

RESULTS OF EPIDEMIOLOGICAL SURVEILLANCE OF AIDS CASES IN TUSCANY



J.J.V. Branca*, S. Pacini*, M. Ruggiero**

*Department of Anatomy, Histology and Forensic Medicine, University of Florence, Italy
 **Department of Experimental Pathology and Oncology, University of Florence, Italy



Abstract ID: 5

Corresponding author: Professor M. Ruggiero, marco.ruggiero@unifi.it
 Poster available at www.marcoruggiero.org

The Regional Public Health System of Tuscany achieved remarkable successes in fighting AIDS with fewer than 10 deaths per year of diagnosis in 2008 and 2009 in a population of almost 4 million residents (Fig. 1).

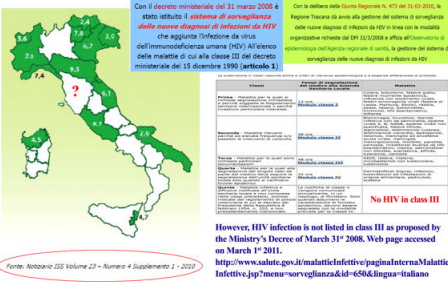
Fig. 1. Data presented at ARS Toscana

Anno di diagnosi	Totale residenti in Toscana	Morti per anno di diagnosi	Viventi	Periti di vita	Tasso di letalità
1985	3.171	311	0	0	0,00
1986	29	29	0	0	100,0
1987	55	54	1	0	98,2
1988	203	193	2	0	96,1
1989	165	160	5	0	97,0
1990	213	205	0	0	96,2
1991	217	206	0	2	95,0
1992	254	248	0	0	97,6
1993	284	267	16	1	94,3
1994	309	303	38	1	90,3
1995	308	280	84	4	76,3
1996	294	189	110	7	58,5
1997	274	97	157	101	42,6
1998	140	50	84	6	37,2
1999	102	45	53	4	41,1
2000	119	39	75	5	34,2
2001	110	42	65	3	38,2
2002	110	28	73	0	27,0
2003	110	28	73	0	27,0
2004	108	25	70	5	28,2
2005	108	22	63	0	21,0
2006	108	5	90	0	4,2
2007	118	15	101	0	12,7
2008	108	7	106	0	6,5
2009	96	7	89	0	7,2
Totale	3.933	2.455	1.415	63	63,4

Fonte: Elaborazioni ARS su Registro Regionale AIDS - aggiornamento al 31 dicembre 2009

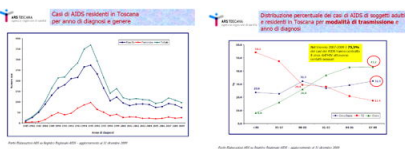
Here we propose a meta-analysis of the results presented by the Regional Agency for Health. Please notice that a registry of new HIV infections is not yet available in Tuscany (Fig. 2).

Fig. 2. Epidemiological surveillance of new HIV infections. Tuscany is not represented as of 2010. Please notice the dates.



However, the very low numbers of AIDS deaths seem to indicate that surveillance of new AIDS cases is the most effective tool in fighting AIDS and question the effectiveness of HIV monitoring, suggesting decoupling between HIV infection and AIDS. In Tuscany, the male-to-female ratio for the incidence of AIDS has been essentially constant from 1985 to 2008 at ~3.6, whereas the purported mode of transmission changed drastically: from ~8% of HIV being transmitted heterosexually in 1985-1990, to ~44% being transmitted in that way in 2006-2008 (Fig. 3). Meta-analysis of these data suggests decoupling between HIV infection and AIDS.

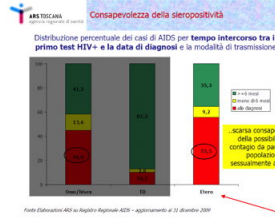
Fig. 3. The male-to-female ratio for the incidence of AIDS has been constant from 1985 to 2008 at ~3.6, whereas the purported mode of transmission changed: from ~8% of HIV being transmitted heterosexually in 1985-1990, to ~44% being transmitted in that way in 2006-2008.



These data place a very curious constraint on how infection via HIV-infected needles occurred in males and in females respectively. It must have occurred in precisely the same relative manner as sexually transmitted HIV infection occurs in males relative to females. Otherwise the male-to-female ratio for the consequences of HIV, namely AIDS, should have changed.

In Tuscany only a minority of HIV-positive heterosexuals chose to assume antiretroviral drugs (ARVs) prior to the diagnosis of AIDS. In fact, in recent years, 44.5% HIV-positive heterosexuals reported being aware of their serostatus before the diagnosis of AIDS (Fig. 4), and nevertheless only 17.8% assumed ARVs while asymptomatic (Fig. 5).

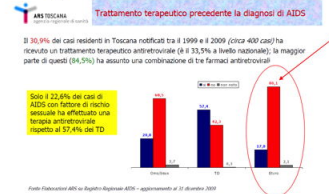
Fig. 4. 44.5% HIV-positive heterosexuals knew their serostatus before the diagnosis of AIDS.



Fonte: Elaborazioni ARS su Registro Regionale AIDS - aggiornamento al 31 dicembre 2009

Fig. 5. More than 80% heterosexuals did not use antiretroviral drugs before the diagnosis of AIDS.

Discrepancy between the % of heterosexuals knowing to be HIV-positive (44.5%), and those assuming ARVs while asymptomatic (17.8%), suggests a voluntary choice.



Fonte: Elaborazioni ARS su Registro Regionale AIDS - aggiornamento al 31 dicembre 2009

However, the low lethality of AIDS in Tuscany in the same years questions the efficacy of early use of ARVs in asymptomatic HIV-positive heterosexuals. These conclusions are consistent with those of Dorrucchi et al. presented at the XVIII International AIDS Conference in Vienna, 2010 (Fig. 6). Conversely, about 90% HIV-positive intravenous drug users knew their serostatus before the diagnosis of AIDS, and 57% of them were treated with ARVs (Fig. 7). Regrettably, however, their probability of survival has been constantly lower (Fig. 8).

Fig. 6. Poster from the XVIII International AIDS Conference July 18-23 2010 Vienna Austria

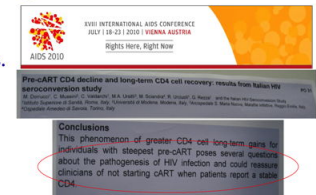
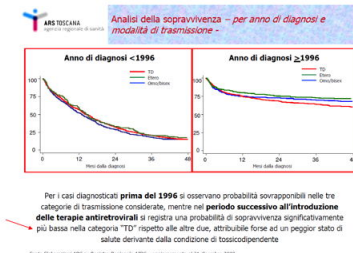


Fig. 7. About 90% HIV-positive intravenous drug users knew their serostatus before the diagnosis of AIDS, and more than 57% intravenous drug users chose to use antiretroviral drugs before the diagnosis of AIDS.



Regrettably, however, their probability of survival has been constantly lower (see Fig. 8).

Fig. 8. "... after the introduction of antiretroviral therapy their probability of survival is significantly lower ..."



Fonte: Elaborazioni ARS su Registro Regionale AIDS - aggiornamento al 31 dicembre 2009

These data seem to confirm the multi-organ toxicity of ARVs, as proposed in J Biosci 2003; 28: 383-412. These data are consistent with the claims by the US Department of Health and Human Services that most common ARVs such as AZT, (Zidovudine, ZDV, Zidovudine) or Nevirapine "do not cure or prevent HIV infection or AIDS and do not reduce the risk of passing the virus to other people" (Fig. 9), whereas in 2009 AZT has been added to the list of chemicals known to the state of California to cause cancer (Proposition 65).

The age trend for new AIDS cases further questions the role of HIV in causing AIDS in heterosexual subjects. A survey of teenagers' sexual behaviour (Indagine EDIT 2008) showed an alarming promiscuous and unsafe sex behaviour: 43.5% of teenagers had had actual sexual intercourse, and 37.9% (males) and 26.4% (females) teenagers reported more than 3 partners. Among the girls with more than 3 partners, more than 50% did not use condoms. Nevertheless, AIDS is almost non-existent in teenagers and in 2009 the mean ages for new AIDS cases were 44.5 and 40 respectively.

Fig. 9. Web page accessed on March 1st 2011, http://aidsinfo.nih.gov/DrugsNew/DrugDetail.aspx?int_id=4



In conclusion, our interpretation of data from Tuscany is consistent with previous observations on AIDS aetiology and epidemiology (J Biosci 2003; 28:383-412. Ital J Anat Embryol 2009 Apr-Sep;114(2-3):97-108 and 2009 Oct-Dec;114(4):179-91), and suggests that further improvement in AIDS patient survival could be achieved by focussing efforts on reducing or eliminating drug-associated toxicity.