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### ► To cite this version:

Emilie Mosnier, Noé Guiraud, Loïc Epelboin, Florence Huber, Leila Adriouch, et al.. Spacial dynamics and social risk factor for AIDS in isolated area in French Guiana. 26th European congress of clinical microbiology and infectious diseases, Apr 2016, Amsterdam, Netherlands. inserm-01423115

**HAL Id: inserm-01423115**

**<https://inserm.hal.science/inserm-01423115>**

Submitted on 28 Dec 2016

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# Spacial dynamics and social risk factor for AIDS in isolated area in French Guiana

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## Background

French Guiana, a French overseas department in South America, has been classified epidemic for HIV. The dynamics of the spread of the AIDS epidemic ranges according to the characteristics of each geographical region in different population groups. Isolated area in French Guiana have a vast diversity of population including maroon population, amerindians and migrants in particular from Brazil, Surinam and Guyana. Isolated area in French Guiana is defined by all rural areas compared to urban area: Cayenne, Kourou and Saint Laurent du Maroni (Map 1). The aim of this study was to evaluate spacial and temporal trend of the AIDS epidemic among type of population on isolated area of French Guiana.

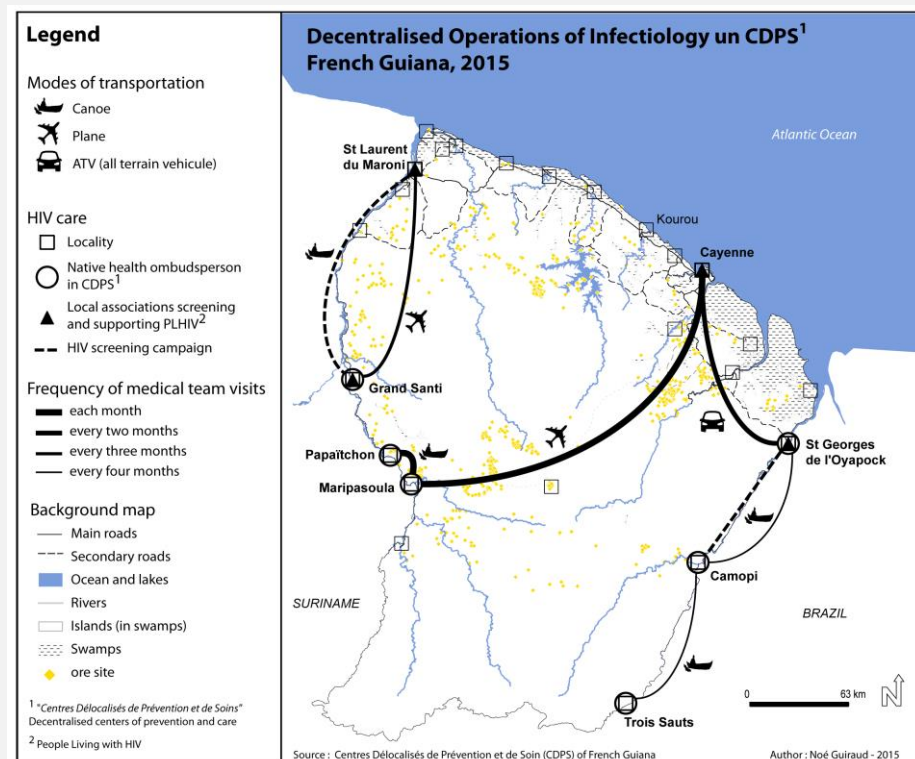
## Results

174 people living with HIV were reported in isolated area versus 2143 in costal urban area. Media age of isolated area people living with HIV was 43,8 years, sexe ratio was 0,93. 37% of cases were detected at late stage (<200 CD4mm<sup>3</sup>) versus 34% in costal area (p=0,34). But mean of last CD4 were lower in isolated cases than in costal cases (423 and 569; p<0,005 respectively) (Table 1). However percentage of virological response under 6 month of antiviral therapy was similar in isolated area (80% versus 88% p=0,135 respectively).

There was an increase of AIDS incidence rates among the local population in specific key population this last decade. Isolated area have been affected later after costal French Guiana (Figure 1). The present study shows significant differences between communities living on the Maroni and oyapock river : no cases in amerindians population living upstream of Maripasoula and Saint Georges village were reported. However on isolated area maroon population and brazilian people are more impact by the spread of the disease compared to the cost (p= 0,001 and p=0,005 respectively) (Figure 2 and Map 2). The village of Saint georges and Maripasoula are particularly affected with a significant link with Brazilian illegal gold mining particularly for the last decade in Maripasoula.

	People living with HIV in Isolated area (n=126)	People living with HIV in Urban and coastal area (n=2143)	
Mean of Age	43.8 [41.6-46.2]	45.2 [44.6-45.7]	p=0.28
Mean of age at diagnosis of HIV status	36.1[33.7-38.5]	36.3 [35.7-36.8]	p=0.87
Sex ratio H/F	0.93	0.87	p=0.69
Mean of last CD4 (/mm <sup>3</sup> )	424 [348-498]	569 [551-586]	p<0,005
Mean of last viral load (Copy/mL)	8960 (2282-20203)	5317(3653-6951)	p<0,005
Success after 6 month of HAART*	24/30 (80%)	671/755 (88%)	p=0,135

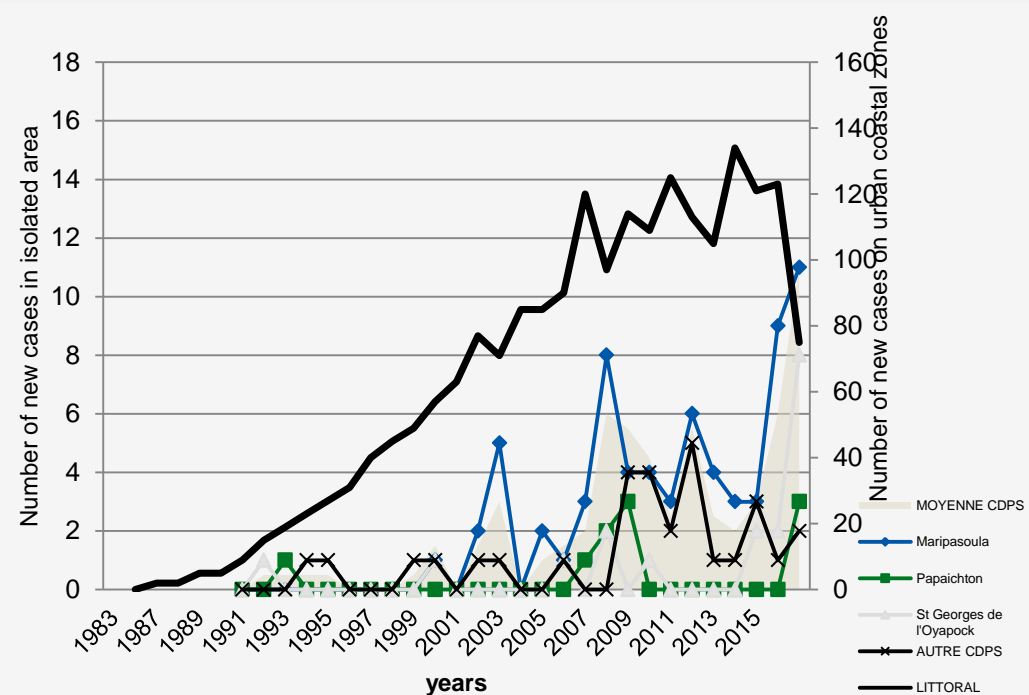
**Table 1:** Description of baseline HIV infection characteristics in patients living with HIV in isolated area and in urban and coastal area of French Guiana, in 2015



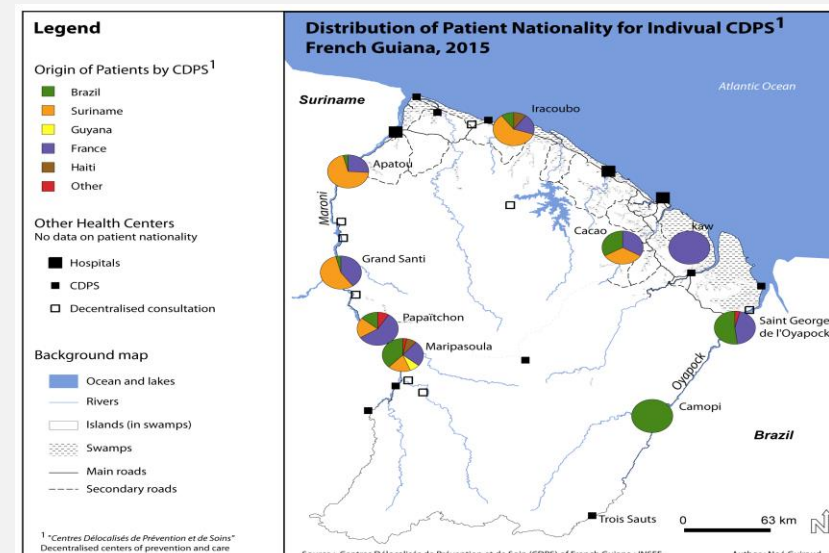
**Map 1:** Introduction and location map of study area

## Materials/Methods

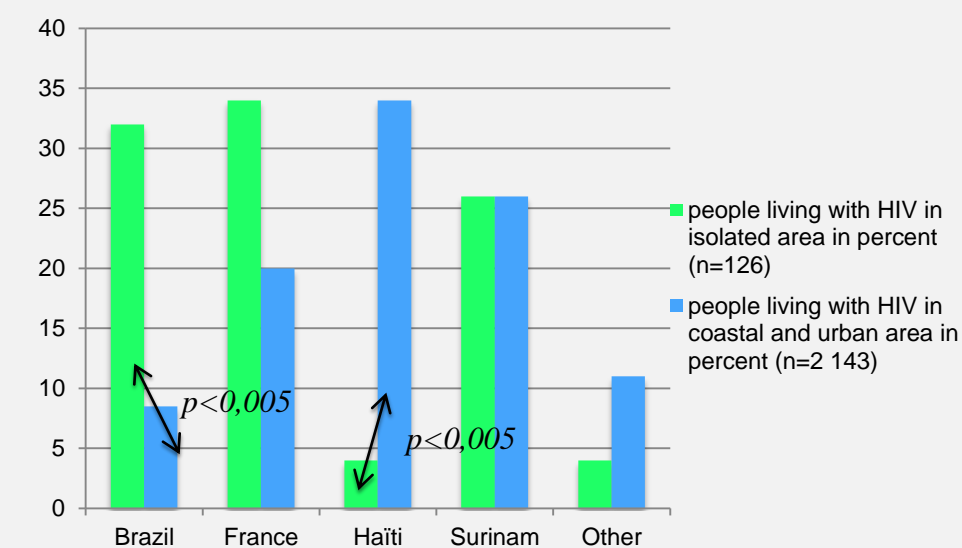
We have investigated the spacio-temporal dynamics of the HIV epidemic in isolated area of amazonian forest of French Guiana. Data were collected on standardized case report forms and analysed using statistical methods. Data from isolated area HIV-infected patients were compared to urban and coastal HIV-infected patients from Cayenne, Saint Laurent and Kourou.



**Figure 1:** Annual number of new detected cases from coastal area and isolated from 1982 to November 2015



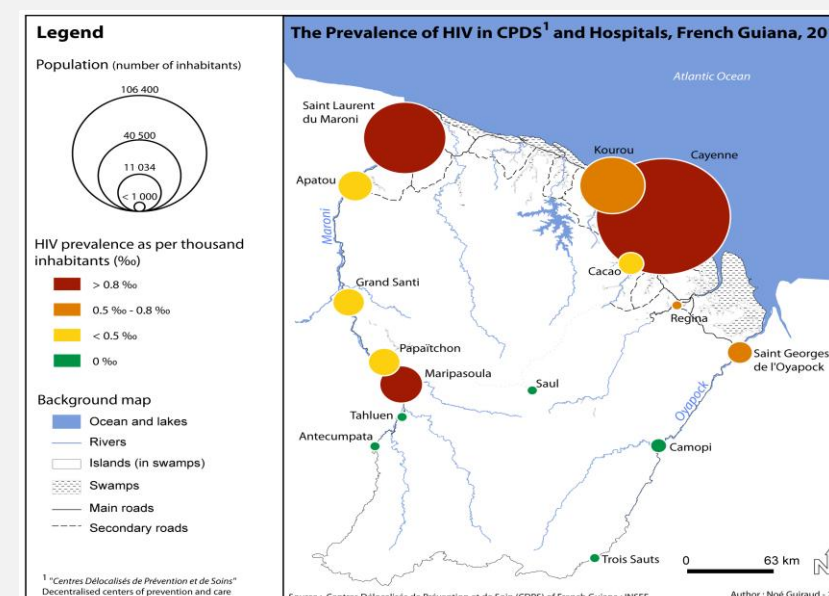
**Map 2 :** Distribution of patient nationality for individual CDPS, French Guiana, 2015.



**Figure 2:**Country of birth of new detected cases in isolated area and urban and coastal area from 2012 to November 2015

## Conclusion

Thus, our work contributes to the understanding of HIV dispersion in French Guiana, and its relationship with the geography of the area and the movements of human populations. To prevent HIV from spreading in these areas, greater attention should be given to key populations as Brazilian gold miners and autochthonous population to prevent the spread of the disease.



**Map 3 :** Prevalence of HIV in CDPS and Hospital, French Guiana, 2015