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SIMIT
Società Italiana di Malattie infettive e Tropicali

Le nuove sfide: come migliorare la “retention in care”?

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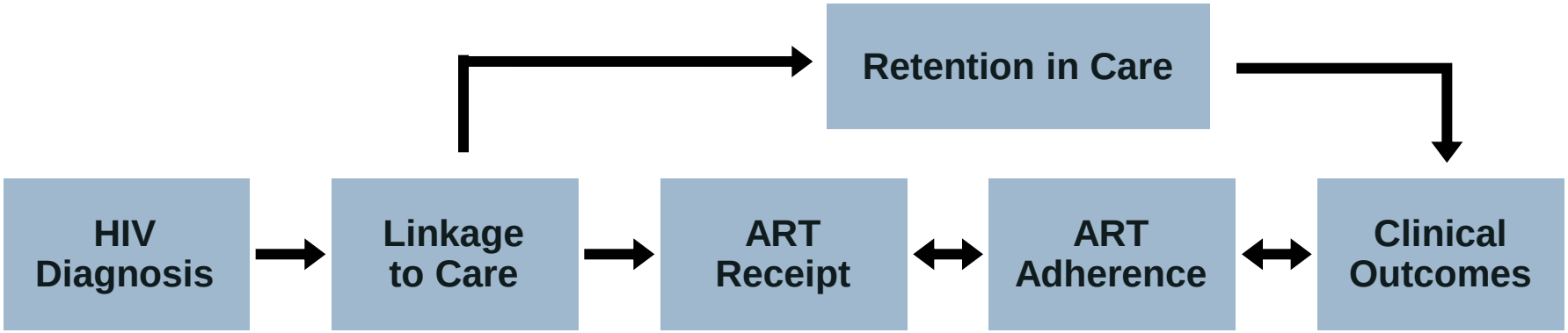
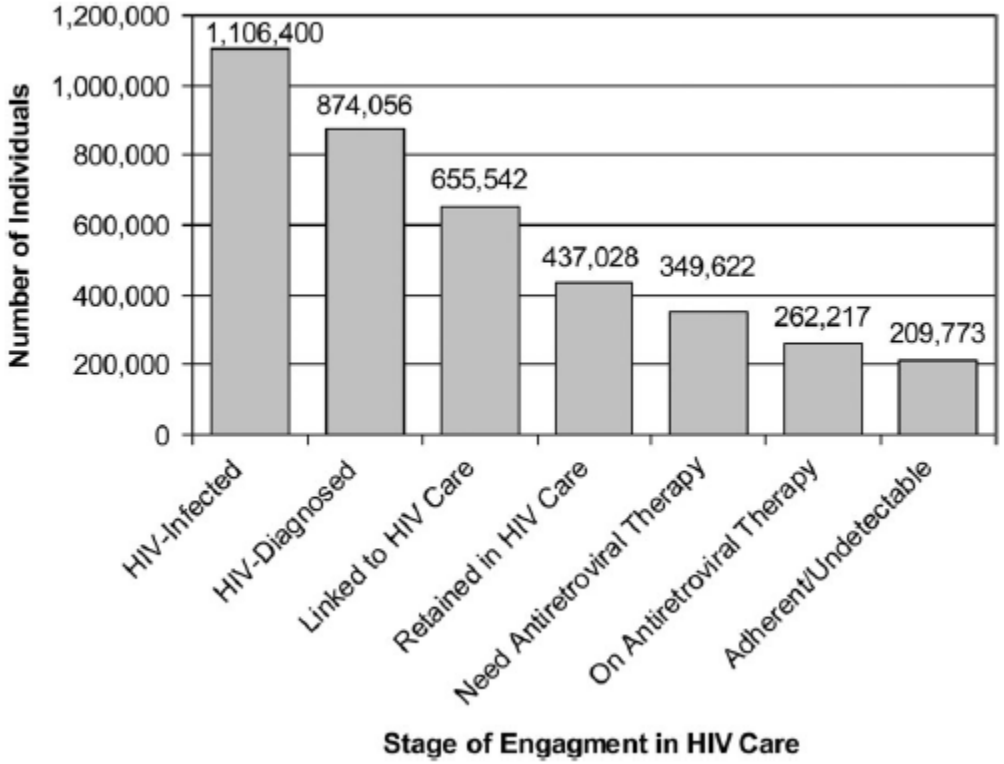
Malattie Infettive - AOU Modena

Models of Successful HIV Management Systems



Ulett KB, et al. AIDS Patient Care STDS. 2009;23:41-49.

The Spectrum of Engagement in HIV Care and its Relevance to Test-and-Treat Strategies for Prevention of HIV Infection



Poor engagement in care for HIV-infected individuals will substantially limit the effectiveness of test-and-treat strategies.

Gardner EM, Clin Infect Dis. 2011 Mar 15;52(6):793-800.

Objectives

- **To evaluate the engagement and retention in care after diagnosis**

- **To evaluate the percentage of viral load suppression in an Italian public Health System using data from an HIV Surveillance System**

HIV diagnosed

Study period
January 1996 and December 2011

Number of people diagnosed with HIV (PDWH): 962

Data source: Modena HIV Surveillance System (MHSS)

Characteristics	Number (%)
Males	638 (66,3)
Age (yo)*	36 (29-44)
Sexual transmission	853 (88,7)
Foreign born	329 (34,2)

*median and Interquartile Range

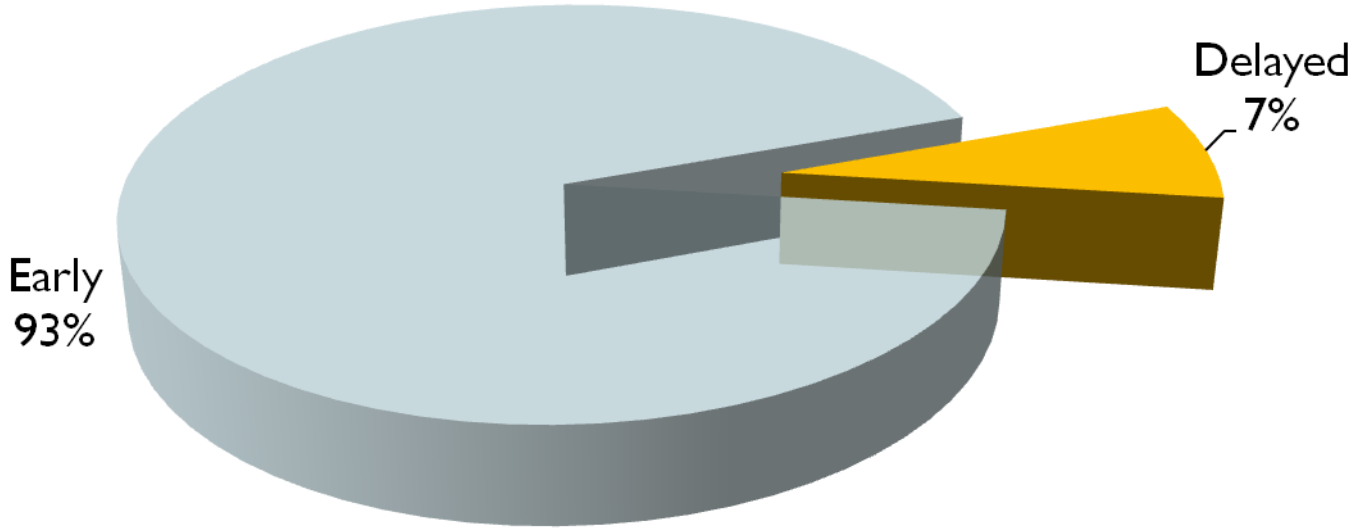
HIV diagnosed and linked

	Data source			
	MHSS	MHC	HIV-RER-SS and registry SSR	Public registry STP*
		Linked		**Not linked**
Nunber of PDWH	962	913 (94,9%)	26 (2.7%)	23* (2.4%)

*In not linked in care we performed a residency permit control and we found that those people had a temporary residence in the province of Modena because held in prison or in the center for illegal immigrants.

HIV delayed in care

We consider as "delayed" in linkage if a patients had perform their first CD4+ count cells after six months between the date of first anti HIV positive test



Delay in care: median time of 16 months (IQR 10 – 45)

PDWH at database lock (June 2012).

113 out of 913 (12.4%) previously linked in MHC died during the study period, 16,9% were LF.

Classified as currently in care (IC) if a visit until June 2011 were attended
Lost to follow-up (LF) if they did attend the visit during the year before June 2011.

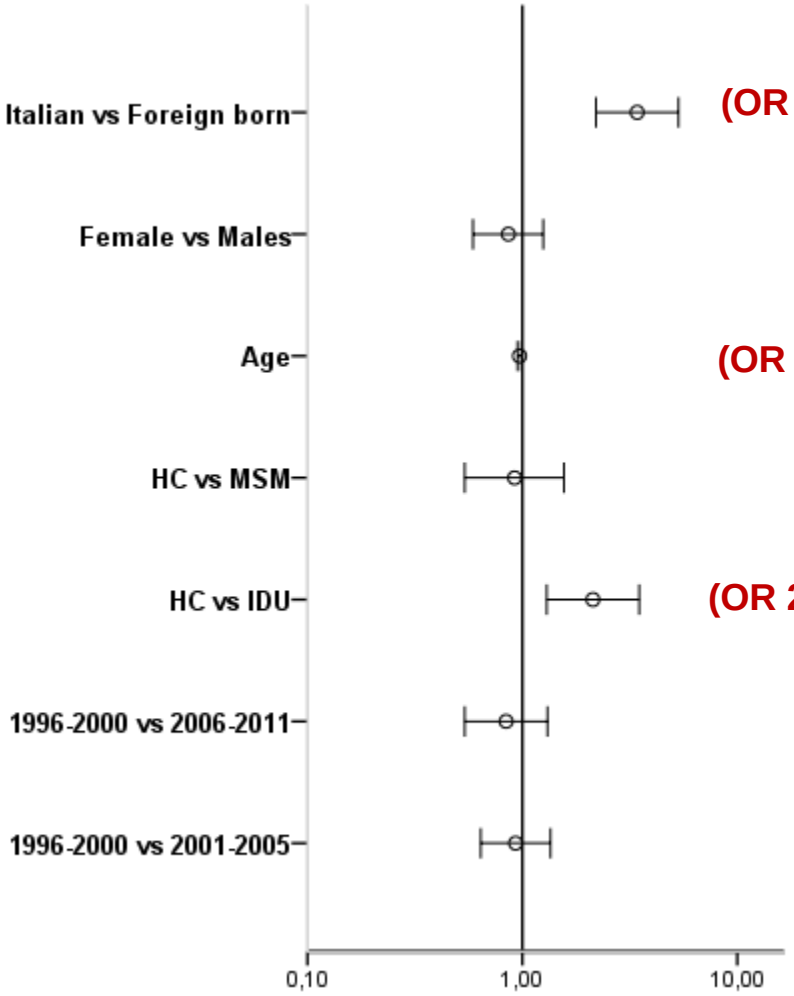
Characteristics	IC N= 759	LF N=154	Tot N=913	
Age (Years)*	37 (30-46)	31 (27-37)	36 (29-44)	<0.001
Male	515 (67.9%)	89 (57.8%)	604 (66.2%)	0.016
Foreign Born	223 (71.7%)	88 (28.3%)	311 (34.1%)	<0.001
IDU	75 (9.9%)	26 (16.9%)	101 (11.1%)	0.008
MSM	157 (20.7%)	20 (13.0%)	177 (19.4%)	
HC	527 (69.4%)	108 (70.1%)	635 (69.6%)	

Death rates and Incidence rates of LF during the study time

Study period	New diagnosis	IC	Deaths	LF	Incidence rate*	Pts/years
1996-2000	302	302	29 (9.6%)	39 (12.9%)	6.07 (4.31 – 8.29)	642.83
2001-2005	281	515	44 (8.5%)	42 (8.2%)	1.76 (1.27 – 2.38)	2382.75
2006-2011	330	759	41 (5.4%)	73 (9.6%)	1,66 (1,30 – 2.09)	4395.67

*Incidence rate: number of events/100 patients years (95% Interval confidence)

Determinants to be a LF



(OR 3.42; 95%IC 2.20-5.32; p<0.001)

(OR 0.97; 95%CI 0.95-0.99; p=0.003)

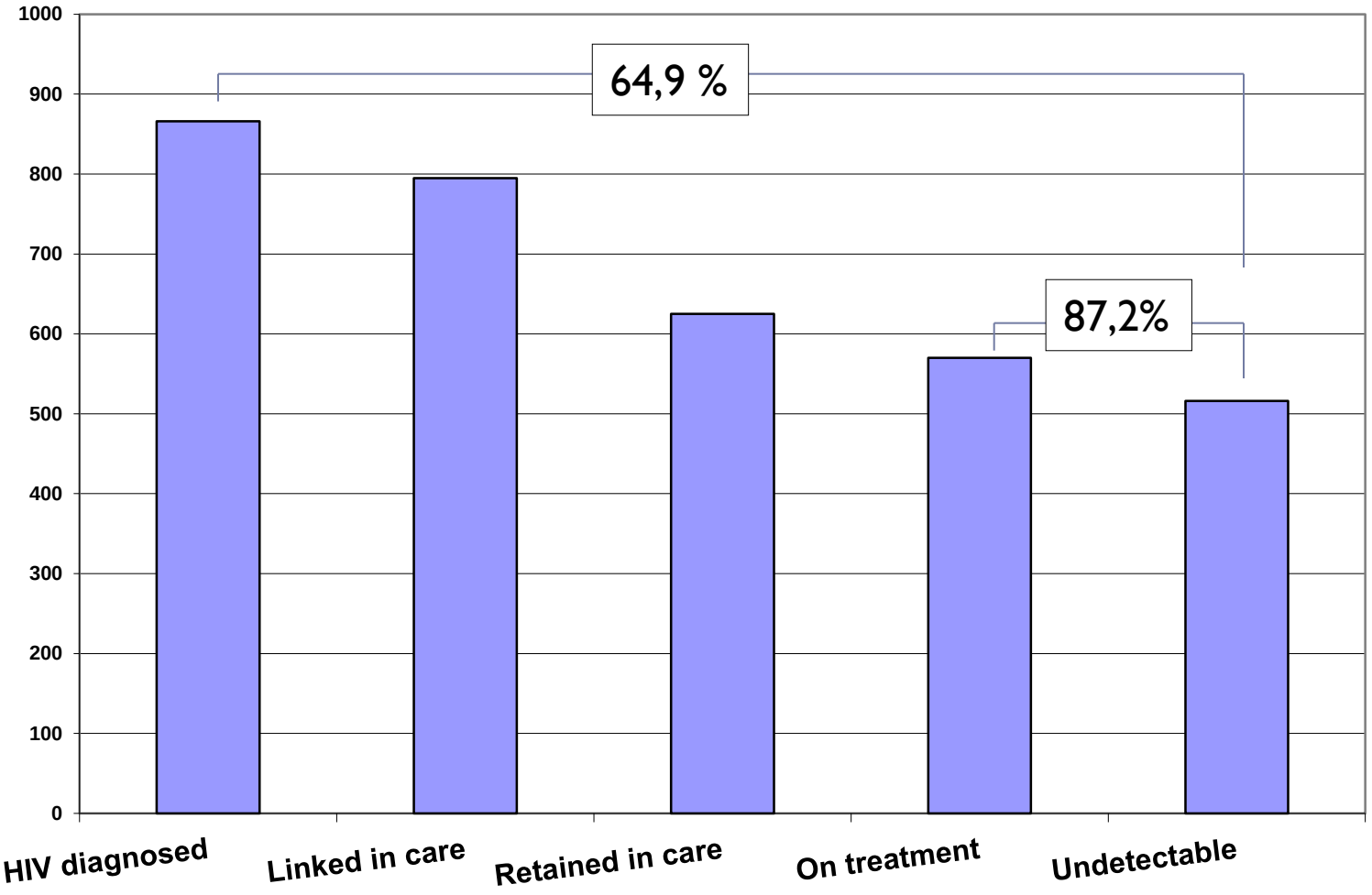
(OR 2.13; 95%IC 1.30-3.50; p= 0.003)

Rate of patients on HAART and HIV undetectability

- 587 out of 646 (90.8%) patients IC were on HAART at database lock
- 87,2% had a HIV viral load at last visit below the limit of detection (<40 HIV RNA copies/ml).

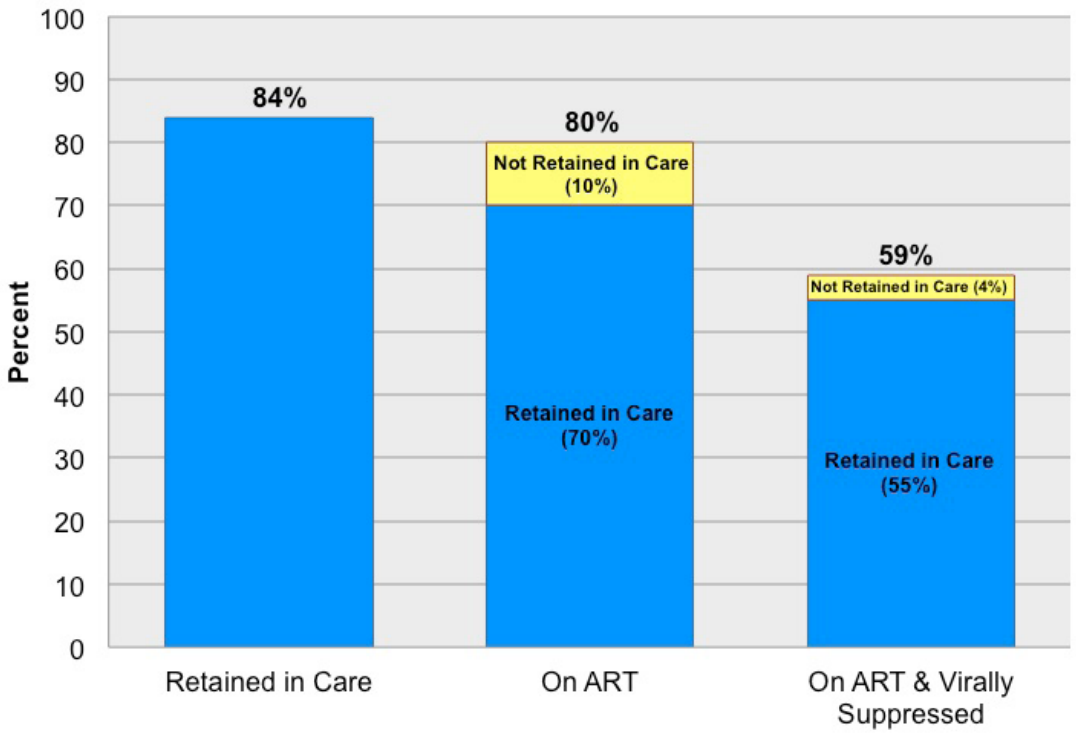
- Considering the all prevalence patients (848 diagnosed), the rate of subjects on HAART was 69.2% of the all HIV prevalent population with a HIV un-detectability reached in 64,9 %.

Cascade of care in MHC



The HIV Treatment Cascade: Is There More To the Story?

Figure: Treatment Cascade for HIV-Infected Adults by Retention in Care Status

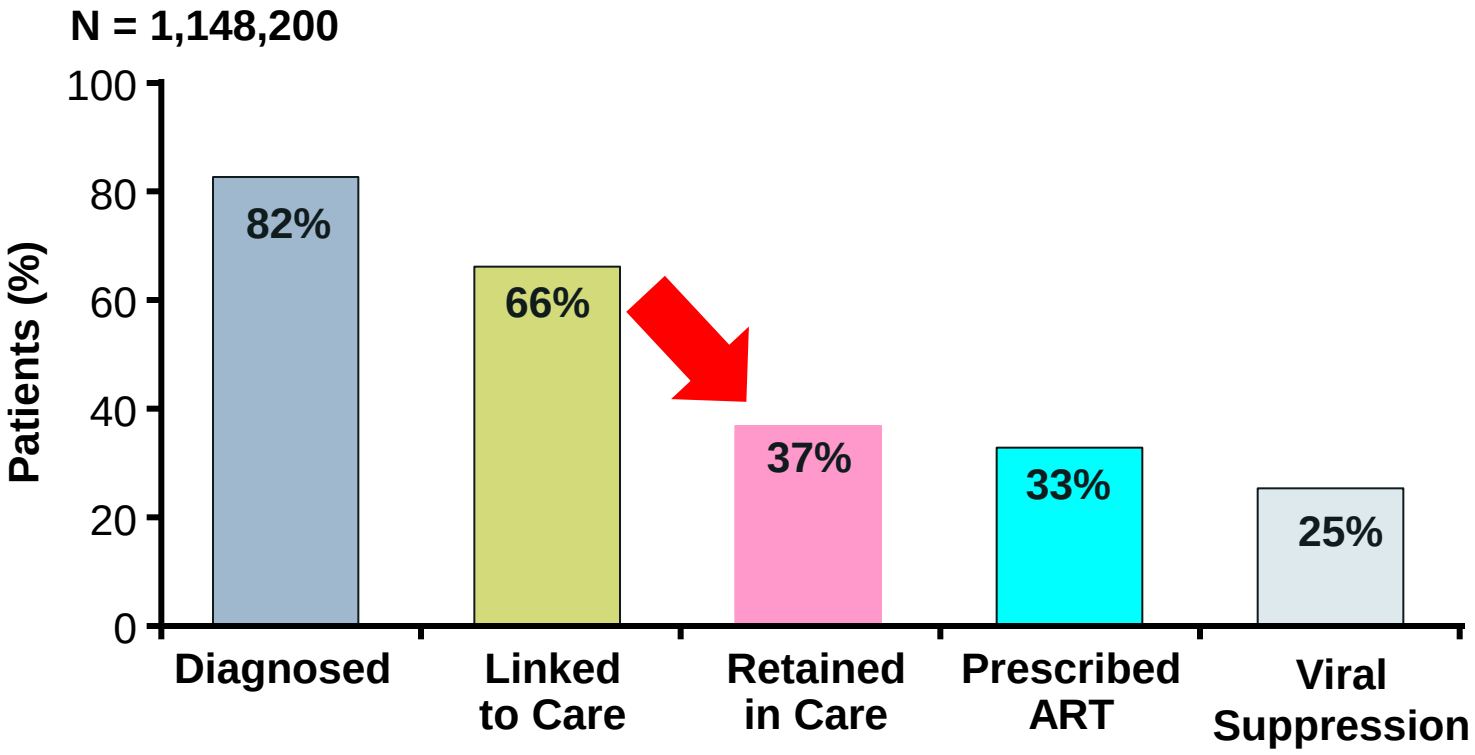


Excluding patients not retained in care from the HIV treatment cascade underestimates the proportion on ART by 10% and the proportion with viral suppression by 4%.

BR Yehia, et al; Po 564 CROI 2014

CDC: Largest Drop in Treatment Cascade Occurs in Retention in Care

- Data from CDC National HIV Surveillance System used to calculate HIV prevalence, undiagnosed HIV prevalence, and linkage to HIV care



- Hall HI, et al. AIDS 2012. Abstract FRLBX05.

WHAT CAN WE DO?

- **What do you do when HIV-positive patients miss appointments?**
- **What systems do you have in place to remind people of upcoming appointments?**

Predictors of Poor Linkage, Appointment Adherence, or Retention in Care

- **Demographic characteristics**
  - **Younger age**
  - **Female sex**
  - **Racial/ethnic minority status**
  - **No or public insurance**
  - **Lower socioeconomic status**
  - **Rural residence**
  - **No usua\l source of care**

Giordano TP. 2010 Ryan White HIV/AIDS Program Clinical Conference.

Predictors of Poor Linkage, Appointment Adherence, or Retention in Care

- **Disease severity**
  - Less advanced HIV disease
  - Fewer non-HIV comorbidities
- **Psychosocial characteristics**
  - **Substance use**/HCV coinfection
  - Low readiness to enter care
  - Less social support
- **System and patient factors**
  - Less use of ancillary services/greater unmet need

Giordano TP. 2010 Ryan White HIV/AIDS Program Clinical Conference.

WHAT CAN WE DO?

Patients recovering by phone calls, SMS, electronic reminders, e-mail?

Data source: Modena HIV Cohort

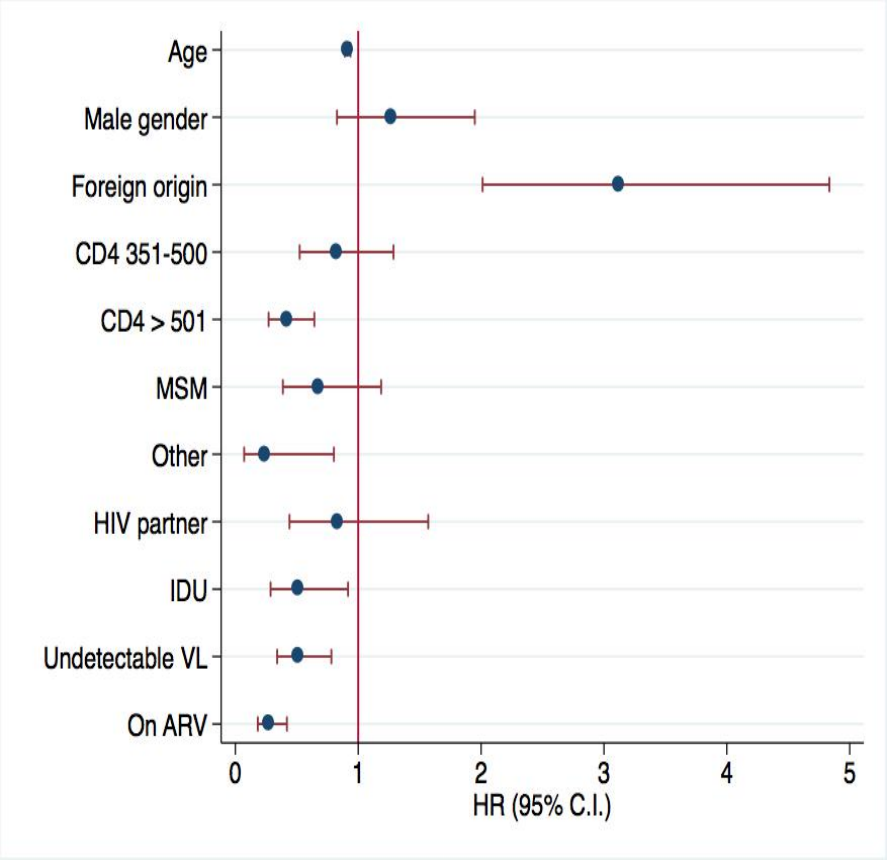
- All patient in care in MHC from 2006 and 2010.
  - **PLWH: 1830 (23711 PYFU)**
- Lost to follow up: all patients with a last visit two years later.
  - **214 (11.6%)**
- Deaths.
  - **113 (6.2%)**

Factors associated to being lost to FU

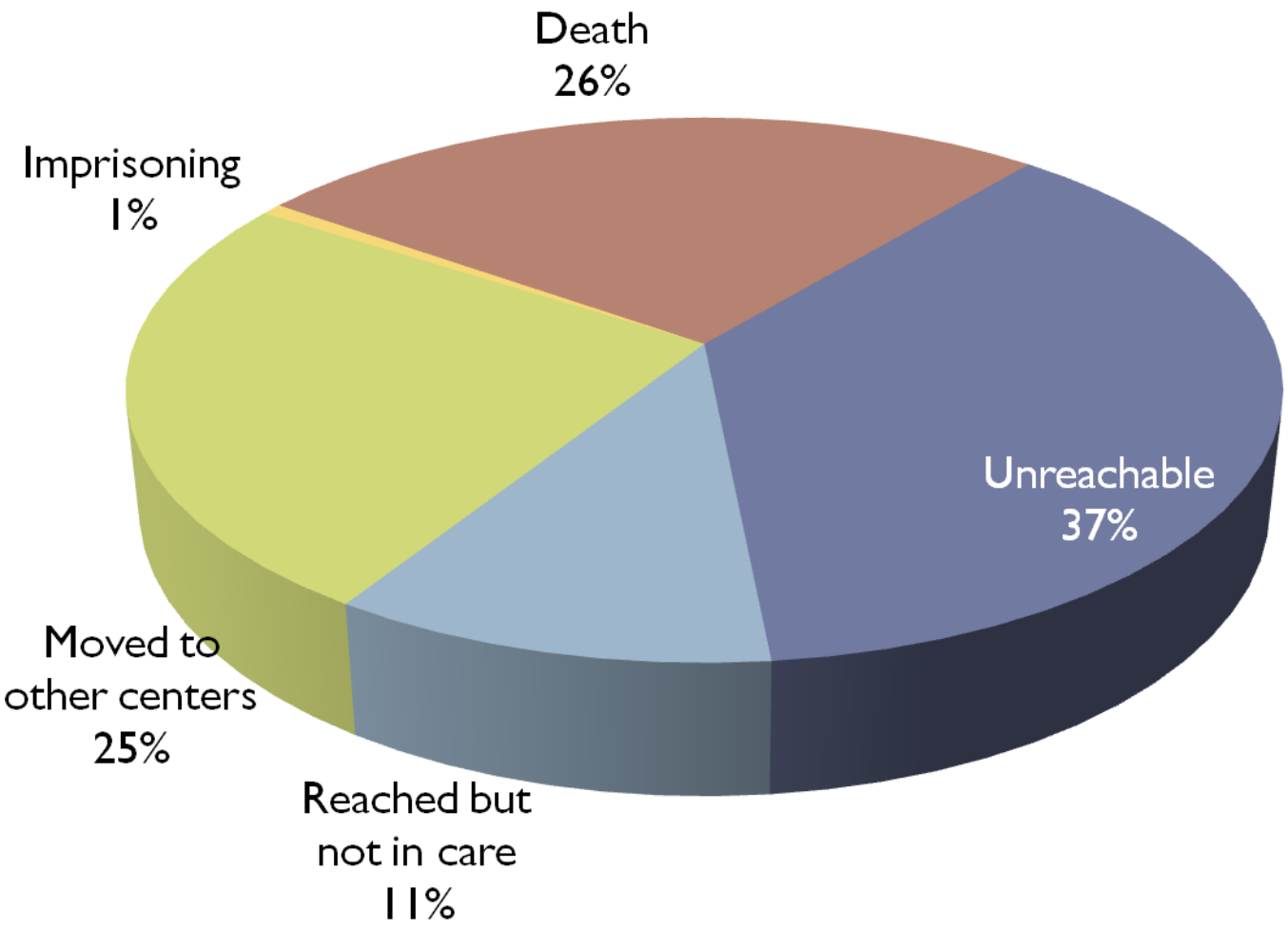
Univariate Cox regression analysis

	OR	95% C.I.	p
Age	**0.90**	**0.887 - 0.918**	**< 0.001**
Women	**1**		
Men	**0.85**	**0.597 - 1.210**	**0.368**
Foreign origin	**6.16**	**4.293 - 8.845**	**< 0.001**
CD4 Strata			
CD4 < 350	**1**		
CD4 351-500	**0.76**	**0.489 - 1.182**	**0.223**
CD4 > 501	**0.40**	**0.268 - 0.598**	**<0.001**
Undetectable HIV-VL	**0.35**	**0.244 - 0.495**	**< 0.001**
On ARV	**0.26**	**0.180 - 0.362**	**< 0.001**
Risk behaviour			
Heterosex	**1**	**-**	**–**
MSM	**0.58**	**0.364 - 0.938**	**0.026**
HIV+ partner	**0.52**	**0.292 - 0.941**	**0.031**
IDU	**0.23**	**0.145 - 0.376**	**<0.001**
Other	**0.85**	**0.309 - 2.357**	**0.759**

Multivariable Cox regression analysis



We performed 250 phone calls:



Characteristics of patients re-engaged in care

- **31 pts reached:**
  - **5 pts refused the visit**
  - **2 pts did not performed the blood test**

	Mean (SD) or n (%)
Gender	
Women	11 (45.83%)
Men	13 (54.17%)
Age at last visit	40
Time between visits in months	23.5 (17 – 28)

Characteristics of patients re-engaged in care

After a phone call survey, 24 patients returned to the Clinic

- Median CD4 cell count was 205.5 (range 13 – 607)
- 2 patients resulted elite controllers
- Excluding the 2 HIV-VL suppressed patients, median HIV-VL (Log_{10} scale) was 4.67 (range 2.41 – 5.91)

Comparison between last and re-engagement visit

	At last visit	At re-engagement	p-value
Log_{10} HIV Viral Load, median (IQR)	3.41 (1.71 – 4.41)	4.67 (3.80 – 4.94)	0.581
CD4+ cell count, median (IQR)	515.5 (399 – 643)	306 (115 – 482)	< 0.001
CD4+ cell count			
≤100	0	5 (20.8%)	0.035
101-250/µL	3 (12.5%)	6 (25.0%)	0.053
251-350/µL	1 (4.2%)	2 (8.3%)	0.297
351-500/µL	8 (33.3%)	5 (20.8%)	0.671
>500/µL	12 (50.0%)	6 (25.0%)	0.158

Conclusions

- ***Retention in care is a relevant problem, in our cohort 1-3.5% per year of patients were LF.***
- ***Patients resulted LF were mainly of foreign origin.***
- ***LF patients could be at risk of developing AIDS, thus, since our approach using telephone calls is very simple and inexpensive, it should be periodically applied in all centers.***

Acknowledgements

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