

GIFIL

CORSO EDUCAZIONALE GRUPPO LINFOMI IN PAZIENTI CON IMMUNODEFICIT

Milano, Starhotels Anderson
24 maggio 2024

Epidemiologia dei linfomi HIV correlati e delle sindromi linfoproliferative post- trapianto -PTLD

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IRCCS Centro di Riferimento Oncologico, Aviano

Disclosures of Name Surname

Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
NESSUN CONFLITTO DI INTERESSI							

1. INTRODUZIONE:

I LINFOMI NELLA POPOLAZIONE GENERALE ITALIANA;
INFEZIONE DA HIV-AIDS E ATTIVITA' DI TRAPIANTO DI ORGANO
SOLIDO IN ITALIA.

2. IMMUNODEPRESSIONE DA HIV/AIDS E LINFOMI:

INCIDENZA,
SOPRAVVIVENZA
MORTALITA'

3. IMMUNODEPRESSIONE POST-TRAPIANTO E PTLD

INCIDENZA,
SOPRAVVIVENZA

NELLA POPOLAZIONE

IMMUNO COMPETENTE

L'INCIDENZA DEI TUMORI

AUMENTA CON L'ETA'....

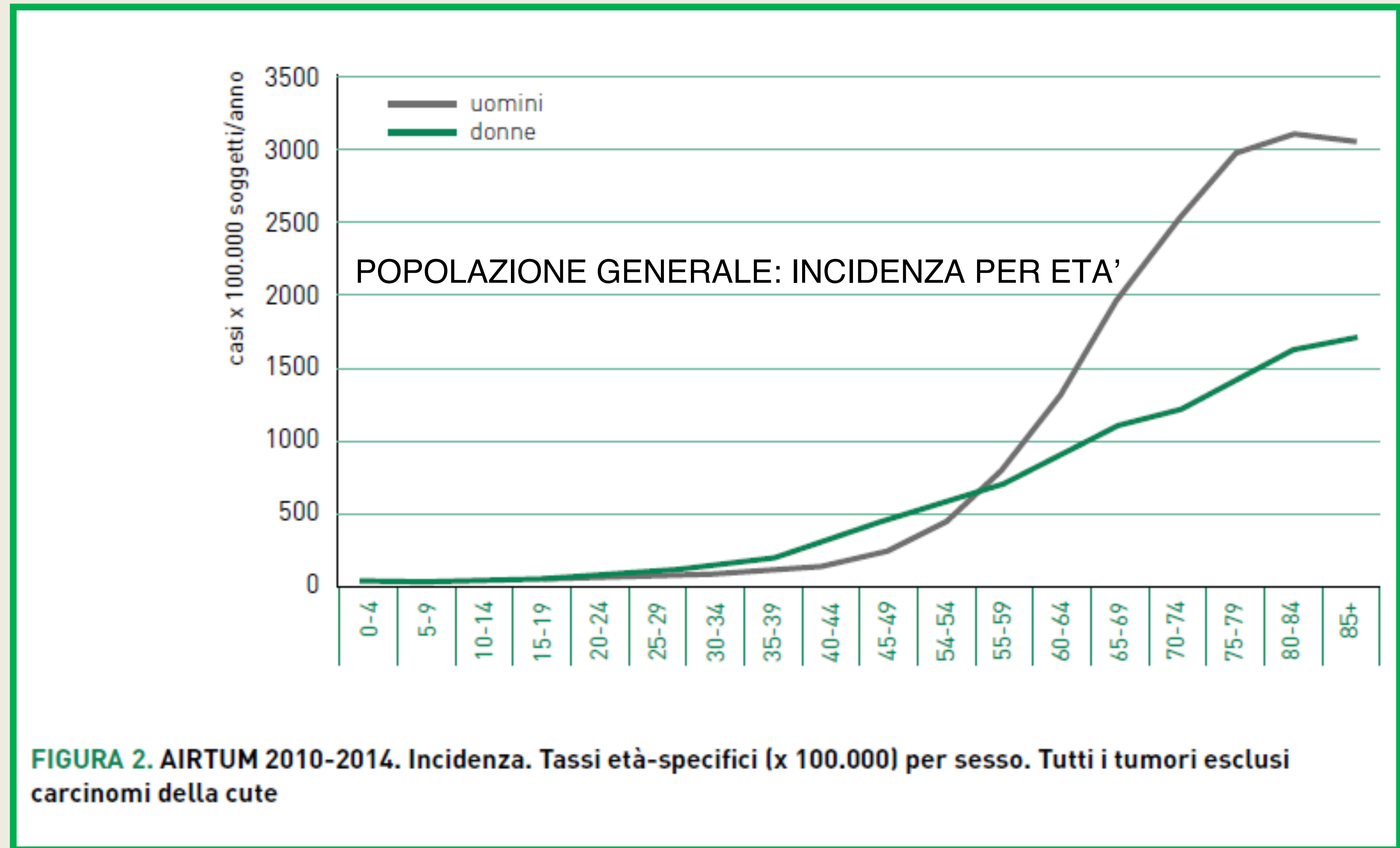


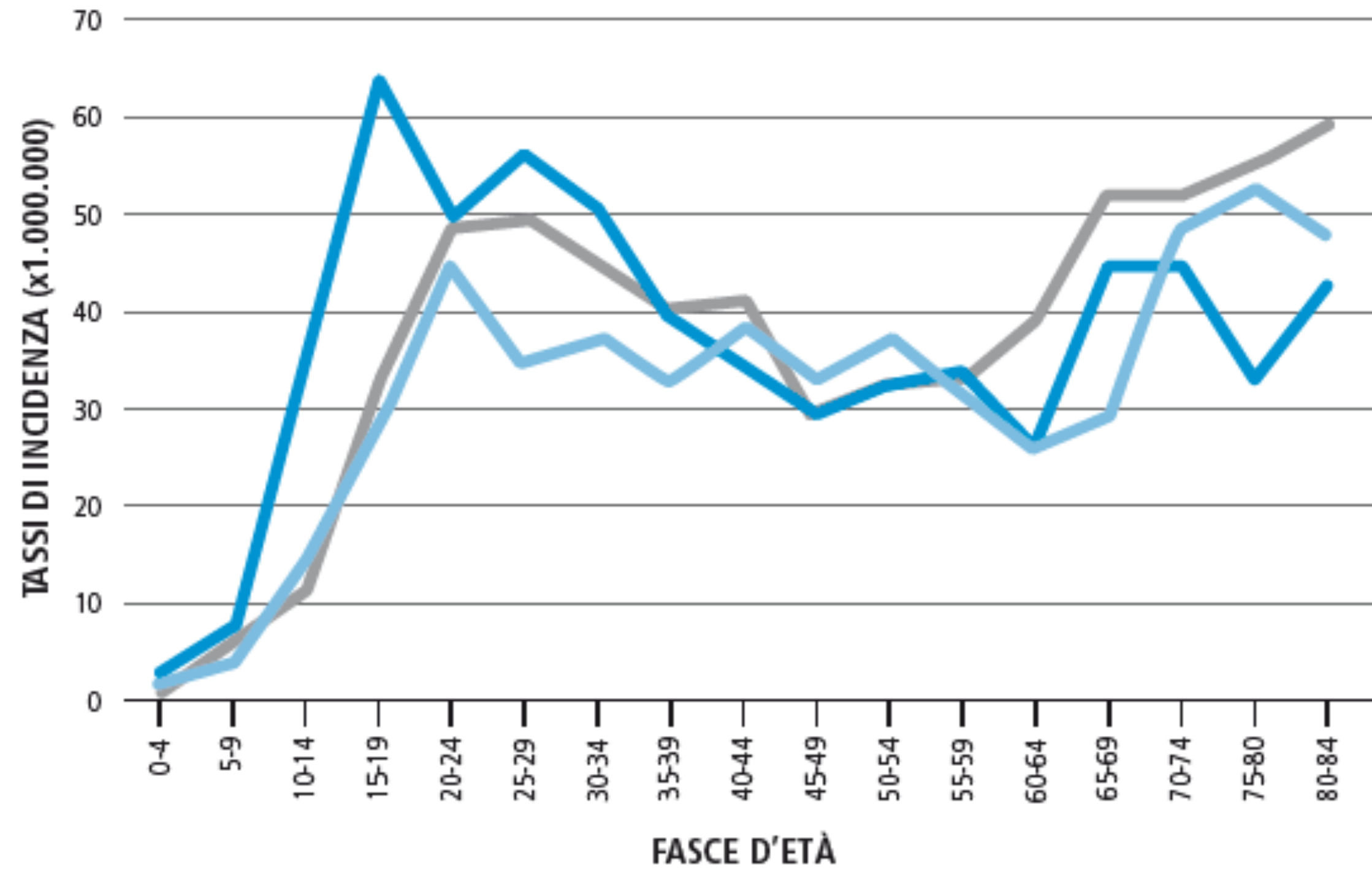
FIGURA 2. AIRTUM 2010-2014. Incidenza. Tassi età-specifici (x 100.000) per sesso. Tutti i tumori esclusi carcinomi della cute

LINFOMA DI HODGKIN: TASSI DI INCIDENZA SPECIFICI PER ETÀ (x1.000.000). MASCHI E FEMMINE (1998-2007). ITALIA, STATI UNITI E FRANCIA

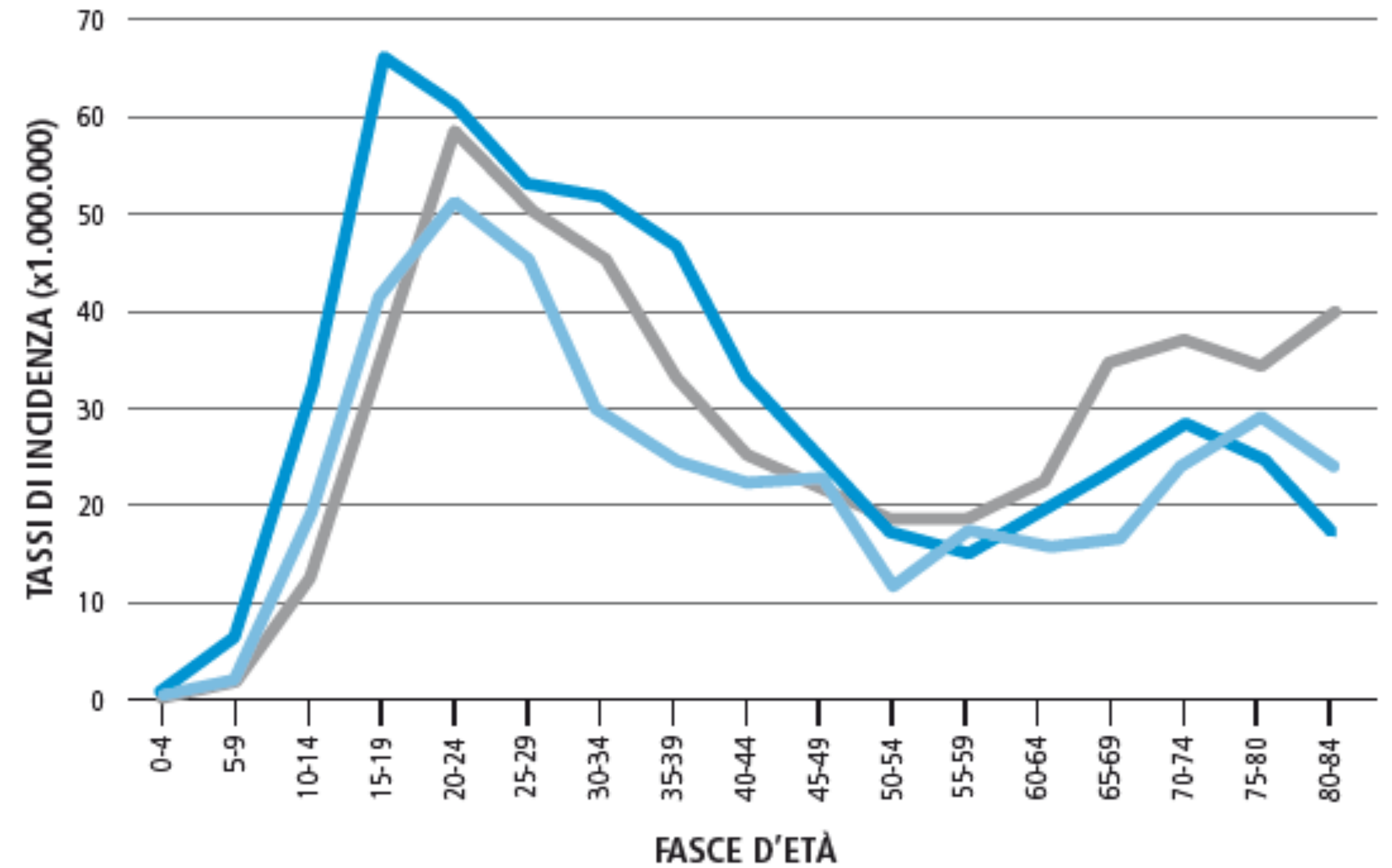
Fonte: Cancer Incidence in Five Continents³

- USA, SEER (9 registri) Bianchi
- FRANCIA (8 registri)
- ITALIA (8 registri)

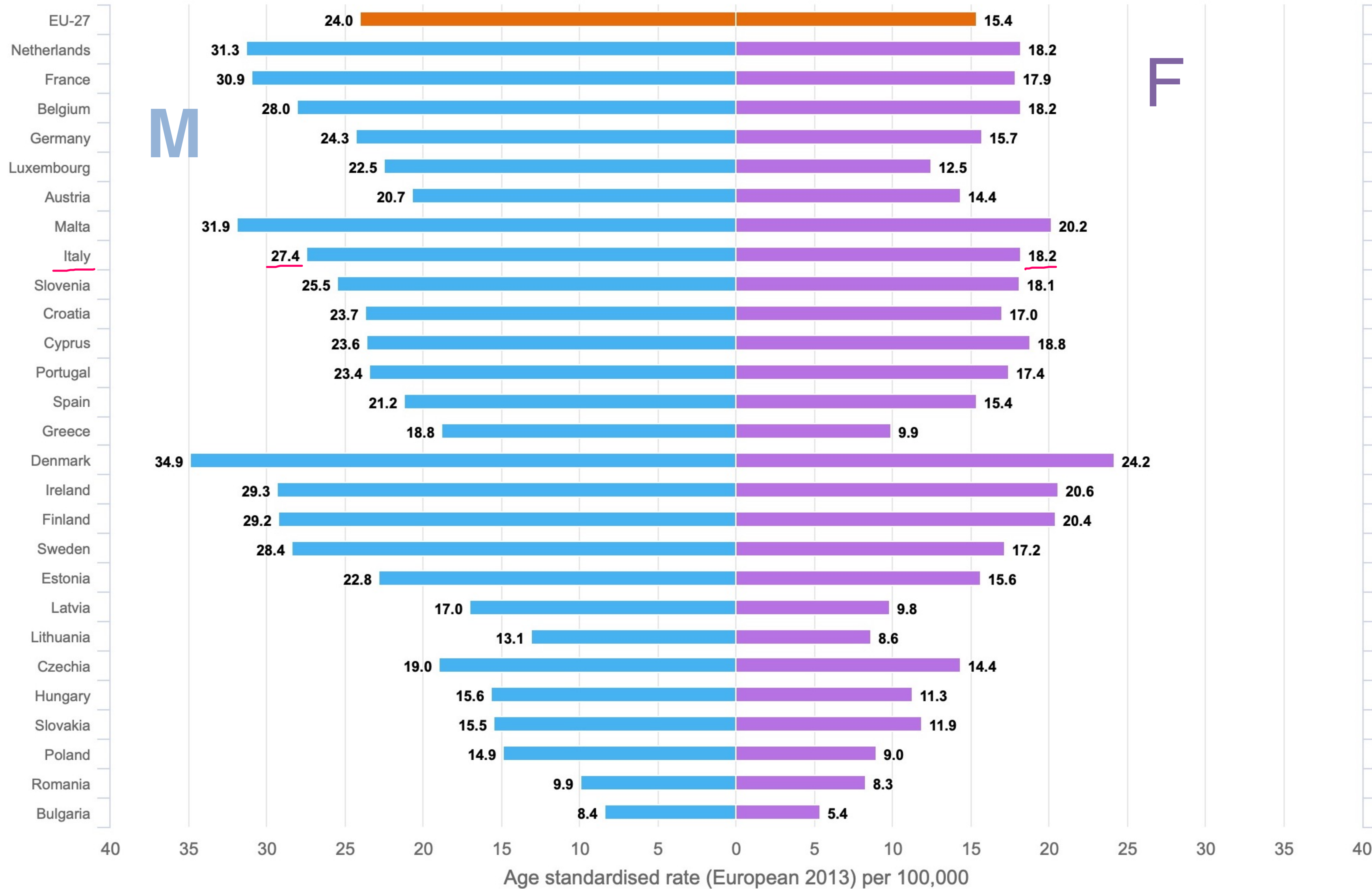
MASCHI



FEMMINE



REGISTRI TUMORI EUROPEI



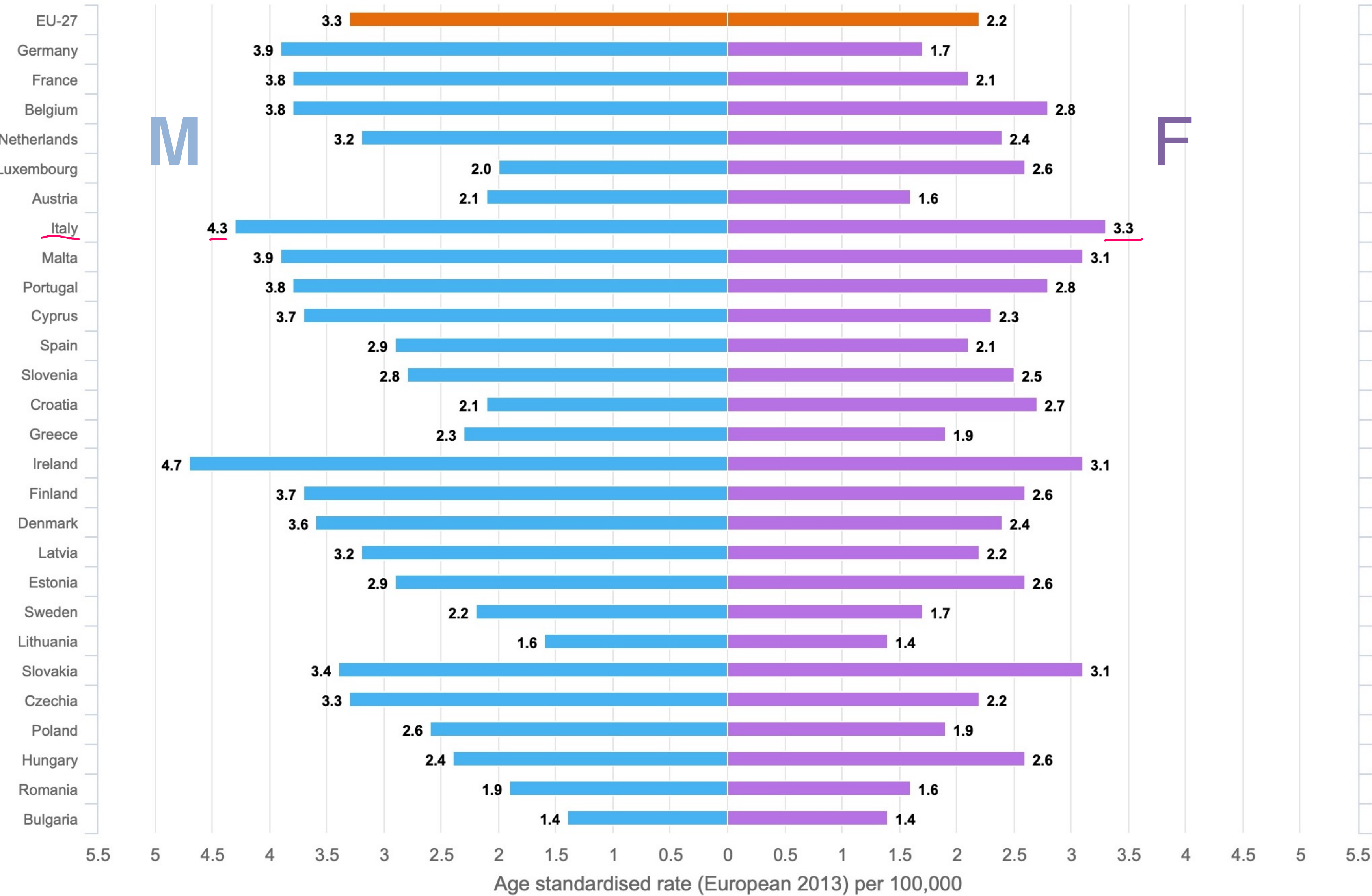
- EU-27
- Netherlands
- France
- Belgium
- Germany
- Luxembourg
- Austria
- Malta
- Italy
- Slovenia
- Croatia
- Cyprus
- Portugal
- Spain
- Greece
- Denmark
- Ireland
- Finland
- Sweden
- Estonia
- Latvia
- Lithuania
- Czechia
- Hungary
- Slovakia
- Poland
- Romania
- Bulgaria

NON-HODGKIN, ITALIA
15.600 casi/anno
27.4-18.2/100.000



Alla media EU in M & F

CORSO EDUCAZIONALE | GRUPPO LINFOMI IN PAZIENTI CON IMMUNODEFICIT

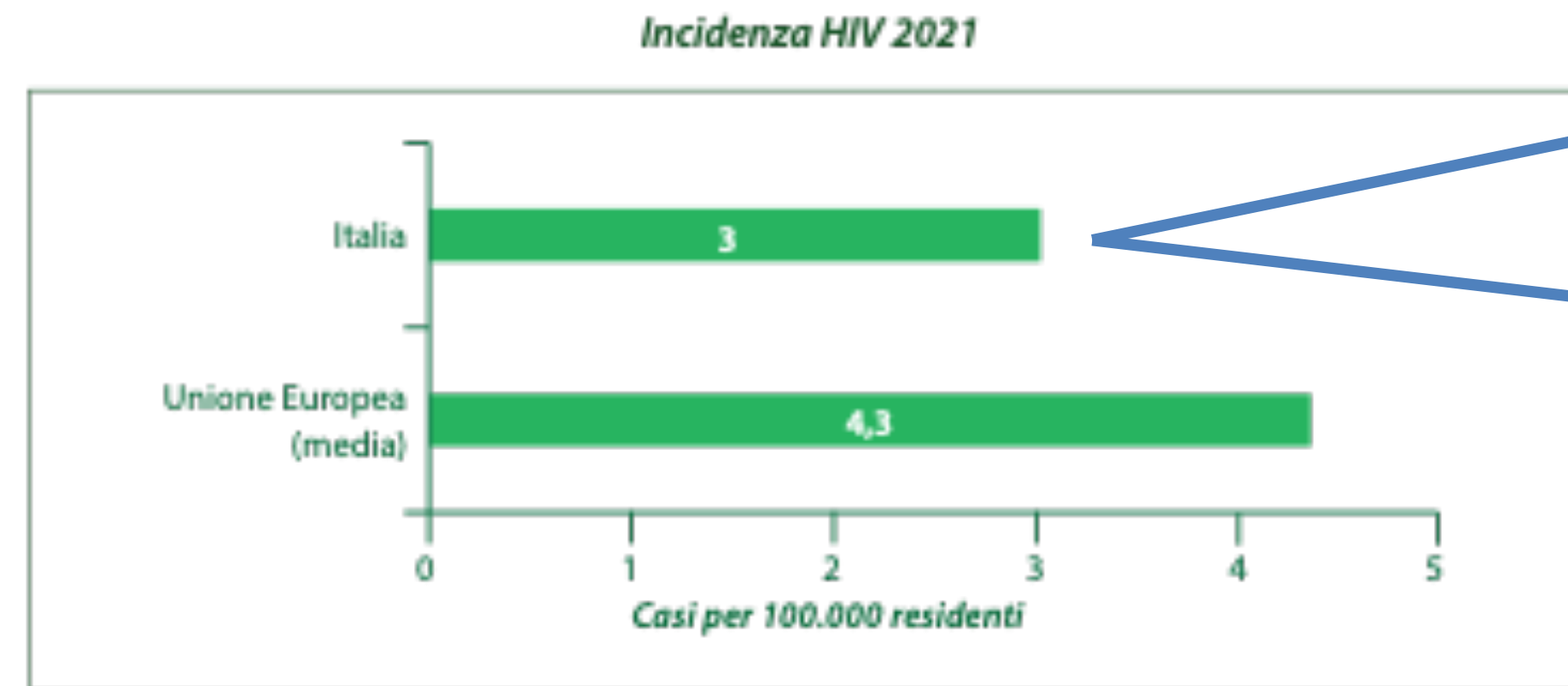
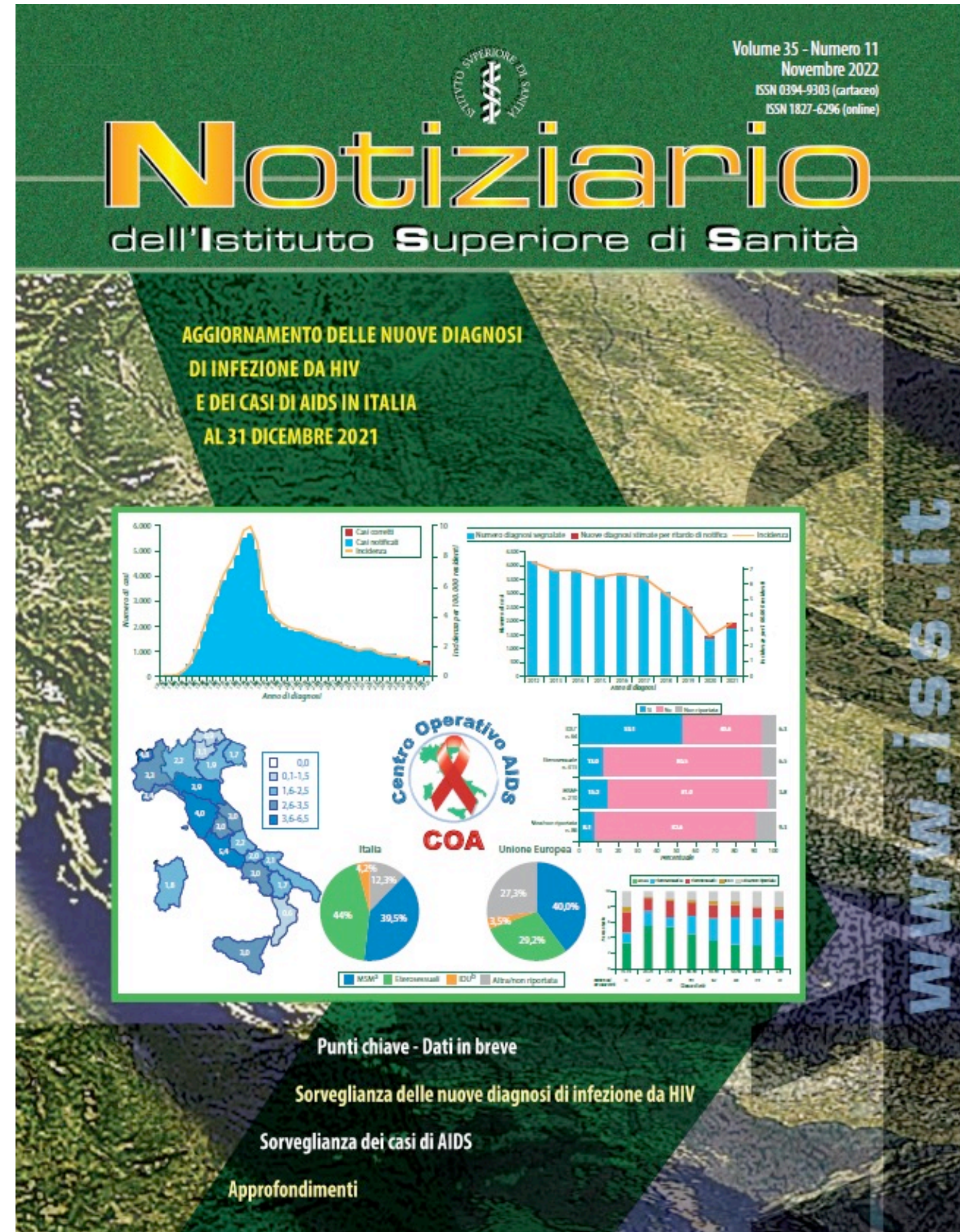


REGISTRI TUMORI EUROPEI

HODGKIN, ITALIA
2.200 casi/anno
4.3-3.3/100.000

DONNE= 1° incidenza EU
UOMINI= 2° in EU

ITALIA, IST. SUP. SANITA': REGISTRO NAZIONALE HIV/AIDS



2021

1800
nuove infezioni da HIV

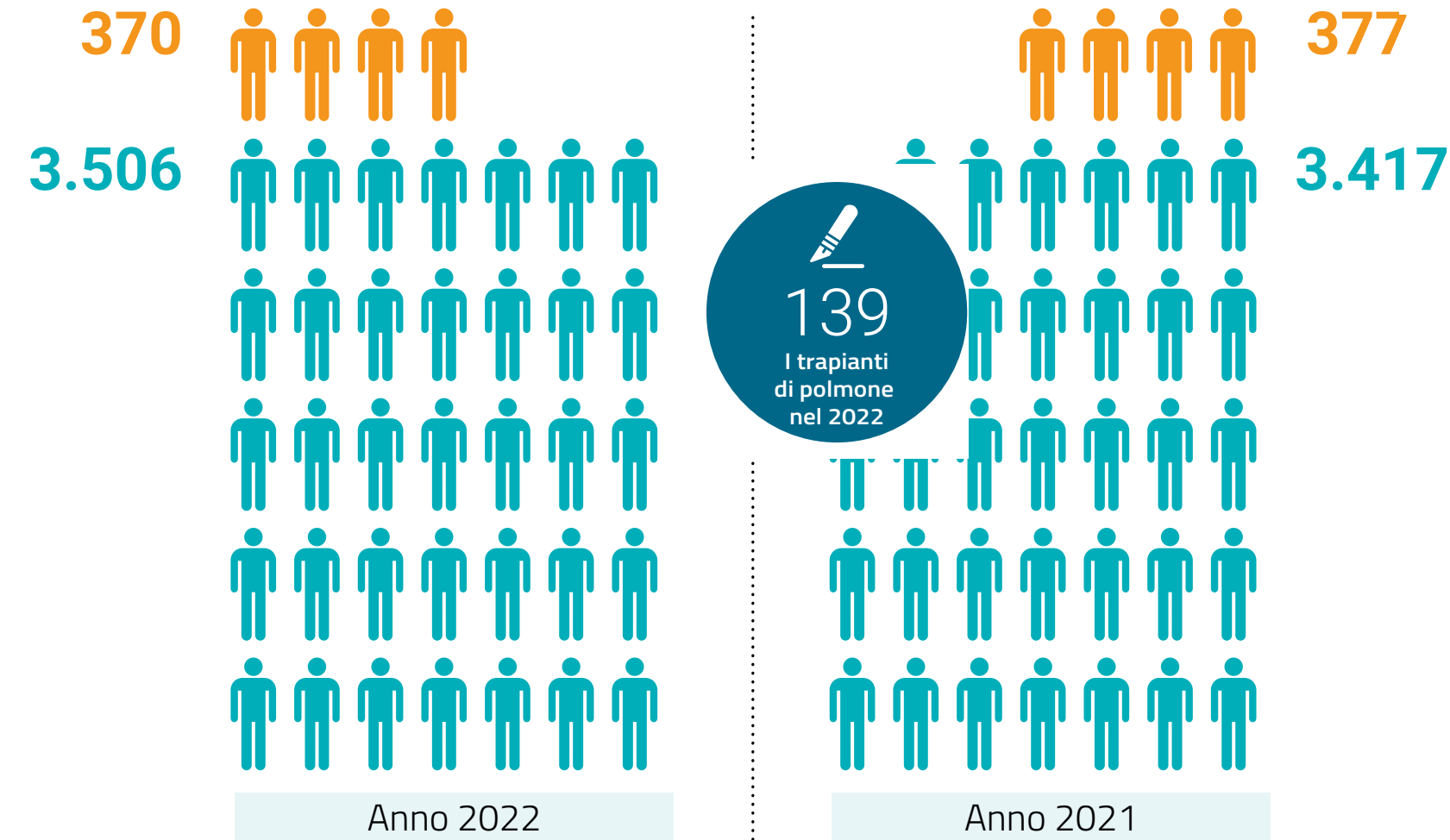
500
nuovi casi di AIDS



ITALIA, IST. SUP. SANITA': RETE NAZIONALE TRAPIANTI

I TRAPIANTI ESEGUITI NEL 2022

● Da donatore DECEDUTO ● Da donatore VIVENTE



RENE



FEGATO



CUORE



POLMONE



PANCREAS



1. INTRODUZIONE:

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SOPRAVVIVENZA

MORTALITA'

3.

IMMUNODEPRESSIONE POST-TRAPIANTO E PTLD



Review Article

Hiv and Lymphoma: from Epidemiology to Clinical Management

Alessandro Re, Chiara Cattaneo and Giuseppe Rossi.

Ematologia, Spedali Civili di Brescia.

Table 1. Lymphomas associated with HIV infection (according to WHO classification of tumours of haematopoietic and lymphoid tissues, 2008) * (Ref.4).

Lymphomas also occurring in immunocompetent patients

Burkitt lymphoma

Diffuse large B-cell lymphoma

Hodgkin lymphoma

Other lymphomas (MALT lymphoma; peripheral T-cell and NK-cell lymphoma)

Lymphoma occurring more specifically in HIV+ patients

primary effusion lymphoma (PEL)

plasmablastic lymphoma

Lymphoma arising in HHV8-associated multicentric Castlemann Disease

Lymphomas occurring in other immunodeficiency states

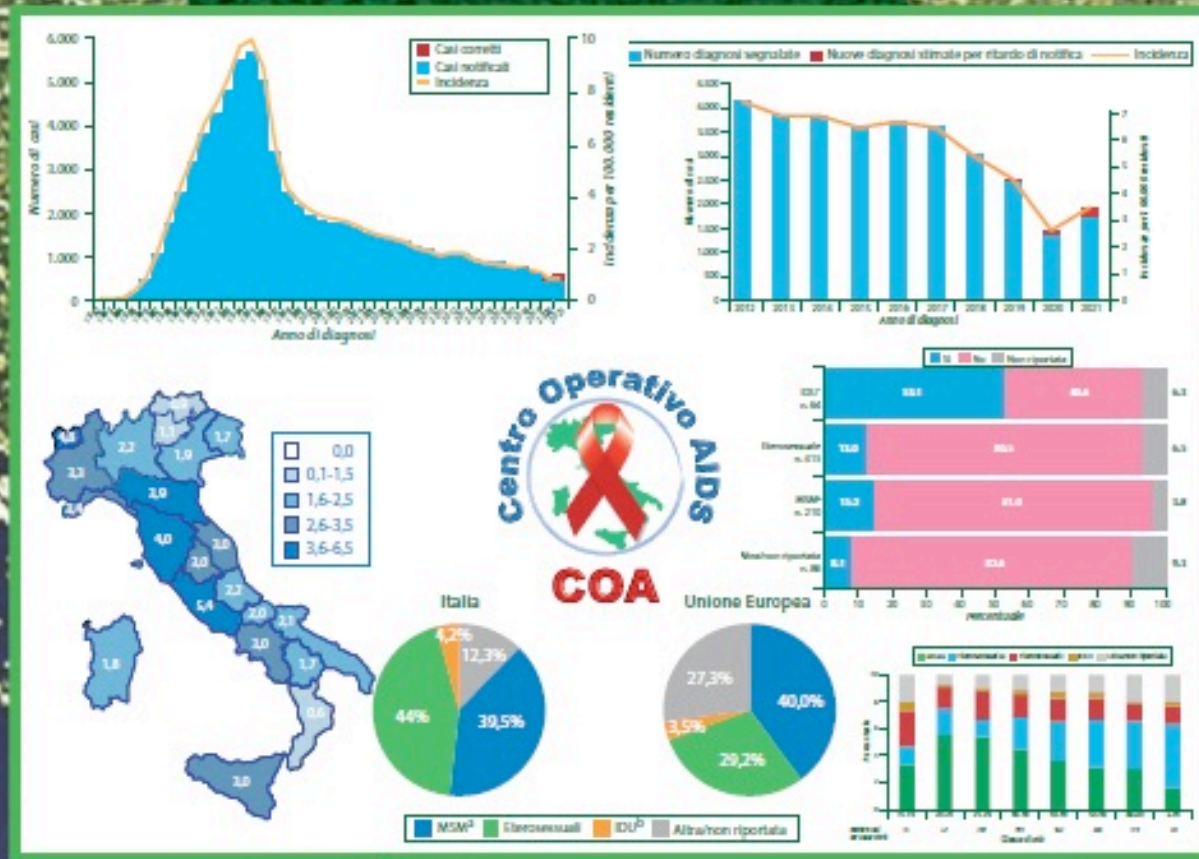
Polymorphic lymphoid proliferations resembling PTLD

Tabella 19 - Percentuale delle patologie indicative di AIDS in adulti, per biennio di diagnosi (percentuali di colonna)

Patologie	<2010	Biennio di diagnosi					
		2010-11	2012-13	2014-15	2016-17	2018-19	2020-21
Candidosi (polmonare ed esofagea)	21,5	14,2	13,6	12,0	12,0	13,1	11,0
Polmonite da <i>Pneumocystis jirovecii</i>	20,5	20,7	23,2	24,3	24,0	25,7	24,3
Toxoplasmosi cerebrale	7,7	6,4	5,6	6,2	5,8	5,3	5,0
Micobatteriosi ^a	6,5	6,8	6,9	5,7	7,2	6,5	6,3
Altre infezioni opportunistiche ^b	14,7	17,1	17,5	19,1	18,4	18,2	22,3
Sarcoma di Kaposi	5,1	7,6	6,5	7,3	7,1	7,7	6,8
Linfomi DLBCL, PCNSL, BL	3,9	6,0	5,8	5,8	5,0	4,7	3,3
Encefalopatia da HIV	6,7	6,5	6,2	5,3	5,0	4,8	5,6
Wasting syndrome	7,8	9,2	8,8	10,0	9,7	9,2	12,2
Carcinoma cervice uterina	0,4	0,4	0,4	0,2	0,1	0,2	0,3
Polmonite ricorrente	2,1	1,5	1,6	1,1	1,6	1,3	0,9
Tubercolosi polmonare	3,1	3,7	3,7	3,1	4,1	3,4	1,9
Totali patologie	n. 71.692	2.797	2.799	2.359	2.225	1.866	1.188

(a) Disseminata o extrapolmonare; (b) include: criptococcosi, criptosporidiosi, infezione da Cytomegalovirus, infezione da Herpes simplex, isosporidiosi, leucoencefalopatia multifocale progressiva, salmonellosi, coccidioidomicosi, istoplasmosi

AGGIORNAMENTO DELLE NUOVE DIAGNOSI
 DI INFEZIONE DA HIV
 E DEI CASI DI AIDS IN ITALIA
 AL 31 DICEMBRE 2021



Punti chiave - Dati in breve

Sorveglianza delle nuove diagnosi di infezione da HIV

Sorveglianza dei casi di AIDS

Approfondimenti

IMMUNODEPRESSIONE DA HIV/AIDS E LINFOMI:

IARC MONOGRAPHS – 100B 2012

4.5 Synthesis

HIV-1 increases the cancer risk in humans indirectly, primarily by immunosuppression.

Many of the AIDS-defining malignancies have a different primary cause, e.g. EBV, HPV, and KSHV.

In addition to HIV-1-mediated immunosuppression, other aspects of the HIV-1 biology contribute to the increased cancer incidence in AIDS patients. Suggested mechanisms include HIV-1-mediated immune dysregulation, in particular B-cell hyperactivation, and perhaps effects of the secreted HIV-1 Tat protein. However, unlike what is known about other cancer-associated viruses, there is no evidence that HIV-1-infection by itself leads to cell transformation or immortalization.

IARC HIV=GRUPPO 1

AGENTE CAUSALE PER:

CERVICE

ANO

CONGIUNTIVA

KAPOSI S.

LINFOMI NON HODGKIN

LINFOMI DI HODGKIN

ASSOCIAZIONE POSITIVA

CON:

VULVA

VAGINA

PENE

FEGATO (HCC)

CUTE NON-MELANOMA



IMMUNODEPRESSIONE DA HIV/AIDS E LINFOMI: **INCIDENZA/RISCHIO**

**T
R
I
A
D
E**



ETA'



INFEZIONI /EBV



STATO IMMUNITARIO/TERAPIE:

CD4, VIRAL LOAD

(HA)ART; TUMORE

A. RE ET AL

Table 2. HIV-associated lymphomas and oncogenic viruses.

HIV-associated lymphomas	Associated oncogenic virus
DLBCL	Immunoblastic EBV 90% Centroblastic EBV 30% (Ref. 4)
Burkitt lymphoma	EBV 25-40% (Ref. 21)
PEL	EBV 80-100% HHV8 100% (Ref. 4,83)
PCNSL	EBV 80-100% (Ref. 94)
PBL	EBV 90-100% (Ref. 72)
Hodgkin lymphoma	EBV 90-100% (Ref. 4)
MCD	HHV8 100% (Ref. 105)

HIV-1, HAART and cancer: A complex relationship

Anna Shmakova^{1,2,3}, Diego Germini^{1,2} and Yegor Vassetzky^{1,2,4}

¹UMR 8126, CNRS, Univ. Paris-Sud, Institut Gustave Roussy, Université Paris Saclay, Édouard-Vaillant, Villejuif, France

²LIA 1066 LFR20 French-Russian Joint Cancer Research Laboratory, Édouard-Vaillant, Villejuif, France

³Laboratory of Gene and Cell Technologies, Faculty of Medicine, Lomonosov Moscow State University, Moscow, Russia

⁴Koltzov Institute of Developmental Biology, Moscow, Russia

Int. J. Cancer: **146**, 2666–2679 (2020) © 2019 UICC

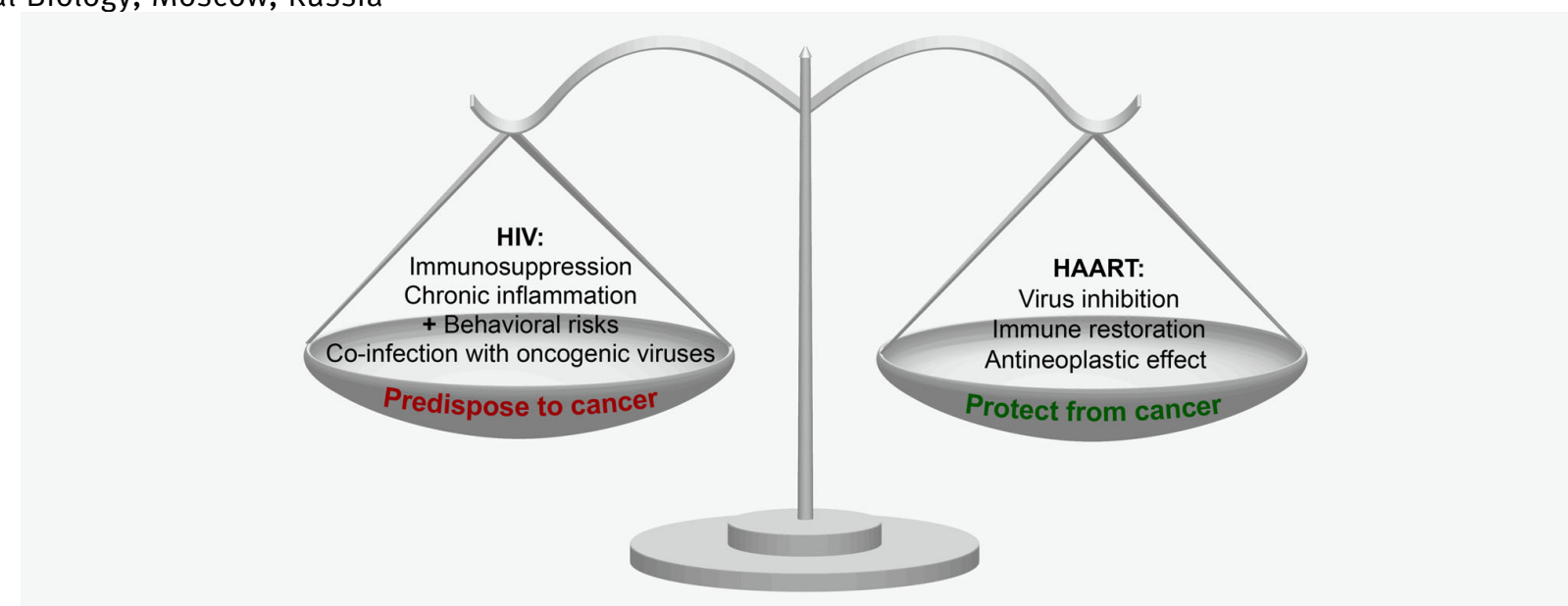


Figure 1. Factors influencing the risk of cancer in HIV-infected people. Cancer risk factors are represented on the left. Immunosuppression and chronic inflammation, caused by HIV infection, predispose to tumorigenesis. Besides, HIV-infected population is more susceptible to cancer risk behavior (smoking, men who have sex with men, intravenous drug use, alcohol consumption) and coinfection with other oncogenic viruses. Some of these risk factors are modifiable. Factors that reduce cancer risk are represented on the right. Highly active antiretroviral therapy (HAART) restores the immunity and suppresses viral replication, it was also shown to possess preclinical antioncogenic activity; however, the clinical relevance of this activity remains to be elucidated. [Color figure can be viewed at wileyonlinelibrary.com]

Table 3. Summary of the role of HAART in HIV–cancer relationship

Parameter	All cancers	ADCs	NADCs	
			Virus-related	Virus-unrelated
Cancer incidence compared to the general population in the pre-HAART era	↑↑	↑↑↑	↑	= ¹
Cancer incidence compared to the general population in the HAART era	↑	↑↑	↑	↓
Cancer incidence in the HAART era compared to the pre-HAART era	↓	↓↓↓ ²	↑	↑
The risk of cancer with HAART use compared to no treatment	↓	↓↓↓	↑	=

Sources^{195,196}: and other articles cited in the text.

¹Due to a small cohort size and a large 95% confidence interval.

²Except Burkitt's lymphoma.

**ONCOLOGIA
E HIV:**

**è necessario condividere
un percorso di prevenzione
e terapia?**



VIRUS-MEDIATED HEMATOLOGIC DISEASE

Hematologic cancers in individuals infected by HIV

Antonino Carbone,^{1,2} Emanuela Vaccher,³ and Annunziata Gloghini⁴

Table 1. Distribution of lymphoma histotypes in individuals infected by HIV over 30 years in a European cohort (615 patients) compared with the CNICS USA cohort (476 patients)

Histotype	1986-1995; London (158 patients)	1996-2005; London (200 patients)	2006-2015; London (257 patients)	1996-2000; CNICS (132 patients)	2001-2005; CNICS (201 patients)	2006-2010; CNICS (143 patients)
BL	3%	10%	20% ↑	7.6%	10.9%	16.8% ↑
DLBCL	63%	59%	37% ↓	43.9%	45.8%	35.7% ↓
HL	4%	11%	26% ↑	15.2%	15.4%	19.6% ↑
PCNSL				14.4%	10.4%	9.8% ↓
PBL	0	2%	6% ↑			
PEL	2%	1%	5% ↑			
Other				18.9%	17.4%	18.2%

Since the introduction of cART, the incidence of NHL has decreased by 50% mainly because of decreased PCNSL and the immunoblastic histologic subtype of DLBCL, consistent with CD4 counts. In contrast, the burden of HIV-associated BL and HL has increased¹⁶: pre-cART decade (1986-1995); early cART decade (1996-2005); late cART decade (2006-2015). European cohort²⁶; CNICS USA cohort.²⁵ ↑, increase of proportion in late cART decade; ↓, decrease of proportion in late cART decade.

HIV-Related Haematological Malignancies 1

Lancet HIV 2020; 7: e641-51

Epidemiology of haematological malignancies in people living with HIV

Stephen M Kimani, Matthew S Painschab, Marie-Josèphe Horner, Mazvita Muchengeti, Yuri Fedoriw, Meredith S Shiels, Satish Gopal

<u>Non-Hodgkin lymphoma*</u>		<u>Hodgkin lymphoma</u>
Engels et al (2008),³⁹ USA, registry-linkage study (n=57 330)		
1991-95	DLBCL: 14.0 (10.0-20.0), BL: 7.1 (0.2-40.0), PCNSL: 490.0 (260.0-840.0)	2.8 (0.9-6.6)
1996-2002	DLBCL: 7.9 (5.9-10.0), BL: 17 (8.6-31.0), PCNSL: 170.0 (96.0-280.0)	6.7 (4.5-9.5)
Gibson et al (2014),⁴⁵ USA, registry-linkage study (n=273 705)		
1996-2002	DLBCL: 23.2 (21.6-24.8), BL: 31.9 (26.0-38.8), PCNSL: 56.4 (50.1-63.2)	Not reported
2003-10	DLBCL: 13.4 (12.3-14.5), BL: 34.9 (29.7-40.7), PCNSL: 37.5 (32-43.6)	Not reported
Hernández-Ramírez et al (2017),⁴ USA, registry-linkage study (n=448 258)		
1996-99	DLBCL: 26.7 (23.4-30.4), BL: 28.3 (16.5-45.3), PCNSL: 872.0 (715.0-1054.0)	9.1 (6.7-12.0)
2000-04	DLBCL: 13.2 (12.3-14.3), BL: 23.1 (19.1-27.0), 226.0 (194.0-263.0)	8.6 (7.5-9.7)
2005-08	DLBCL: 9.8 (9.1-10.5), BL: 22.5 (19.2-26.1), PCNSL: 139.0 (118.0-161.0)	7.9 (7.1-8.8)
2009-12	DLBCL: 7.3 (6.8-7.9), BL: 15.9 (13.3-18.8), PCNSL: 59.5 (47.3-74.0)	6.7 (5.9-7.6)
Franceschi et al (2010),⁴⁶ Switzerland, registry-linkage study (n=9429)		
1985-96	103.0 (88.8-119.0)	9.2 (3.6-19.0)
1997-2001	26.7 (19.9-35.1)	21.0 (10.8-36.8)
2002-06	16.2 (11.1-22.9)	28.1 (14.9-48.2)

Calabresi et al (2013)⁴⁷ and Gotti et al (2013),⁴⁸ Italy, registry-linkage studies (n=5090; n=5085)		
1999-2009	21.1 (1.7-25.7) NHL	21.8 (15.3-31.0) HL
Vogel et al (2011),⁴⁹ Germany, registry-linkage study (n=1476)		
1996-2008	35.0 (23.3-49.2)†	38.7 (16.5-70.2)†
Hleyhel et al (2013)³¹ and Hleyhel et al (2014),⁵⁰ France, registry-linkage study (n=98 556; n=84 504)		
1992-96	116.7 (109.9-123.9)	Not reported
1997-2000	33.6 (30.8-36.6)	33.5 (28.5-39.1)
2001-04	15.4 (13.9-17.1)	21.6 (18.2-25.5)
2005-09	9.1 (8.3-10.1)	26.5 (23.2-30.1)
Godbole et al (2016),⁵¹ India, registry-linkage study (n=32 575)		
1996-2008	10.6 (5.9-17.5)	7.7 (2.1-19.7)
Mbulaiteye et al (2006),⁵² Uganda, registry-linkage study (n=12 607)		
1988-2002	6.7 (1.8-17.0)‡	8.8 (1.0-32.0)‡
Zhang et al (2011),⁵³ China, registry-linkage study (n=3554)		
2004-08	34.5 (11.7-89.9)	Not reported
Stein et al (2008),⁵⁴ South Africa, case-control study (n=377)§		
1995-04	5.9 (4.3-8.1)¶	1.6 (1.0-2.7)¶
Dhokotera et al (2019),¹³ South Africa, registry-linkage study (n=95 279)		
2004-14	2.89 (2.7-3.1)¶¶	1.43 (1.3-1.6)¶¶
Mpunga et al (2018),⁵⁵ Rwanda, case-control study (n=341) 		
2012-16	2.5 (1.4-4.6)¶¶	5.2 (2.3-11.6)¶¶

HIV-Related Haematological Malignancies 1

Epidemiology of haematological malignancies in people living with HIV

Stephen M Kimani, Matthew S Painschab, Marie-Josèphe Horner, Mazvita Muchengeti, Yuri Fedoriw, Meredith S Shiels, Satish Gopal

Lancet HIV 2020; 7: e641-51

DOI: 10.1016/S2666-3641(20)30001-1

Key messages

- People living with HIV are at increased risk of non-Hodgkin and Hodgkin lymphoma, whereas the risks of multiple myeloma and leukaemia are not increased
- Several HIV-related factors affect the magnitude of this increase, and this magnitude differs between lymphoma subtypes
- Expansion of combination antiretroviral therapy programmes has led to substantial declines in non-Hodgkin lymphoma incidence, and to a lesser degree, the incidence of Hodgkin lymphoma
- In high-income countries, demographic changes among people with HIV, such as ageing and increased life expectancy, might lead to increased burden of Hodgkin lymphoma in this population
- High-quality epidemiological data for haematological malignancies among people with HIV from low-income and middle-income countries are scarce
- Concerted efforts are needed to support linkages of existing regional and national cancer registries to HIV and AIDS databases for the monitoring of HIV-associated malignancies in low-income and middle-income countries

Pattern of cancer risk in persons with AIDS in Italy in the HAART era

British Journal of Cancer (2009) 100, 840–847

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L Dal Maso^{*,1}, J Polesel¹, D Serraino^{1,2}, M Lise¹, P Piselli³, F Falcini⁴, A Russo⁵, T Intrieri⁶, M Vercelli⁷, P Zambon⁸, G Tagliabue⁹, R Zanetti¹⁰, M Federico¹¹, RM Limina¹², L Mangone¹³, V De Lisi¹⁴, F Stracci¹⁵, S Ferretti¹⁶, S Piffer¹⁷, M Budroni¹⁸, A Donato¹⁹, A Giacomini²⁰, F Bellù²¹, M Fusco²², A Madeddu²³, S Vitarelli²⁴, R Tessandori²⁵, R Tumino²⁶, B Suligoi²⁷, S Franceschi²⁸ for the Cancer and AIDS Registries Linkage (CARL) Study²⁹

Table 2 Observed (Obs) and expected (Exp) cancers in persons with HIV/AIDS^a, standardised incidence ratio (SIR), and corresponding 95% confidence interval (CI) by year of cancer diagnosis. Italy, 1986–2004

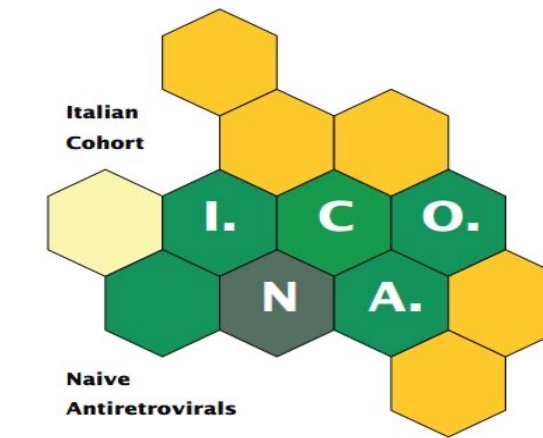
ICD10; Cancer type or site	Year of cancer diagnosis					
	1986–1996 (56 643 py)			1997–2004 (45 026 py)		
	Obs	Exp	SIR (95% CI)	Obs	Exp	SIR (95% CI)
<i>AIDS-defining cancers</i>						
C46; Kaposi sarcoma	507	0.3	1792 (1640–1956)	294	0.5	572 (508–641)
C82–C88, C96; NHL	420	0.8	497 (450–546)	352	3.8	93.4 (83.9–104)
C53; Cervix uteri	9	0.2	51.0 (23.1–97.3)	30	0.7	41.5 (28.0–59.3)
C81; Hodgkin lymphoma	47	2.6	18.0 (13.2–23.9)	37	1.8	20.7 (14.6–28.5)



Fondazione Icona
ITALIAN COHORT NAIVE ANTIRETROVIRALS
Conceived by Professor Mauro Moroni



10° CONGRESSO NAZIONALE
ICAR Italian Conference on
AIDS and Antiviral Research
Presidenza del Congresso Massimo Andreoni, Roma Andrea Antinori, Roma Carlo Federico Perno, Milano



Fondazione Icona
ITALIAN COHORT NAIVE ANTIRETROVIRALS
Conceived by Professor Mauro Moroni

NON-AIDS RELATED CANCER RISK IS NOT AFFECTED BY cART IN ICONA COHORT

**Pierluca Piselli¹, Diego Serraino², Alessandra Bandera³, Andrea Antinori¹, Enrico Girardi¹,
Claudia Cimaglia¹, Alessandro Tavelli⁴, Francesca Bai⁴, Gianmaria Baldin⁵, Andrea Calcagno⁶,
Antonella d'Arminio Monforte⁴, Antonella Cingolani⁴ for the ICONA Foundation Study Group**

- ¹ National Institute for Infectious Diseases "L. Spallanzani", Rome, Italy; ² CRO Aviano (PN), Italy;
- ³ San Gerardo Hospital, Monza, Italy; ⁴ University of Milan, ASST Santi Paolo e Carlo, Milan, Italy;
- ⁵ Catholic University of the Sacred Heart, Rome, Italy; ⁶ University of Turin, Turin, Italy





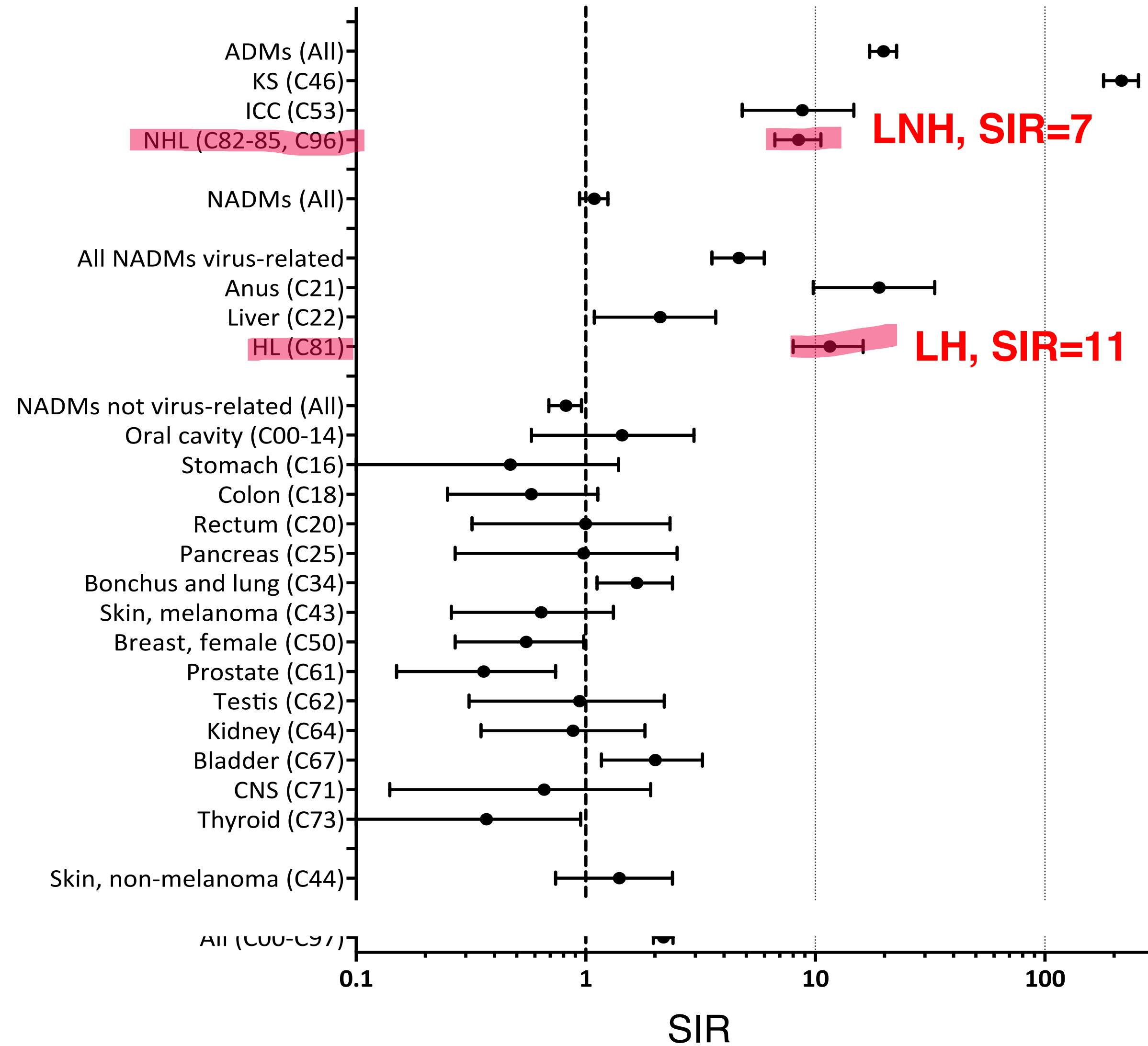
BASELINE CHARACTERISTICS OF 11688 PWHAs

Characteristics	
Female sex, n (%)	2602 (22.3)
Age at enrollment (years), median (IQR)	37 (30-45)
Age at enrollment (years), n (%)	
<30	2613 (22.4)
30-39	4440 (38.0)
40-49	2909 (24.9)
50-59	1278 (10.9)
60-69	448 (3.8)
Year of enrolment, median (IQR)	2011 (2004-2014)
Mode of HIV transmission, n (%)	
Homosexual/ Bisexual	4946 (42.3)
Heterosexual	4826 (41.3)
IVDU	1052 (9.0)
Other or unknown	864 (7.4)
Total Follow-up PYs	67449.9
median (IQR)	4.6 (1.9-8.2)





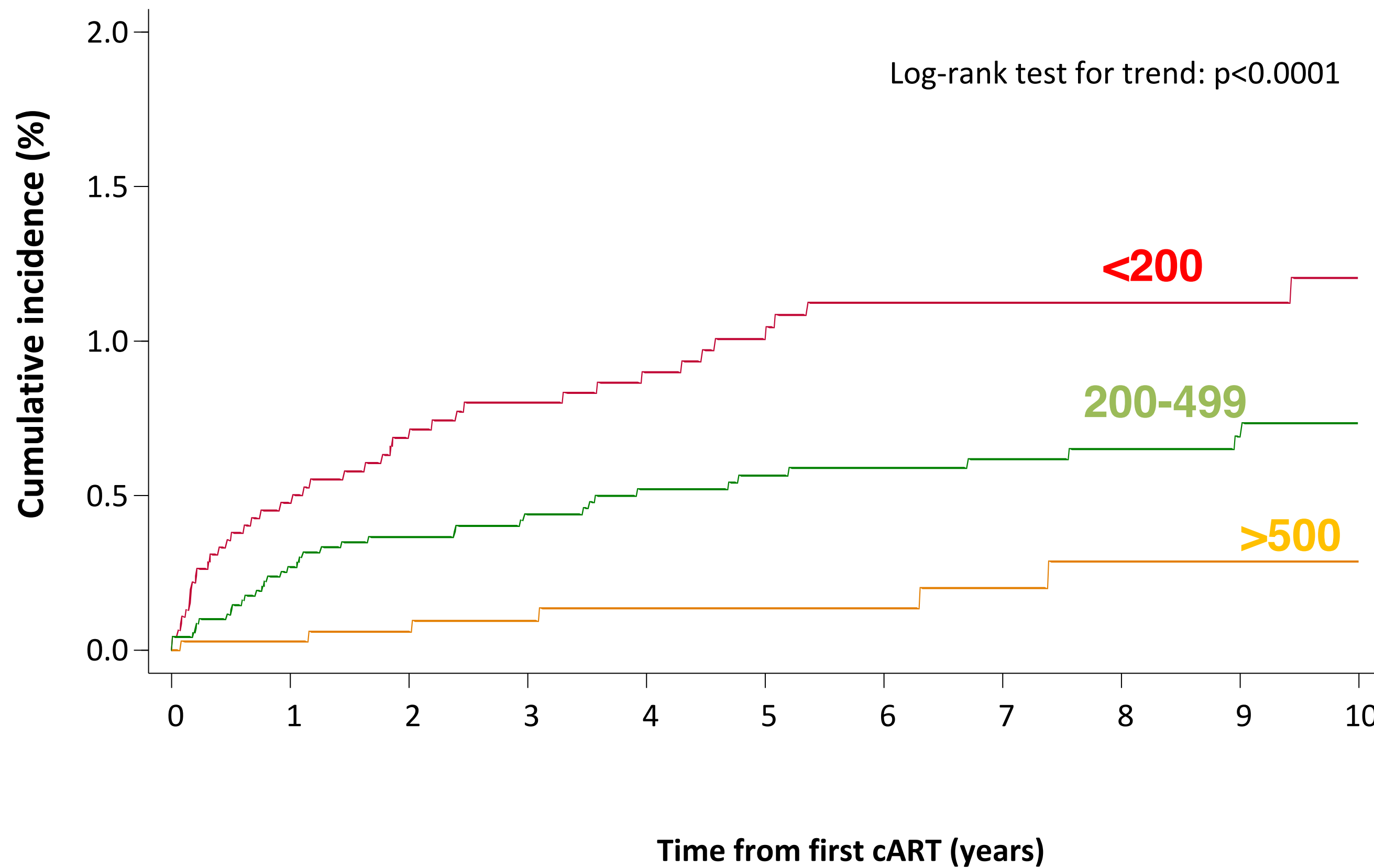
STANDARDIZED INCIDENCE RATIO (SIR)





Dei 16761 pazienti arruolati nella coorte ICONA (diagnosi di HIV dal 1996 al 2023), 15372 (93.9%) hanno iniziato terapia cART.
Nei 15372 pazienti sono stati diagnosticati **109 NHL** (nel file Word sono 118 diagnosi di NHL perché 9 sono in pazienti che non hanno effettuato art).
19 pazienti presentano diagnosi di NHL prima dell'inizio della cART, per cui non verranno considerati nell'analisi → **90 NHL**

NON-HODGKIN'S LYMPHOMA (90 casi): incidenza in base a CD4 a inizio cART



CD4+ at cART initiation:

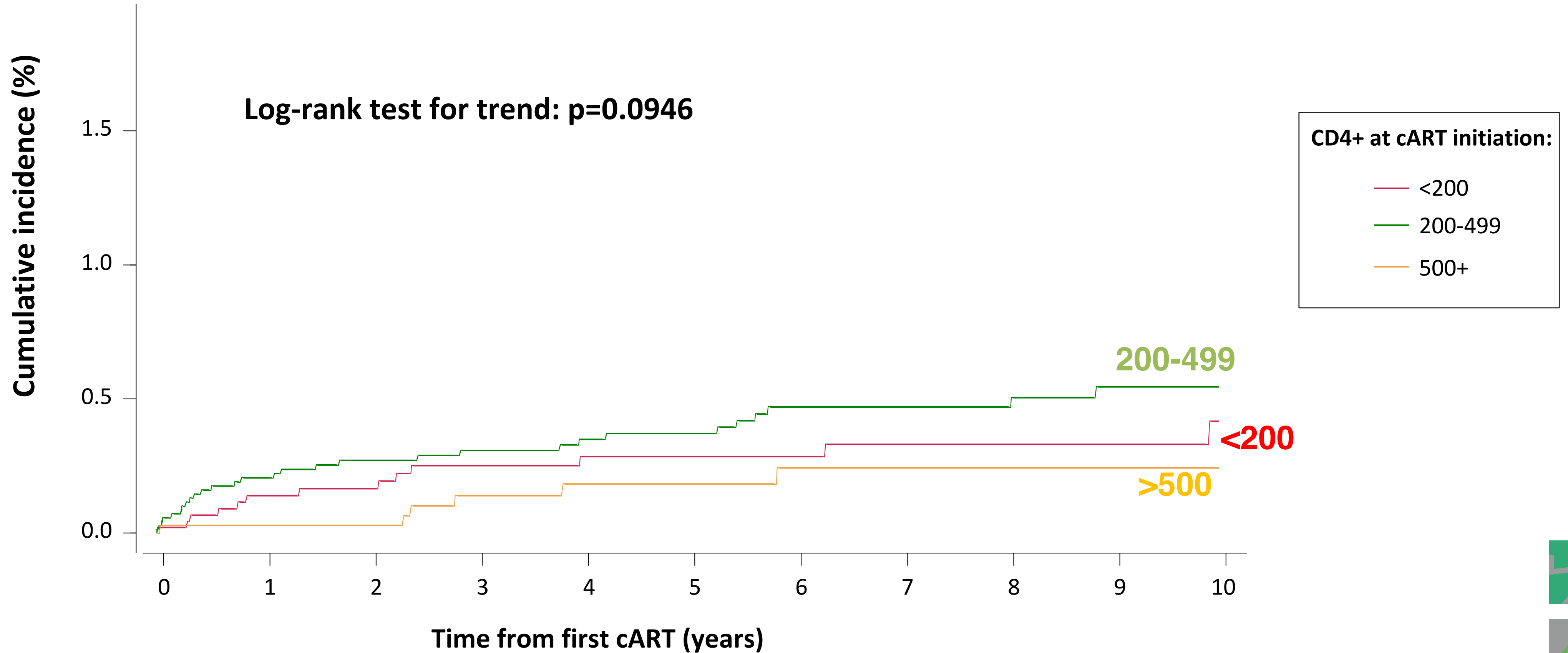
- <200
- 200-499
- >500





Nei 15372 pazienti sono stati diagnosticati **54 HL** (nel file Word sono 55 le diagnosi di HL perché 1 paziente non ha iniziato art).
4 pazienti presentano diagnosi di HL prima dell'inizio della cART, per cui non verranno considerati nell'analisi → **50 HL**

HODGKIN'S LYMPHOMA (50 casi): incidenza in base a CD4 a inizio cART



1. INTRODUZIONE:

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INCIDENZA,

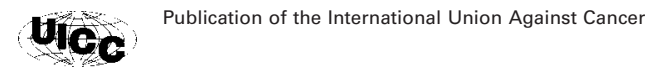
SOPRAVVIVENZA

MORTALITA'

3.

IMMUNODEPRESSIONE POST-TRAPIANTO E PTLD

Int. J. Cancer: 93, 430–435 (2001)
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NON-HODGKIN LYMPHOMA AMONG YOUNG ADULTS WITH AND WITHOUT AIDS IN ITALY

Luigino DAL MASO^{1*}, Giovanni REZZA², Paola ZAMBON³, Giovanna TAGLIABUE⁴, Emanuele CROCETTI⁵, Marina VERCELLI⁶, Roberto ZANETTI⁷, Fabio FALCINI⁸, Giuseppe TONINI⁹, Lucia MANGONE¹⁰, Vincenzo DE LISI¹¹, Stefano FERRETTI¹², Rosario TUMINO¹³, Giorgio STANTA¹⁴, Susanna VITARELLI¹⁵, Diego SERRAINO¹⁶ and Silvia FRANCESCHI¹⁷ for the Cancer and AIDS Registry Linkage Study

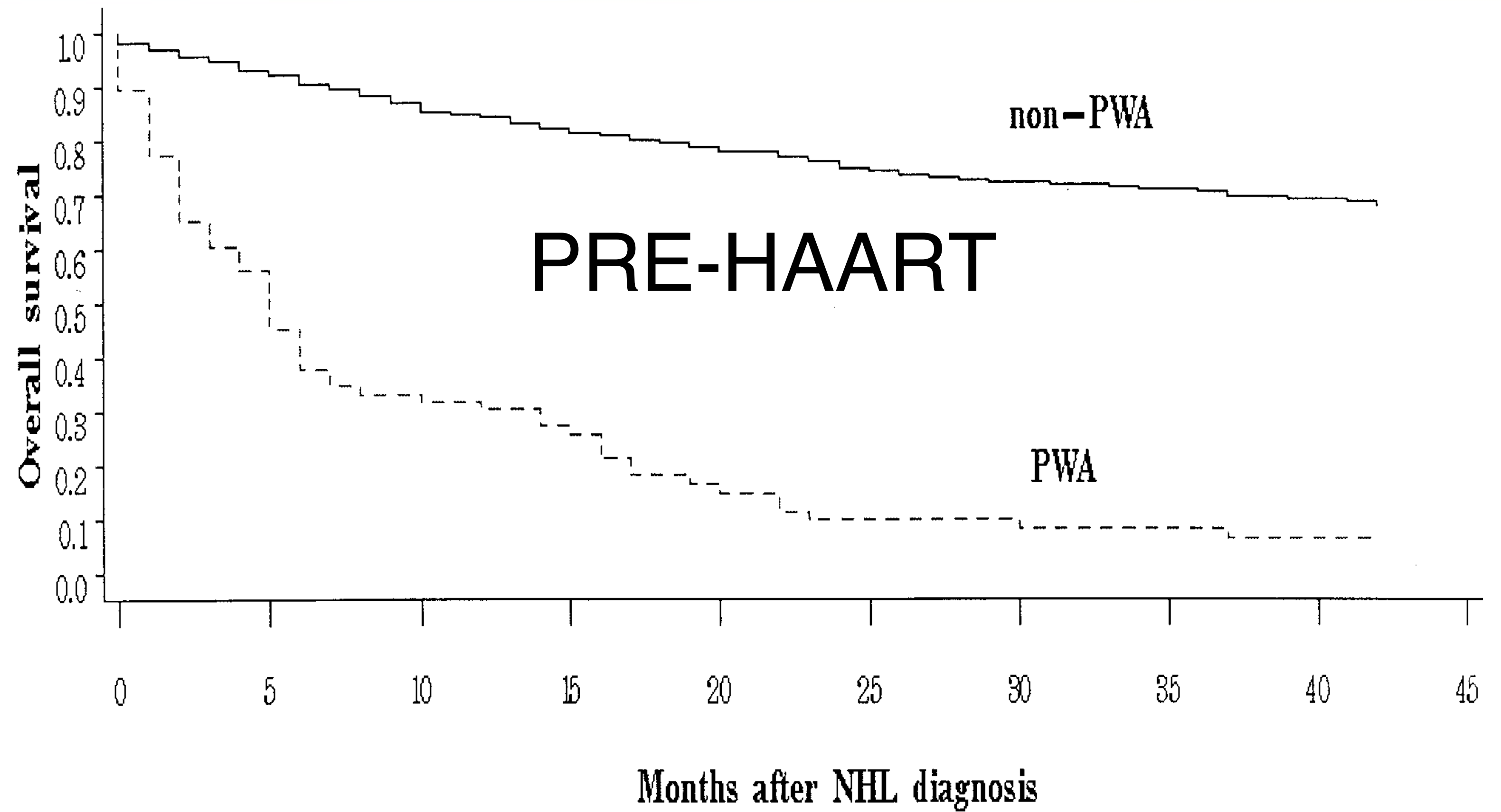


FIGURE 1 – Kaplan-Meier survival after diagnosis of non-Hodgkin lymphoma by AIDS status in Italy, 1985–94. PWA, people with AIDS.

Survival After Cancer in Italian Persons With AIDS, 1986–2005: A Population-Based Estimation

Luigino Dal Maso, PhD,* Barbara Suligo, MD,†

J Acquir Immune Defic Syndr • Volume 66, Number 4, August 1, 2014

PRE-HAART: survival 8% a 5 aa

TABLE 1. HR of Death and 95% CIs at 5 years from cancer diagnosis in PWA* Versus Non-PWA† During 1986–1995

Cancer Type‡	PWA			Non-PWA			HR§ (95% CI)
	Cases	Deaths	Survival (%)	Cases	Deaths	Survival (%)	
All patients	965	850	12	1667	563	66	5.1 (4.3 to 6.1)
KS	520	447	14	520	107	79	5.1 (3.4 to 7.6)
NHL	377	348	8	754	319	58	4.6 (3.7 to 5.7)
Invasive cervical cancer	15	6	60	75	11	85	5.6 (1.5 to 21.9)
All non-AIDS-defining cancers	72	67	7	360	151	58	7.6 (5.1 to 11.3)
Colon-rectum	6	6	0	30	20	33	6.3 (1.8 to 22.9)
Lung	9	9	0	45	30	33	2.5 (1.0 to 5.9)
Brain	5	5	0	25	15	40	24.4 (2.7 to 220)
HL	19	16	16	95	15	84	11.6 (4.6 to 29.4)

*Patients aged 16–74 years, in Italy.

†Matched by type (1:1 for KS, 1:2 for NHL, 1:5 for other cancers), histology (for NHL, ICC, skin, and HL), sex, age, period of diagnosis, and area in Italy.

‡Only cancer types with ≥5 cases have been shown.

§Estimates from the Cox proportional hazard model conditioned on matching variables and adjusted for age at diagnosis in years.

HAART: survival 25% a 5 aa

TABLE 2. HR of Death and 95% CIs at 5 years from cancer diagnosis in PWA* Versus Non-PWA† During 1996–2005

Cancer Type‡	PWA			Non-PWA			HR§ (95% CI)
	Cases	Deaths	Survival (%)	Cases	Deaths	Survival (%)	
All patients	1297	751	42	2935	1042	65	2.9 (2.6 to 3.3)
KS	522	202	61	522	121	77	2.0 (1.4 to 2.9)
NHL	561	418	25	1122	402	64	3.4 (2.9 to 4.1)
NHL, CNS (all histologies)	47	43	9	94	67	29	3.1 (1.6 to 6.2)
NHL, DLBC and immunoblastic	264	187	29	528	180	66	3.0 (2.3 to 3.8)
NHL, Burkitt	39	29	26	78	43	45	1.2 (0.7 to 2.2)
NHL, follicular and SLL/CLL	11	8	27	22	2	91	27.4 (1.1 to 757)
NHL, T cell	13	8	38	26	3	88	20.9 (1.6 to 268)
NHL, other specified histology	7	5	29	14	5	64	15.6 (1.3 to 186)
NHL, NOS	180	138	23	360	102	72	5.3 (3.8 to 7.5)

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SOPRAVVIVENZA
MORTALITA'

3.

IMMUNODEPRESSIONE POST-TRAPIANTO E PTLD

Non-AIDS-Defining Cancer Mortality: Emerging Patterns in the Late HAART Era

Antonella Zucchetto, PhD, Saverio Viridone, ScD,* Martina Taborelli, ScD,*
Enrico Grande, ScD,† Laura Camoni, PsyD,‡ Marilena Pappagallo, ScD,†
Vincenza Regine, ScD,‡ Francesco Grippo, ScD,† Jerry Polesel, ScD,*
Luigino Dal Maso, PhD,* Barbara Suligoj, MD,‡ Luisa Frova, PhD,† and
Diego Serraino, MD**

J Acquir Immune Defic Syndr • Volume 73, Number 2, October 1, 2016

Methods: A nationwide, population-based, retrospective cohort study was carried out among 5285 Italian PWA, aged 15–74 years, diagnosed between 2006 and 2011. Date of death and multiple-cause-of-death data were retrieved up to December 2011. Excess mortality, as compared with non-PWA, was estimated using sex- and age-standardized mortality ratios (SMRs) and the corresponding 95% confidence intervals (CIs).

TABLE 3. Standardized Mortality Ratios According to Malignant Neoplasms Reported in Death Certificates* of PWA, as Compared With non-PWA by Age at Death: Italy, PWA 15–74 Years, 2006–2011

Cancer Site/Type (ICD-10 Codes)*	Total (14,180 Person-Years)		15–49 yrs (10,080 Person-Years)		50–74 yrs (4100 Person-Years)	
	Obs./Exp.	SMR (95% CI)	Obs./Exp.	SMR (95% CI)	Obs./Exp.	SMR (95% CI)
AIDS-defining	282/0.7	433.4 (384.3 to 487.0)	173/0.2	821.4 (703.6 to 953.4)	109/0.4	247.7 (203.4 to 298.8)
Kaposi sarcoma (C46)	63/<0.1	10,108 (7767 to 12,932)	36/<0.1	38,426 (26,913 to 53,197)	27/<0.1	5098 (3360 to 7417)
Cervix uteri (C53)	6/<0.1	179.4 (65.9 to 390.6)	6/<0.1	281.0 (103.1 to 611.6)	0/<0.1	0.0 (0.0 to 247.8)
Non-Hodgkin lymphoma (C82–88, C96)	221/0.6	361.5 (315.4 to 412.4)	137/0.2	727.5 (610.8 to 860.0)	84/0.4	198.6 (158.4 to 245.8)
Non-AIDS-defining†‡	127/17.3	7.3 (6.1 to 8.7)	56/3.9	14.2 (10.8 to 18.5)	71/13.4	5.3 (4.1 to 6.7)
Head and neck (C00–14, C30–32)	9/1.1	7.8 (3.6 to 14.9)	4/0.3	14.4 (3.9 to 37.0)	5/0.9	5.7 (1.9 to 13.4)
Stomach (C16)	4/1.2	3.5 (0.9 to 8.8)	3/0.3	10.6 (2.2 to 30.9)	1/0.9	1.1 (0.0 to 6.4)
Colon-rectum (C18–20)	10/1.8	5.4 (2.6 to 10.0)	4/0.4	11.1 (3.0 to 28.4)	6/1.5	4.0 (1.5 to 8.8)
Anus (C21)	5/<0.1	227.6 (73.9 to 531.0)	3/<0.1	491.1 (101.3 to 1435.2)	2/<0.1	126.1 (15.3 to 455.4)
Liver and bile ducts (C22)	17/1.3	13.2 (7.7 to 21.1)	9/0.2	38.8 (17.7 to 73.6)	8/1.1	7.6 (3.3 to 14.9)
Bronchus and lung (C34)	38/4.7	8.0 (5.7 to 11.0)	15/0.7	22.0 (12.3 to 36.2)	23/4.1	5.7 (3.6 to 8.5)
Skin melanoma (C43)	4/0.4	10.9 (3.0 to 27.8)	1/0.2	5.8 (0.1 to 32.3)	3/0.2	15.3 (3.2 to 44.7)
Uterus, not otherwise specified (C55)	4/<0.1	52.5 (14.3 to 134.5)	1/<0.1	26.7 (0.7 to 148.7)	3/<0.1	78.2 (16.1 to 228.5)
Hodgkin lymphoma (C81)	12/<0.1	122.0 (63.0 to 213.0)	6/<0.1	119.6 (43.9 to 260.2)	6/<0.1	124.5 (45.7 to 270.9)
Leukemia (C91-95)	5/0.7	7.6 (2.4 to 17.7)	1/0.2	4.7 (0.1 to 26.1)	4/0.4	8.9 (2.4 to 23.0)

**NHL/AIDS, RISCHIO DI MORTE:
361.5 VOLTE ELEVATO
VERSO NHL NON AIDS**

*Using the MCoD data (ie, each death certificate reports more than one cause), the sums can exceed the total. Causes of death reported in the same death certificate within the same ICD-10 group were counted only once.

†Secondary malignant neoplasms or unspecified cancers (C77–80) excluded.

‡It includes sites/types with <4 observed deaths among total PWA, which were not shown in table. obs./exp., observed/expected deaths.

ANALISI DEI CERTIFICATI DI MORTE ISTAT: 2003-2019

Numero di decessi nel cui certificato di morte compare indicazione di infezione da HIV e/o AIDS. ITALIA: 2003-2019, Uomini e Donne -tutte età

	Uomini	Donne	Totale
Tumore nel certificato di morte:			
Si	4240	1012	5252 (32,0%)
No	8508	2659	11167 (68,0%)
Totale	12748	3671	16419

Distribuzione delle patologie oncologiche nei 5252 certificati di morte in persone con HIV/AIDS, in base alla classificazione IARC. Italia, 2003-2019, uomini e donne, tutte età.

	Uomini				Donne			
	Età				Età			
	<50	50-64	65+	Tutte	<50	50-64	65+	Tutte
TUMORI:	N.	N.	N.	N. (%)	N.	N.	N.	N. (%)
AIDS-Defining:								
Linfomi Non Hodgkin	543	311	74	928 (21,9)	129	35	16	180 (17,8)
Sarcoma di Kaposi	201	107	54	362 (8,5)	27	5	6	38 (3,8)
Cervice	-	-	-	-	36	10	2	48 (4,7)
HIV- Gruppo 1 IARC:								
Linfoma di Hodgkin	83	46	17	146 (3,4)	15	10	2	27 (2,7)
Ano	38	41	18	97 (2,3)	19	16	1	36 (3,6)
Associazioni positive secondo IARC:								
Fegato	285	402	51	738 (17,4)	48	53	10	111 (11,0)
Totale sedi citate IARC				2271 (53,6)				329 (32,5)
Altre sedi non citate IARC:								
Polmone	147	277	119	543 (12,8)	43	54	20	117 (11,6)
Pancreas	29	70	16	115 (2,7)	10	10	5	25 (2,5)
Retto	31	29	11	71 (1,7)	3	6	2	11 (1,1)
Stomaco	20	32	13	65 (1,5)	9	6	2	17 (1,7)
Laringe	15	40	6	61 (1,4)	5	6	0	11 (1,1)
Vescica	4	28	20	52 (1,2)	3	2	2	7 (0,7)
Mammella	1	0	1	2 (0,0)	29	26	10	65 (6,4)
Tumore maligno di sede non specificata	142	145	42	329 (7,8)	51	28	10	89 (8,8)
Tutti gli altri tumori con piccoli numeri	235	313	183	731 (17,2)	115	98	17	230 (22,7)
Tutti				4240				1012

ONCOLOGIA E HIV:

è necessario condividere un percorso di prevenzione e terapia?

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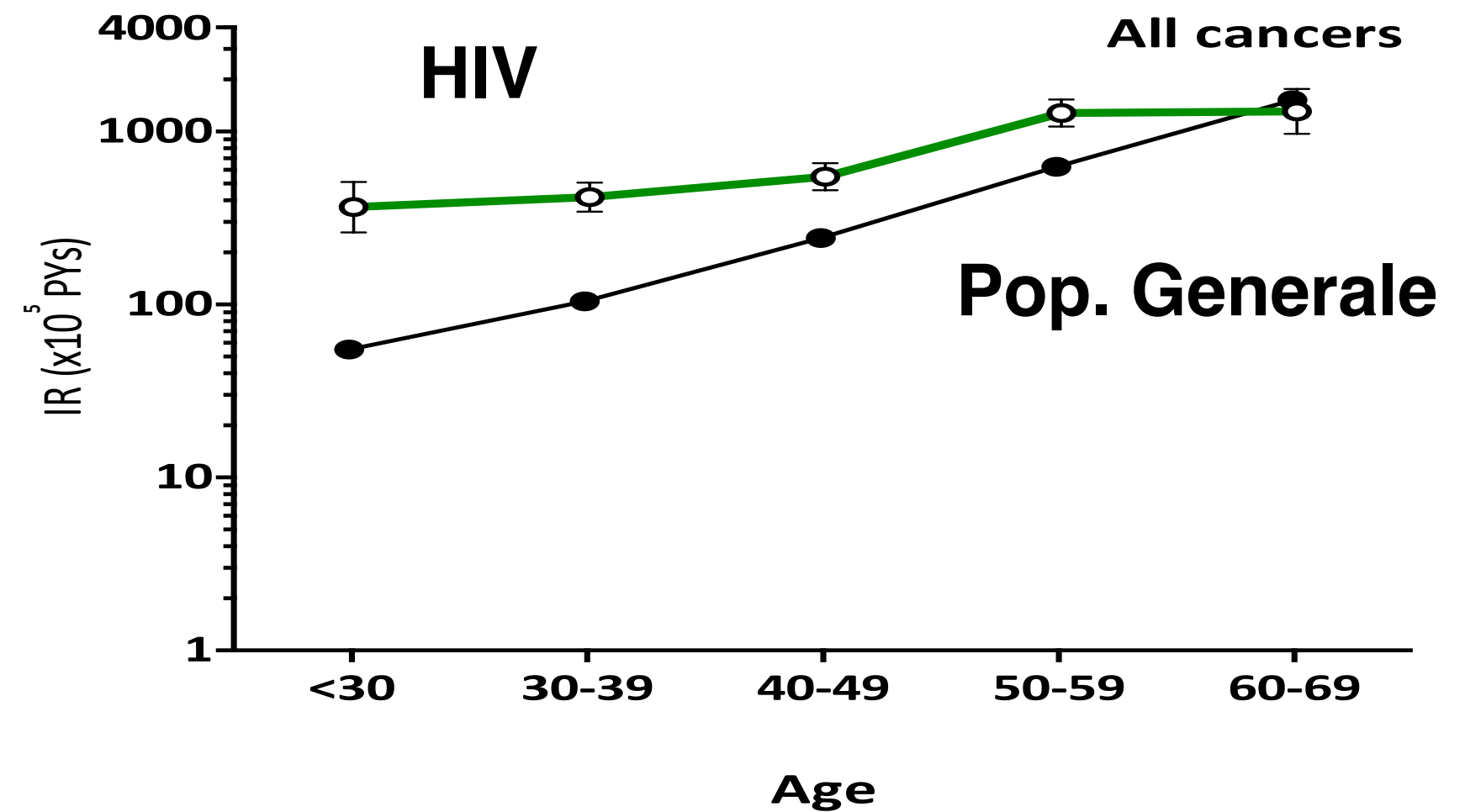
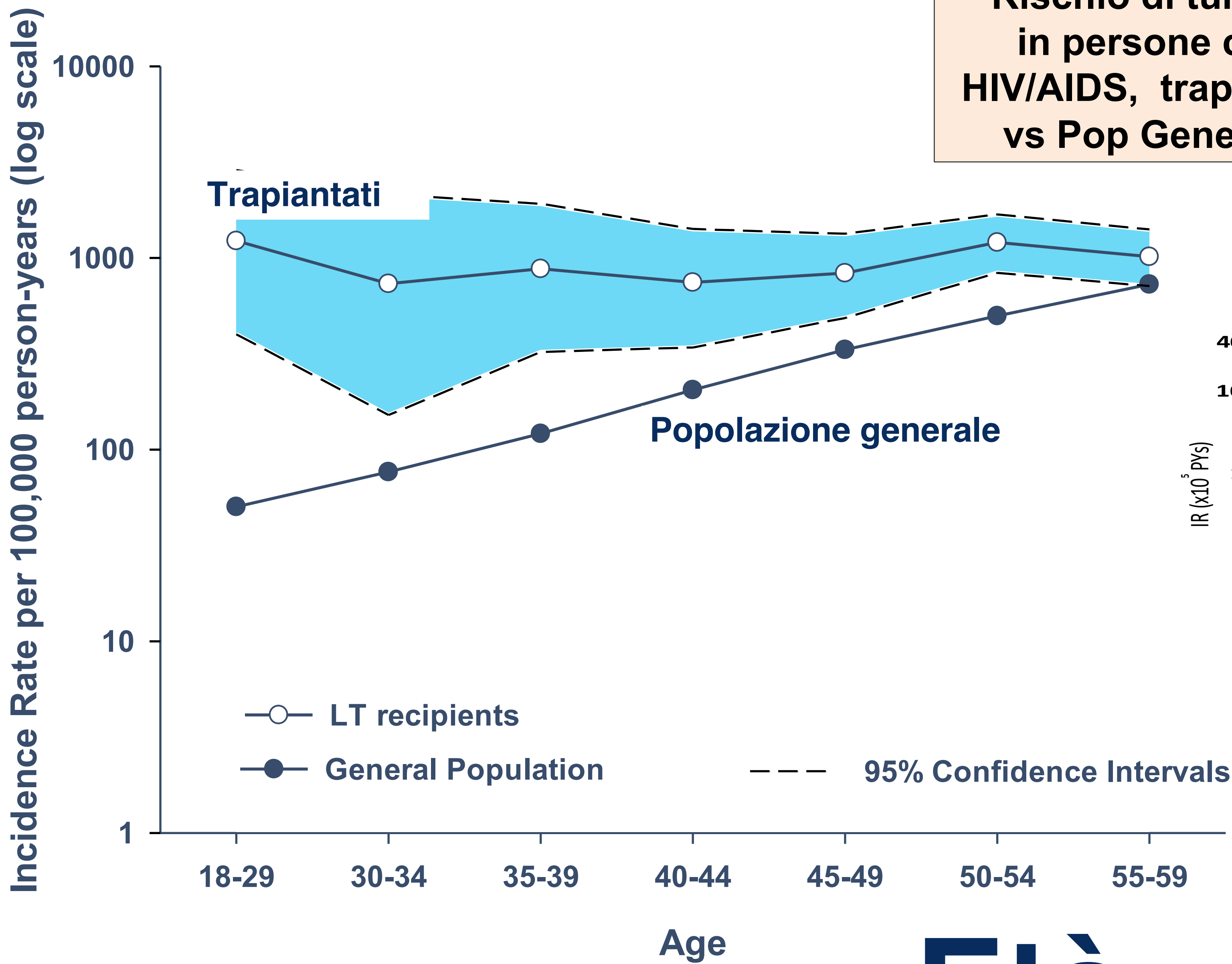
journal homepage: www.ejconline.com



Risk of cancer following immunosuppression in organ transplant recipients and in HIV-positive individuals in southern Europe

Diego Serraino^{a,*}, Pierluca Piselli^b, Ghil Busnach^c, Patrizia Burra^d, Franco Citterio^e,
Eloisa Arbustini^f, Umberto Baccarani^g, Emanuela De Juli^h, Ubaldo Pozzettoⁱ,
Stefania Bellelli^a, Jerry Polesel^a, Christian Pradier^j, Luigino Dal Maso^a, Claudio Angeletti^b,
Maria Patrizia Carrieri^k, Giovanni Rezza^l, Silvia Franceschi^m,
for the Immunosuppression and Cancer Study Groupⁿ

**Rischio di tumore
in persone con
HIV/AIDS, trapiantati
vs Pop Generale**



COORTI ITALIANE DI TRAPIANTATI

Coorte nazionale costituita da 16.676 trapiantati:

1. Trapiantati di Rene (n=12.452)
2. Trapiantati di fegato (n=4.154)

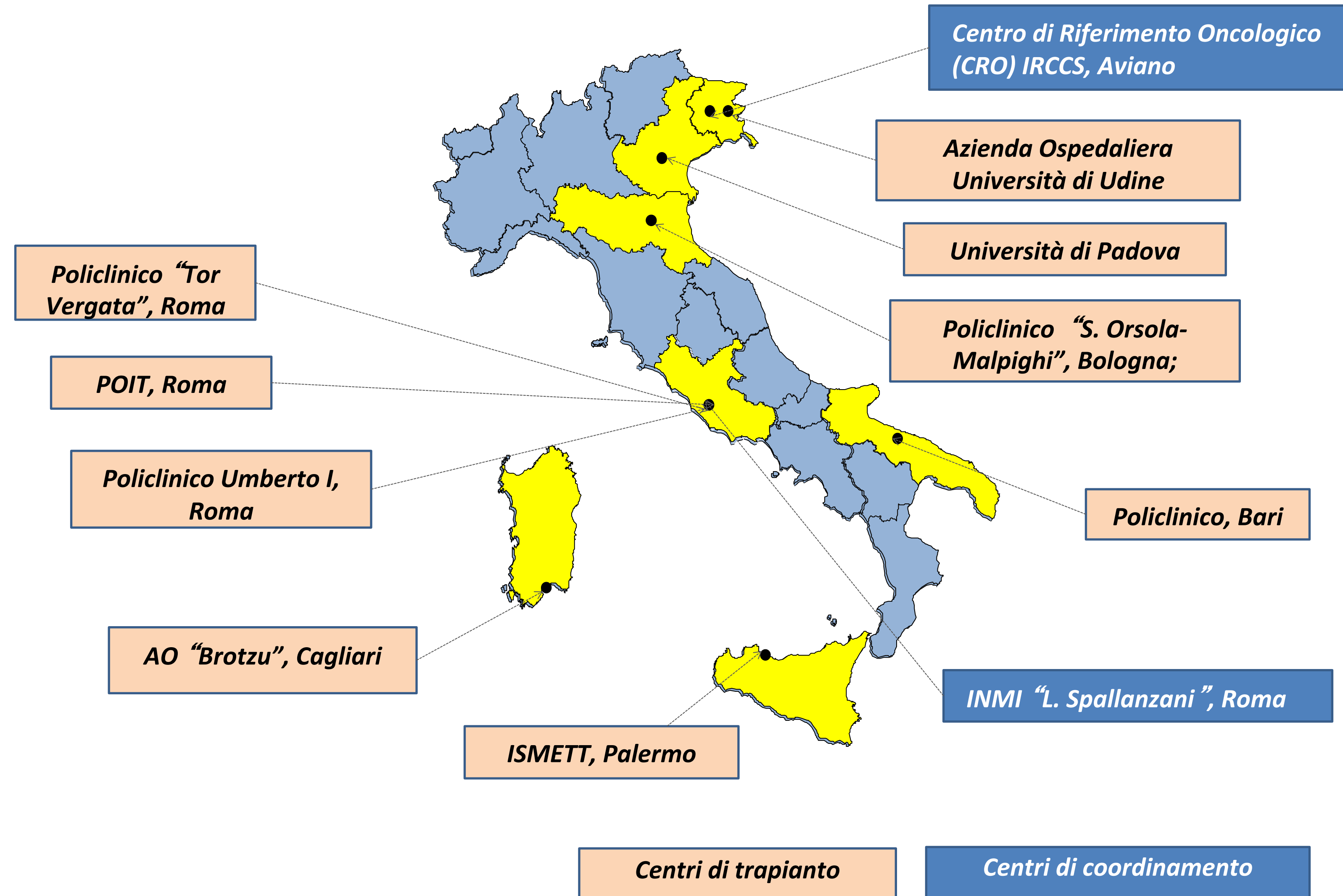
CENTRI PARTECIPANTI

GRUPPO DI STUDIO IMMUNOSUPPRESSIONE E TUMORI










CENTRI PARTECIPANTI - FEGATO

GRUPPO DI STUDIO IMMUNOSUPPRESSIONE E TUMORI



Article

Variation in Post-Transplant Cancer Incidence among Italian Kidney Transplant Recipients over a 25-Year Period

Pierluca Piselli ¹, Diego Serraino ², Claudia Cimaglia ¹, Lucrezia Furian ³, Luigi Biancone ⁴, Ghil Busnach ⁵, Nicola Bossini ⁶, Paola Todeschini ⁷, Maurizio Iaria ⁸, Franco Citterio ⁹, Mariarosaria Campise ¹⁰, Massimiliano Veroux ¹¹, Giuseppe Tisone ¹², Vincenzo Cantaluppi ¹³, Margherita Mangino ¹⁴, Simona Simone ¹⁵, Davide Argiolas ¹⁶, Andrea Ambrosini ¹⁷, Francesco Pisani ¹⁸, Flavia Caputo ¹⁹ and Martina Taborelli ^{2,*†} on behalf of the Italian Transplant and Cancer Cohort Study

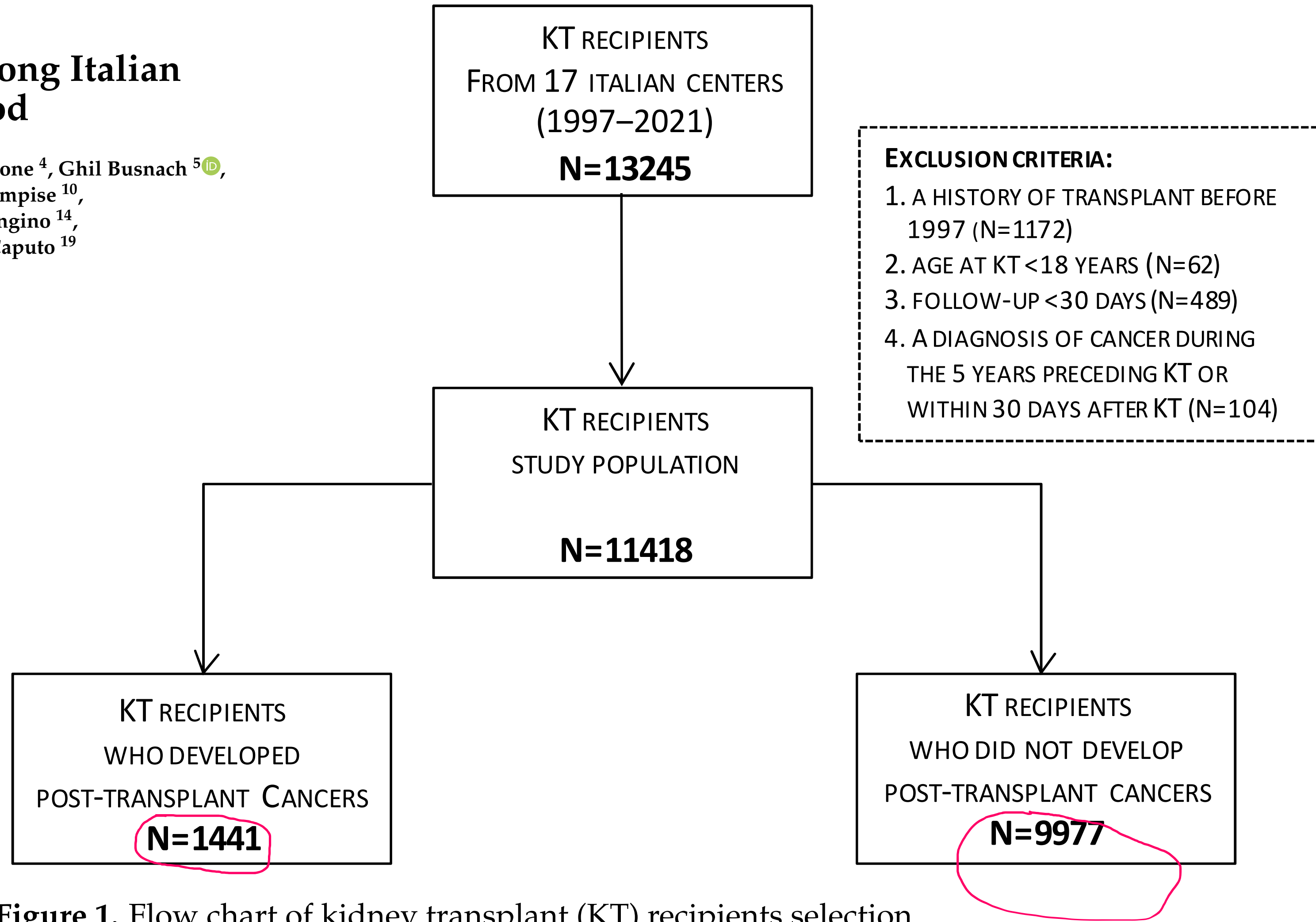


Figure 1. Flow chart of kidney transplant (KT) recipients selection.

Table 3. Standardized incidence ratios (SIR) and 95% confidence intervals (CI) for major cancer sites by calendar period of cancer diagnosis.

Cancer Site	1997–2004	2005–2012	2013–2021	P _{trend}	
	SIR (95% CI)	SIR (95% CI)	SIR (95% CI)	Unadjusted	Adjusted ^a
PTLD	4.34 (3.01–6.07)	2.51 (1.87–3.29)	2.37 (1.72–3.20)	0.02	0.11
NHL	6.77 (4.42–9.92)	3.96 (2.82–5.42)	3.74 (2.54–5.31)	0.04	0.17
Kaposi’s sarcoma	189.16 (138.49–252.32)	75.66 (54.76–101.92)	20.19 (9.68–37.14)	<0.01	<0.01

^a Adjusted for sex, age, area of residence, and length of follow-up. Abbreviations: NHL, non-Hodgkin lymphoma; NMSC, nonmelanoma skin cancer; PTLD, post-transplant lymphoproliferative diseases. Bold text indicates statistically significant ($p < 0.05$) results.




Int J Cancer. 2018;143(7):1588-1594

IJC

International Journal of Cancer

Risk of virus and non-virus related malignancies following immunosuppression in a cohort of liver transplant recipients. Italy, 1985–2014

Martina Taborelli ¹, Pierluca Piselli², Giuseppe Maria Ettore³, Augusto Lauro⁴, Laura Galatioto⁵, Umberto Baccarani⁶, Maria Rendina⁷, Sarah Shalaby⁸, Raffaella Petrara⁸, Francesco Nudo⁹, Luca Toti¹⁰, Daniele Sforza¹⁰, Giovanni Fantola¹¹, Claudia Cimaglia², Alessandro Agresta², Giovanni Vennarecci³, Antonio Daniele Pinna⁴, Salvatore Gruttadauria⁵, Andrea Risaliti⁶, Alfredo Di Leo⁷, Patrizia Burra⁸, Massimo Rossi⁹, Giuseppe Tisone¹⁰, Fausto Zamboni¹¹, and Diego Serraino¹ for the Italian Transplant & Cancer Cohort Study

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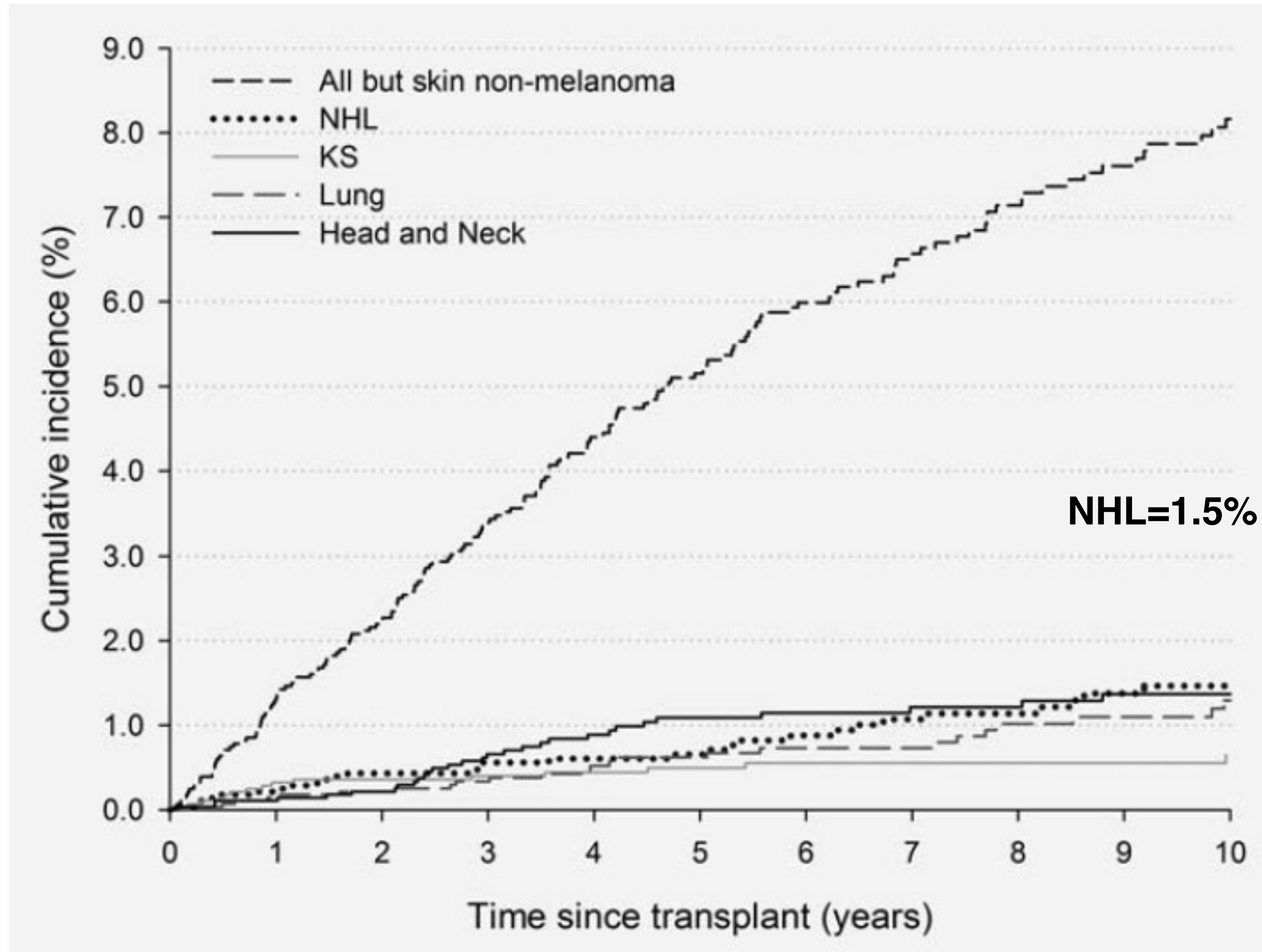
³ Division of General Surgery and Liver Transplantation, S. Camillo Hospital, Rome, Italy

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⁵ Department of Gastroenterology and Hepatology, Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione (ISMETT), University of

2.832 TRAPIANTATI DI FEGATO:

Cumulative cancer incidence by time since liver transplantation and cancer type



Abbreviations: KS: Kaposi's sarcoma; NHL: non-Hodgkin lymphoma

Standard incidence ratios and 95% confidence intervals for *de novo* malignancies in liver transplant recipients

Type/site	ICD-10 codes	Total		SIR (95% CI)
		Obs.	Exp.	
Virus-related malignancies				
Non-Hodgkin lymphoma	C82-85, C96	31	4.4	7.1 (4.8-10.1)***
Kaposi's sarcoma	C46	15	0.3	53.6 (30.0-88.5)***
Liver	C22	6	5.5	1.1 (0.4-2.4)
Cervix uteri	C53	3	0.6	5.4 (1.1-15.8)*
Hodgkin lymphoma	C81	2	0.6	3.5 (0.4-12.6)
Virus-unrelated malignancies				
Head and neck	C00-14, C30-32	34	7.7	4.4 (3.1-6.2)***
Bronchus and lung	C34	28	19.4	1.4 (1.0-2.1)
Colon-rectum	C18-20	21	15.9	1.3 (0.8-2.0)
Bladder	C67, D09.0, D30.3, D41.4	9	11.4	0.8 (0.4-1.5)
Esophagus	C15	8	1.2	6.7 (2.9-13.3)***
Stomach	C16	7	5.7	1.2 (0.5-2.5)
Skin melanoma	C43	7	2.7	2.6 (1.0-5.3)*
Thyroid gland	C73	5	2.3	2.2 (0.7-5.0)
Breast female	C50	4	8.6	0.5 (0.1-1.2)
Kidney	C64	4	4.2	1.0 (0.3-2.5)
Pancreas	C25	3	3.3	0.9 (0.2-2.6)
Leukemia	C91-95	3	2.9	1.0 (0.2-3.0)
Prostate	C61	2	14.0	0.1 (0.0-0.5)***
Testis	C62	2	0.4	5.2 (0.6-18.7)
Adrenal gland	C74	2	0.1	22.9 (2.8-82.7)**
Unspecified sites	C76-C80	5	1.9	2.6 (0.8-6.0)
Skin non-melanoma	C44	50	18.3	2.7 (2.0-3.6)***
All lymphohematopoietic malignancies ¹	C81-96	37	9.6	3.8 (2.7-5.3)***
All solid tumors but skin non-melanoma ^{1,2}		149	112.6	1.3 (1.1-1.6)***
All but skin non-melanoma ^{1,2}		199	117.5	1.7 (1.5-1.9)***
All ^{1,2}		246	136.5	1.8 (1.6-2.0)***

NHL, SIR=7.1

HL, SIR=3.5 (95% CI=.4-12.6)

¹It includes sites/types with <2 observed cases, which were not shown in table.

²The sums can exceed the total because some patients were diagnosed with more than one malignancy. For patients diagnosed with more than one malignancy within the same ICD-10 group (e.g., colon-rectum ICD-10 codes: C18-20; head and neck: C00-14, C30-32; all: C00-97), only the first one was considered. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.00125$ (corresponding to the Bonferroni level of statistical significance based on 40 comparisons).

Abbreviations: Exp: expected number of cancer cases; Obs: observed number of cancer cases; SIR: standardized incidence ratio; CI: confidence interval.

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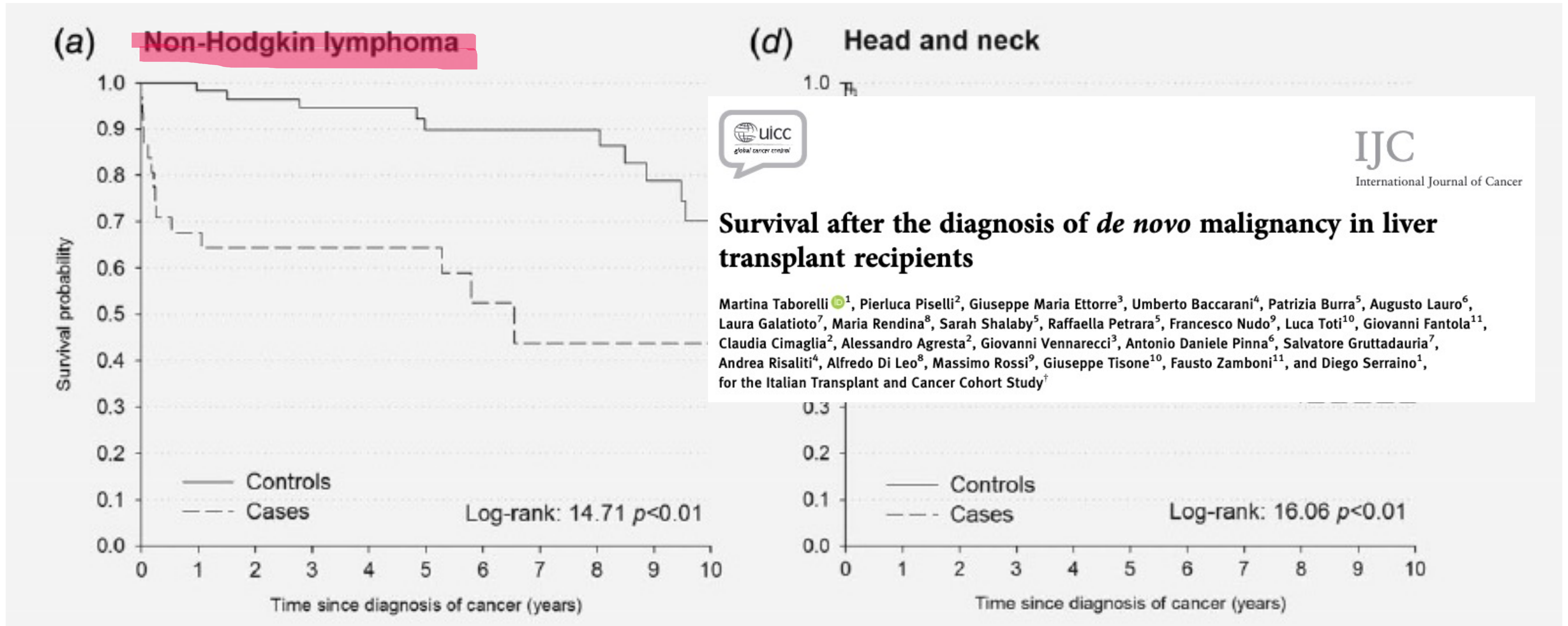
MORTALITA'

3. IMMUNODEPRESSIONE POST-TRAPIANTO E PTLD

INCIDENZA,

SOPRAVVIVENZA

Kaplan-Meier estimates of survival probabilities for cases of non-Hodgkin lymphoma and head and neck



Taborelli M. et al., *Int. J. Cancer*: 144, 232–239 (2019)

Survival after the diagnosis of *de novo* malignancy in liver transplant recipients

Martina Taborelli¹, Pierluca Piselli², Giuseppe Maria Ettore³, Umberto Bacarani⁴, Patrizia Burra⁵, Augusto Lauro⁶, Laura Galatioto⁷, Maria Rendina⁸, Sarah Shalaby⁵, Raffaella Petrara⁵, Francesco Nudo⁹, Luca Toti¹⁰, Giovanni Fantola¹¹, Claudia Cimaglia², Alessandro Agresta², Giovanni Vennarecci³, Antonio Daniele Pinna⁶, Salvatore Gruttadauria⁷, Andrea Risaliti⁴, Alfredo Di Leo⁸, Massimo Rossi⁹, Giuseppe Tisone¹⁰, Fausto Zamboni¹¹, and Diego Serraino¹, for the Italian Transplant and Cancer Cohort Study[†]

Table 3. Hazard ratios (HRs) of death with corresponding 95% confidence intervals (CIs) in cases versus controls, according to selected cancer types and time since cancer diagnosis

Type/site	10-year survival				HR (95% CI) ¹	1-year survival	10-year survival, conditioned to be alive at 1 year
	Cases		Controls ³			HR (95% CI) ¹	HR (95% CI) ²
	No. deaths	% death	No. deaths	% death			
Kaposi's sarcoma	3	20.0	6	20.0	1.23 (0.27–5.57)	2.00 (0.13–31.97)	0.43 (0.05–3.69)
PTLD	18	48.7	12	16.2	6.85 (2.54–18.49)	13.00 (2.93–57.60)	2.11 (0.68–6.56)
Non-Hodgkin lymphoma	14	45.2	10	16.1	6.57 (2.15–20.01)	20.00 (2.56–156.24)	1.45 (0.41–5.09)
Solid tumors	70	47.6	36	12.2	6.28 (3.76–10.48)	6.76 (3.35–13.66)	4.79 (2.85–8.06)
Head and neck	17	50.0	11	16.2	4.65 (1.81–11.95)	5.44 (1.46–20.21)	2.75 (0.99–7.60)
Bronchus and lung	21	75.0	7	12.5	37.13 (4.98–276.74)	-	17.41 (4.56–66.52)
Colon-rectum	9	42.9	4	9.5	3.61 (1.08–12.07)	1.79 (0.36–8.97)	29.85 (3.26–273.07)
Skin nonmelanoma	13	26.0	14	14.0	2.23 (0.89–5.61)	0.55 (0.06–5.39)	2.26 (0.98–5.21)
All but skin nonmelanoma	89	45.2	52	13.2	5.51 (3.59–8.46)	7.35 (3.99–13.55)	3.41 (2.17–5.34)
All	100	41.0	65	13.3	4.66 (3.17–6.85)	5.93 (3.37–10.43)	3.01 (2.02–4.49)

¹Estimated using Cox proportional hazard models stratified on the matched sets.

²Adjusted for gender, age at transplant, and year at transplant.

³Reference category.

Abbreviation: PTLD, post-transplant lymphoproliferative diseases.

IJC, 2023

Rischio di morte di 7.373 trapiantati di rene con vari tumori Vs pop. generale con lo stesso tipo di tumore

Received: 28 July 2023 | Revised: 5 October 2023 | Accepted: 16 October 2023
DOI: 10.1002/ijc.34787

RESEARCH ARTICLE
Cancer Epidemiology



Cancer mortality after kidney transplantation: A multicenter cohort study in Italy

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TABLE 1 Distribution of 7373 kidney transplant (KT) recipients and of 664 KT recipients deceased, by selected characteristics.

Characteristics	Total	Deaths	
	(N = 7373)	(N = 664)	
	No. (%)	No.	%
Sex			
Male	4692 (63.6)	459	9.8
Female	2681 (36.4)	205	7.6
Age at transplantation			
<40	1663 (22.6)	39	2.3
40-49	1663 (22.6)	83	5.0
50-59	2164 (29.3)	213	9.8
>60	1883 (25.5)	329	17.5
Calendar year at transplantation			
2003-2005	2540 (34.4)	311	12.2
2006-2009	2563 (34.8)	246	9.6
2010-2020	2270 (30.8)	107	4.7
Area of residence			
Northern Italy	4149 (56.3)	354	8.5
Central Italy	959 (13.0)	97	10.1
Southern Italy	2233 (30.3)	210	9.4
Abroad	32 (0.4)	3	9.4
Status of the donor			
Alive	795 (10.8)	23	2.9
Deceased	6578 (89.2)	641	9.7
Primary cause of kidney failure			
Glomerulonephritis	2602 (35.3)	217	8.3
Polycystic kidney disease	1315 (17.8)	109	8.3
Pyelonephritis/Interstitial nephritis	657 (8.9)	56	8.5
Hypertensive nephropathy/vascular disease	464 (6.3)	56	12.1
Diabetes	473 (6.4)	55	11.6
Other/uncertain	1862 (25.3)	171	9.2
Follow-up (years)			
Median (IQR)	5.8 (3.0-8.3)	4.4 (1.8-7.0)	
Total person-years	43 162.7	3100.0	

Abbreviation: IQR, interquartile range.

**SMR= 3.8 PER PTLD
NEI TRAPIANTATI DI RENE CON PTLD**
IL RISCHIO ID MORTE E' RISULTATO
ELEVATO DI 3.8 VOLTE RISPETTO AI
NON TRAPIANTATI CON PTLD DELLO
STESSO SESSO ED ETA'

**SMR=6.2 PER HL & ALTRI LINFOMI
NEI TRAPIANTATI DI RENE CON HD E
ALTRI LINFOMI**
IL RISCHIO ID MORTE E' RISULTATO
ELEVATO DI 6.2 VOLTE RISPETTO AI
NON TRAPIANTATI CON HL DELLO
STESSO SESSO ED ETA'

Cancer site (ICD-10 codes)	Deaths of KT recipients (N = 664)		
	Observed deaths (%)	Expected deaths	SMR (95% CI)
All malignant neoplasms (C00-C97)	215 (32.4)	117.4	1.83 (1.59-2.09)
Lip, oral cavity, pharynx (C00-C14)	4 (0.6)	3.0	1.32 (0.36-3.14)
Oesophagus (C15)	2 (0.3)	1.9	1.04 (0.13-3.34)
Stomach (C16)	11 (1.7)	6.6	1.66 (0.83-2.88)
Colon, rectum and anus (C18-C21)	11 (1.7)	11.8	0.93 (0.47-1.62)
Liver (C22)	5 (0.8)	7.8	0.64 (0.21-1.41)
Pancreas (C25)	8 (1.2)	7.8	1.03 (0.44-1.94)
Larynx (C32)	2 (0.3)	1.7	1.20 (0.15-3.88)
Trachea, bronchus, lung (C33-C34)	47 (7.1)	29.9	1.57 (1.15-2.07)
Skin melanoma (C43)	5 (0.8)	1.6	3.19 (1.03-6.98)
Breast (C50)	13 (2.0)	6.1	2.12 (1.13-3.52)
Other and unspecified parts of uterus (C54-C55)	3 (0.5)	1.1	2.65 (0.55-7.09)
Ovary (C56)	1 (0.2)	1.8	0.57 (0.01-2.66)
Prostate (C61)	4 (0.6)	3.5	1.13 (0.31-2.69)
Kidney (C64)	14 (2.1)	2.6	5.44 (2.97-8.88)
Bladder (C67)	8 (1.2)	3.1	2.56 (1.10-4.82)
Brain and central nervous system (C70-C72)	4 (0.6)	3.7	1.07 (0.29-2.55)
Thyroid (C73)	1 (0.2)	0.4	2.84 (0.07-13.27)
PTLD (C81- C96)	34 (5.1)	8.9	3.81 (2.64-5.26)
Hodgkin disease and Lymphomas (C81-C86)	21 (3.2)	3.4	6.17 (3.81-9.25)
Leukaemia (C91-C95)	7 (1.1)	3.5	2.00 (0.81-3.93)
Other of lymph./haematopoietic tissue (C88,C90,C96)	6 (0.9)	2.0	2.95 (1.08-6.09)
Other malignant neoplasms ^a	38 (5.7)	13.8	2.75 (1.95-3.73)

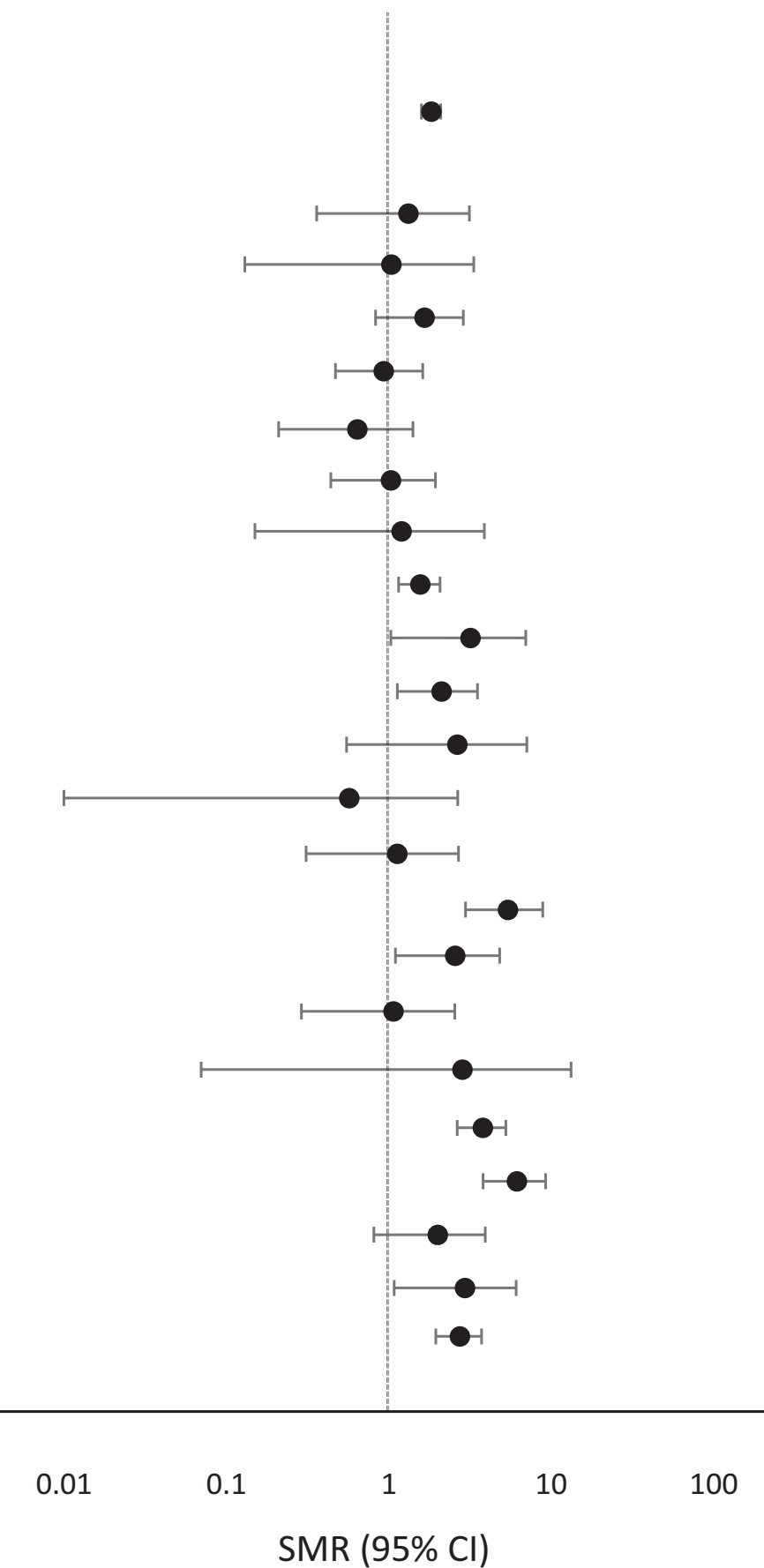


FIGURE 2 Site-specific cancer observed deaths vs expected deaths and standardized mortality ratios (SMR) among kidney transplant (KT) recipients. ^aIt includes cancer sites (ICD-10 codes: C17, C23-C24, C26-C31, C37-C41, C44-C49, C51-C52, C57-C60, C62-C63, C65-C66, C68-C69, C74-C80, C97) for which cause-specific mortality data were not available, among these (n ≥ 3 cases): 12 nonmelanoma skin cancers (C44), 6 mesotheliomas (C45), 3 Kaposi's sarcomas (C46) and 6 unspecified malignant cancers (C80). CI, confidence interval; PTLD, post-transplant lymphoproliferative diseases.

CONCLUDENDO:

IMMUNODEPRESSIONE ACQUISITA E LINFOMI

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INFEZIONI /EBV



STATO IMMUNITARIO/TERAPIE: