

# HIV incidence in French Caribbean Regions, 2003-2010

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## Background

French Caribbean regions are in an area heavily affected by HIV but data on transmission dynamic are lacking.

To monitor the dynamic of HIV infection in France, an incidence assay is routinely performed within national HIV case surveillance.

For the period 2003-2010, we used data from reported HIV diagnoses detected as recent infections to calculate the annual number of new infections in different groups in the population.

Here we report on specific HIV incidence estimates for three French Caribbean Regions (FCR):

1. French Guiana
2. Guadeloupe
3. Martinique

## Methods

### NEW DIAGNOSES

We analysed reports from patients newly diagnosed with HIV between January, 2003, and December, 2010.

The notification form included demographic data (sex, age, and nationality), clinical stage, transmission category, and history of previous HIV testing.

Remnant serum from the diagnosis sample was sent as a dried serum spot to the National HIV Reference Centre (Tours, France), where the RITA testing (EIA-RI incidence assay) was done. Patients diagnosed with clinical AIDS were classified as having a non-recent infection.

### RITA TESTING

EIA-RI was developed to detect a recent infection state according to the level of antibody binding to the immunodominant epitope of gp41 and the V3 region of gp120.

Its mean RITA duration (the time period from infection during which individuals are classified as recent) is estimated at 0.492 year or 179.7 days [95%CI: 167.2 - 192.2].

The false recent rate for EIA-RI, that is the proportion of long-term (more than 2 years) infected patients who would test as positive, was determined at 0.8% [0 - 3.1%] [1].

### POPULATION DENOMINATORS

To calculate incidence rates, subpopulation sizes were obtained from the national census and region specific behavioural surveys that provide the proportions of same-sex or exclusive heterosexual activity.

Population sizes are for sexually active persons between 18 and 69.

### MODEL OVERVIEW

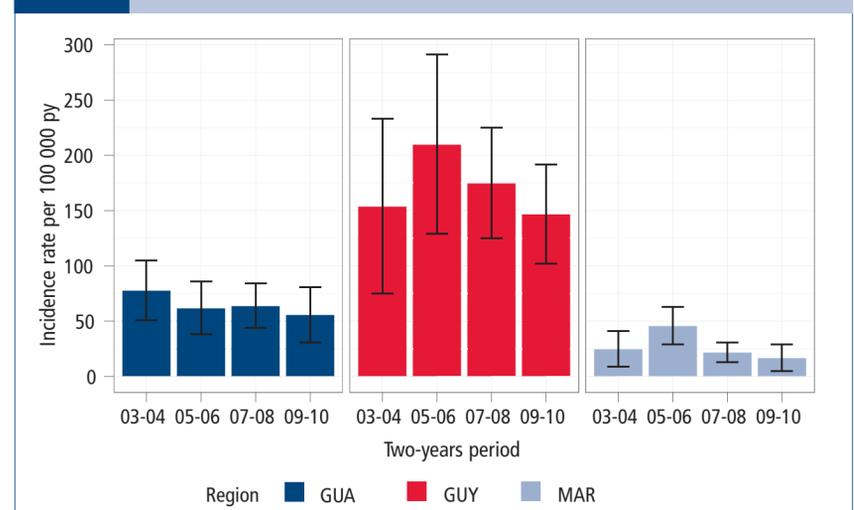
We used a previously published model [1] to calculate the annual number of new infections in different groups in the population of FCR.

We accounted for the completeness of reporting to the surveillance system and provided incidence averaged over two-years period for 3 strata of population: heterosexual women, heterosexual men and men who have sex with men.

## Results

We estimate that 319 [95%CI: 245-393] new infections occurred in 2010 corresponding to an incidence rate of 59 [45-72] per 100,000 person-years in FCR (table). The rate was higher in French Guiana (147 per 100,000 person-years) and Guadeloupe (56) than Martinique (17). See figure.

FIGURE ESTIMATED HIV-1 INCIDENCE RATES IN GUADELOUPE (GUA), FRENCH GUIANA (GUY) AND MARTINIQUE (MAR) BY TWO-YEARS PERIOD, 2003-2010



In FCR, HIV new infections were mainly attributed to heterosexual transmission (48% of cases were heterosexual women and 34% heterosexual men) and to a lesser extent to sex between men (18%).

After having reached a peak in 2005-2006, incidence tended to decrease in recent years.

TABLE ESTIMATED NEW HIV-1 INFECTIONS AND INCIDENCE RATES FOR FCR IN 2010, BY TRANSMISSION GROUP

Transmission group	$\hat{N}$ (95%CI)	$\hat{p}$	Estimated population size	$\hat{i}$ (95%CI)
Heterosexual women	154 (115-193)	48	280,993	55 (41-69)
Heterosexual men	107 (50-164)	34	259,120	41 (19-63)
Men who have sex with men	58 (30-86)	18	5,082	1,141 (272-2010)
Overall	319 (245-393)	100	545,195	59 (45-72)

$\hat{N}$ : Estimated new HIV-1 infections;  $\hat{p}$ : Proportion of new infections (%);  $\hat{i}$ : Estimated incidence per 100,000 person-years.

## Discussion

Our approach provides the first estimates of HIV incidence in French Caribbean regions.

We cannot differentiate infections acquired abroad and brought to France due to migration. This is especially important to notice for French Guiana where a large part of the population is comprised of immigrants from neighboring countries.

Still, our results indicate that these territories face the highest levels of HIV transmission in France, predominantly through heterosexual contact. They require a specific assessment of contextual and behavioural drivers of the epidemic and a dedicated response.

## References

- [1] S. Le Vu, Y. Le Strat, F. Barin *et al.* Population-based HIV-1 incidence in France, 2003-08: a modelling analysis. *Lancet Infect Dis* 2010, 10(10):682-7.