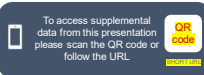


# Adherence to HIV treatment in 2019 – the COCOVIH study using the French national health insurance claims data base

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HIV Drug Therapy  
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P071



## Background

- COCOVIH is an observational study collecting real-world data from 2006-2019 to evaluate sociodemographic characteristics, comorbidities and antiretroviral treatment of people living with HIV (PLHIV) in France.
- This evaluation focuses on treatment adherence in 2019 and the covariables associated with adherence.

## Methods

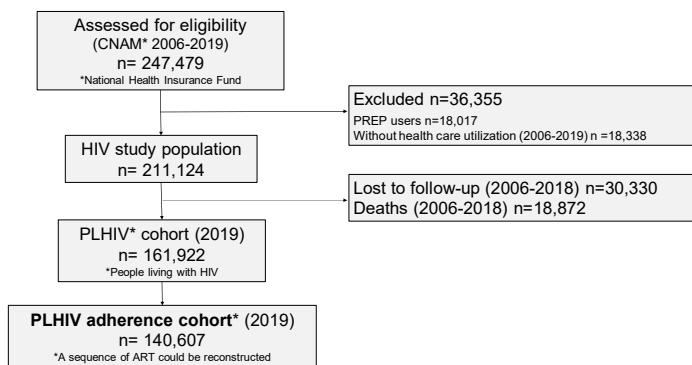
- COCOVIH draws upon anonymized records from the SNDS (National Health Database) which includes >90% of the French population registered in CNAM (National Health Insurance Fund). The comprehensive SNDS merges a wide array of information about nearly 65 million French citizens from outpatient claims, public and private hospitals, and the death registry, by using the unique insurance identification number for each person.
- PLHIV were identified based on ICD-10 HIV diagnoses, HIV specific laboratory tests, and/or prescription of antiretroviral therapy (ART). Excluded were recipients of ART without corresponding HIV diagnosis, notably PrEP users.
- Adherence was quantified by the medication possession ratio (MPR) (issued tablets divided by the calculated number of tablets recommended during the last available treatment sequence).
- Variables of interest included gender, age, type of ART, relevant comorbidities/long-term conditions and being CMUc recipient (under specific coverage for economically challenged citizens).

## Results

### STUDY POPULATION

- From CNAM, a total of 161,922 PLHIV were identified for the year 2019 (median age 50 years (IQR, 41-58), 65.0% were male, 36.8% lived in the capital region Île-de-France, and 20.1% were CMUc/AME recipients).
- Of 161,922 PLHIV, 141,685 (87.5%) were treated with ART. For N=140,607, a sequence of ART could be reconstructed, encompassing at least two months of the same treatment. These 140,607 participants formed the adherence cohort 2019 (Figure 1).
- 84.4% received triple therapy; the mean (SD) number of monthly drug issuances per year was 10.2 (3.1).

Figure 1. Flow Diagram: selection of the adherence cohort



### MPR IN PLHIV OF ADHERENCE COHORT

- Mean (SD) MPR was 82.5% (22.7); 12.7% with a MPR <50%, 57% with a MPR >90%.

Table 1. MPR in PLHIV stratified by sociodemographic characteristics

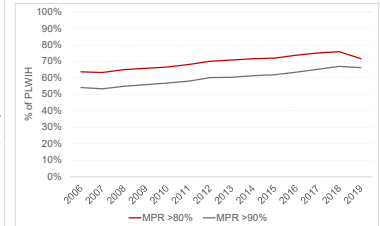
PLHIV treated in 2019		MPR >80	MPR >90
Total, N (%)	140,607 (100%)		
Gender N (%)	male	93,926 (66.8%)	68.3%
	female	46,681 (33.2%)	52.8%
Age, years, N (%)	<15 years	494 (0.4%)	56.7%
	15 - 25 years	2,463 (1.8%)	60.3%
	25 - 65 years	120,939 (86.0%)	66.5%
	≥65 years	16,711 (11.9%)	68.3%
Recipient of social benefits CMUc in 2019, N (%)	Yes	24,518 (17.4%)	64.8%

PLHIV, People living with HIV; MPR, Medical Possession Ratio; CMUc, Supplementary Universal Health Coverage;

### MPR DURING 2006 – 2019

- The number of treated PLHIV has risen over the years, from 79.5% in 2010 to 87.5% in 2019.
- MPR has increased over the past years: 66.9% of HIV patients identified in 2018 have an MPR >90% versus 54.1% of patients diagnosed in 2006 or earlier (Figure 2).
- The proportion with MPR >90% was lowest in the region Île-de-France (53.9%).

Figure 2. MPR corresponding to year of diagnosis



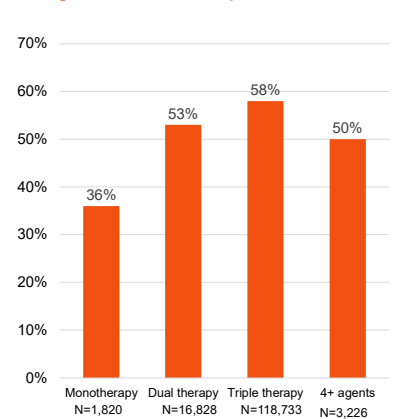
### MPR WITH RESPECT TO COMORBIDITIES AND ART

- 69% had relevant comorbidities, 6% no comorbidities, with no difference in MPR (mean (SD) MPR: 82.5% (22.4) with comorbidities, 82.3% (23.5) without).
- Relevant comorbidities and rates with MPR >90% are shown in Table 2.
- Of PLHIV on monotherapy, 36.0% had an MPR >90% vs. 58% on triple therapy (Figure 3).

Table 2. MPR in PLHIV with comorbidities

Relevant Comorbidities	N	% with MPR >90%
Chronic nephropathy	1,227	50.2%
Renal insufficiency	757	46.6%
Tuberculosis	1,767	50.1%
Use of psychoactive substances	15,329	52.3%
Hepatitis C infection	15,423	55.2%
Chronic hepatitis B	7,122	55.4%
Stroke or transient ischemic attack	3,155	55.5%
Depression	35,092	56.7%
Neurosis	39,266	56.7%
Hypertension	33,649	57.3%
Unstable angina, myocardial infarction, or chronic coronary artery disease, or percutaneous revascularization	10,407	58.0%
Diabetes	11,369	59.6%
Dyslipidemia	22,495	59.9%

Figure 3. MPR with respect to ART



### FACTORS ASSOCIATED WITH HIGH MPR

A multivariate model was performed to predict factors for better adherence. Factors associated with an MPR >90% are shown in Table 3.

Table 3. MPR >90%: Results of multivariate logistic regression analysis

	OR <sup>a</sup>	95% CI <sup>aa</sup>	
Age (years) (Reference category <15)	15-29	1.042	0.866
	30-39	1.307	1.090
	40-49	1.513	1.263
	50-64	1.805	1.506
	65-74	2.110	1.755
Sex (Ref. female)	male	1.220	1.191
	male	1.220	1.191
CMUc recipient* (Ref. no)	yes	0.830	0.806
Index year** (Ref. ≤2006-2009)	2010-2012	1.298	1.251
	2013-2015	1.546	1.488
	2015-2017	1.886	1.801
	2018-2019	2.211	2.106
Prevalent comorbidities (Ref. no)	yes	1.012	0.986
Type of ART (Ref. monotherapy)	dual therapy	1.932	1.747
	triple therapy	2.310	2.096
	≥ quadruple therapy	1.707	1.515

<sup>a</sup>OR, odds ratio; <sup>b</sup>bold OR: p<0.05; <sup>aa</sup>CI confidence interval; \*CMUc = Supplementary Universal Health Coverage; \*\*Year of HIV diagnosis;

## Conclusions

- This comprehensive real-world sample of French PLHIV in 2019 showed that adherence gradually increased with more recent HIV diagnosis, possibly reflecting advances in ART tolerability or single tablet regimens.
- Male sex, advanced age, triple therapy and not being a CMUc recipient were identified as factors independently associated with better adherence.

### Abbreviations

AHIE, L'Assurance Maladie de l'Etat; compensations for persons in precarious economic situations; ART, antiretroviral treatment; CMUc, Couverture maladie universelle complémentaire, Supplementary Universal Health Coverage for economically challenged French citizens; CNAM, Caisse Nationale de l'Assurance Maladie, National Health Insurance Fund; MPR, medical possession ratio; SNDS, Système National des Données de Santé, Nationwide Health Database;

### Acknowledgements

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# COCOVIIH study: Over-mortality and impact of comorbidities for people living with HIV (PLHIV)

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## Background

- Few studies have explored the over-mortality due to HIV infection. HIV infection and its treatments induce complications. PLHIV have comorbidities due to common risk factors.
- Previous studies on morbidities and mortality have been performed but are from hospital based data (FHDH or DAT'AIDS) with adjustments by modelisation.

## COCOVIIH Objectives

- Our aims were to estimate :
  - The over-mortality of PLHIV
  - The over-prevalences of comorbidities as compared to a control group of subjects not suffering from HIV
  - The weight of these comorbidities on the over-mortality of HIV patients

## Methods

- The SNDS database is a claim and hospitalization database that covers the whole French population (66,3 million citizens users in 2019)
- Adult patients living with HIV (PLHIV) were included between 2006 and 2019 based on :
  - A long term disease for HIV
  - Hospitals stays with a ICD10 code for HIV infection
  - Claims for HIV specific laboratory tests
  - Claims for drugs specific of the HIV infection (treatments for PREP were excluded)
- An age and gender matched control group with no criteria for HIV infection was also included between 2006 and 2019. Each control was identified on the same date than the PLHIV and followed up from this date

COCOVIIH study is a French observational study, real-world data from 2006-2019

## Results

FIGURE 1 . STUDY POPULATION

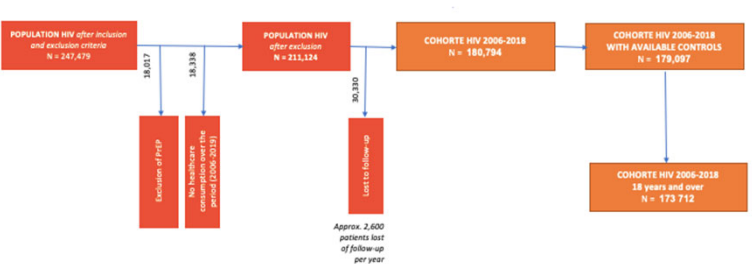


FIGURE 2 : COMORBIDITIES AND RISK FACTORS PLHIV VERSUS FRENCH POPULATION

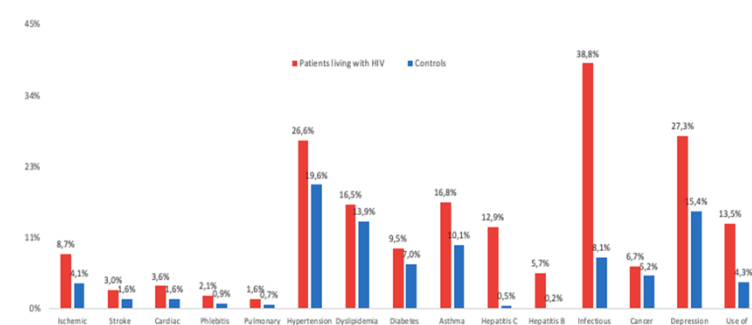


FIGURE 3 : PROBABILITY OF SURVIVAL OVER TIME PLHIV versus FRENCH POPULATION

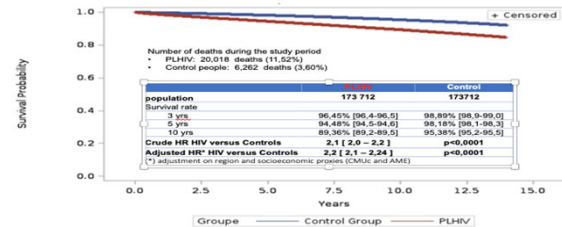


FIGURE 4 : IMPACT OF COMORBIDITIES ON DEATHS UNIVARIATE ANALYSIS MULTIVARIATE ANALYSIS

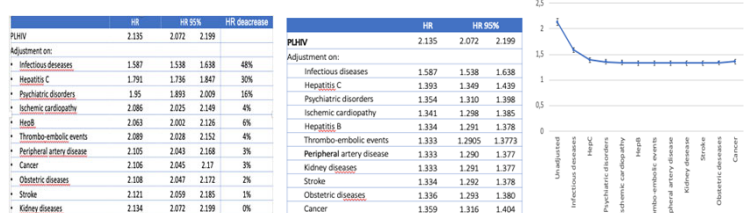


FIGURE 5 : IMPACT OF COMORBIDITIES ON GENDER AND AGE

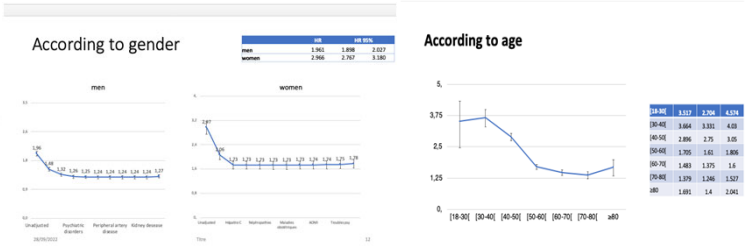
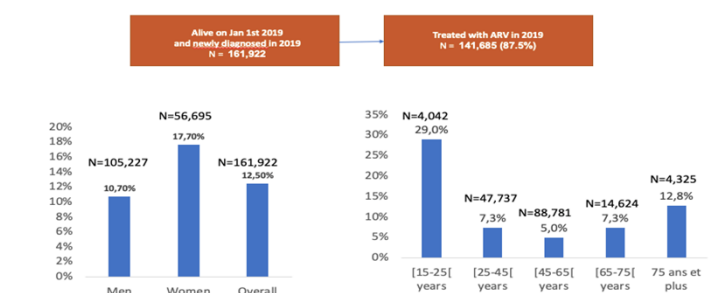


FIGURE 6 : Proportion of untreated PLHIV is higher among women and younger subjects



## Conclusions

- HIV infection doubles the risk of death
- Infectious diseases explain half of this over-mortality.
- Relative over-mortality is higher among women and young patients.
- Woman and young PLHIV are less treated. *In line with medication possession ratio (MPR) Abst. 5545535*
- Real time dispensation of antiretroviral drugs for the year 2019 is 4.8% lower than expected
- Access to alternative health insurance rights (CMU & AME) protects

Disclosures

Acknowledgements