Dr Romain Blaizot

Leishmaniose cutanée en Guyane: Recherche clinique et perspectives

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Assises guyanaises d'infectiologie et de médecine Tropicale

International Journal of Dermatology

Tropical Medicine Rounds

American cutaneous leishmaniasis in French Guiana: an epidemiological update and study of environmental risk factors

Rémi Loiseau[1], MD, Cecile Nabet[2,3,4], PharmD, Stephane Simon[2], PhD, Marine Ginouves[2], MSc, PhD, Paul Brousse[5], MD, Denis Blanchet[2,3,4], MD, Magalie Demar[2,3,4], MD, PhD, Pierre Couppie[2,3,6], MD, PhD and Romain Blaizot[2,3,6], MD

- 2017-2018: 123 patients inclus
- 40% des cas touchaient des **orpailleurs brésiliens**
- 58% avaient entre 16 et 40 ans
- 69% étaient des **hommes**

12% de patients avaient des **antécédents personnels** de leishmaniose

- *Leishmania guyanensis*: 80%
- *Leishmania braziliensis*: 6%

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Données occupationnelles

- Patients de côte contaminés lors de voyages en forêt primaire (60%) et au cours de loisirs (57%)
- Côte: délai de diagnostic plus court et lésions moins nombreuses (p=0,01)
- Habitat en carbet: 51 % des patients
- Source d'eau a proximité de l'habitation (<100m): 40% des patients
- Chiens autour de l'habitation: 40% des patients
- Peu d'agriculteurs (3%)

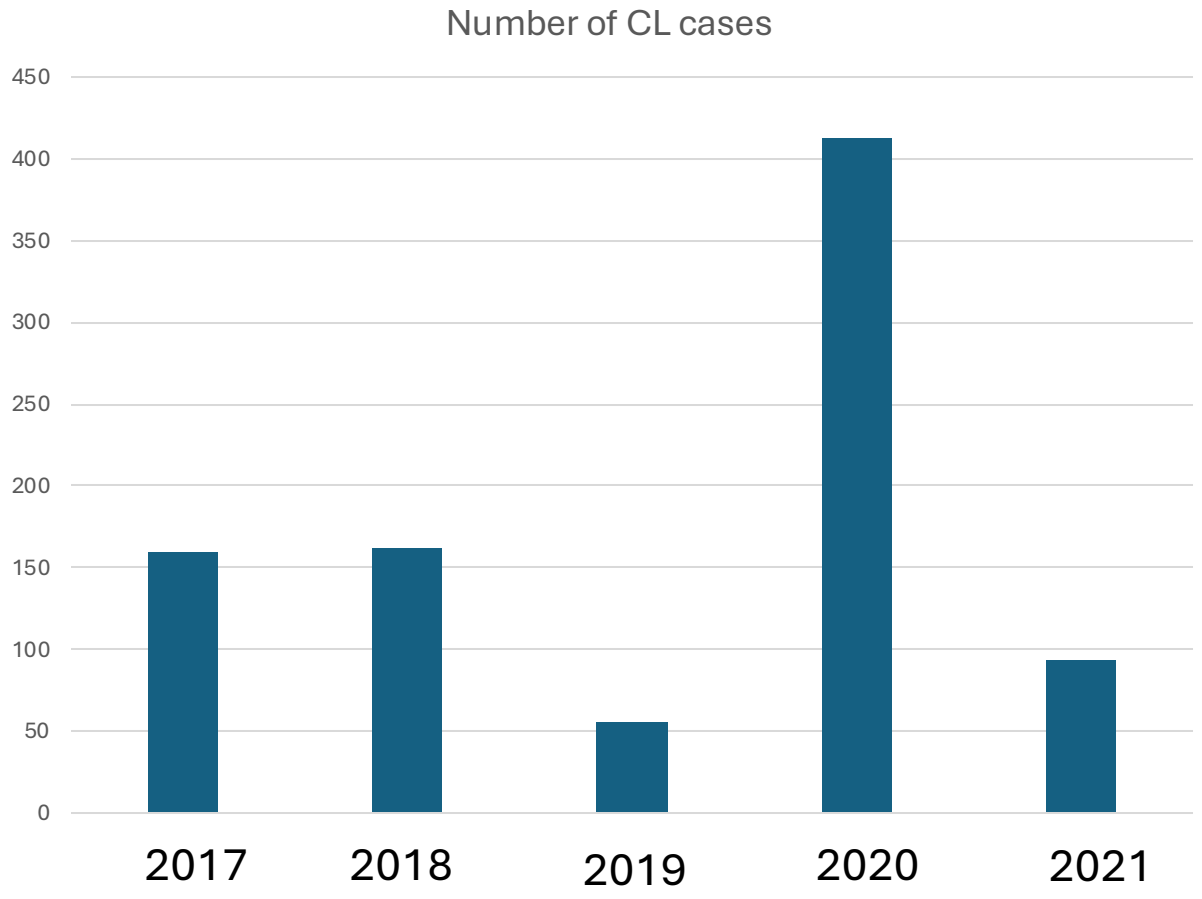
Epidemiological trends of Cutaneous Leishmaniasis in French Guiana: a 5-year retrospective study

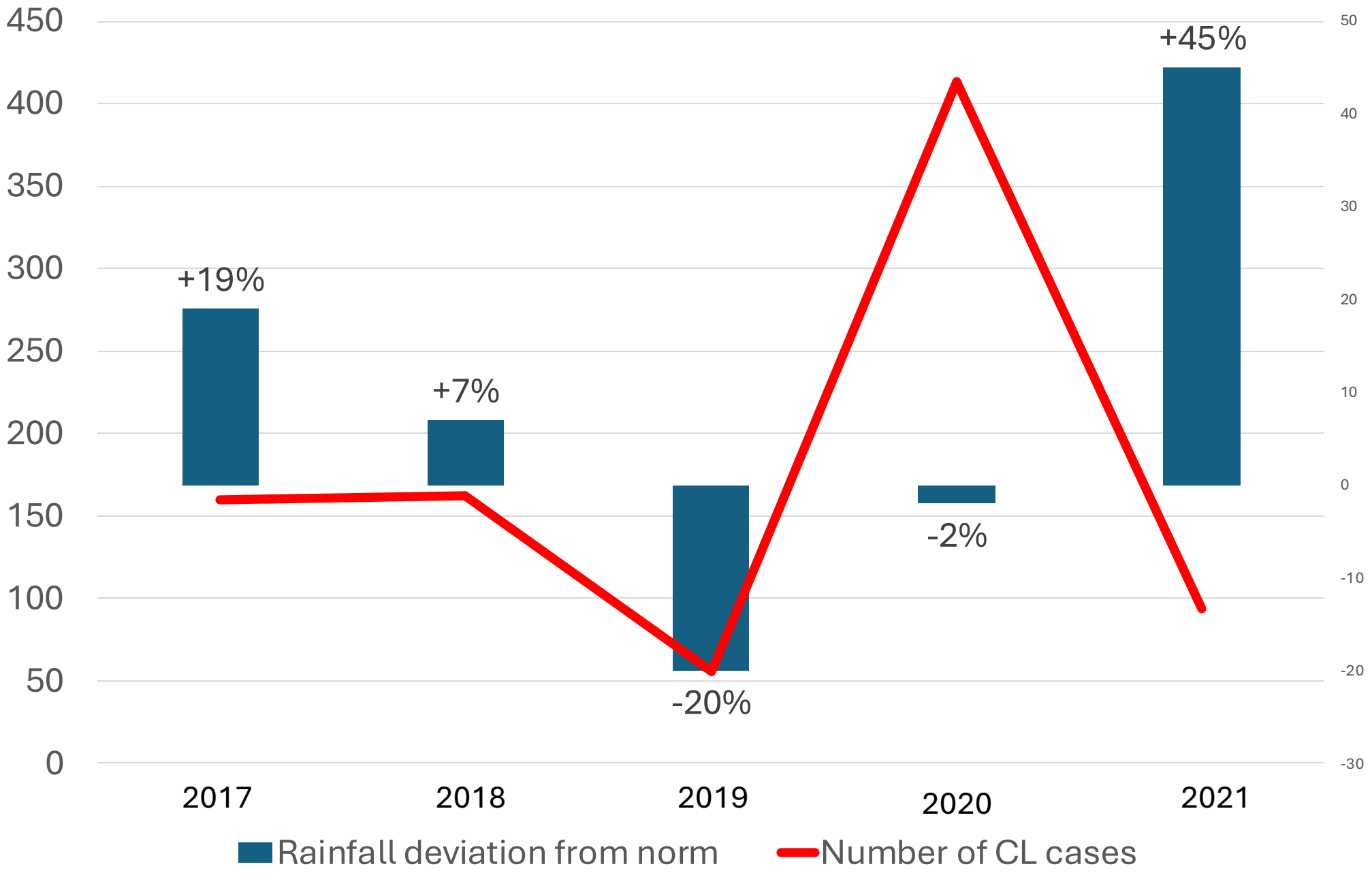
Romain Blaizot, Miguel Hernandez, Marine Ginouves, Ghislaine Prevot, Cecile Nabet, Jean-François Carod, Pierre Couppie, Magalie Demar

Dr Romain Blaizot
Cayenne Hospital Center (Andrée Rosemon)
University of French Guiana
CNR Leishmania- associate laboratory

Results

- 2017-2021: 887 proven cases of CL
- Mean yearly incidence : 3.2/10 000 inhabitants
- **Average years** :
  - 2017 / 2018 (160 cases, 5.6/10 000)
- **Low incidence** years:
  - 2019 (56 cases, 1.9/10 000)
  - 2021 (94 cases, 3.3/10 000)
- **Record high incidence**
  - 2020 (413 cases, 14.3/10 000)

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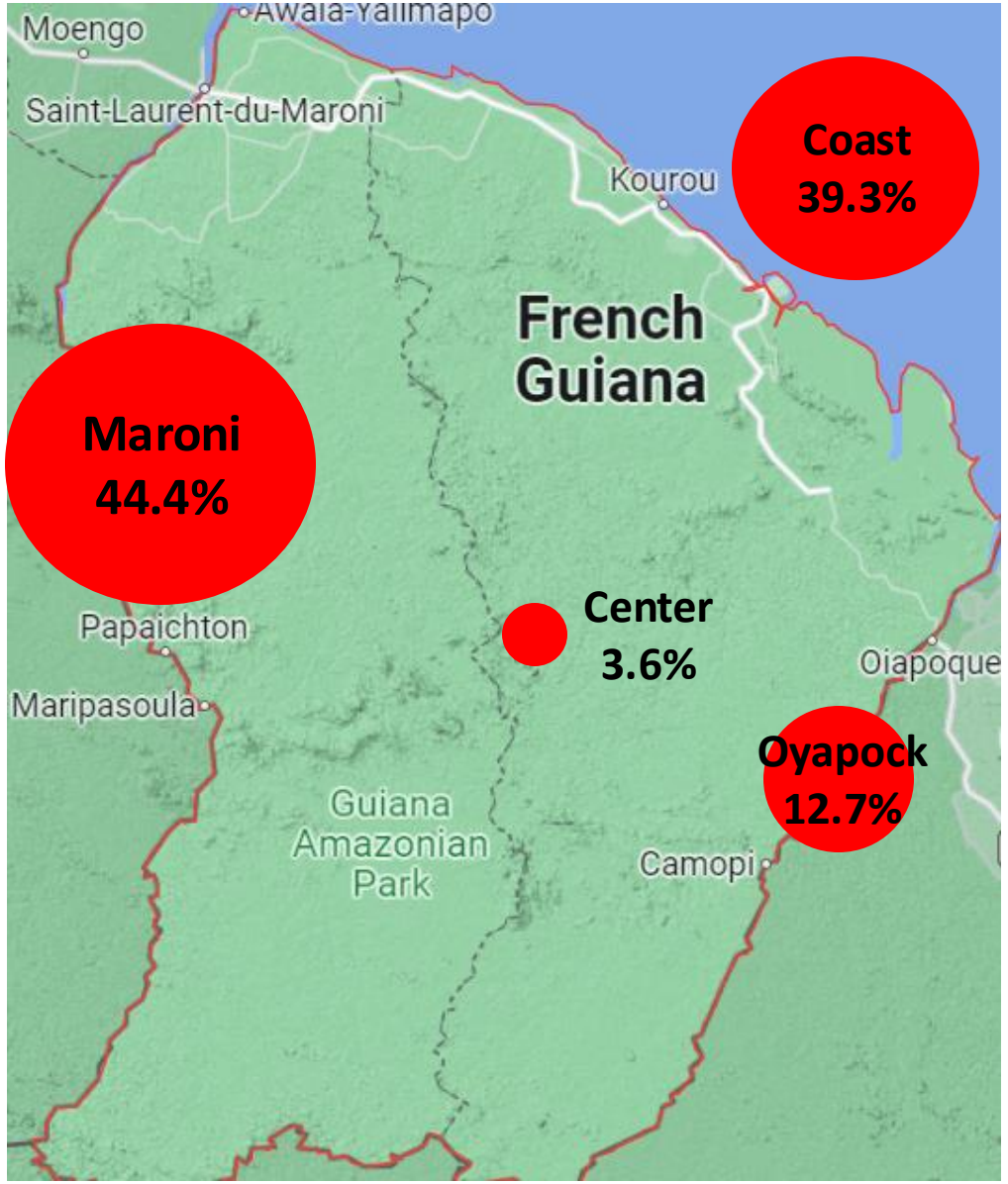
50
0
50
40
30
20
10
0
-10
-20
-30
+19%
+7%
-20%
-2%
+45%
2017
2018
2019
2020
2021
Rainfall deviation from norm
Number of CL cases

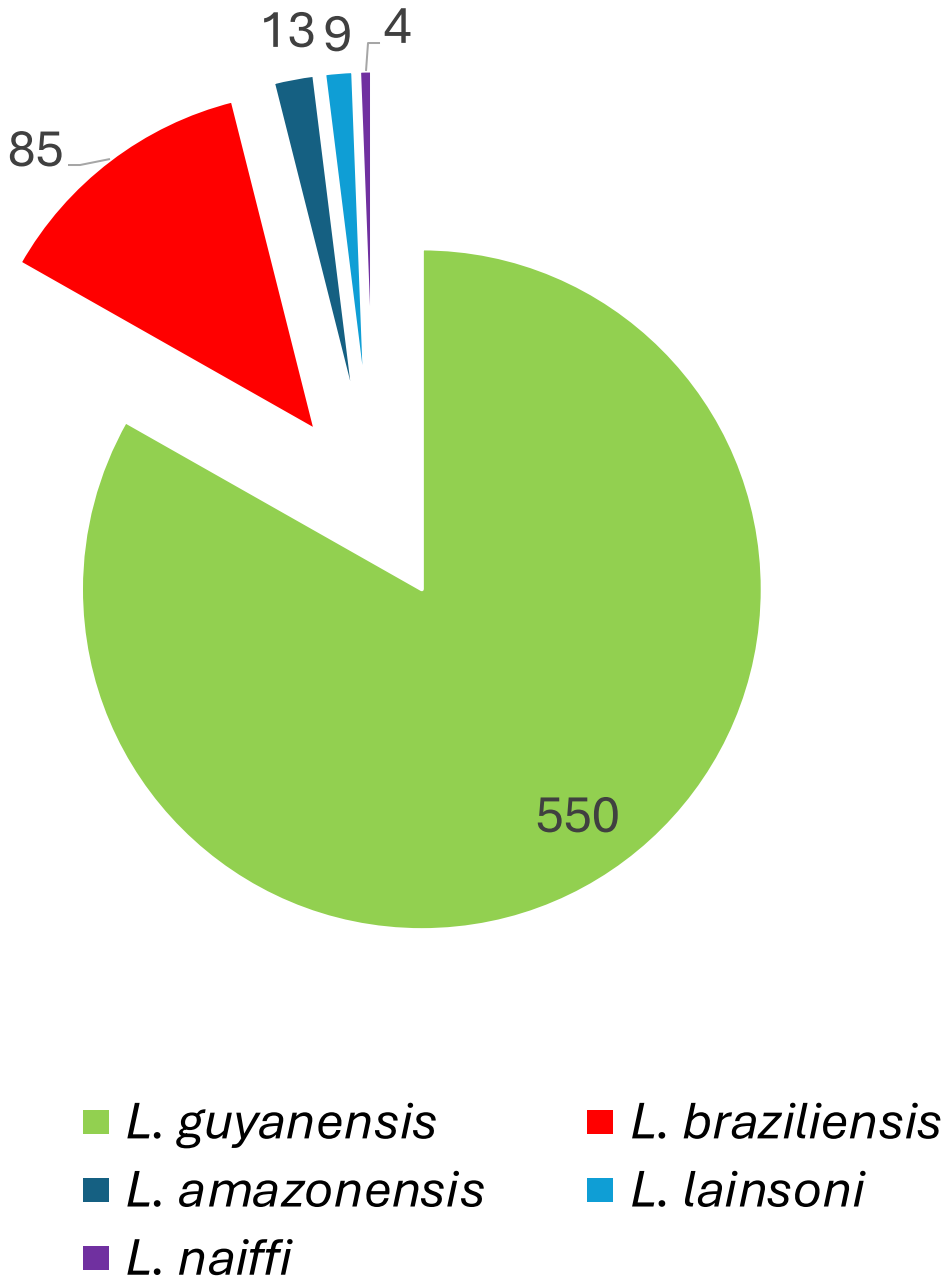
Results: epidemiology

- Two-thirds : (594, 67.3%) were **men**
- Origin known in 624 cases
- **Brazilians : largest group** (319 patients, **51.1%**)
- Presumably *garimpeiros*
- Mostly along the **Maroni river** (44.4%)
- Very few cases in the **center**



Species identification

- Species available in 670 cases
- ***L. guyanensis*** : (559 cases, **83.4%**)
  - ***L. braziliensis* (85, 12.7%)**
  - *L. amazonensis* (13, 1.9%)
  - *L. lainsoni* (9, 1.3%)
  - *L. naiffi* (4, 0.6%)
- Dry year of 2019, sharp decrease of CL cases
  - *L. guyanensis* most decreased 29/46 (63%)
  - *L. braziliensis* **increased** 13/46 28% **p=0.0012**



Therapeutics

- **Pentamidine failure** :
- 25 patients with *L. guyanensis* (25/559, **4.5%**)
- Treated with :
  - Meglumine antimoniate
  - Amphotericin B (since 2018)
  - Miltefosine as 3d line

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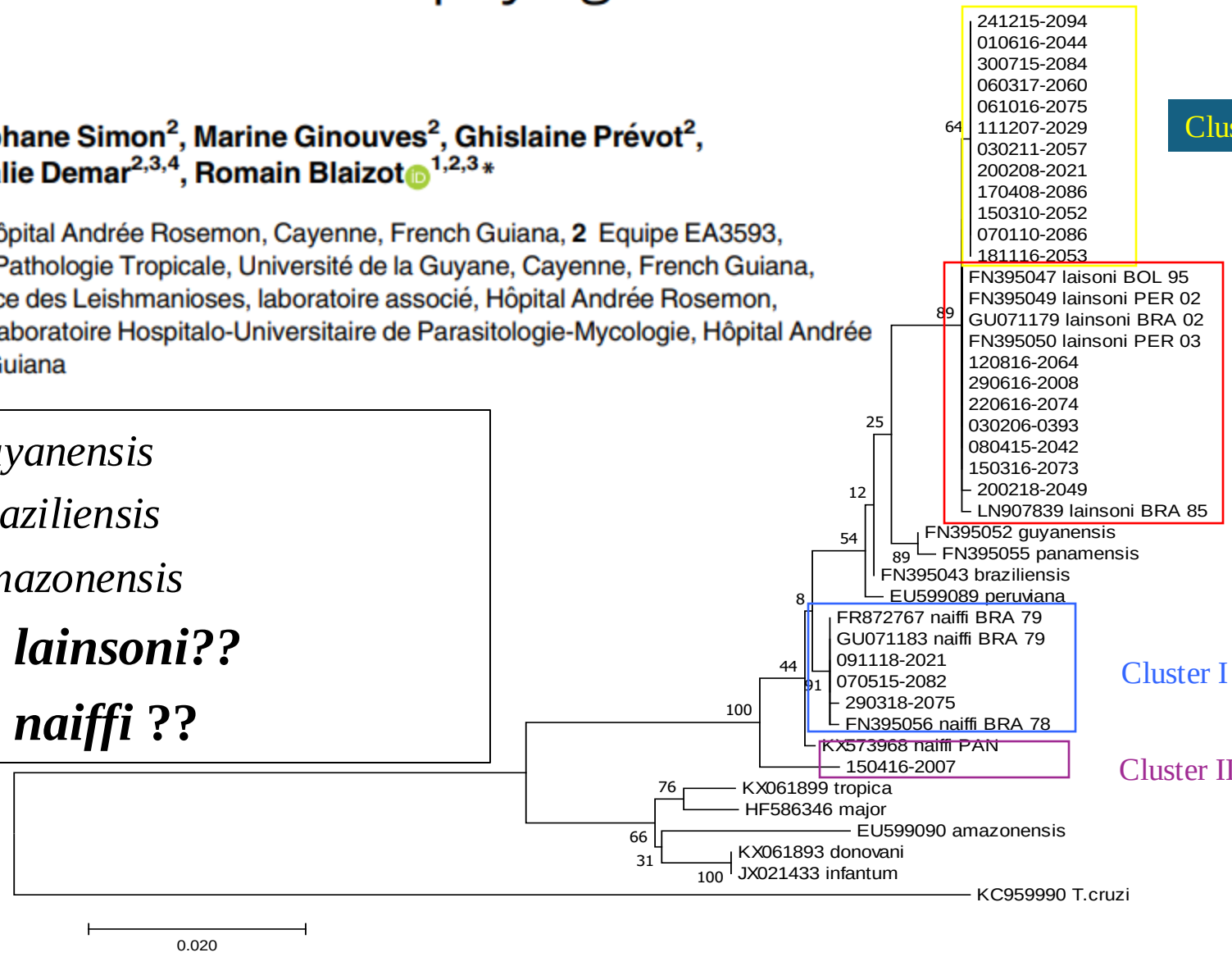
RESEARCH ARTICLE

Leishmania naiffi and *lainsoni* in French Guiana: Clinical features and phylogenetic variability

Océane Ducharme[1], Stéphane Simon[2], Marine Ginouves[2], Ghislaine Prévot[2], Pierre Couppie[1,2,3], Magalie Demar[2,3,4], Romain Blaizot[1,2,3]*

1 Service de Dermatologie, Hôpital Andrée Rosemon, Cayenne, French Guiana, **2** Equipe EA3593, Ecosystèmes Amazoniens et Pathologie Tropicale, Université de la Guyane, Cayenne, French Guiana, **3** Centre National de Référence des Leishmanioses, laboratoire associé, Hôpital Andrée Rosemon, Cayenne, French Guiana, **4** Laboratoire Hospitalo-Universitaire de Parasitologie-Mycologie, Hôpital Andrée Rosemon, Cayenne, French Guiana

- *Leishmania guyanensis*
- *Leishmania braziliensis*
- *Leishmania amazonensis*
- ***Leishmania lainsoni??***
- ***Leishmania naiffi* ??**



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- *Leishmania naiffi*
- 5 patients
- 5 hommes
- Tous français
- Tous contaminés sur la côte
- Tous contaminés durant activités de loisir
- A chaque fois lésion unique
- Guérison après Pentamidine (2) ou abstention (3)

- Donc leishmaniose plutôt bénigne et chez un profil métropolitain

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Leishmania lainsoni

25 patients

13 hommes et 12 femmes

17 brésiliens présumés orpailleurs

20% des cas étaient pédiatriques

Tous sauf 4 contaminés dans l'intérieur

Expositions professionnelles (orpaillage++)

Lésions multiples pour près de la moitié

Guérison après Pentamidine dans la moitié des cas, nécessité d'amphotericine B pour l'autre moitié

Donc leishmaniose plus sévère, avec un profil épidémio proche de *L. guyanensis*

AMERICAN SOCIETY FOR MICROBIOLOGY | Journal of Clinical Microbiology®

PARASITOLOGY
February 2021 Volume 59 Issue 2 10.1128/jcm.02218-20
https://doi.org/10.1128/jcm.02218-20

Validation of Swab Sampling and SYBR Green-Based Real-Time PCR for the Diagnosis of Cutaneous Leishmaniasis in French Guiana

Romain Blaizot [a,b,c], Stéphane Simon [b,c,d], Marine Ginouves [b], Ghislaine Prévot [b], Denis Blanchet [b,d], Christophe Ravel [e], Pierre Couppie [a,b,c], Magalie Demar [b,c,d], Cécile Nabet [d,f]

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Résultats: population d'étude

- 164 cas suspects
- 25 négatifs pour tous les tests
- 139 au moins un test positif
  - 89 originaires des CDPS
  - 45 du Service de Dermatologie
  - 5 autres services de l'hôpital

Résultats: sensibilités comparées

	Smear	Culture	MALDI-TOF	PCR-RFLP	PCR SWAB
Positive	94	80	55	122	138
Negative	66	23	-	41	26
Contamination	-	60	11	-	-
Not done	4	1	15	1	-

- PCR swab: 138 positifs
- PCR-RFLP sur biopsie: 122 positifs
- Délai moyen avant extraction: 11 jours
- Pas de différence significative entre les échantillons des CDPS et ceux du CHAR en terme de délai, Ct, % homologie
- Fort taux de contamination en CDPS: 50% des biopsies

BJD Improving patient outcomes in skin disease worldwide

JOURNAL ARTICLE

American cutaneous leishmaniasis in French Guiana: a retrospective comparison between liposomal amphotericin B and meglumine antimoniate

A. Senchyna, S. Simon, H. Cissé, M. Ginouves, G. Prevot, G. Alcoba, M. Demar, P. Couppie, R. Blaizot

Historical cohort of American Cutaneous Leishmaniasis in French Guiana: comparison of amphotericine B and meglumine antimoniate

- ***L. guyanensis***: Pentamidine
- ***L. braziliensis***:
- Meglumine antimoniate (Glucantime)
- Amphotericine B (Ambisome)

- **Glucantime**:
  - Traitement historique
  - Nombreux effets secondaires
  - Echecs
- **Ambisome**:
  - Effets secondaires
  - Coût++
  - Peu de données
  - Etudes sur de petites cohortes

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Table 1. Characteristics of 37 patients with Cutaneous or Mucocutaneous leishmaniashis treated with Ambisome or Glucantime, French Guiana, 2015-2019

	L Amphotericin B (Ambisome) N= 16*	Meglumine Antimoniate (Glucantime) N= 22*
Demographic characteristics		
Median age (range)	36.5	35.5
Male Gender	75% (12/16)	91% (20/22)
Cardiovascular comorbidity	25% (4/16)	4.5% (1/22)
HIV status	12,5% (2/16)	0
Clinical presentation		
Median number of lesions (range)	1	1
Larger lesion length (cm)	19	6
Mucosal involvement	0	13,6% 3/22
Leishmaniasis species		
L. braziliensis	11	14
L. guyanensis	3	5
L. amazonensis	0	1
L. naiffi	0	1
Undetermined	1	0
Previous treatment with Pentamidine	12	18

Table 1. Characteristics of 37 patients with Cutaneous or Mucocutaneous leishmaniashis treated with Ambisome or Glucantime, French Guiana, 2015-2019

Days of treatment, median – (range)	5 [1-9]	20.5 [14-28]
Outcome		
Complete healing	12	19
Failure	2	1
Lost to follow up	2	2
Adverse events		
Severe	1 (anaphylactic reaction)	3 chest pain (1) cytolysis 5N (1) cytolysis 3N with fever/chills at day 14 (1)
Moderate	2 vasovagal syncope (1) headache with flush (1)	8 arthralgia (6) myalgia (2) headaches (2)
Isolated biological abnormalities	11 hepatic cytolysis (3) renal failure (3) hypokaliemia (6)	10 hyperlipasemia (11) eosinophilia (8) cytolysis (5) neutropenia (1)

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- **Pas de différence significative concernant**
  - **L'efficacité**
  - La survenue d'effets secondaires **graves**
- Plus **d'effets secondaires modérés** avec le Glucantime

Ambisome	**Glucantime**
Traitement 3384€	Traitement 1080€
Hospitalisation 4100€	Hospitalisation 20j 16400€
Total 7484 €	**Total: 17480 €**

Clin Exp Dermatol 2023; **48**:913–915
https://doi.org/10.1093/ced/llad146
Advance access publication date: 19 April 2023

CED
Clinical and Experimental Dermatology
Concise Report

Using pentamidine to treat cutaneous leishmaniasis in children: a 10-year study in French Guiana

Melissa Heleine,[1] Narcisse Elenga,[2] Falucar Njuieyon,[2] Elise Martin,[2] Camille Piat,[3] Chloé Pansart,[3] Pierre Couppie,[1,4,5] Miguel Hernandez,[5] Magalie Demar[4,5,6] and Romain Blaizot[1,4,5]

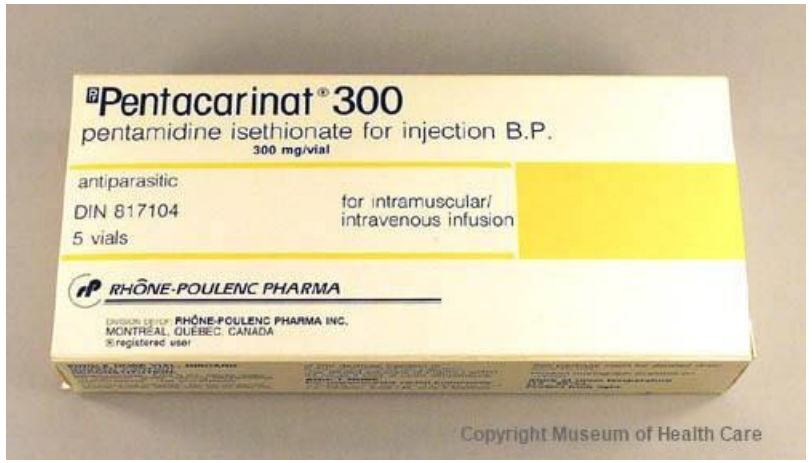
Clin Exp Dermatol, Volume 48, Issue 8, August 2023, Pages 913–915, https://doi.org/10.1093/ced/llad146

Pentamidine protocol

3 IV injections of 4mg/kg/d
D1 D3 D5
Children under 7 years or 25kg

Single IM injection of 7mg/kg
Older children
Difficult access to health care

Follow-up at one month and six months



Results

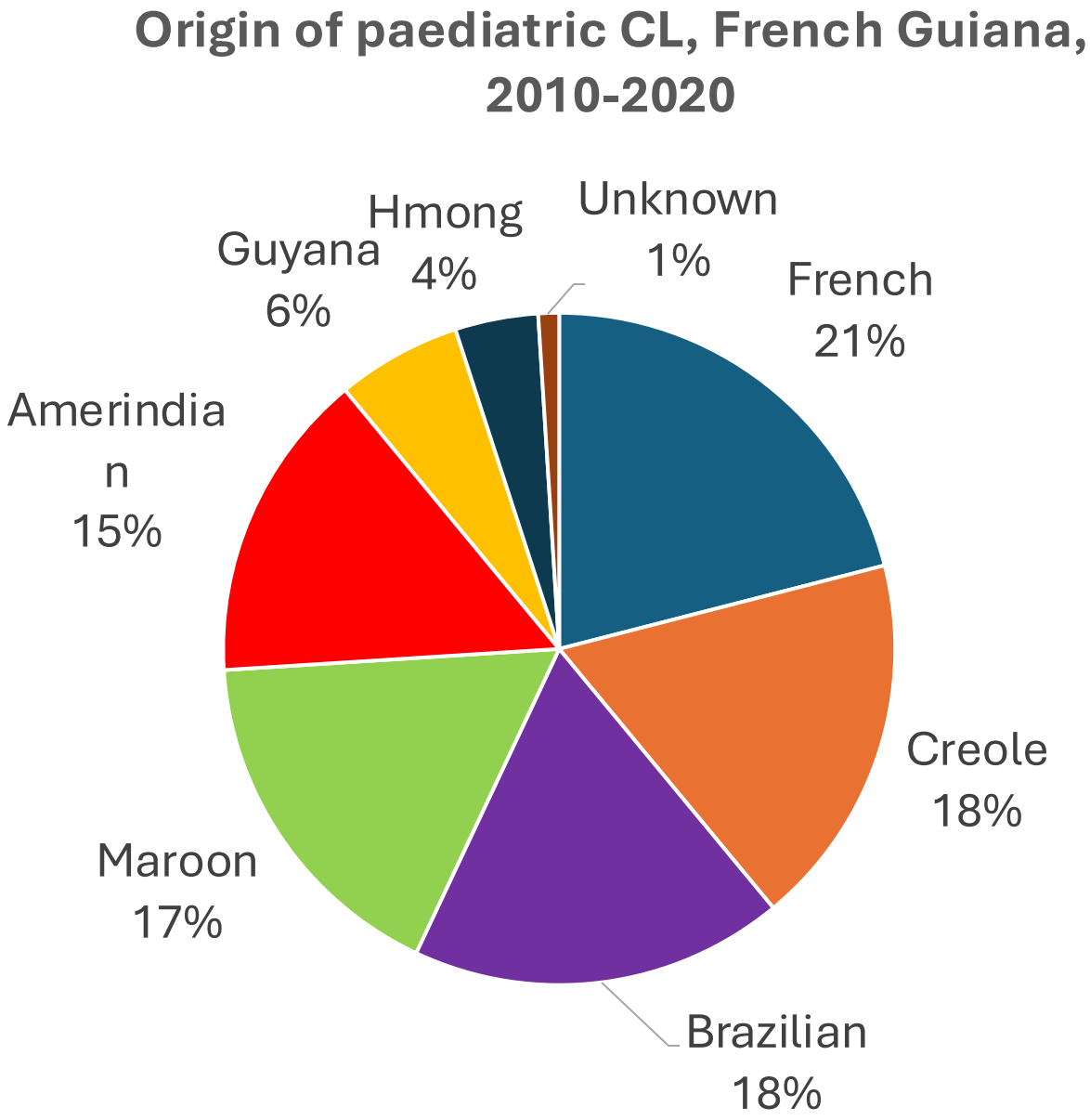
- **105 children** included between 2010 -2020
- Median age was 11.5 (7-16)
- ***L. guyanensis*** most frequent species (89 cases, 93,7%)
  - *L. braziliensis* (3 cases)
  - *L. lainsoni* (2 cases)
- Mostly **wet ulcers** (86,7%)
- Most frequent localization **lower limbs** (58,1%)
- No mucosal case

- < 15 years-old: **sex ratio 1:1**
- > 15 years-old: **sex ratio 4:1**

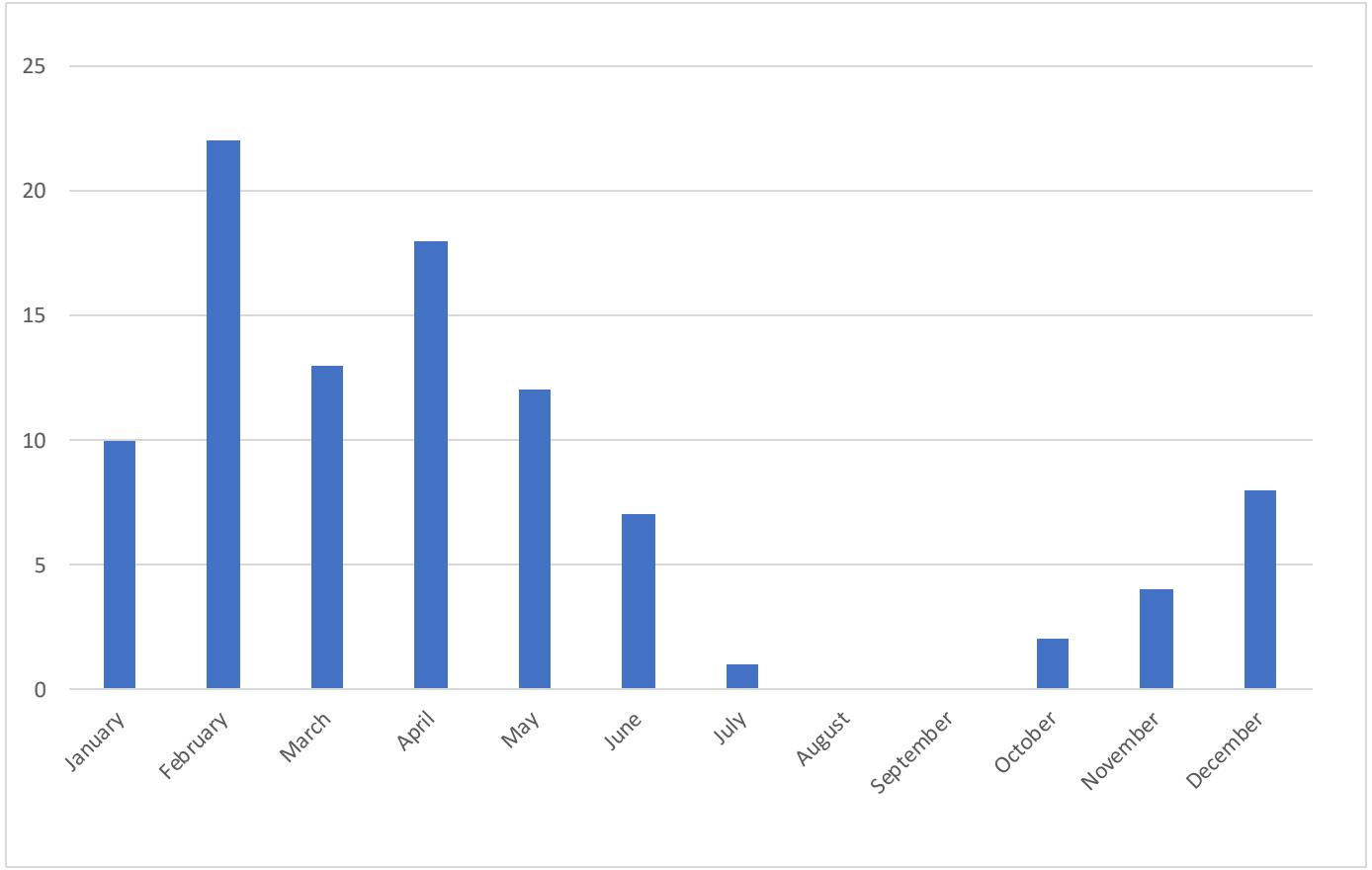
- **Familial cases** reported in 48.6% of children

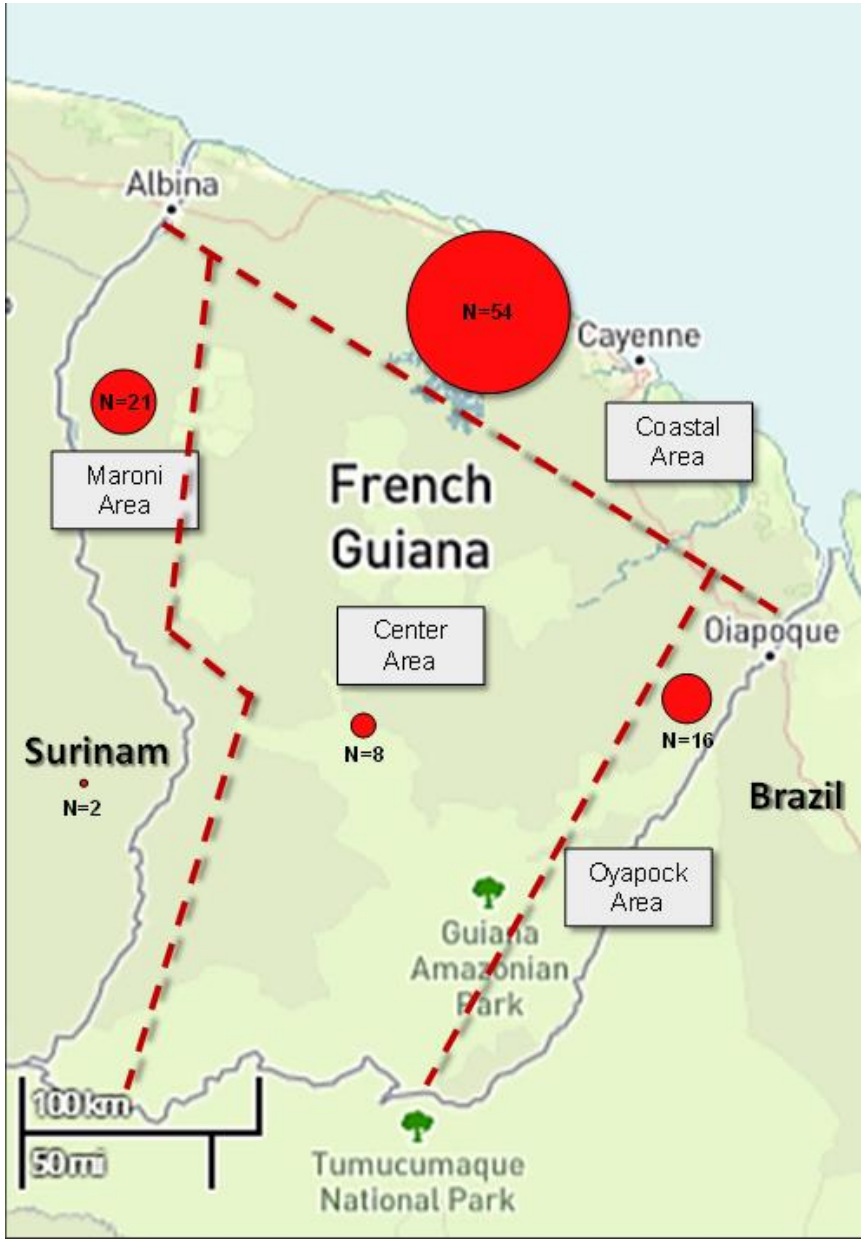
Results: ethnic origin

- **French-speaking** children most represented
- **Creole, Brazilian and Maroon** about 18%
- Significant number of **Amerindians (15%)**



Results: time and place





Results: cure rates

Cure rate 38/56 (67.9%) after **one course**

Cure rate 46/49 (93.8%) after **one or two courses**

Results: side effects of pentamidine

- **Mild side effects** were reported in 19 patients (26%)
  - including headache
  - Dizziness
  - nausea/vomiting
  - elevated CPK level

- **No interruption of treatment**

PLOS NEGLECTED TROPICAL DISEASES

RESEARCH ARTICLE

Outbreak of Cutaneous Leishmaniasis among military personnel in French Guiana, 2020: Clinical, phylogenetic, individual and environmental aspects

Kim Henry[1], Aurélie Mayet[2,3], Miguel Hernandez[1,4], Guillaume Frechard[5], Pierre-Antoine Blanc[5], Marion Schmitt[6], Nathalie André[7], Jean-Marie Loreau[2], Marine Ginouves[8], Ghislaine Prévot[8,9], Pierre Couppié[4,8,10], Magalie Demar[1,4,8], Romain Blaizot[4,8,10]*

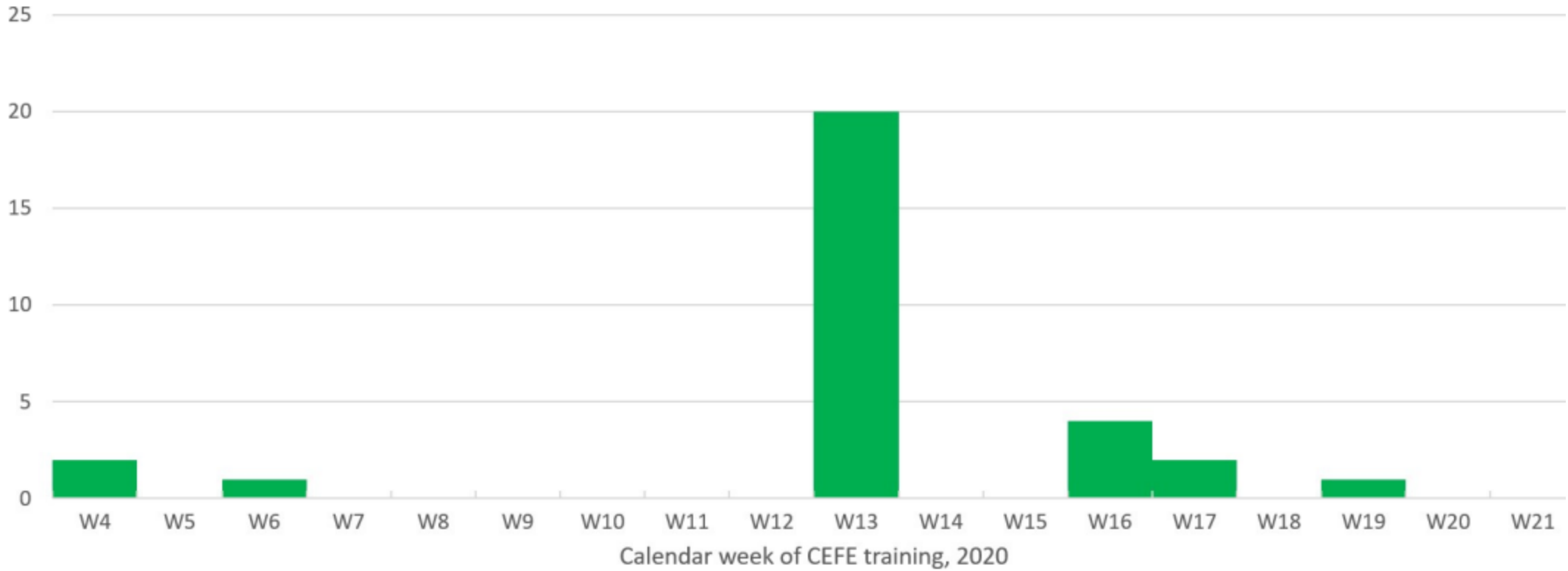


Fig 4. Number of confirmed cases of cutaneous leishmaniasis for each calendar week between February and June 2020, CEFE training site, French Guiana, 2020.

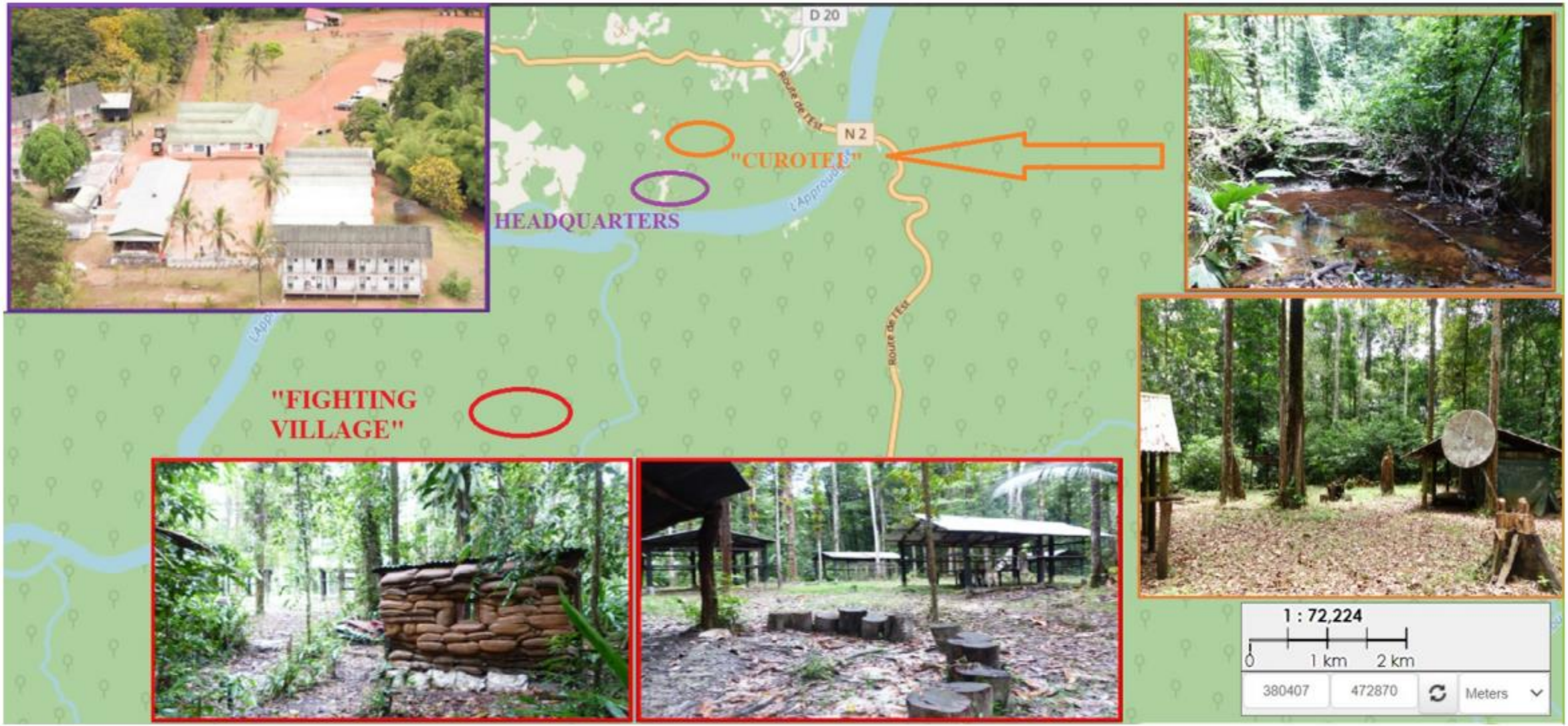


Fig 6. Map of Training Center in Equatorial Forest, CEFE outbreak, French Guiana, 2020, layer from a Guiana Amazonian Park (Parc Amazonien de Guyane) map available at http://cartotheque.parc-amazonien-guyane.fr/index.php/view/map/?repository=pag&project=Limites_PAG.

Cutaneous leishmaniasis incubation period in French Guiana is shorter than expected: implications for seasonality

Romain Blaizot, Albin Fontaine, Magalie Demar, Pierre Couppie, François Delon, Albane de Bonet d'Oleon, Aurélie Mayet, Franck de Laval, Vincent Pommier de Santi, Sébastien Briolant

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Incubation in French Guiana

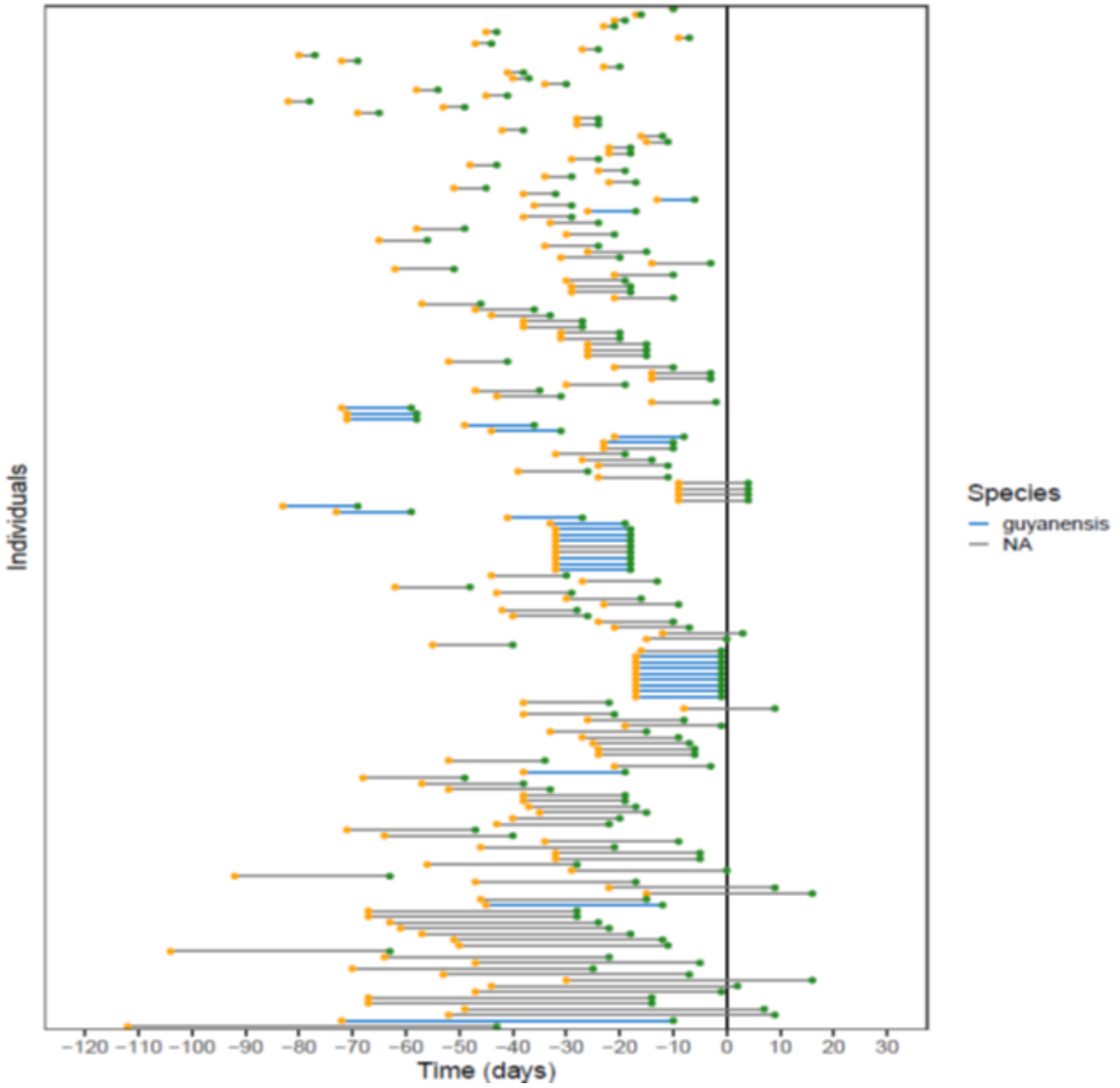
- Issue of CL IP particularly relevant in **French Guiana**
- Occurrence of most cases in January and March
- Previous studies: contaminations **several months** earlier (**dry season**)?
- **Debated** : military outbreaks during the rain season in March (eg 2020)
- Soldiers infected shortly after arrival in Guiana

Methods

- Data from military personnel from **January 2001-December 2021**
- **Confirmed CL diagnosis** (compatib symptoms and at least one positive te among smear, culture or PCR)

Data:

- **dates of arrival in FG**
- **departure from FG**
- **onset of symptoms**

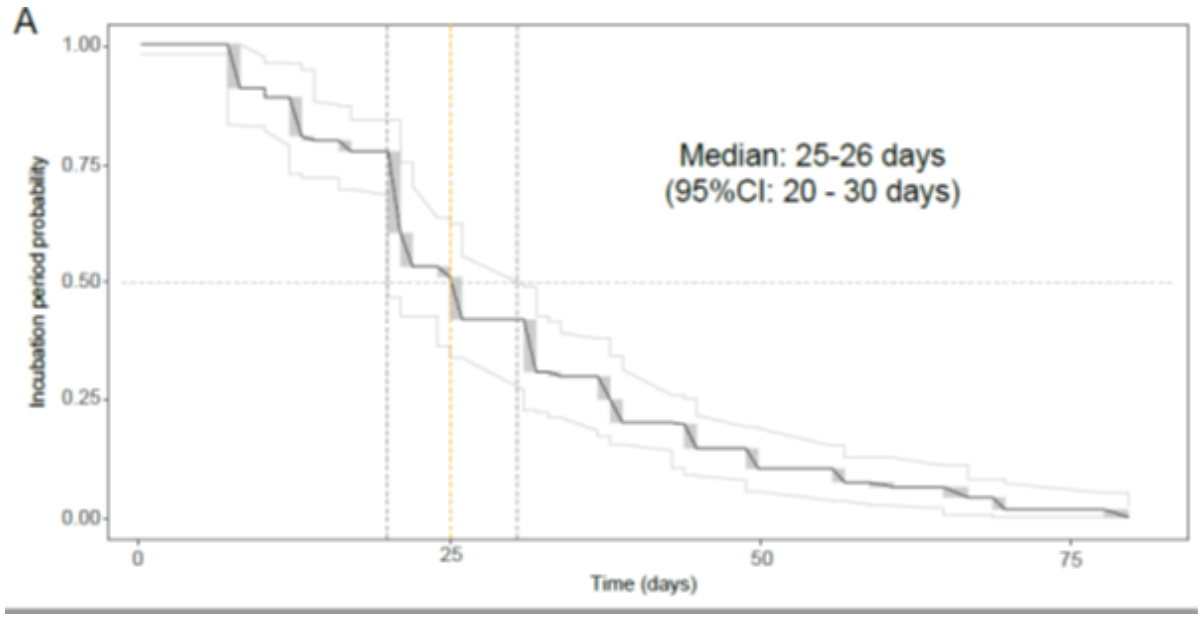


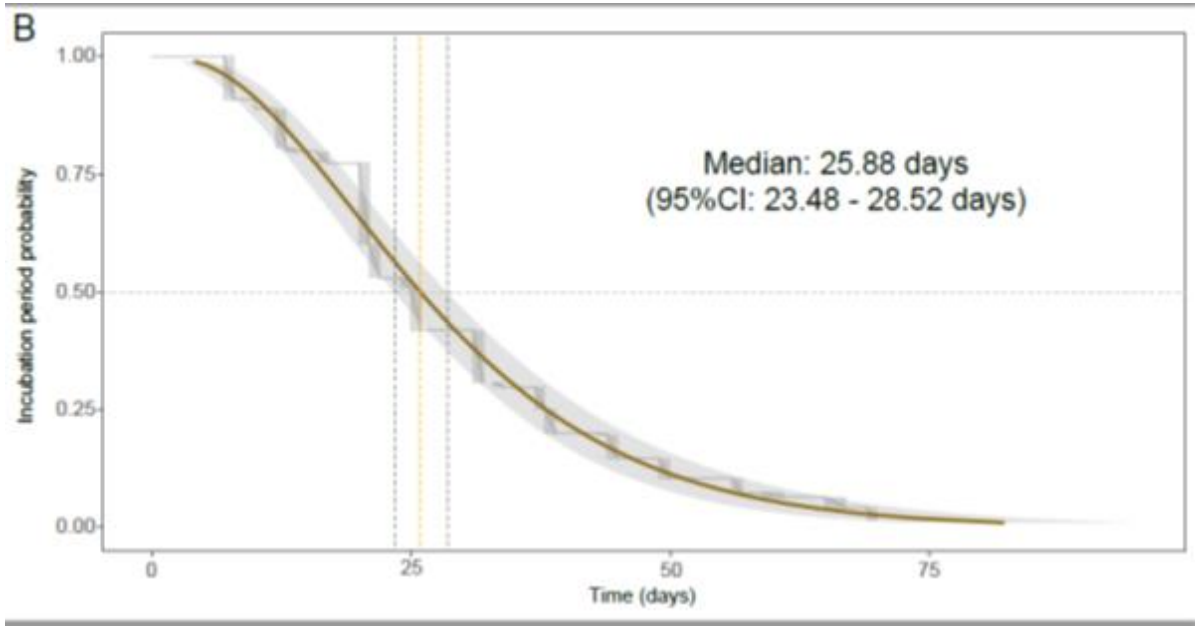
Results: characteristics

- 180 patients included
- Men: (177/180, 98.3%)
- Median age 26.2 years (23.1-31.2)
- Species recorded in 30 cases: *Leishmania guyanensis*
- Most frequent place : CEFE training, 73% Regina
- Main periods of CL diagnosis :
  - November -January 46.7%
  - March-April 30.0%

Results: incubation period

- Median **incubation period**
- Non-parametric method (A): **25 days** [20–30]
- Bayesian AFT regression (B) : **26 days** [23.5–28.5]
- Some very short incubations: 5% cases < 7.8 days [6.2–9.8]
- 95% cases < 61.5 days [55.7–69.3]





Factors associated with IP

No association between incubation period and

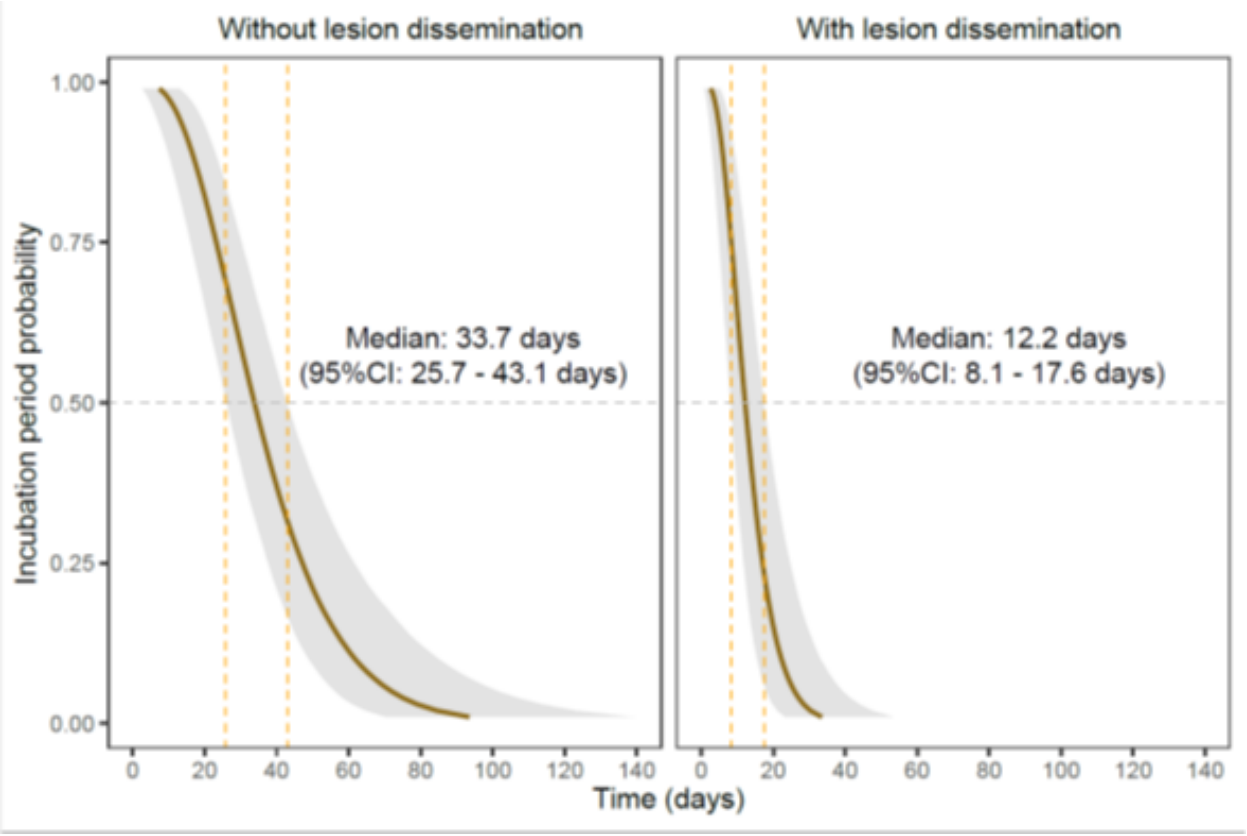
- Number of lesion
- Lesion evolution
- Age
- Gender

Association between incubation and

- **<u>lesion dissemination</u>**
- deceleration factor 0.2842 (Bayesian AFT regression)

=> presence of lesion dissemination induces a 28.4% shortening of the IP

- **12.2** days [8.1–17.6] Vs 33.7 days [25.7–43.1]



Discussion

- Until now, climatic series suggested the **following model for CL** infection in FG:
- **Symptoms** appeared around **January** and **March**
- IP was of **several months**
- => Then patients were infected during the **late dry season** (August to October)

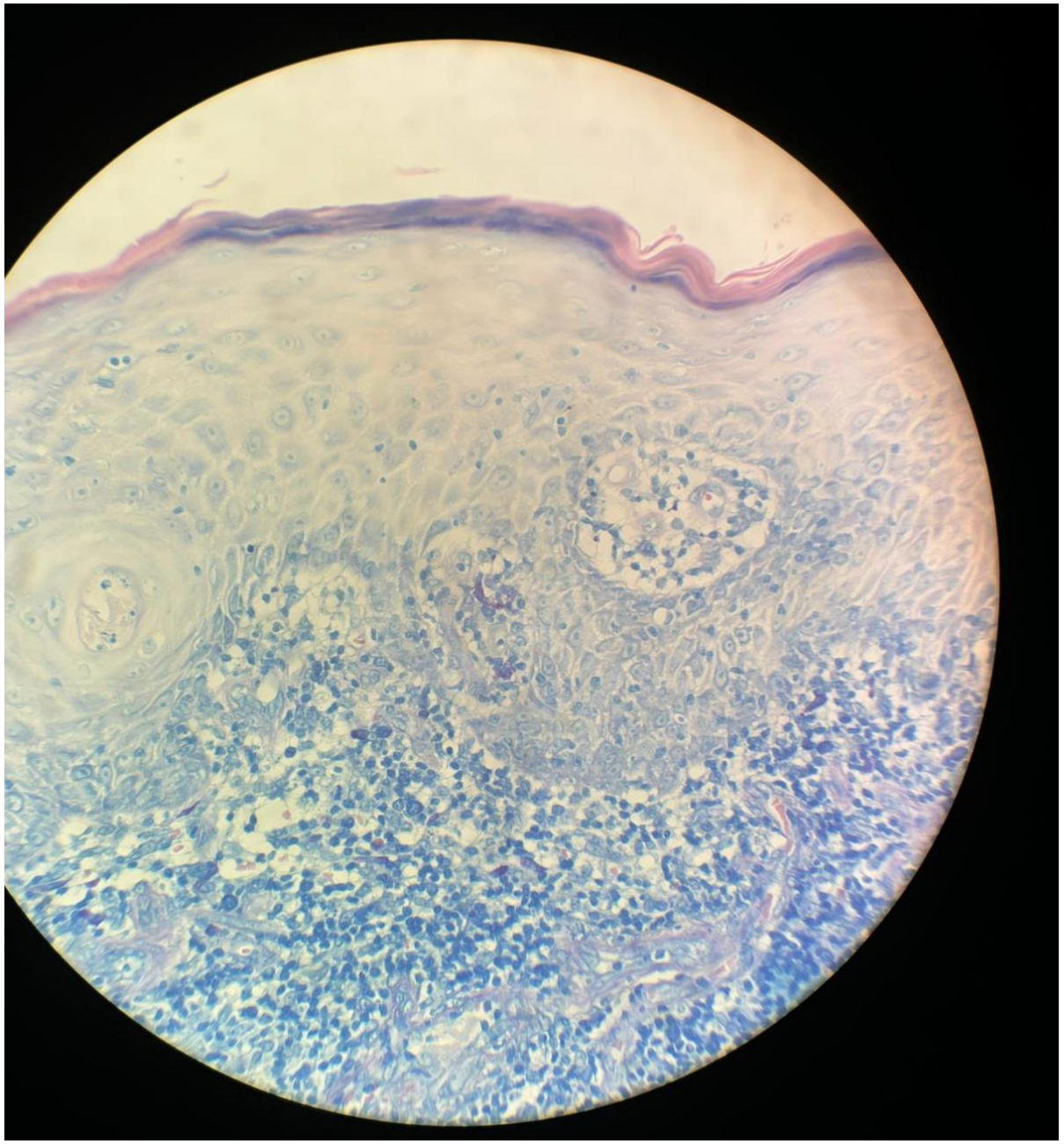
- Our study suggests **otherwise**:
- IP is probably shorter: 25 days
- Therefore, if patients in FG show **symptoms** around **January** and **March**
- =>Then patients were infected during the **two rainy seasons** (December-January) (March-April)

Perspectives

- Thérapeutique: diminuer le taux d'échec de 1ère ligne
- Diminuer le temps avant guérison
- Améliorer les cicatrices post-traitement
- => Pentamidine + cryothérapie Vs pentamidine seule
- Vaccinothérapie préventive et thérapeutique

Perspectives

- Comprendre les facteurs de risque d’échec
- Clinique
- Phylogénie d’espèce et de souche
- Histopathologie
- Pharmacocinétique
- Analyser tous ces facteurs concomitamment

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Save the date !

Journées Guyanaises de Dermatologie Infectieuse & Tropicale 2025

Du mardi 11 au vendredi 14 mars 2025
A Cayenne (Guyane)