

# Use of generic antiretroviral drugs in 2021 in three health centres in the Paris area, France

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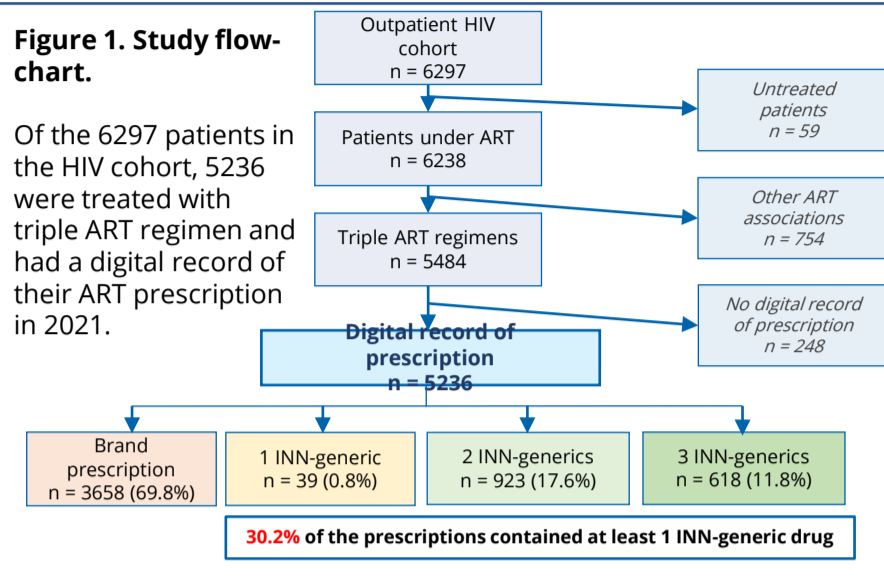
**Background:** Antiretroviral therapy (ART) accounts for 86% of the total cost of HIV care in France. Generic antiretrovirals can reduce this burden. The aim of this study was to evaluate the proportion of generic ART prescription and identify potential factors associated with their prescription.

**Materials and methods:** multi-centric retrospective descriptive study in three health centres in the Paris area (two in Paris, one in the suburban area) including people living with HIV (PLWH) aged at least 18 years, taking ART for at least six months and who were given at least one prescription of ART (triple therapy only) during year 2021. We analysed the last ART prescription (regimen type, use of international non-proprietary name [INN]). PLWH demographics (age, country of birth, gender). HIV parameters (HIV transmission mode, treatment history and duration), physician parameters (age, gender, experience in HIV care and centre). Analysis of risk factors was performed using a multivariate logistic model.

**Results:** 5236 patients were included. 30.2% of the prescriptions included generic drugs expressed as INN. Emtricitabine/tenofovir disoproxil (FTC/TDF) was the most prescribed generic ART, accounting for 82.3% of all these prescriptions. Women were more likely given generic ART than men (OR 1.65 [1.39;1.96],  $p < 0.001$ ). Generic ART were more frequently prescribed to patients aged 50 years or less (OR 1.20 [1.05;1.37],  $p < 0.01$ ). A recent HIV diagnosis ( $\leq 3$  years) was associated with a higher use of generic ART. HIV transmission mode, CDC stage and country of birth did not influence the use of generic ART. Male physicians prescribed more frequently generic ART (OR 1.29 [1.11;1.49],  $p < 0.001$ ). The older group of physician, aged 55 years and more, prescribed more frequently generic ART drugs. Fewer generic ART were prescribed in the suburban centre (Melun) than in Paris.

**Figure 1. Study flow-chart.**

Of the 6297 patients in the HIV cohort, 5236 were treated with triple ART regimen and had a digital record of their ART prescription in 2021.



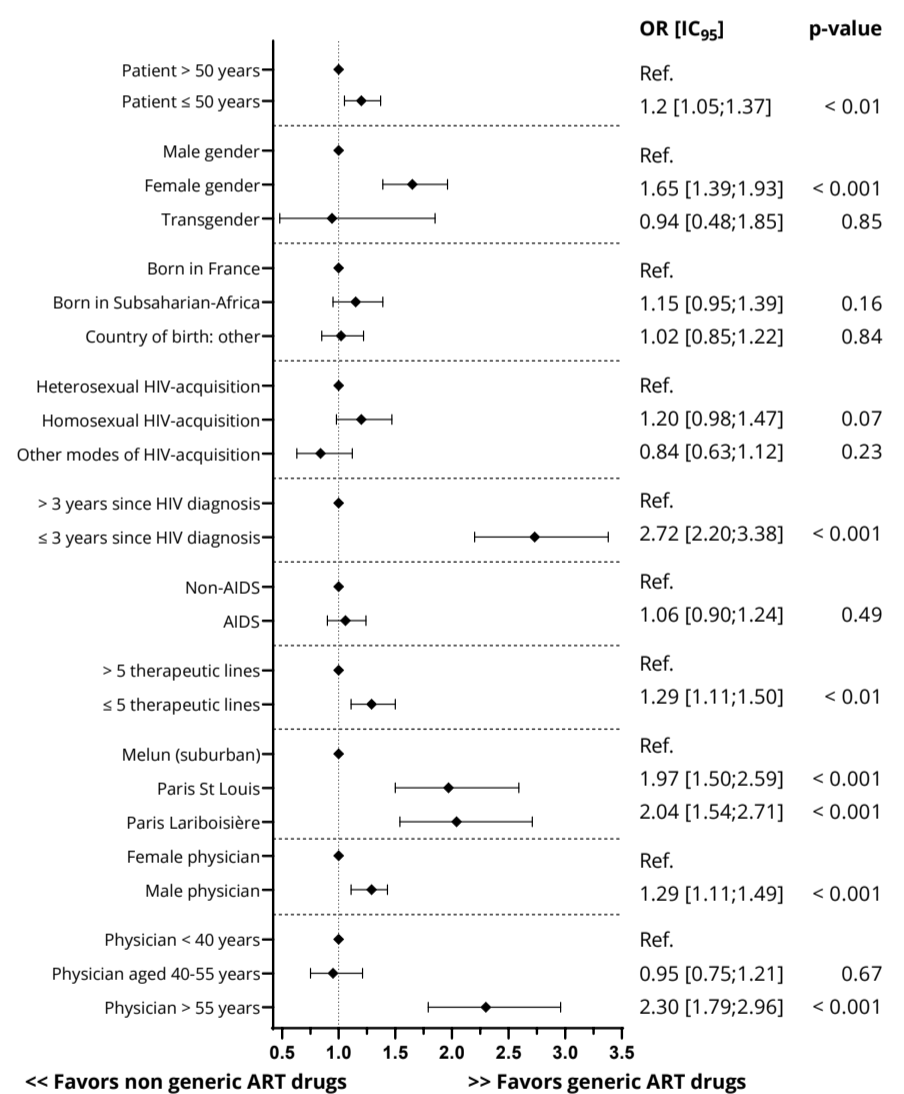
	Number of Prescriptions	Percentage of generic prescriptions (n = 1580)	Overall percentage (n = 5236)
<b>TDF/FTC</b>	<b>1048</b>	<b>66.3%</b>	<b>20.0%</b>
DRV + RTV	306	19.4%	5.8%
<b>TDF/FTC/EFV</b>	<b>253</b>	<b>16.0%</b>	<b>4.8%</b>
ABC/3TC	232	14.7%	4.4%
NVP	62	3.9%	1.2%
ATV + RTV	18	1.1%	0.3%

**Table I. Prescribed generic ART**  
TDF/FTC is the most prescribed generic ART. Total TDF/FTC prescription accounted for 82.3% (TDF/FTC + TDF/FTC/EFV)

	At least one generic ART (n = 1580)		No generic ART at all (n = 3656)		p-value
	n	%	n	%	
<b>Patient age</b>					
≤ 50 years	866	54.8	1708	46.7	< 0.001
> 50 years	714	45.2	1948	53.3	
<b>Patient gender</b>					
Male	998	63.2	2535	69.3	< 0.01
Female	569	36.0	1087	29.7	
Transgender	13	0.8	34	0.9	
<b>Patient Country of birth</b>					
France	573	36.3	1419	38.8	0.08
Subsaharian Africa	723	45.8	1551	42.4	
Rest of the World	284	18.0	686	18.8	
<b>Mode of HIV acquisition</b>					
Heterosexual	825	52.2	1881	51.4	0.16
Homosexual	669	42.3	1524	41.7	
Other	86	5.4	251	6.9	
<b>Time since HIV diagnosis</b>					
> 3 years	1336	84.6	3444	94.2	< 0.001
≤ 3 years	244	15.4	212	5.8	
<b>AIDS</b>					
No	1250	79.1	2885	78.9	0.88
Yes	330	20.9	771	21.1	
<b>Number of therapeutic lines</b>					
> 5	367	23.2	1033	28.3	< 0.001
≤ 5	1213	76.8	2623	71.7	
<b>Centre</b>					
Melun (suburban)	87	5.5	347	9.5	< 0.001
Paris St Louis	1071	67.9	2339	64.0	
Paris Lariboisière	422	26.7	970	26.5	
<b>Prescribing Physician gender</b>					
Male	673	42.6	1211	33.1	< 0.001
Female	907	57.4	2445	66.9	
<b>Prescribing Physician group of age</b>					
< 40 years	452	28.6	1017	27.8	< 0.001
40 - 55 years	686	43.4	2124	58.1	
> 55 years	442	27.9	515	14.1	

**Table II. Characteristics of the population**  
Median age was 50 years. Median duration of current ART line of treatment was 3 years. Univariate statistics are shown.

**Figure 2. Generic ART drugs prescription associated factors (patients-, prescribers- and center-factors), multivariate model.**



Patient age  $\leq 50$  years, female patient gender, time since diagnosis  $\leq 3$  years and number of therapeutic lines  $\leq 5$  were associated with more generic ART prescriptions. Male and over 55 years-old physicians prescribed more generic ART. A center-effect is shown with more generic ART prescriptions in central Paris than in the suburban site (Melun).

**Conclusions:** Generic ART were prescribed in only **one third** of patients. **TDF/FTC accounted for 82%** of all generic drugs. Factors associated with their use were **patient-related** (female gender, age  $\leq 50$  years, time since diagnosis  $\leq 3$  years, number of therapeutic lines  $\leq 5$ ), **physician-related** (male gender, age  $> 55$  years) and a **center effect** was observed.