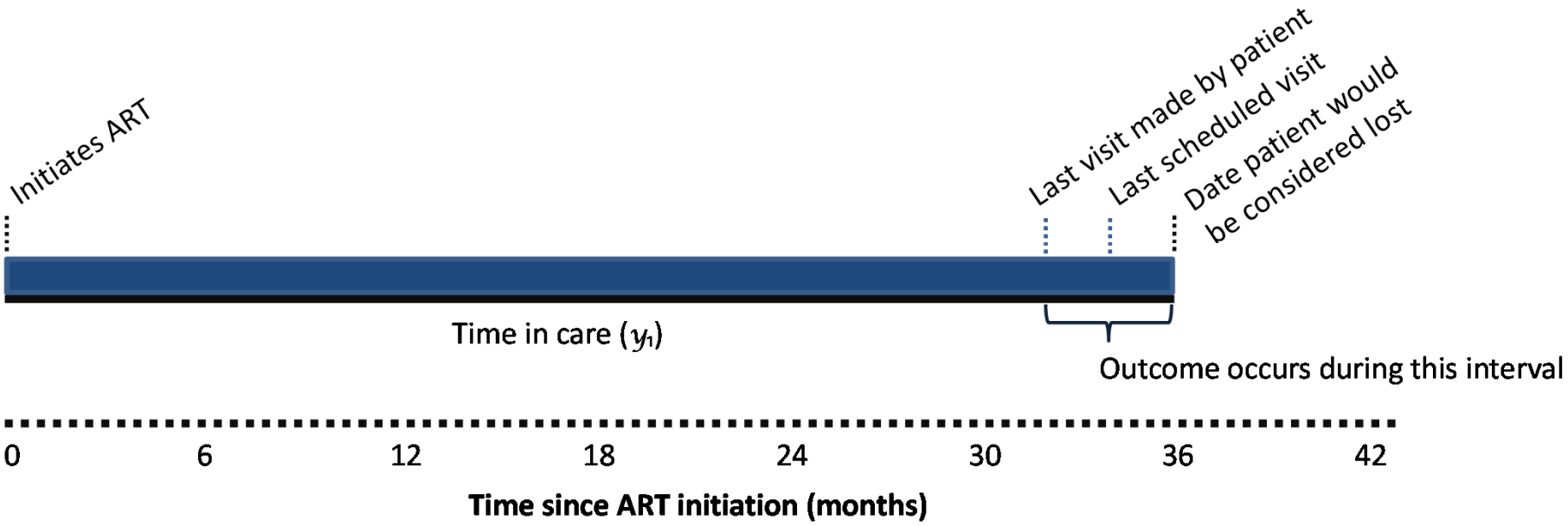
Supplementary Appendix

Figure S1. Method for estimation of person-time in care and lost to follow-up (LTF).

Example I. Patient is not lost from care.

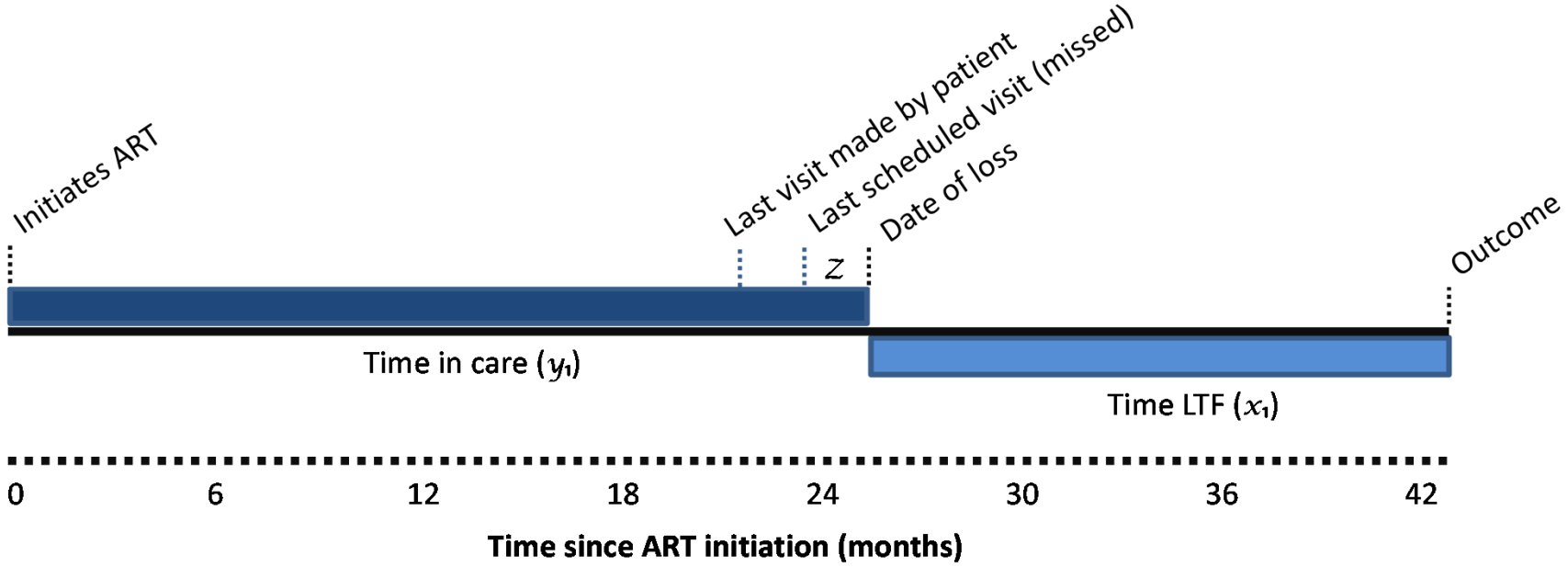
Exposure status = unexposed (in care); Person time = time in care (y_1);
Outcome = died or censored (i.e. transfer out or dataset closure)



Supplementary Appendix

Example II. Patient is lost from care. Separate records are created for person-time in care and lost.

First record: Exposure status = unexposed (in care); Person time = time in care (y_1);
Outcome = alive
Second record: Exposure status = exposed (lost); Person time = time lost (x_1);
Outcome = died or censored by dataset closure

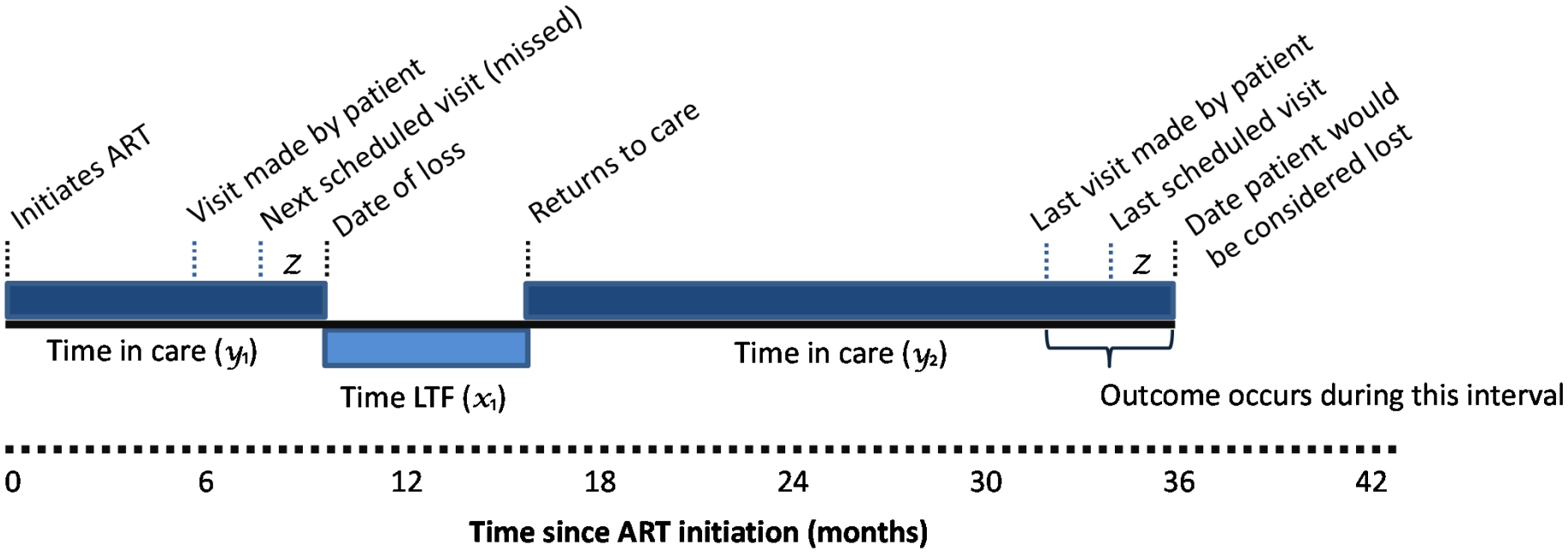


Note: The definition of lost will change duration of time Z. Person-time lost (x_1) accrues from date of loss.

Supplementary Appendix

Example III. Patient is temporarily lost but returns to care. Separate records are created for person-time in care and lost.

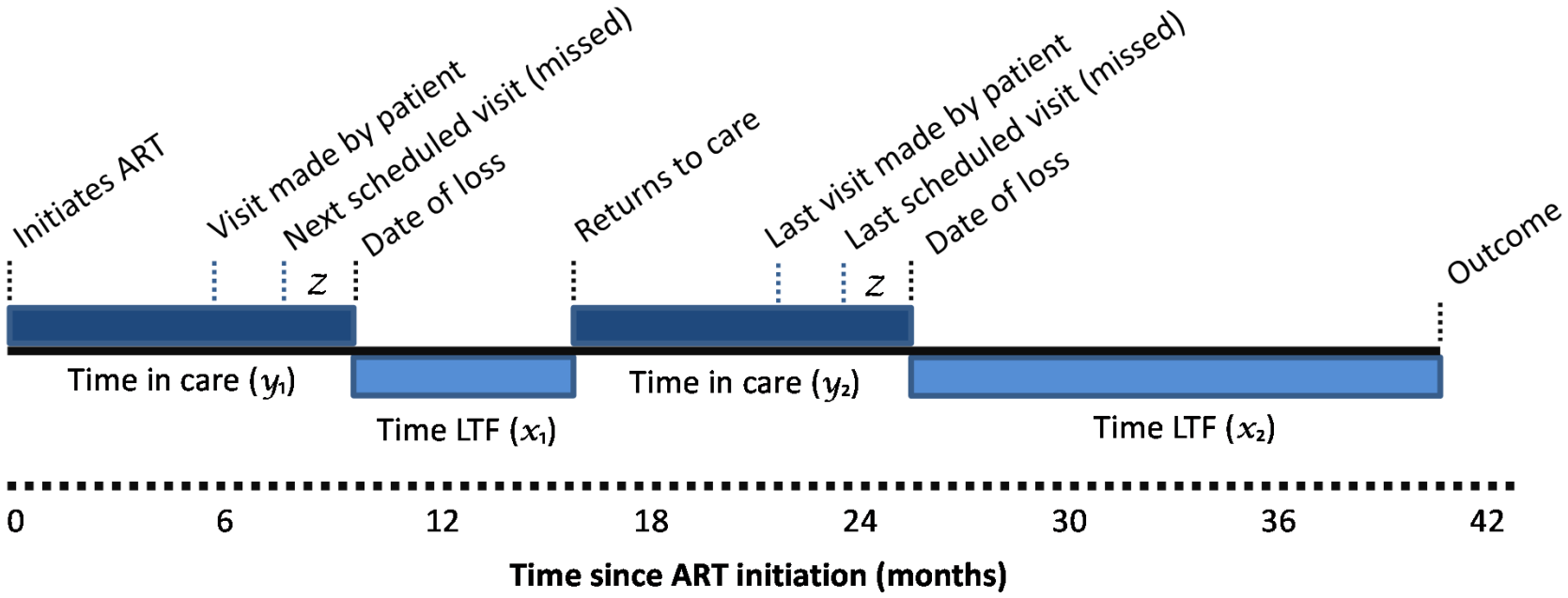
First record: Exposure status = unexposed (in care); Person time = cumulative time in care ($y_1 + y_2$); Outcome = died or censored by transfer out or dataset closure
Second record: Exposure status = exposed (lost); Person time = time lost before returning to care (x_1); Outcome = alive



Supplementary Appendix

Example IV. Patient is temporarily lost, returns to care, and is lost again. Separate records are created for person-time in care and lost.

First record: Exposure status = unexposed (in care); Person time = cumulative time in care ($y_1 + y_2$); Outcome = alive
Second record: Exposure status = exposed (lost); Person time = cumulative time lost ($x_1 + x_2$); Outcome = died or censored by dataset closure



Supplementary Appendix

Table S1. Mortality rates in care and lost to follow-up (LTF) stratified by year since ART initiation at the Themba Lethu HIV clinic in Johannesburg, South Africa.

Definition of LTF (late for scheduled visit)	Exposure group	1st year after ART initiation (months 1-12) [1]		2nd year after ART initiation (months 13-24) [2]		First 2 years after ART initiation (months 1-24) [3]	
		MR/1,000 py (95% CI)	MR difference: deaths/1,000 py (95% CI)	MR/1,000 py (95% CI)	MR difference: deaths/1,000 py (95% CI)	MR/1,000 py (95% CI)	MR difference: deaths/1,000 py (95% CI)
≥1 Day	In Care	67.0 (61.9-72.4)	REF	11.4 (9.2-14.2)	REF	40.8 (37.7-44.2)	REF
	LTF	321.9 (291.5-355.6)	255.0 (222.5-287.4)	133.4 (115.3-154.3)	122.0 (102.4-141.6)	226.4 (207.9-246.5)	185.6 (166.0-205.1)
≥1 Month	In Care	83.0 (77.5-88.9)	REF	16.0 (13.3-19.1)	REF	52.1 (48.7-55.8)	REF
	LTF	279.0 (242.8-320.7)	196.0 (156.7-235.3)	134.2 (114.1-158.0)	118.3 (96.2-140.3)	197.6 (177.2-220.4)	145.5 (123.6-167.4)
≥2 Months	In Care	89.4 (83.7-95.5)	REF	18.8 (15.9-22.2)	REF	57.0 (53.4-60.8)	REF
	LTF	224.4 (187.5-268.6)	135.0 (94.3-175.8)	126.4 (105.9-151.0)	107.6 (85.0-130.3)	167.8 (147.5-190.9)	110.8 (88.9-132.8)
≥3 Months	In Care	91.9 (86.2-98.0)	REF	20.1 (17.1-23.6)	REF	58.9 (55.3-62.8)	REF
	LTF	200.7 (162.0-248.5)	108.8 (65.5-152.1)	124.3 (103.2-149.7)	104.1 (80.8-127.5)	157.1 (136.3-181.0)	98.1 (75.5-120.7)
≥4 Months	In Care	93.1 (87.4-99.3)	REF	20.5 (17.5-24.0)	REF	60.0 (56.3-63.9)	REF
	LTF	191.2 (149.4-244.8)	98.1 (50.5-145.7)	128.3 (106.2-155.1)	107.9 (83.3-132.4)	152.8 (131.3-178.0)	92.9 (69.3-116.4)
≥5 Months	In Care	94.2 (88.4-100.3)	REF	21.3 (18.2-24.8)	REF	61.0 (57.4-64.9)	REF
	LTF	177.2 (132.3-237.3)	83.0 (30.9-135.1)	128.8 (105.8-156.6)	107.5 (82.1-133.0)	146.2 (124.0-172.3)	85.1 (60.8-109.5)
≥6 Months	In Care	94.9 (89.2-101.1)	REF	21.6 (18.6-25.2)	REF	61.6 (57.9-65.5)	REF
	LTF	164.0 (115.3-233.2)	69.0 (11.0-127.1)	133.0 (108.9-162.5)	111.4 (84.6-138.2)	145.3 (122.0-173.1)	83.7 (58.1-109.4)
	Total	**96.2 (90.5-102.4)**	**N/A**	**31.2 (27.6-35.2)**	**N/A**	**65.8 (62.1-69.7)**	**N/A**

[1] Excluded patients who initiated ART within 12 months of close of dataset (n=11,462 patients; n=1,013 deaths).
[2] Excluded patients who initiated ART within 24 months of close of dataset and who died or transferred out during the first year after ART initiation (n= 8,578 patients; n=261 deaths).
[3] Excluded patients who initiated ART within 24 months of close of dataset (n=9,781 patients; n=1,141 deaths).

Table S2. Predictors of mortality stratified by time in care and lost to follow-up (≥3 months late for a scheduled visit) at the Themba Lethu HIV clinic in Johannesburg, South Africa.

Exposure	Exposure Category	Reference group	Person-time in Care			Person-time Lost to Follow-up		
			aHR	95% Hazard Ratio CI		aHR	95% Hazard Ratio CI	
Sex	Male	Female	1.40	1.23	1.61	1.02	0.81	1.28
Age at ART Initiation (years)	30-39	18-29	1.21	1.00	1.48	0.89	0.67	1.17
	40-49	18-29	1.54	1.25	1.90	1.29	0.95	1.74
	50+	18-29	2.07	1.63	2.62	1.42	0.95	2.13
ART guideline initiated on	2004 Guidelines	2010 Guidelines	1.10	0.82	1.48	0.96	0.49	1.86
CD4 at ART Initiation (cells/mm³)	0-50	>200	2.28	1.75	2.97	2.73	1.61	4.61
	51-100	>200	1.72	1.30	2.27	2.46	1.44	4.21
	101-200	>200	1.30	0.99	1.70	1.71	1.01	2.89
Tuberculosis at ART Initiation	Yes	No	0.93	0.79	1.10	1.02	0.78	1.33
Drugs in first-line ART Regimen	AZT + 3TC + EFV	d4T + 3TC + EFV	1.10	0.70	1.72	0.92	0.43	1.96
	TDF + 3TC/EMT + EFV	d4T + 3TC + EFV	1.01	0.74	1.37	0.70	0.34	1.44
	Other	d4T + 3TC + EFV	0.88	0.68	1.15	0.41	0.24	0.71
Body mass index (kg/m²) at ART Initiation	<18.5	18.5-24.9	1.62	1.41	1.87	1.12	0.87	1.43
	25 and up	18.5-24.9	1.01	0.85	1.21	0.83	0.61	1.13
Haemoglobin at ART Initiation	Mild Anaemia	Non-Anaemia	1.48	1.18	1.86	1.34	0.97	1.85
	Moderate Anaemia	Non-Anaemia	2.40	1.95	2.96	1.42	1.06	1.91
	Severe Anaemia	Non-Anaemia	3.62	2.83	4.63	1.32	0.87	2.02