CONVEGNO NAZIONALE

Let's stop HIV

Nuove prospettive
e popolazioni speciali

Il linkage to care e la retention in care

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Il linkage to care e la retention in care

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COIs

BMS, Gilead, Janssen-Cilag, MSD, ViiV, AbbVIE, Pfizer

MEDICI
CON L'AFRICA
CUAMM

UNAIDS 90-90-90 targets

By 2020…

90%

of all people living with HIV will know their HIV status

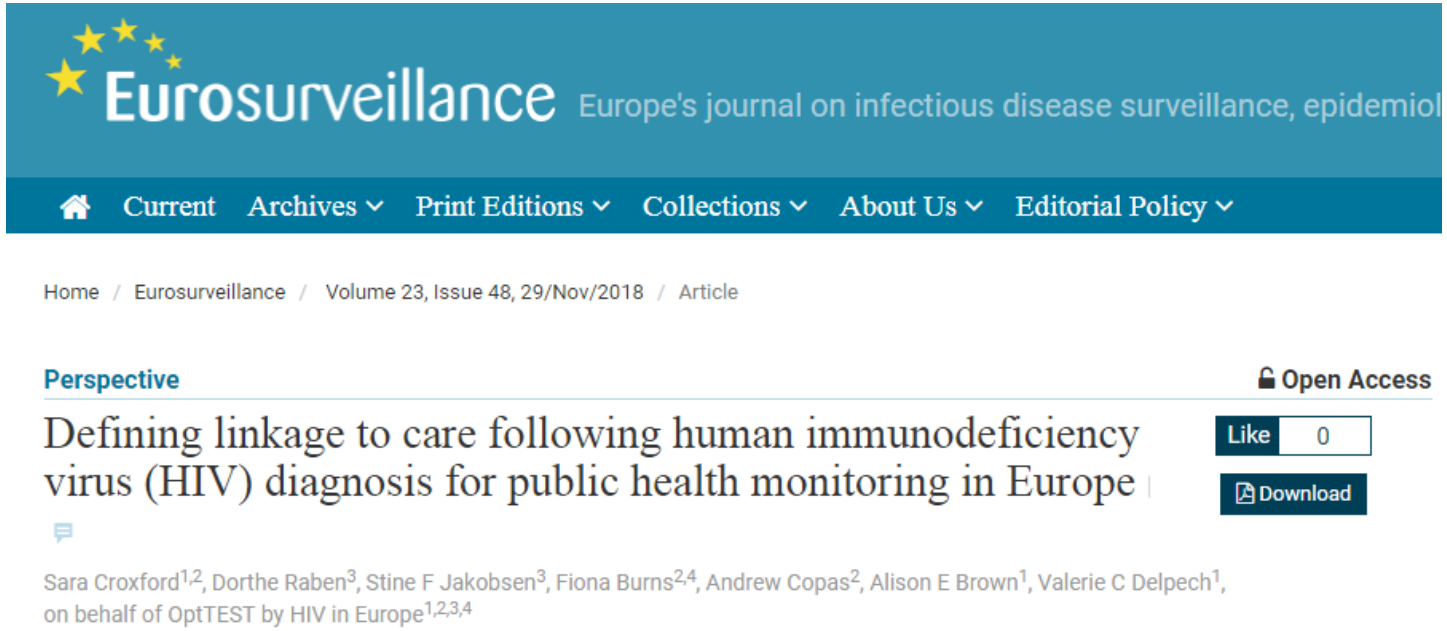
90%

of all people diagnosed with HIV will receive sustained antiretroviral therapy.

90%

of all people receiving antiretroviral therapy will have durable suppression.

What is “linkage to care”?



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Perspective

Open Access

Defining linkage to care following human immunodeficiency virus (HIV) diagnosis for public health monitoring in Europe

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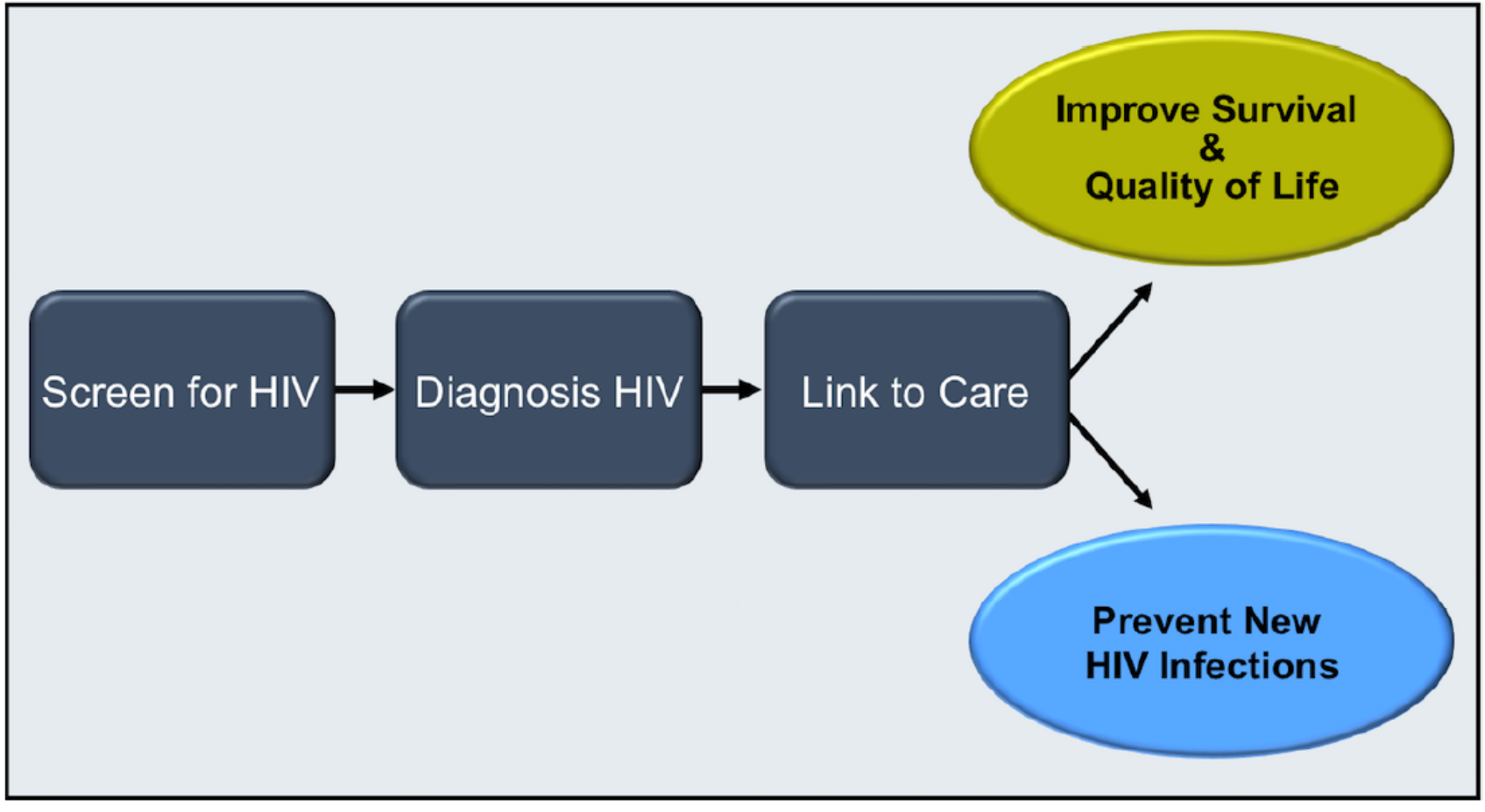
Sara Croxford[1,2], Dorthe Raben[3], Stine F Jakobsen[3], Fiona Burns[2,4], Andrew Copas[2], Alison E Brown[1], Valerie C Delpech[1], on behalf of OptTEST by HIV in Europe[1,2,3,4]

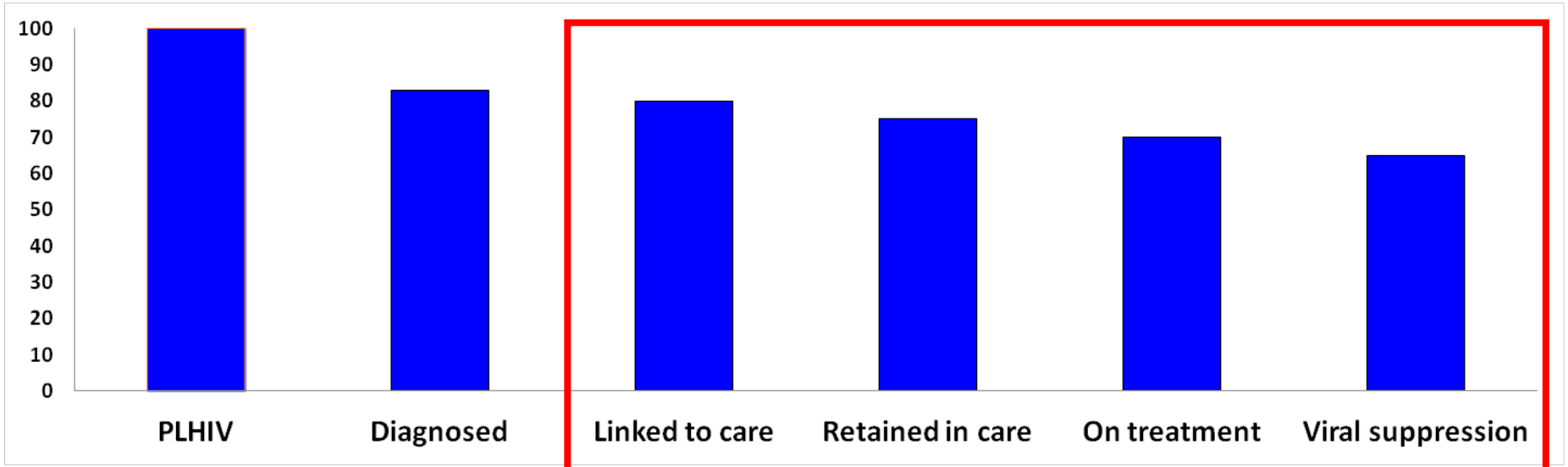
‘**Patient entry into specialist HIV care after diagnosis, measured as the time between the HIV diagnosis date and either the first clinic attendance date, first CD4 count or viral load date, or HIV treatment start date, depending on data availability**’

Linkage is considered prompt if within 3 months of diagnosis.’

Figure 1 Linkage to Care: Main Goals



Collecting data for HIV Continuum of Care



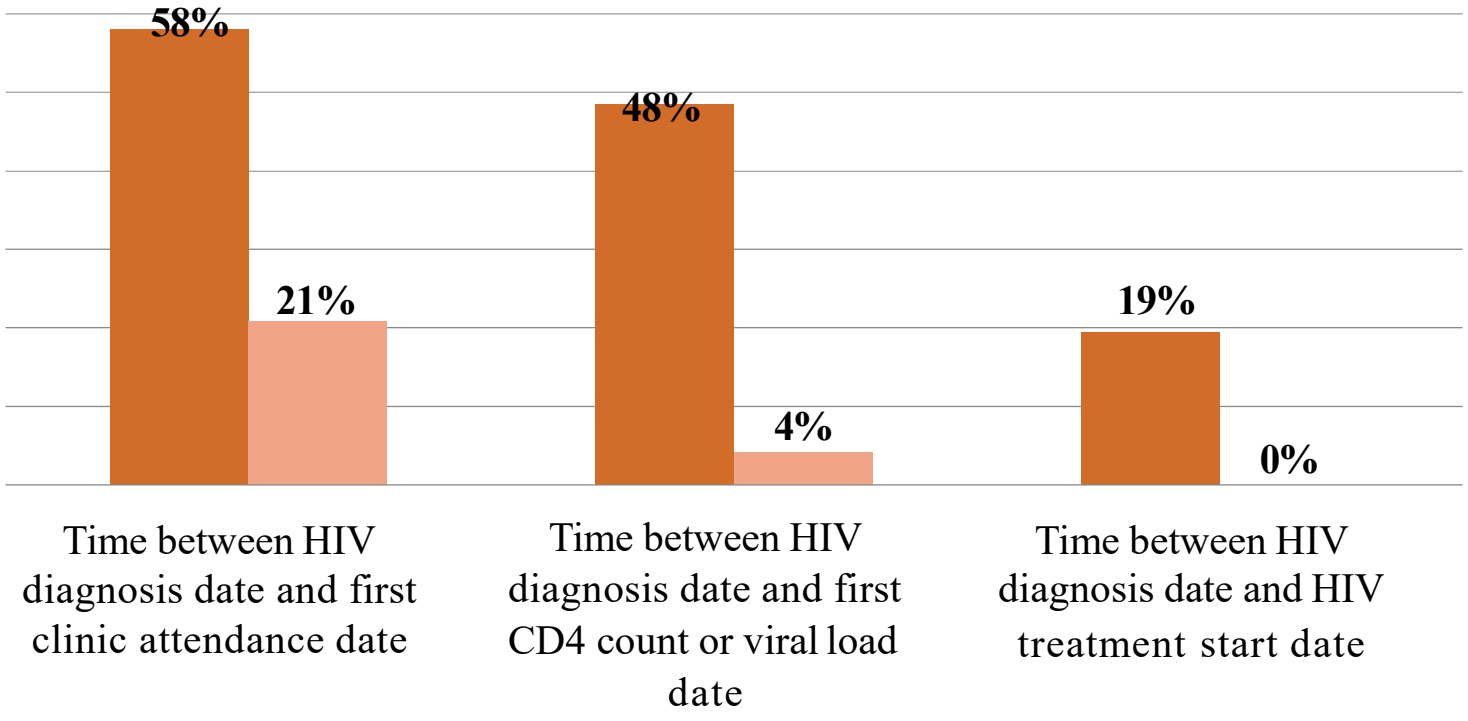
Modelling Tools

Surveillance Data

Clinical data/cohorts of people living with HIV
Annual surveys

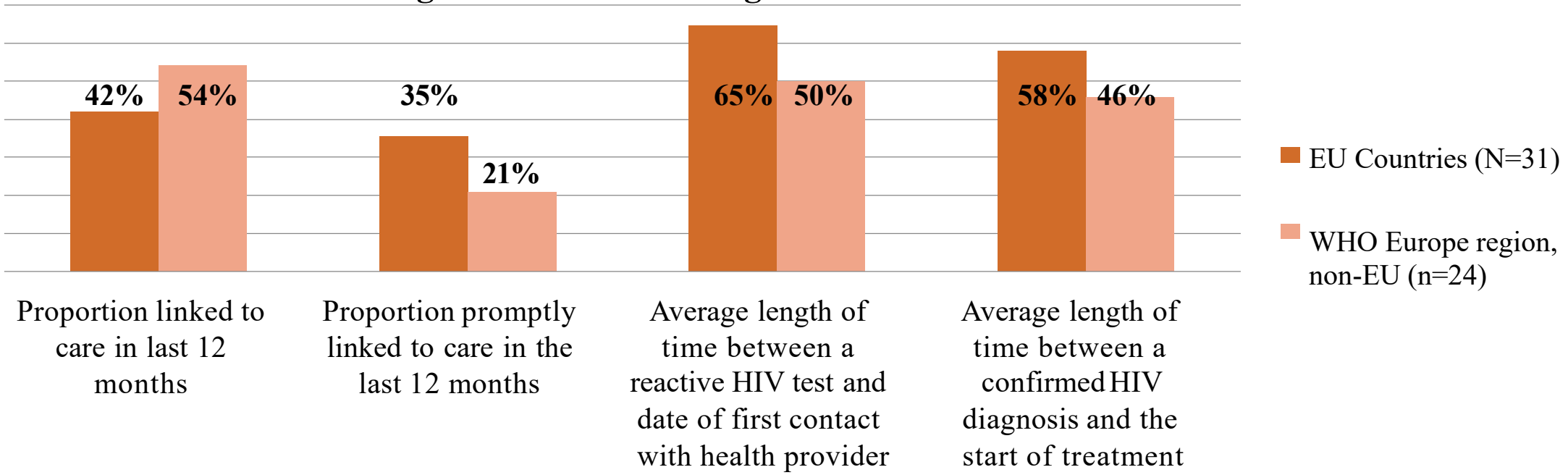
Results: Dublin Declaration Monitoring 2018

Proportion of Countries Using Each Data to Calculate Linkage to Care



Results: Dublin Declaration Monitoring 2018

Proportion of Countries Who Report the Following Indicators Related to Linkage to Care for HIV Diagnoses

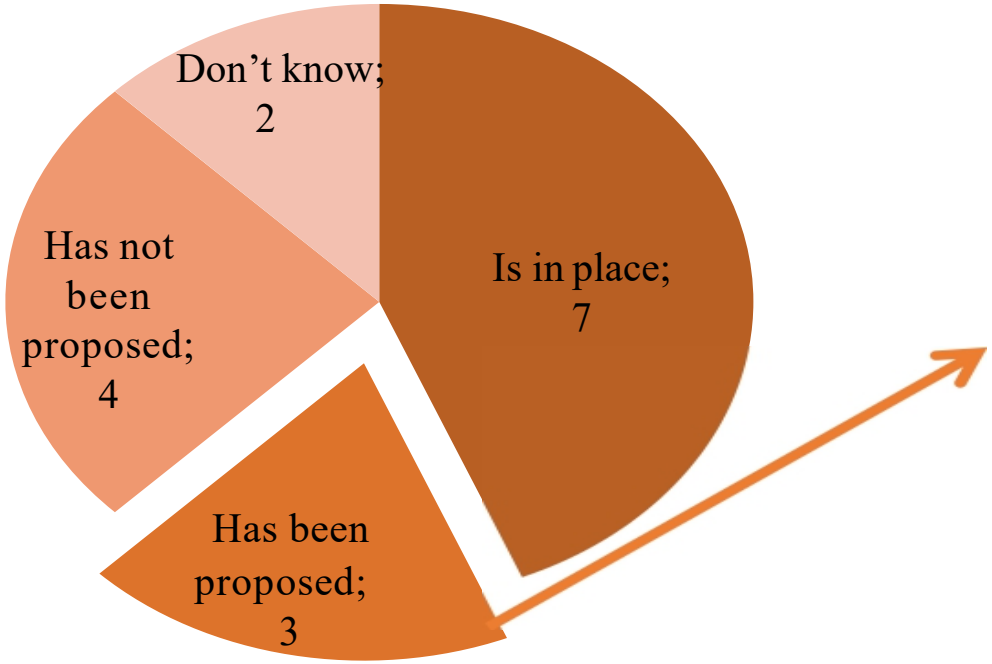


Results: INTEGRATE Partner survey

Integration of CBVCT data into national surveillance system

HepHIV 2019 28-30 JANUARY · BUCHAREST

Integration of community testing data into the national surveillance system...



Slovenia – Pilot planned for Integrate

Italy - has been proposed at the level of the Ministry HIV advisory board and it is foreseen by the new HIV national plan (PNAIDS) but still nothing confirmed

Integrate

The case for expanding access to highly active antiretroviral therapy to curb the growth of the HIV epidemic

Julio S G Montaner, Robert Hogg, Evan Wood, Thomas Kerr, Mark Tyndall, Adrian R Levy, P Richard Harrigan

"The upshot of this widespread failure to recognize that AIDS is an exceptional crisis and threat is that the response to the pandemic is not made commensurate to the challenges—and so the epidemic escalates even while it erodes our capacities to check it."

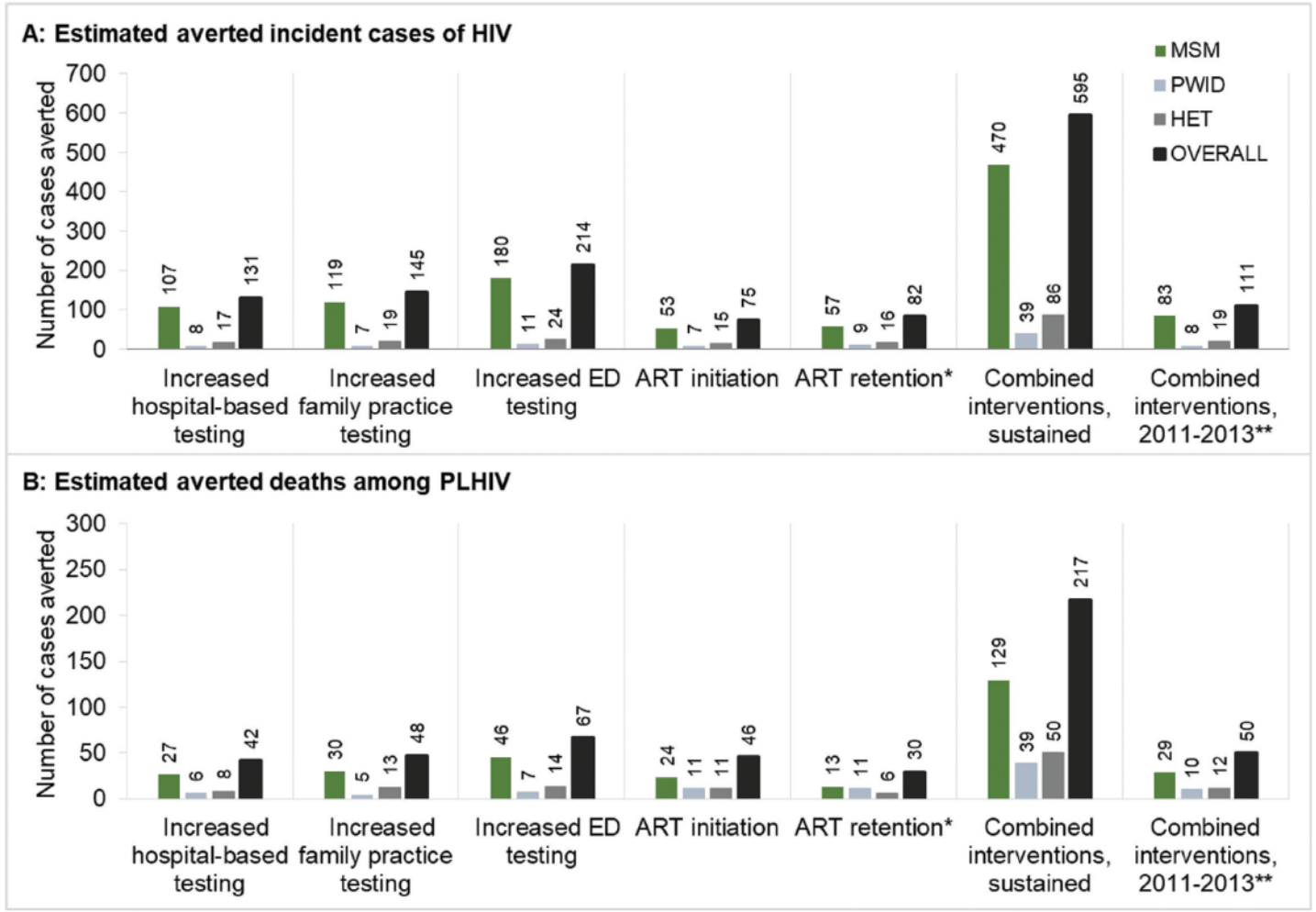
Dr Peter Piot, UNAIDS Executive Director[1]

examine here the potential role of HAART in HIV prevention and the resulting effect this would have on the cost-effectiveness of the treatment. We also discuss a theoretical HAART-driven strategy to control the continued expansion of the HIV/AIDS pandemic.

Lancet 2006; 368: 531–36

British Columbia Centre for Excellence in HIV/AIDS, Providence Health Care
(J S G Montaner MD, R Hogg PhD, E Wood PhD, T Kerr PhD, M Tyndall MD, P R Harrigan PhD);

Cost-Effectiveness of HIV Testing and Treatment Engagement Initiatives in British Columbia, Canada: 2011–2013



ED testing was the best value at $30 216 per QALY gained and had the greatest impact on incidence and mortality among PLHIV, while ART initiation provided the greatest QALY gains. The ART retention initiative was not cost-effective.

HIV testing and ART initiation interventions were cost-effective, while the ART retention intervention was not.

Developing strategies to reengage PLHIV lost to care is a priority moving forward.

Nosyk B, et al. Clin Infect Dis, 2018

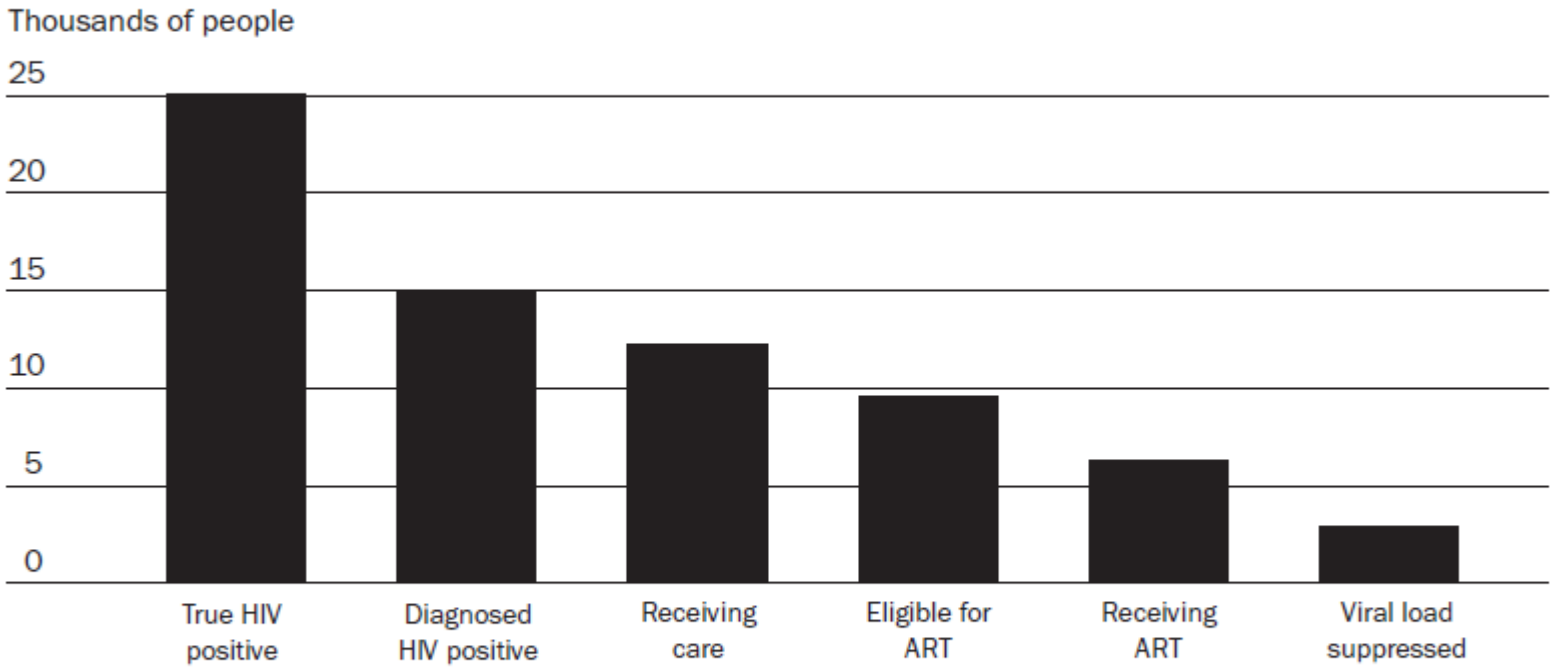
Fighting HIV/AIDS In Washington, D.C.

With an HIV prevalence rate comparable to some resource-limited countries, the District mounts a broad response.

by Alan E. Greenberg, Shannon L. Hader, Henry Masur, A. Toni Young, Jennifer Skillicorn, and Carl W. Dieffenbach

DOI 10.1377/hlthaff.28.6.1677

EXHIBIT 3
The "Treatment Cascade" From HIV Diagnosis Through Suppressed Viral Load

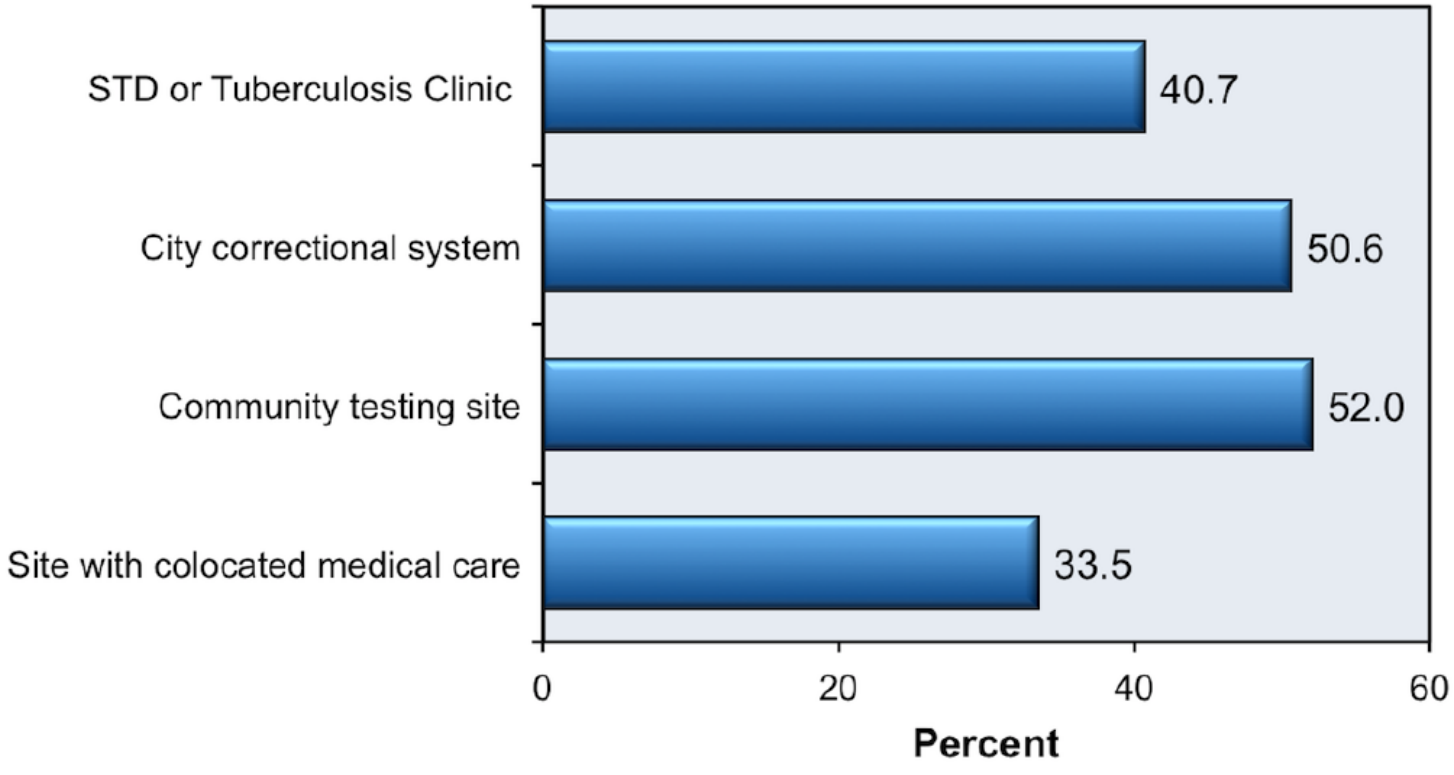


SOURCE: Estimates from the D.C. Department of Health.
NOTES: Starting from a hypothetical number of people testing positive (25,000). ART is antiretroviral therapy.

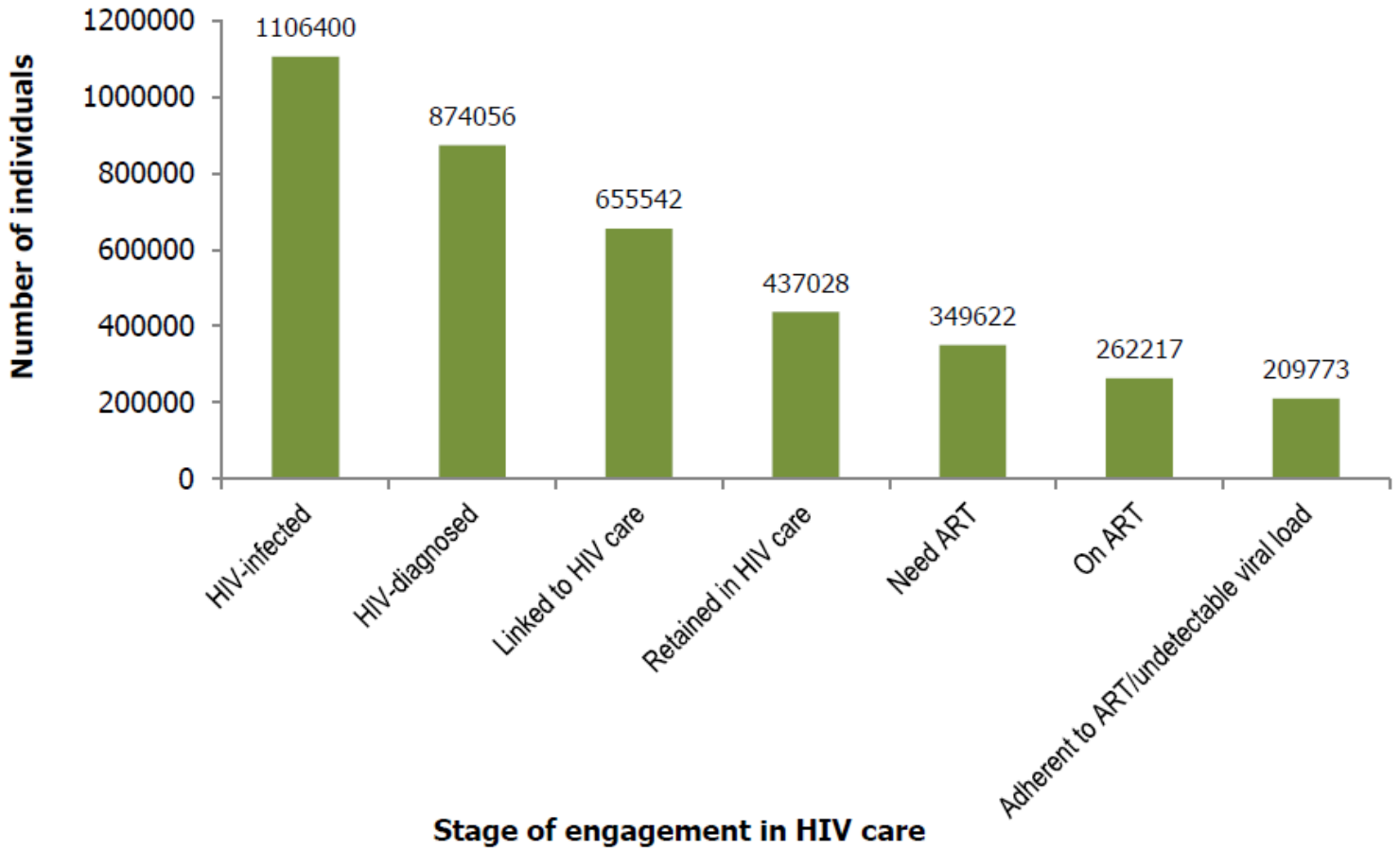
Figure 7 Risk factors for Delayed Linkage to Medical Care after HIV Diagnosis, New York City

This graphic shows difference in rates of delayed linkage to care (linkage after 3 months) based on site of HIV diagnosis in New York City in 2003.

Source: Torian LV, Wiewel EW, Liu KL, Sackoff JE, Frieden TR. Risk factors for delayed initiation of medical care after diagnosis of human immunodeficiency virus. Arch Intern Med. 2008;168:1181-7.

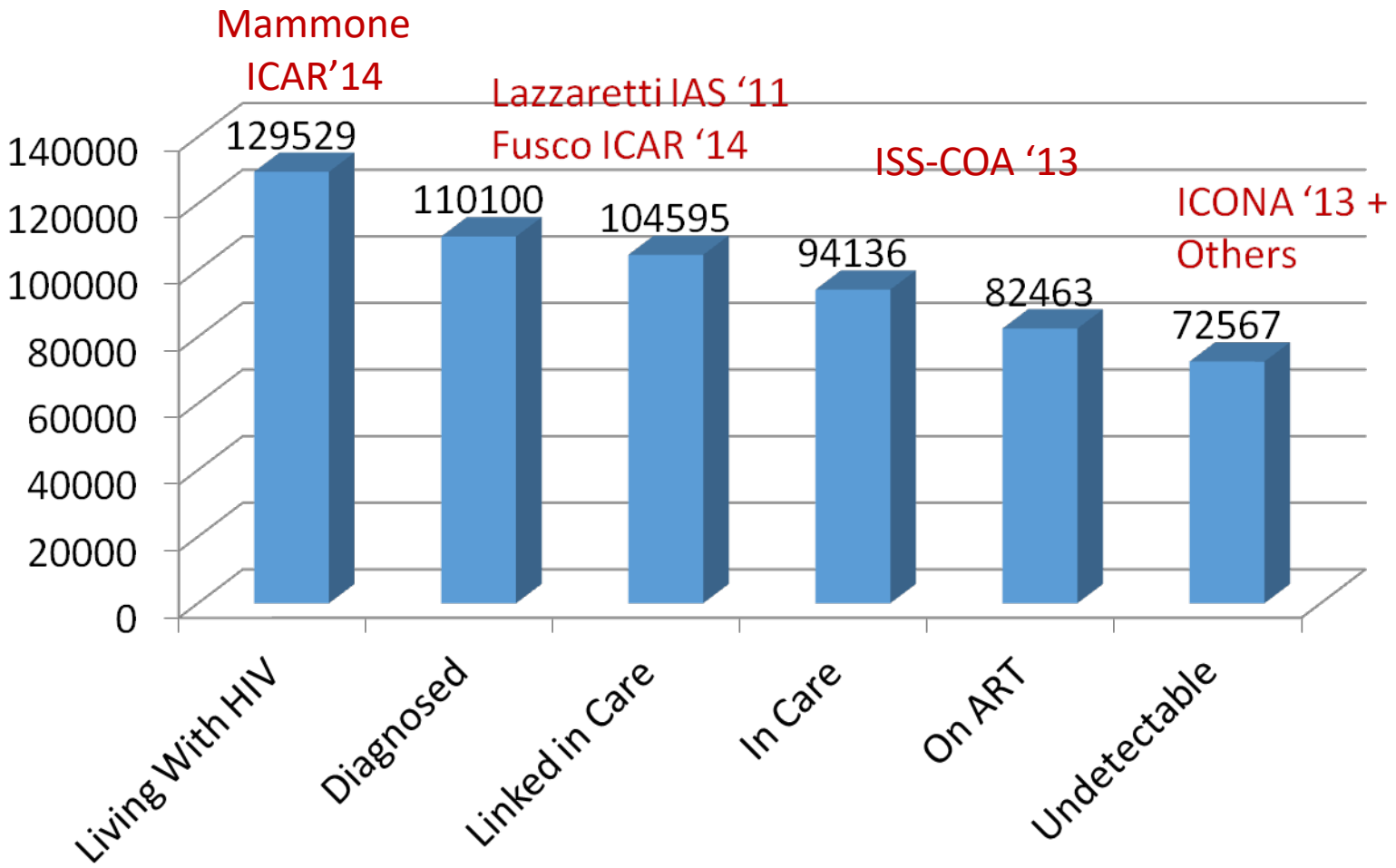


The continuum of HIV care in USA 2011

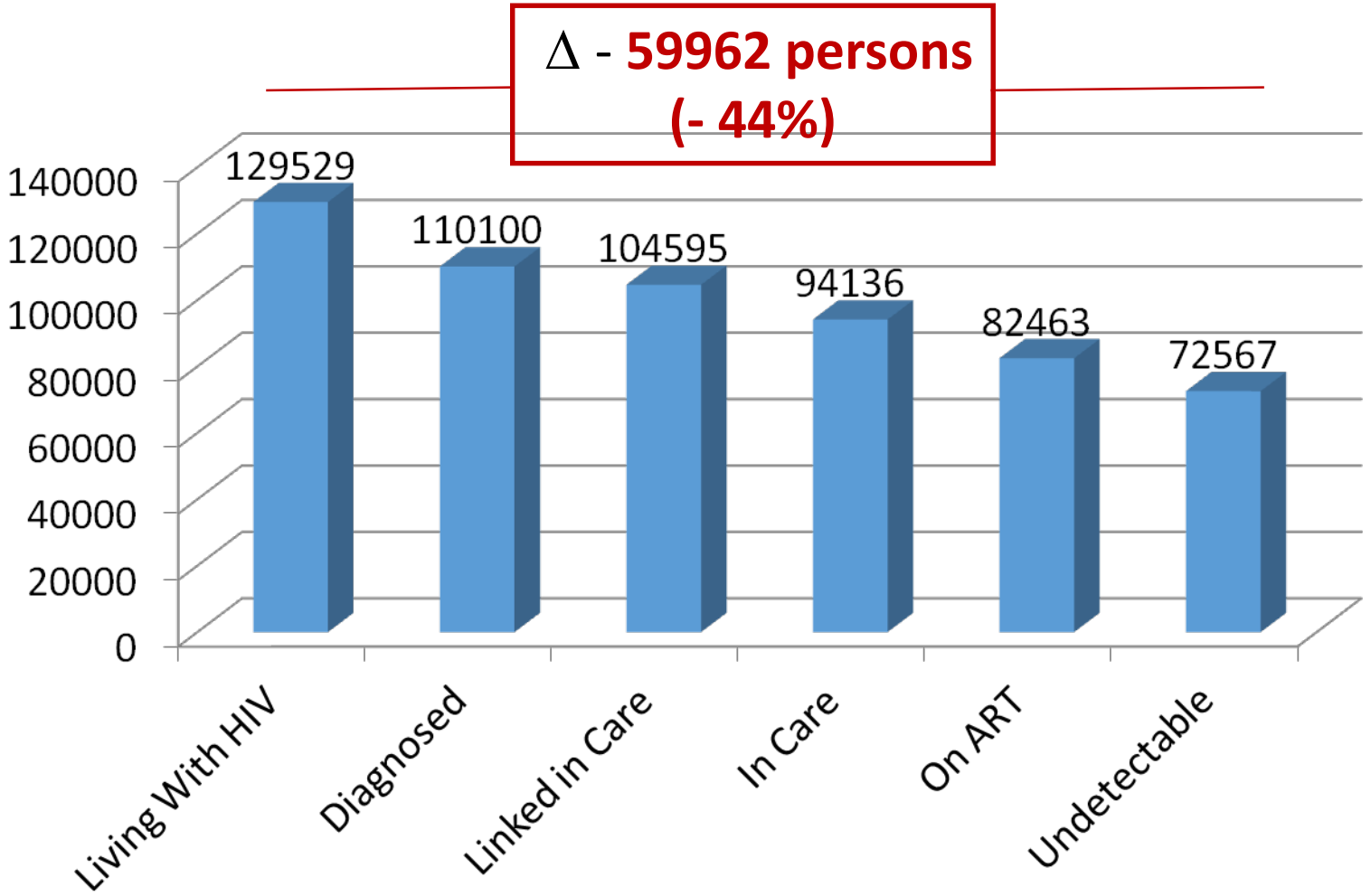


Gardner EM et al. Clin Infect Dis 2011

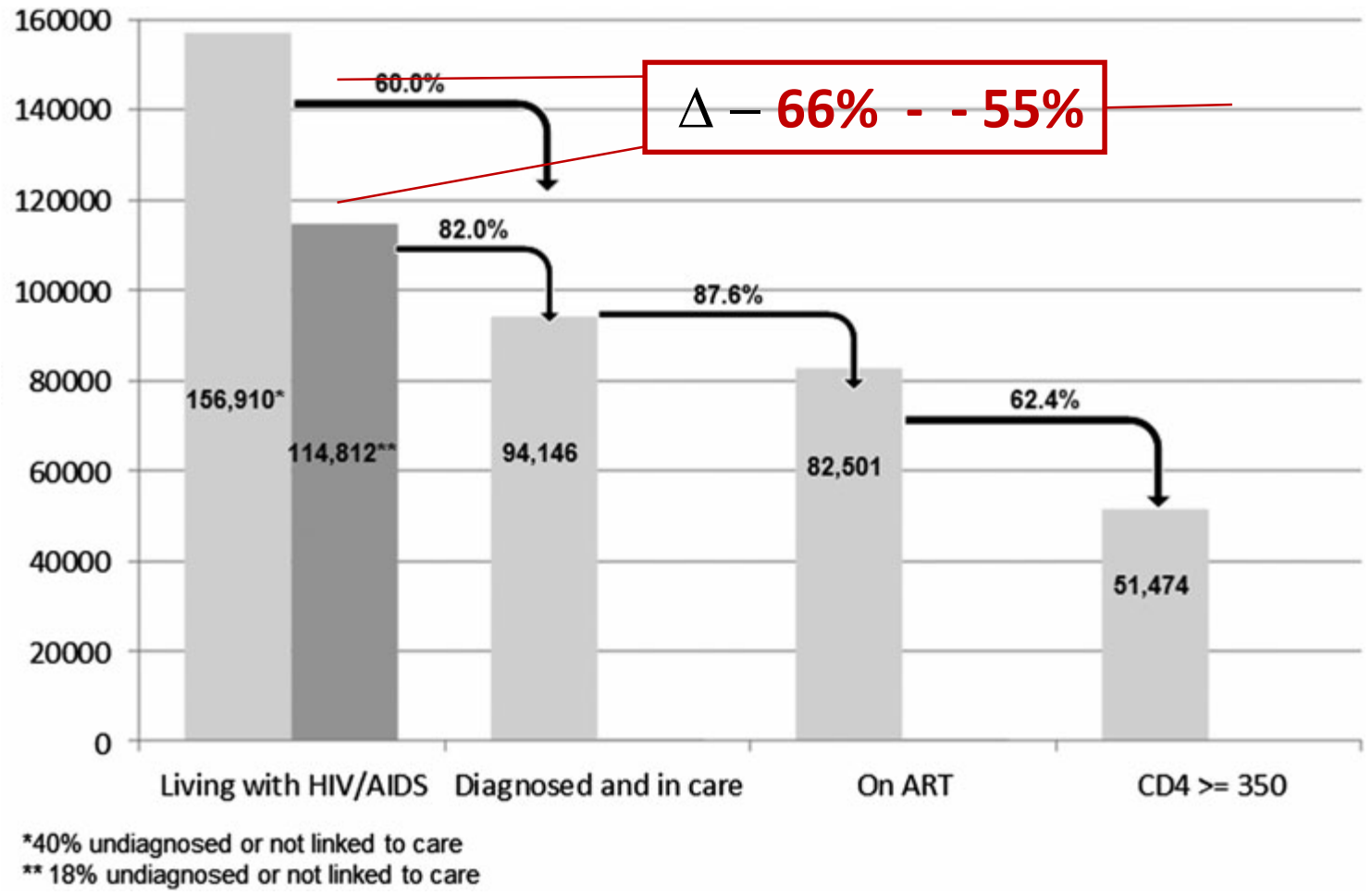
The continuum of HIV care in Italy, 2012
A tentative description



The continuum of HIV care in Italy, 2012
A tentative description



The Continuum of HIV Care in Italy in 2012 Results of a National Survey



Camoni L et al. AIDS Res Hum Retr. 2015 (CARPHA)

HIV treatment cascades in European and high-income countries

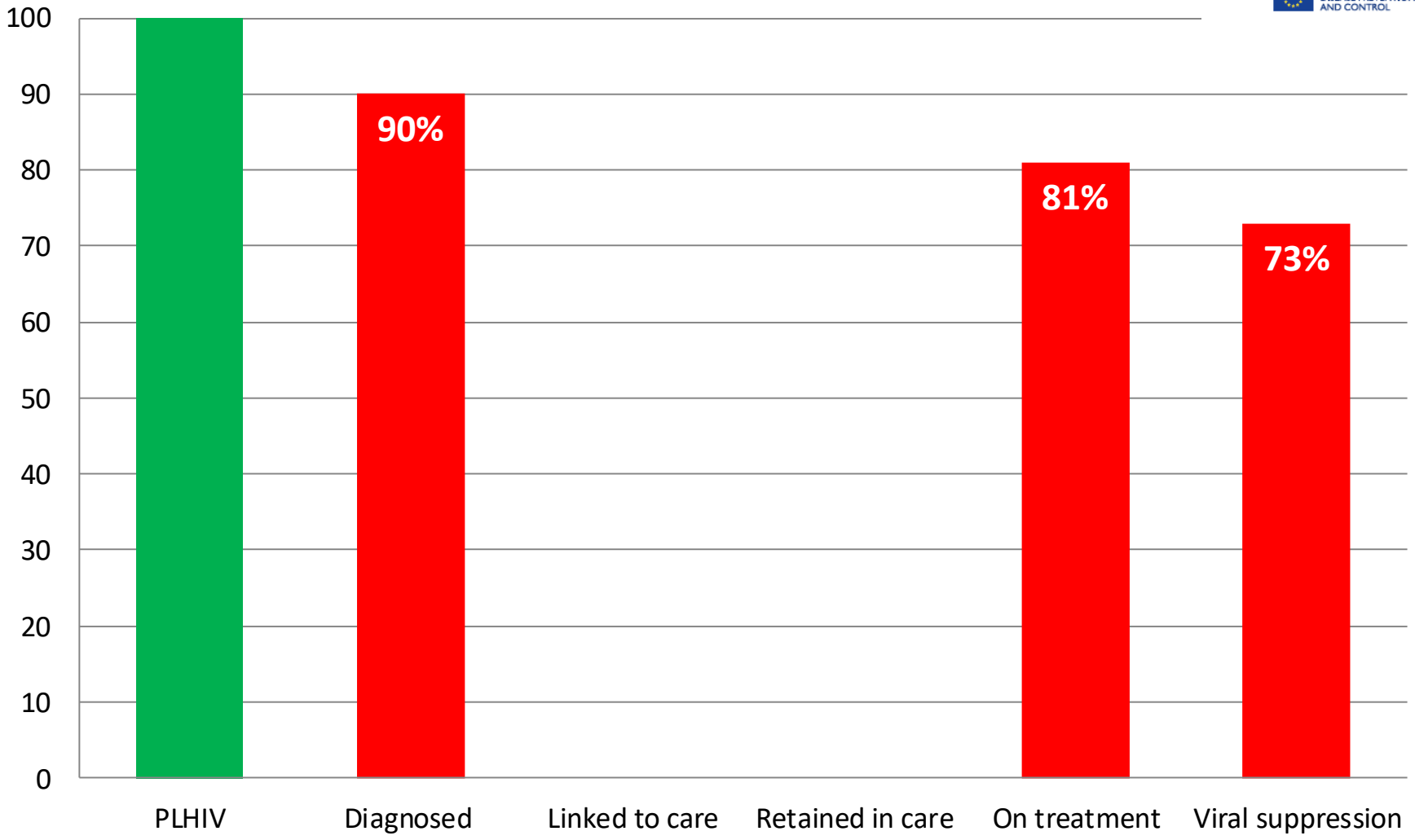
	France	Netherlands	USA	UK	Australia	British Columbia	Denmark	Georgia
% diagnosed	81	–	82	–	75	71	85	52
% linked to care	>74	73	66	79	–	67	81	44
% on ART	>60	59	33	67	35	51	62	26
% Undetect. VL	**52**	**53**	**25**	**58**	**32**	**35**	**59**	**20**

HIV Drug Therapy GLASGOW 2014

Raymond A et al. Glasgow Conf. 2014

The missing bridge…

UNAIDS 90-90-90 targets (by 2020)



EuroCoord/ECDC project on HIV continuum of care - Participating Cohorts

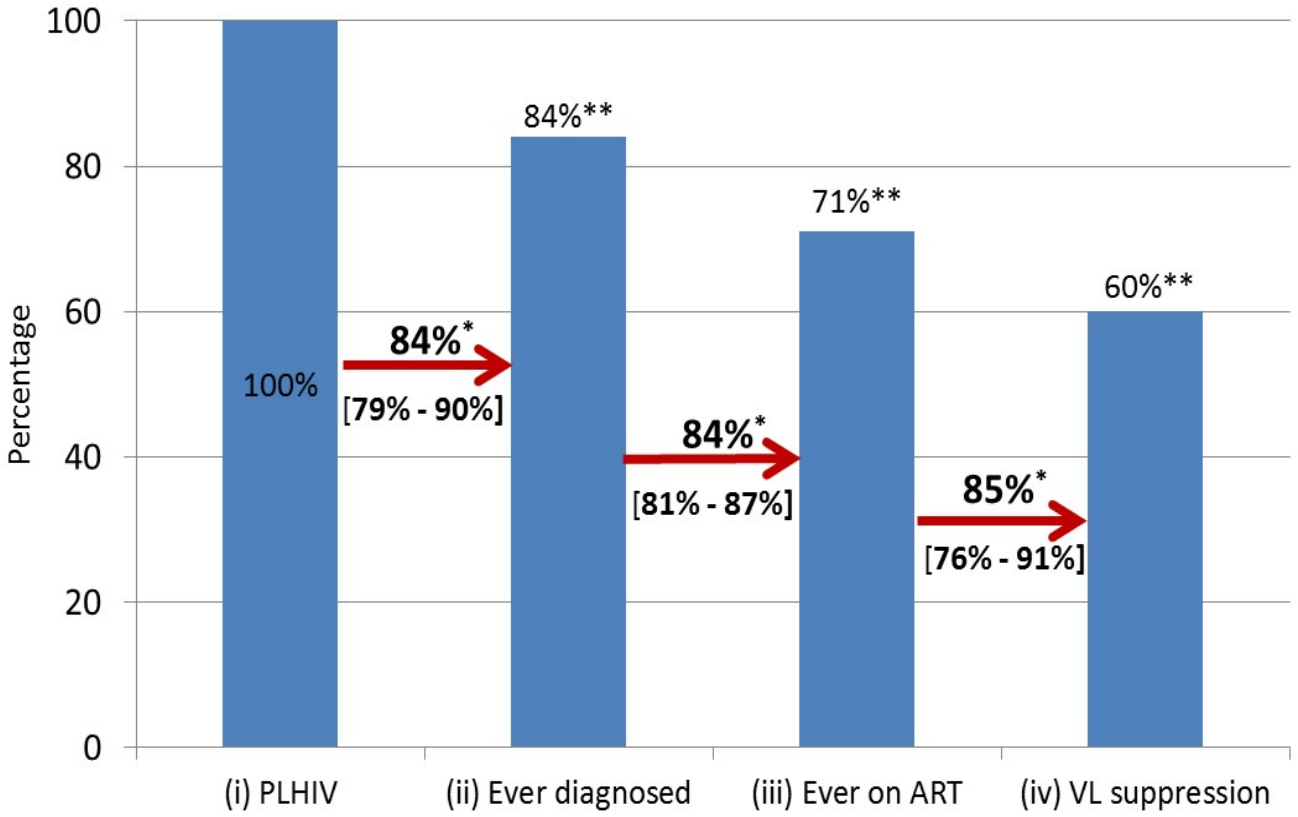
- **Austria: AHIVCOS (Robert Zangerle)**
- **Denmark: Danish HIV Cohort (Niels Obel)**
- **France: ANRS CO4 FHDH (Dominique Costagliola and Virginie Supervie)**
- **Germany: ClinSurv (Barbara Bartmeyer)**
- **Greece: AMACS (Giota Touloumi)**
- **Italy: ICoNA (Antonella d'Arminio Monforte and Enrico Girardi)**
- **Netherlands: ATHENA (Peter Reiss and Ard van Sighem)**
- **Spain: CoRIS (Julia Del Amo)**
- **Sweden: InfCare (Anders Sönnerborg)**
- **UK: UK CHIC (Caroline Sabin)**

ecdc
EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

EuroCoord/ECDC project on HIV continuum of care Methods

Stage	Standardised project definition	Data sources
i) Total PLHIV	Number of PLHIV in the country by end of 2013	HIV surveillance data, if available, or cohort data otherwise
ii) Diagnosed	Proportion of (i) ever diagnosed	HIV surveillance data, if available, or cohort data otherwise
iii) On ART	Proportion of (ii) who ever initiated ART	Country-specific HIV cohorts
iv) Virally- suppressed	Proportion of (iii) who were virally-suppressed (≤200 copies/mL) at last visit	Country-specific HIV cohorts

HIV Continuum of Care in 11 European Countries



^ Austria, Belgium, Denmark, France, Germany, Greece, Italy, The Netherlands, Spain, Sweden and the United Kingdom
* Percentages out of the previous stage
**Percentages out of all PLHIV by end 2013

Gourlay A et al 2017, CID

A four point continuum in Italy in 2014

1. Number of people living with HIV (PLHIV)
2. Proportion of PLHIV ever diagnosed;

Derived by combining three estimates:

a. Persons in care in all Italian clinical centres authorized for HIV treatment (CARPHA 2 survey) ;
b. Estimate of undiagnosed HIV persons using a simplified back-calculation method (Mammone et al., AIDS 2016) ;
c. Estimate of % of individuals diagnosed but not retained in care (Zona et al., ICAR 2015 - cohort study from three clinical centres)

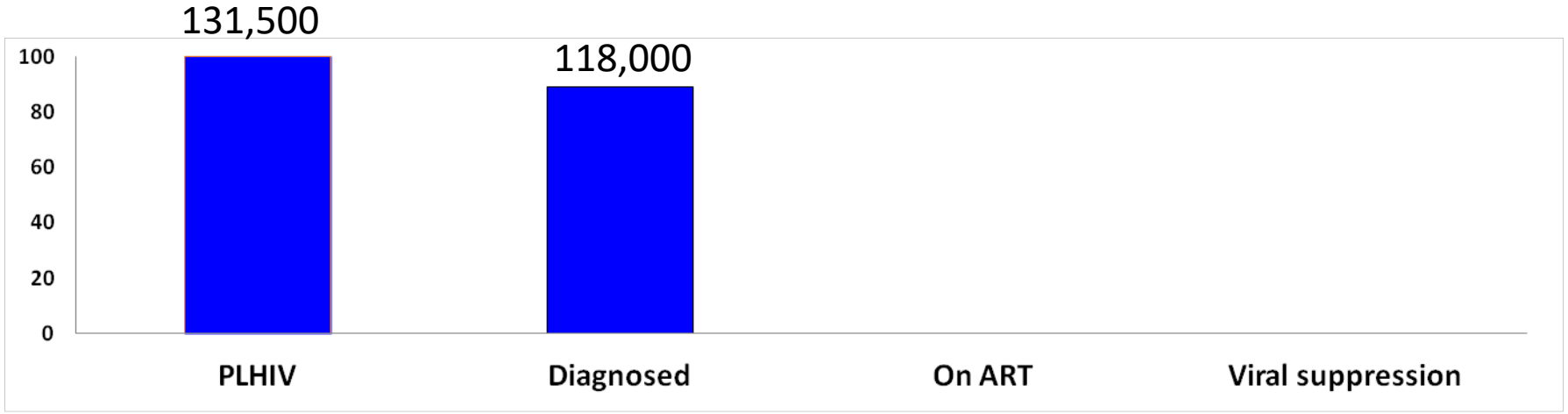
3. Proportion of PLHIV ever diagnosed initiated ART;
4. Proportion ever on ART who were virologically-suppressed

Derived from ICONA Foundation Study

Mammone A. et al ICAR2016 –OC 83

A four point continuum in Italy in 2014

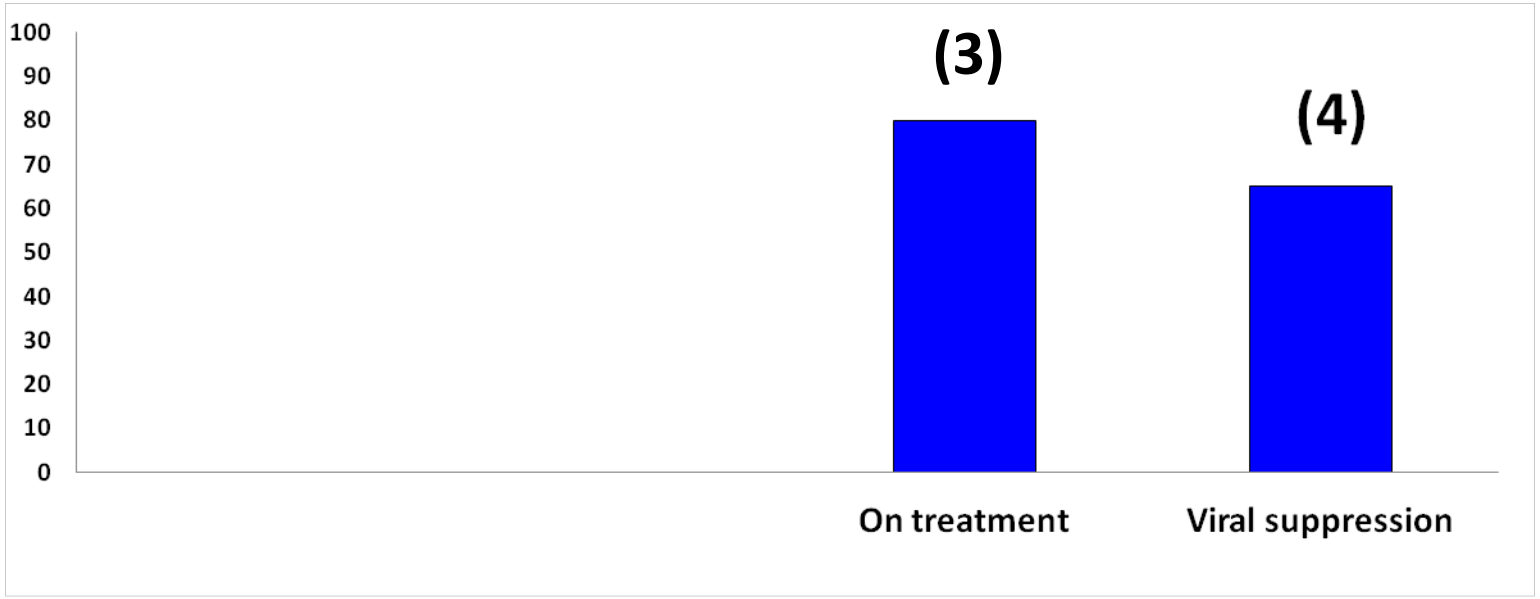
- CARPHA 2 survey ≈100,000 patients in care in 2014 in 176 clinics
- Estimate of HIV undiagnosed in 2014 ≈13,400 (Mammone et al, AIDS 2016)
- Estimate of diagnosed not retained in care ≈ 18,000 (≈100,000 x 0.18)



A four point continuum in Italy in 2014

(3) Proportion ever diagnosed AND who ever initiated ART

(4) Proportion of persons on ART who were virologically suppressed at last visit



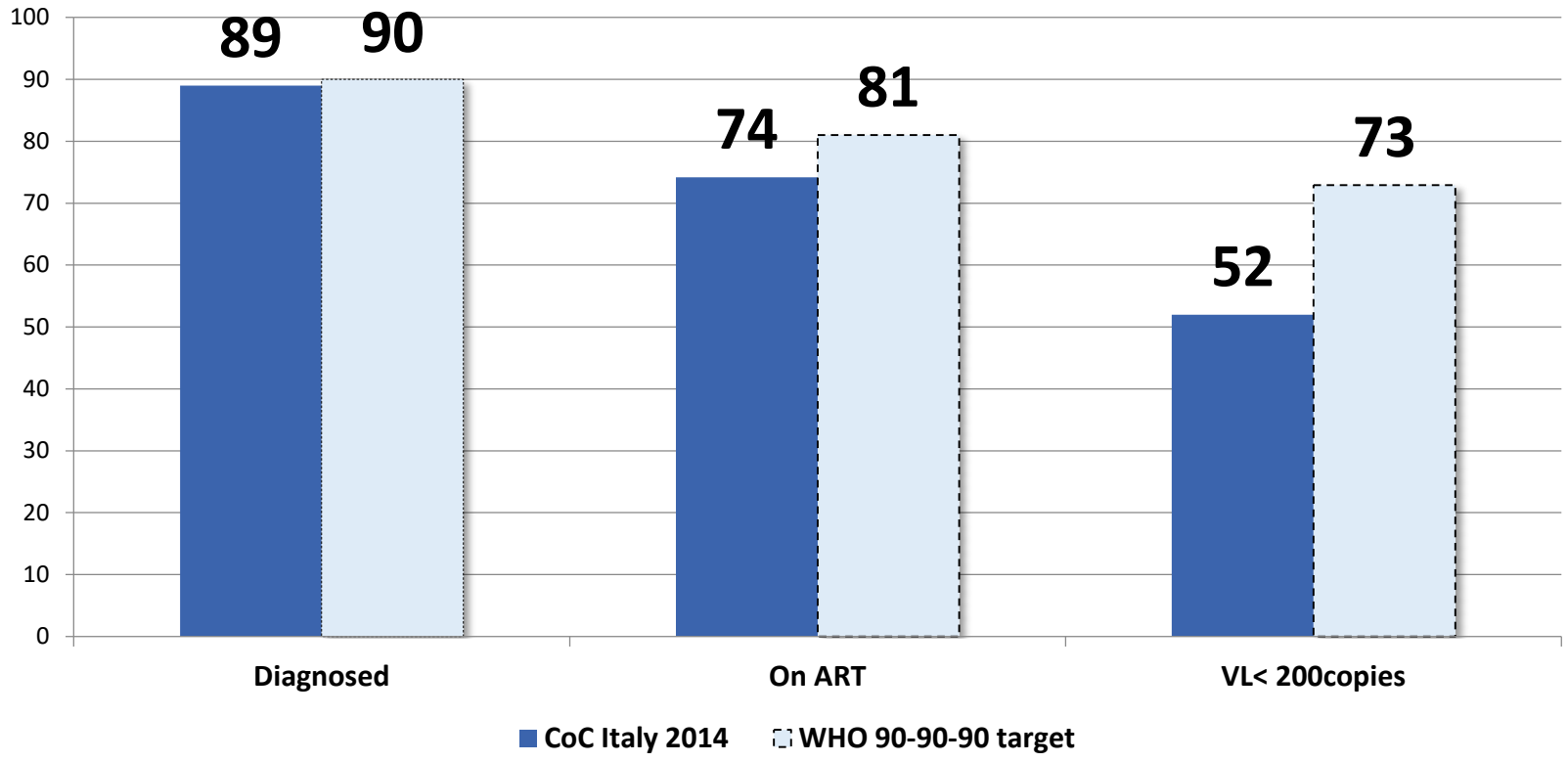
A four point continuum in Italy in 2014 Cohort data

We considered all diagnoses dates up to 31-12-2014 in ICONA cohort study:

- All who ever initiated ART, regardless of treatment interruptions or discontinuation
- Any number of drugs or regimen types
- Lost to follow up after starting ART

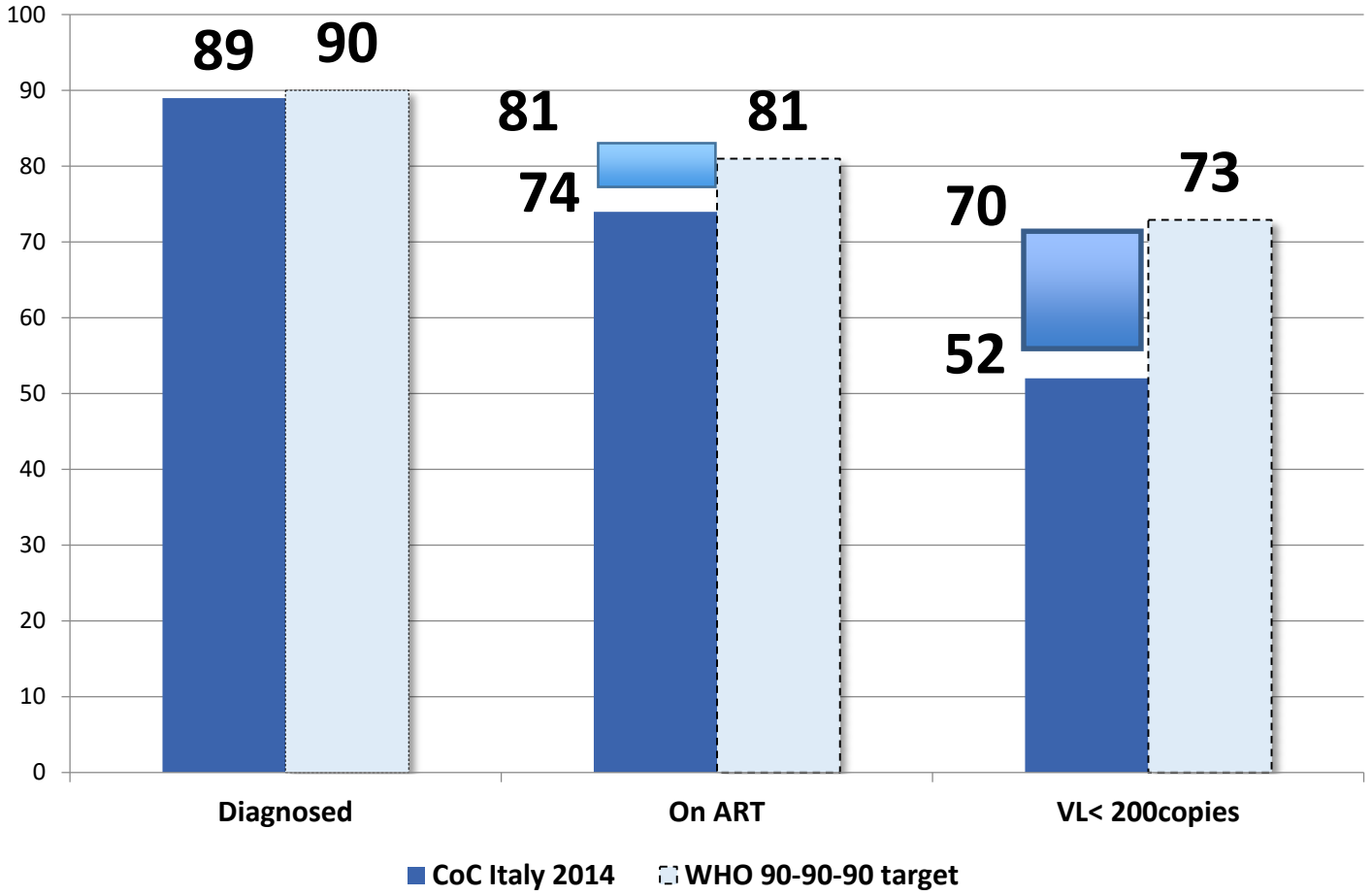
We excluded those who died before 31-12-2014, were transferred out or migrated

A four point continuum in Italy in 2014
Worst case (all those LT-FU in ICONA are lost to care)



A four point continuum in Italy in 2014

Best case (those LT-FU in ICONA are in care elsewhere and have the same outcome of those still in the cohort)



Risk of clinical progression among patients re-entering in care after being lost in ICONA cohort

2,708 (21.8%) out of 12,429 patients were LTC; the incidence rate ranged from 12.3 in 1998 to <1 per 100 PYFU in 2014. 433 patients (16.7%) re-enter the cohort after a mean gap in care of 2.8±2 years.

22 patients developed AIDS (5%),
21 a serious non-AIDS event (5%) and 48 (11%)
had an hospitalization within 6 months after re-entering
in care.

C. Mussini et al. HIV Glasgow 2016

Study population

- HIV-1-infected patients from the Icona Foundation Study enrolled during the period **Jan 1997- Jun 2017**.
- Patients were considered lost-to-care (LTC) if they had no clinical visit for at least 12 months; a patient was considered re-engaging care (REC) if, after being lost-to-care, he/she had a clinical visit. Patients that became incarcerated or institutionalized or transferred out to other clinical center were not considered in this analysis, since we supposed that they were still be receiving care.

Statistical Methods

- The incidence rate of LTC by study year was calculated as the number of patients LTC divided by PYFU and expressed as rate per 100 PYFU, with 95% confidence intervals (CI).
- Since our primary interest was identifying patients with inconsistent engagement with longitudinal HIV care, we focused our analysis on characterizing patients who were lost-to-care, and contextualizing the factors (socio-demographic or clinical) that may inform those loss. Poisson regression analysis was used to examine socio-demographic and clinical factors associated with the risk of being lost-to-care. Socio-demographic covariates included gender, age, nationality (an immigrant patient was considered a patient born outside Italy), education level, HIV risk category; clinical covariates included presentation with AIDS or low CD4 level (<350), HCV co-infection, CD4 count, HIV-RNA, ART therapy. The same analysis was also conducted for patients re-engaging care with respect to those who did not. Both analyses were adjusted for calendar year.

Table 2. Risk ratio for Lost-to-care (LTC) and odds ratio Re-engagings-care (REC) from fitting Poisson regression model and logistic regression model, respectively; both models were adjusted for calendar year.

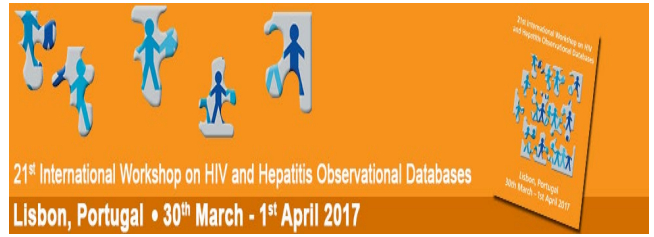
		Poisson Regression for LTC				Logistic Regression for REC			
Gender	M	1.00				1.00			
	F	0.81	0.72	0.90	<0.001	0.89	0.66	1.19	0.427
Age	18-35	1.00				1.00			
	36-50	0.88	0.80	0.96	0.005	1.07	0.84	1.36	0.581
	>50	0.93	0.77	1.13	0.466	0.76	0.42	1.35	0.344
Risk	heterosexual	1.00				1.00			
	IVDU	0.80	0.68	0.94	0.006	1.17	0.78	1.76	0.447
	MSM	1.04	0.92	1.18	0.518	0.95	0.67	1.34	0.765
	other/unknown	1.16	0.97	1.38	0.104	0.84	0.49	1.43	0.518
Job	employed	1.00				1.00			
	unemployed	1.40	1.24	1.57	<0.001	0.85	0.63	1.16	0.305
	self-employed	0.93	0.81	1.06	0.273	1.25	0.90	1.74	0.187
	occasional	1.25	1.03	1.51	0.024	1.20	0.75	1.93	0.442
	student	1.53	1.18	1.99	0.001	0.61	0.27	1.40	0.246
	retired/invalid/housewife	0.98	0.81	1.19	0.829	0.83	0.50	1.38	0.478
	other	2.17	1.65	2.86	<0.001	0.47	0.16	1.37	0.167
	unknown	2.01	1.66	2.45	<0.001	1.22	0.69	2.14	0.493
Education level	university	1.00				1.00			
	high school	0.93	0.76	1.12	0.438	1.74	0.98	3.07	0.057
	secondary school	0.81	0.66	0.98	0.034	2.02	1.14	3.59	0.017
	primary school	0.84	0.67	1.05	0.130	1.88	0.98	3.58	0.056
	unknown	1.08	0.89	1.31	0.453	1.09	0.61	1.96	0.766
Nationality	Italian	1.00				1.00			
	other	2.22	1.99	2.49	<0.001	0.73	0.52	1.02	0.068
Presentation with AIDS or CD4<350	no	1.00				1.00			
	yes	1.14	1.03	1.26	0.009	0.87	0.66	1.16	0.359
	unknown	1.20	0.93	1.53	0.156	0.83	0.42	1.67	0.610
Current CD4 count	0-200	1.00				1.00			
	201-350	1.20	1.02	1.42	0.030	1.18	0.75	1.86	0.479
	351-500	1.31	1.12	1.54	0.001	1.10	0.70	1.73	0.682
	>500	1.00	0.85	1.17	0.985	1.35	0.87	2.09	0.175
	unknown	1.41	0.66	3.01	0.379	2.28	0.32	16.15	0.410
Current HIV RNA	<400	1.00				1.00			
	>=400	2.19	1.93	2.48	<0.001	0.96	0.71	1.29	0.785
	unknown	10.63	6.32	17.89	<0.001	0.64	0.17	2.42	0.511
HCV coinfection	no	1.00				1.00			
	yes	0.86	0.74	0.99	0.038	1.00	0.68	1.47	0.988
	unknown	0.96	0.85	1.09	0.557	0.72	0.49	1.06	0.094
Currently on ARV	no	1.00				1.00			
	yes	0.61	0.55	0.69	<0.001	0.74	0.55	0.99	0.046

C. Mussini et al. HIV Glasgow 2016

Viral Suppression among PLWHIV receiving Care in Italy Data from Icona Cohort

- ***Population***: individuals receiving care in 2011 -2015 (at least 1 VL)
- ***Outcome*** : viral suppression (<200 cp/ml) at last test in the year / sustained viral suppression (<200 cp/ml) at all tests in the year

Alessia Mammone et al. Abstract 56.

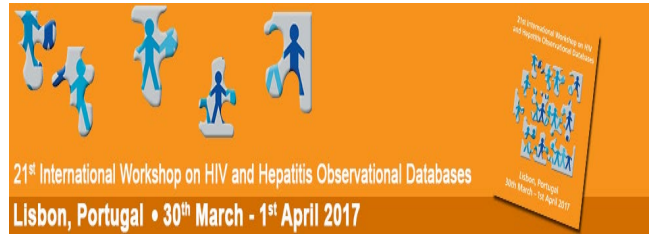


Viral Suppression among PLWHIV receiving Care

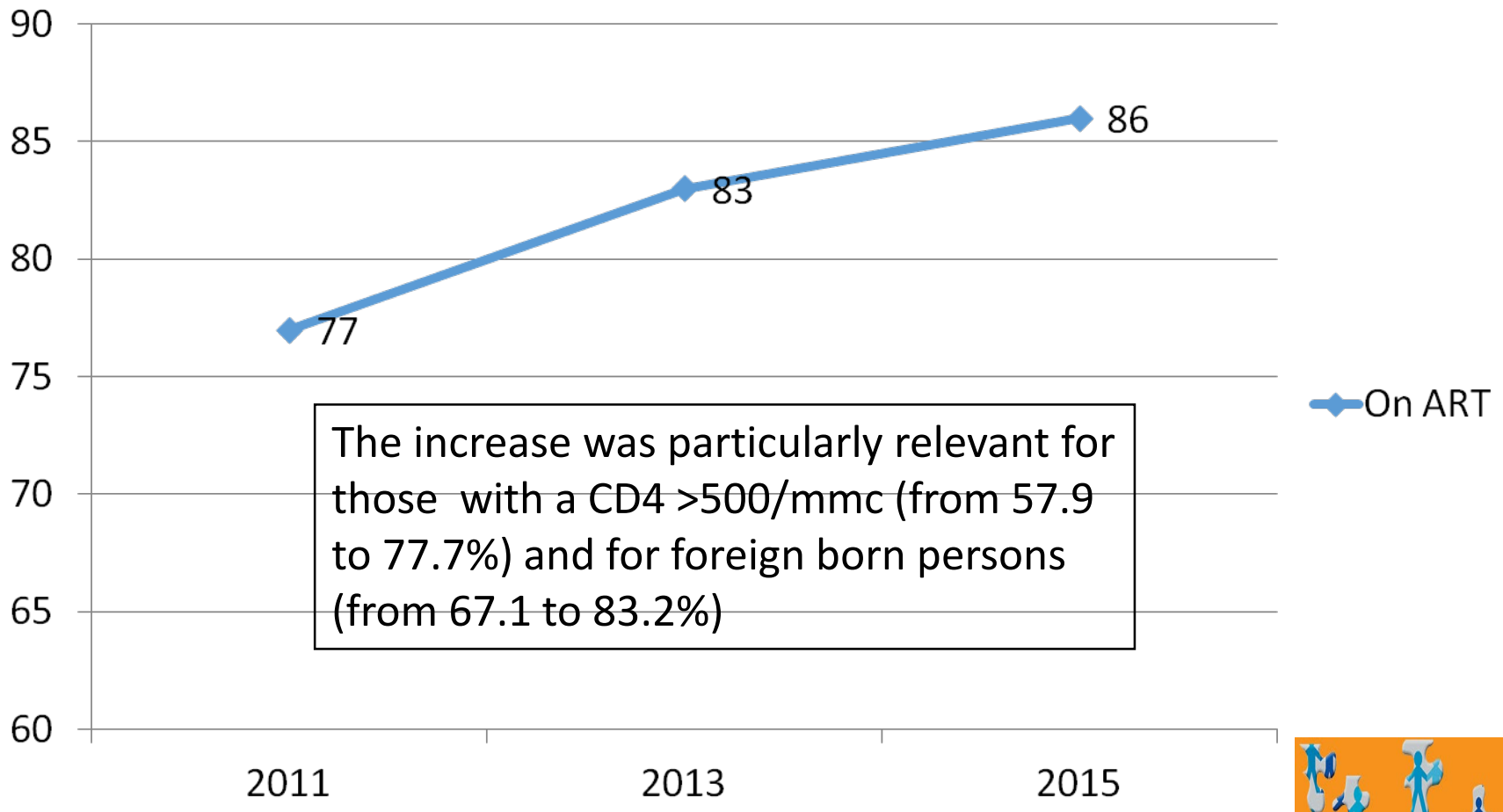
Persons included in the analysis

Year	No. of PLWHIV
2011	4915
2012	5750
2013	6321
2014	7005
2015	7548

Alessia Mammone et al. Abstract 56.



Viral Suppression among PLWHIV receiving Care
Time trends in ART usage



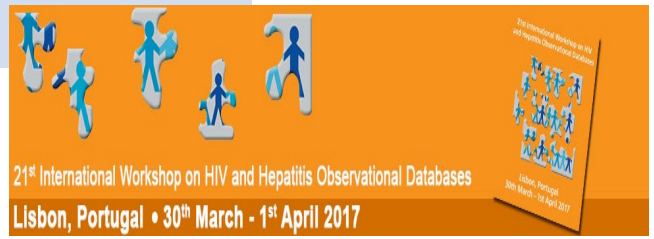
Alessia Mammone et al. Abstract 56.

Viral Suppression among PLWHIV receiving Care
Determinants of ART usage - 1

	OR of being on ART (95% CI)	
	2011	**2015**
Diagnosis <1 year	**0.15 (0.16 – 0.23)**	**0.14 (0.11-0.16)**
Female gender	**0.62 (0.51 – 0.76)**	1.06 (0.87-1.29)
Age (per 10 yrs older)	**1.45 (1.23 – 1.42)**	**1.20 (1.17-1-29)**
Foreign Born	**0.68 (0.54-0.87)**	**0.88 (0.72-1.08)**

Adjusted also for AIDS , HIV VL and Mode of Transmission

Alessia Mammone et al. Abstract 56.



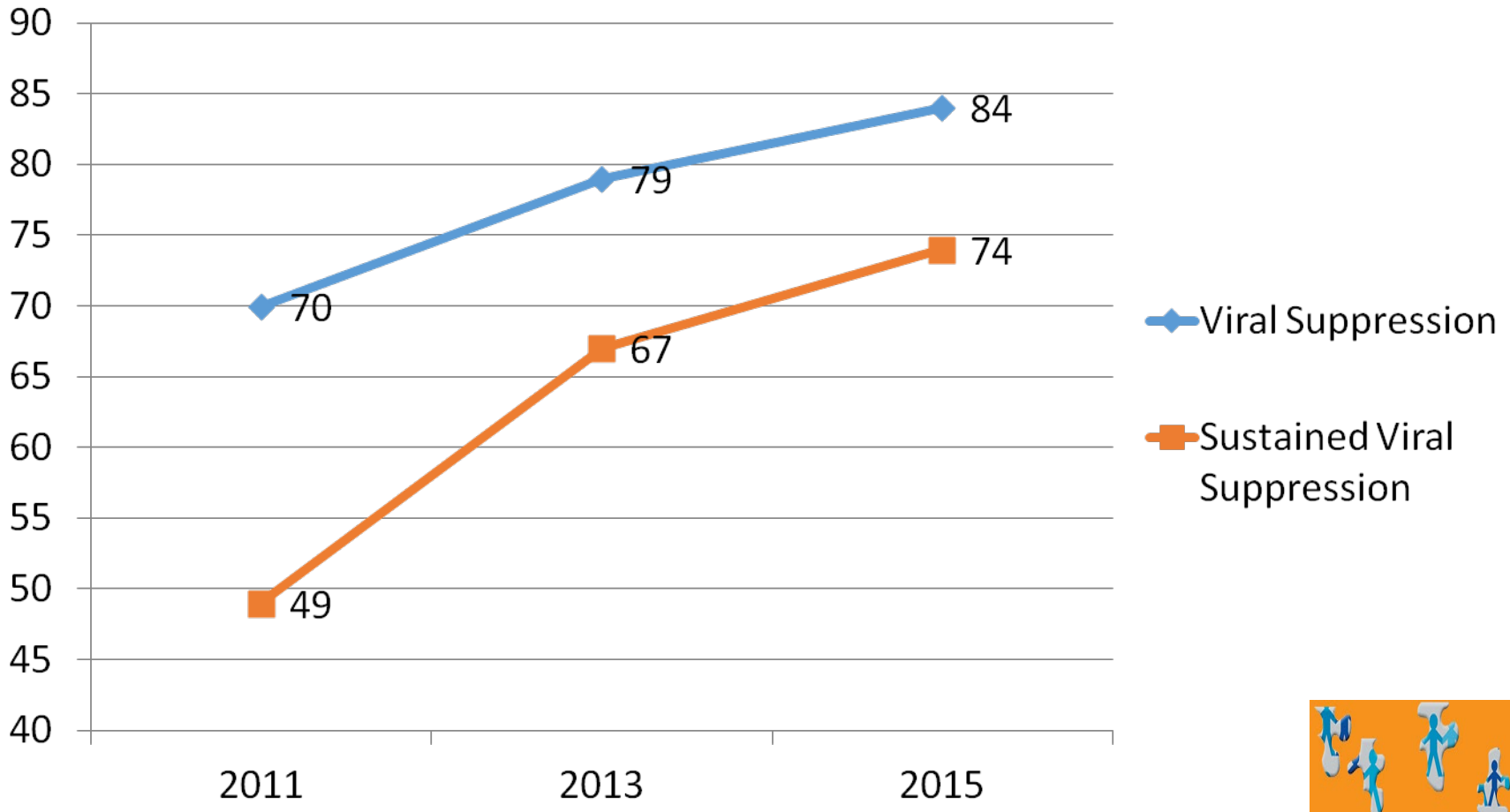
Viral Suppression among PLWHIV receiving Care
Determinants of ART usage - 2

	OR of being on ART (95% CI)	
	2011	**2015**
CD4		
<200	--	--
200-350	**0.71 (0.52-0.99)**	1.30 (0.96-1.76)
350-500	**0.15 (0.11-0.21)**	**0.70 (0.53-0.93)**
>500	**0.05 (0.37-0.69)**	**0.18 (0.14-0.24)**

Adjusted also for AIDS , HIV VL and Mode of Transmission

Alessia Mammone et al. Abstract 56.

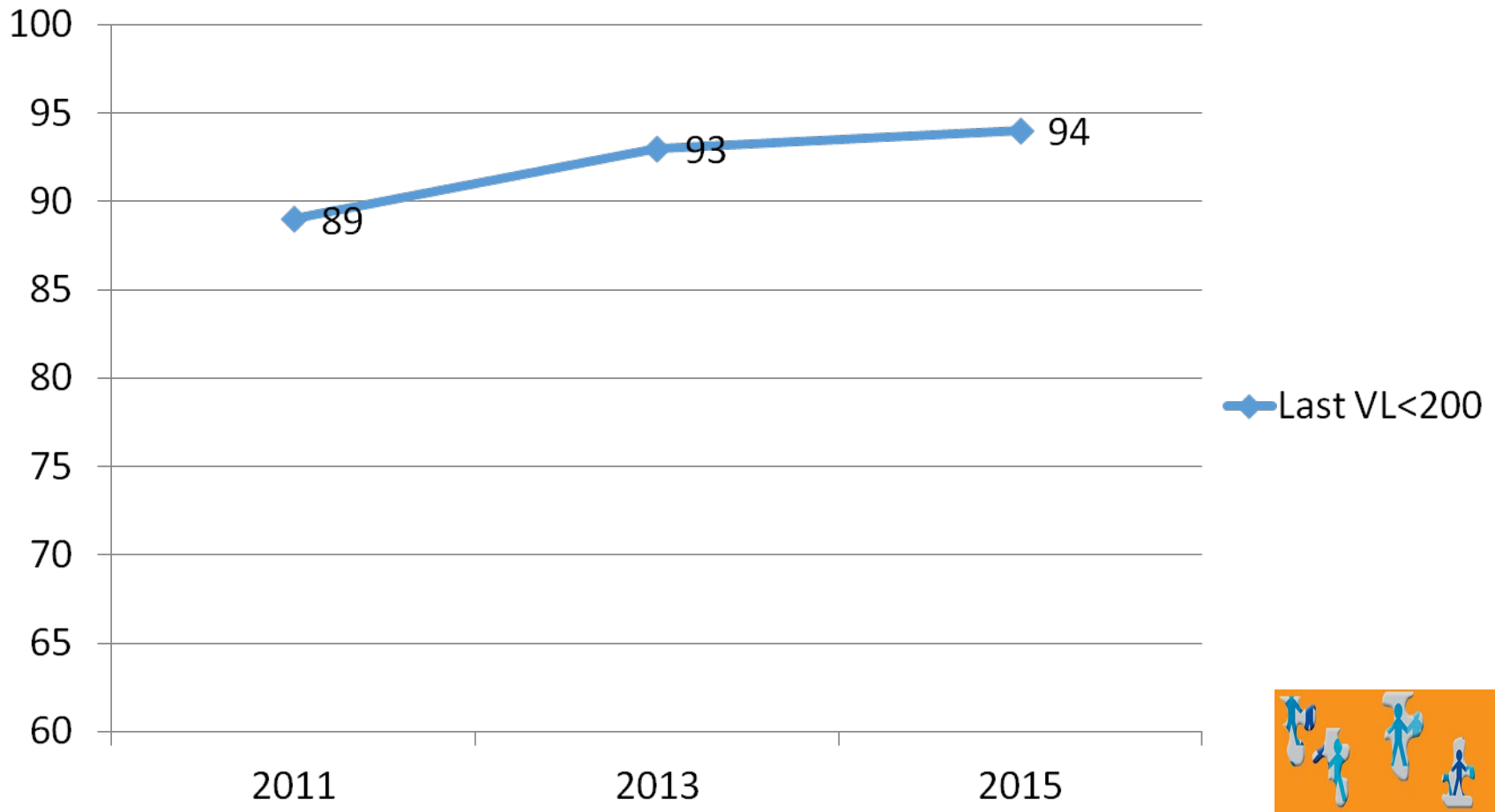
Viral Suppression among PLWHIV receiving Care
Time trends in viral suppression



Alessia Mammone et al. Abstract 56.

Viral Suppression among PLWHIV receiving Care

Time trends of viral suppression among persons on ART



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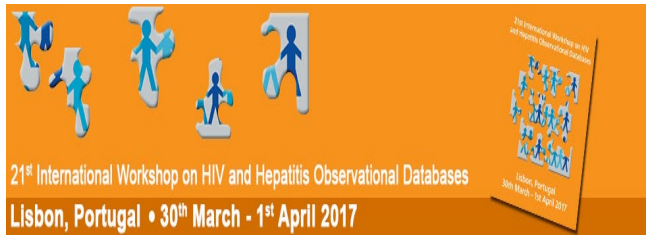

Viral Suppression among PLWHIV receiving Care
Determinants of Viral Suppression

	OR of last VL <200(95% CI)	
	2011	**2015**
ART <1 year	**0.26 (0.21-0.31)**	**0.16 (0.13- 0.19)**
Age (per 10 yrs older)	1.03 (0.92-1.15)	1.09 (0.98-1.21)
VL		
<4log	--	
4-5 log	0.91 (0.67-1.24)	0.77 (0.55-1.08)
>5 log	**0.66 (0.48-0.91)**	**0.54 (0.38-0.77)**

Adjusted also for AIDS , CD4 , Gender and Mode of Transmission

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Strategies for clinics to improve linkage to care (in USA, but in Italy as well …)

- Shorten wait times for initial appointment (5 working days);
- Follow-up after missed initial appointment;
- Retention in care: linkage to sustained care.

A big thank

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