

#### Clinical Tropical Medicine and Travelers' Health:

Virtual Update Course

September 27-28, 2024

## **Tropical dermatology**

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#### **CAUSES OF NEGLECTED TROPICAL DISEASES, WHO, 2024**

Buruli ulcer

Chagas disease

Dengue and Chikungunya

Dracunculiasis (guineaworm disease)

Echinococcosis

Foodborne trematodiases

Human African trypanosomiasis (sleeping sickness)

Leishmaniasis

Leprosy (Hansen's disease)

Lymphatic filariasis

Mycetoma, chromoblastomycosis and other deep mycoses

Onchocerciasis (river blindness)

Rabies

Scabies and other ectoparasites

Schistosomiasis

Soil-transmitted helminthiases

Snakebite envenoming

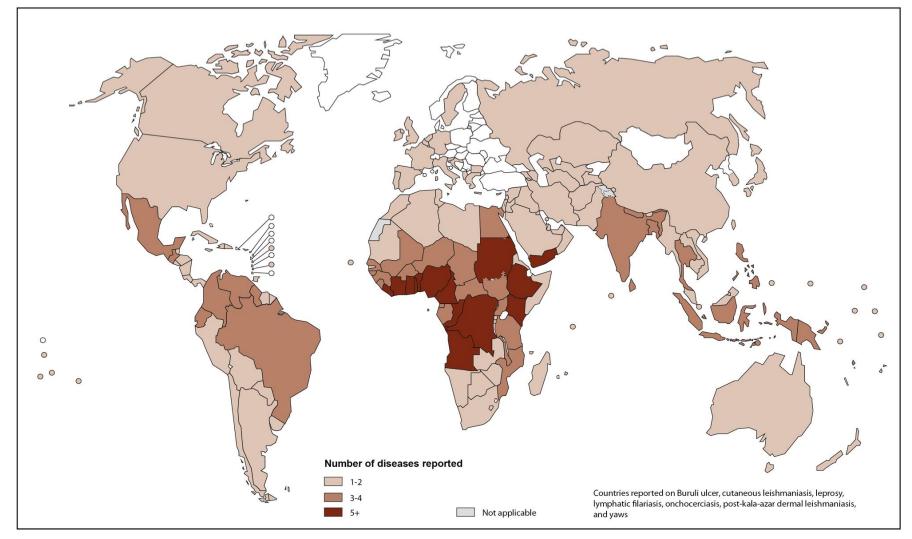
Taeniasis/Cysticercosis

Trachoma

Yaws (Endemic treponematoses)

http://www.who.int/neglected\_diseases/resources/en/index.html

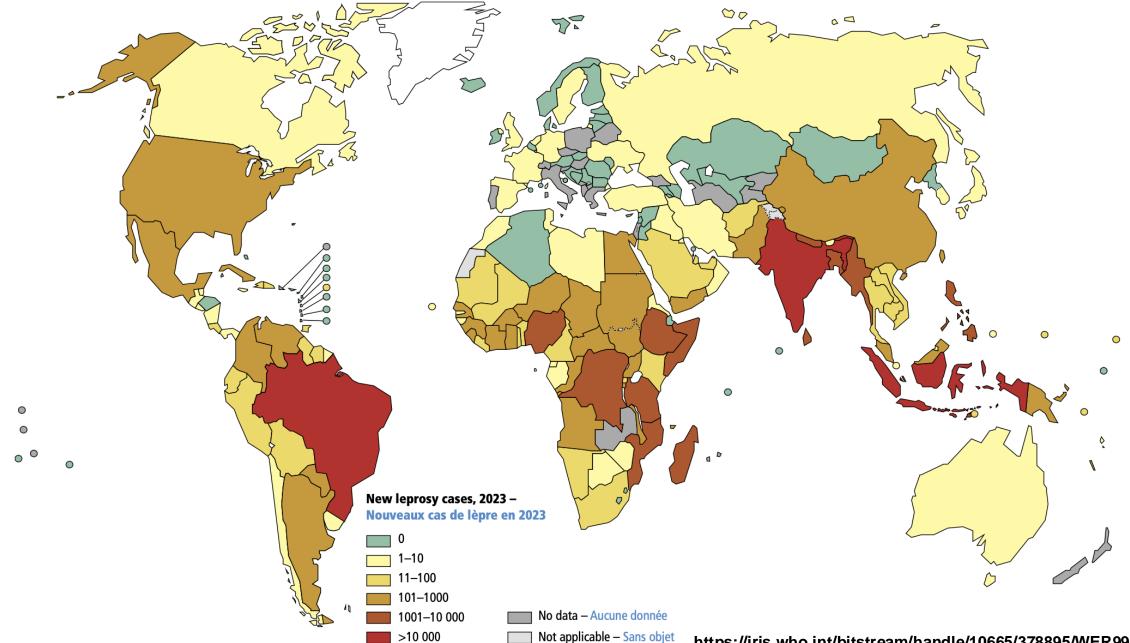
#### COUNTRIES REPORTING CASES ON AT LEAST ONE SKIN NTD IN 2017-2021, WHO



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © World Health Organization (WHO) 2023. All rights reserved. Data source: World Health Organization Map production: Control of Neglected Tropical Diseases (NTD) World Health Organization



#### **GEOGRAPHICAL DISTRIBUTION OF NEW CASES OF LEPROSY, 2023**

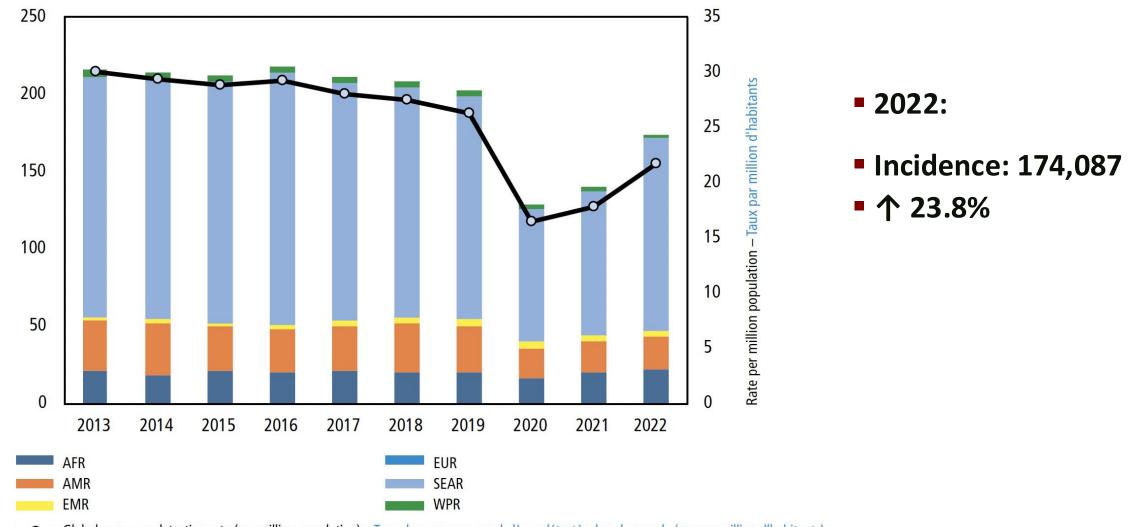


https://iris.who.int/bitstream/handle/10665/378895/WER9937-501-521

#### IMPACT OF COVID-19 IN LEPROSY, 2018-2021



#### **LEPROSY DETECTION RATE. 2022**

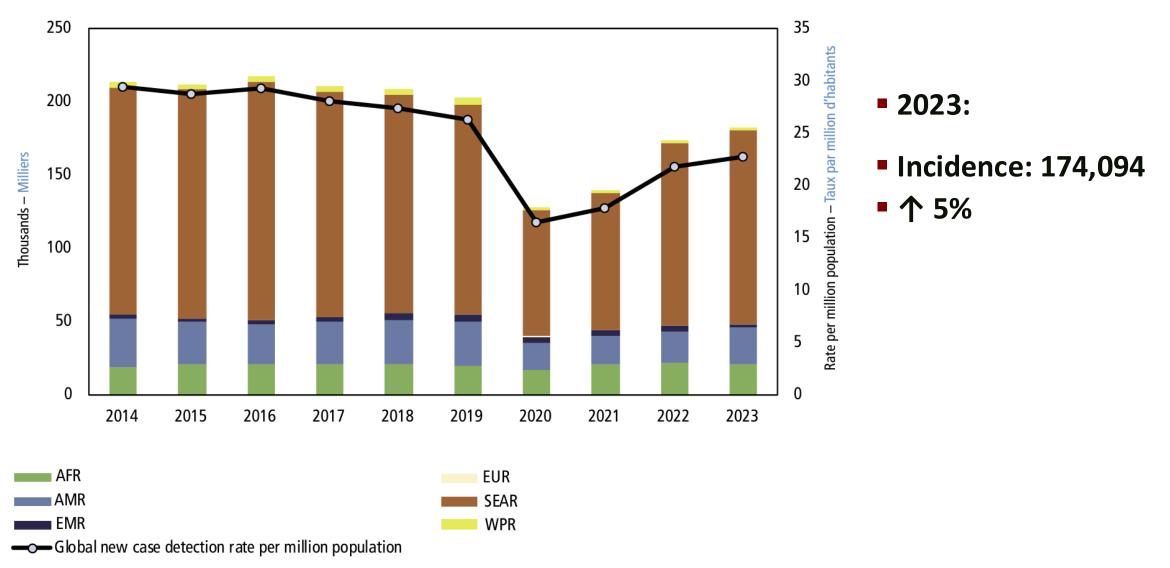


Global new case detection rate (per million population) – Taux de nouveaux cas de lèpre détectés dans le monde (cas par million d'habitants)

Thousands – Milliers

https://www.who.int/publications/i/item/who-wer9636-421-444

#### **LEPROSY DETECTION RATE, 2023**



https://www.who.int/publications/i/item/who-wer9937-501-521

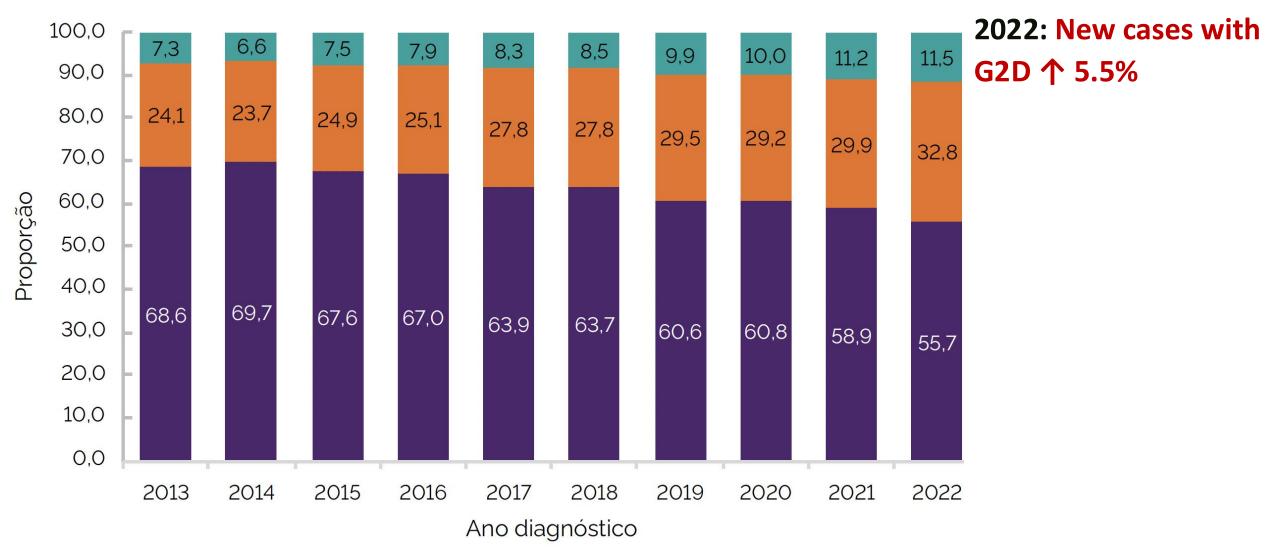
#### TRENDS IN NEW LEPROSY CASE DETECTION WITH G2D, 2014-2023

WHO Region – Région OMS	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
African – Afrique	2 726	3 076	2 899	2 990	2 797	2 975	2 441	3 246	3 319	3 026
	(2.9)	(3.1)	(2.9)	(2.9)	(2.6)	(2.7)	(2.2)	(2.8)	(2.8)	(2.5)
Americas – Amériques	2 227ª	2 101⁵	1 940	2 150	2 324	2 544	1 610º	1 862	2 088	2 374
	(2.3)ª	(2.1)⁵	(2.0)	(2.2)	(2.3)	(2.5)	(1.6)	(1.8)	(2.0)	(2.3)
Eastern Mediterranean – Méditerranée orientale	300	315	299	314	309	236	252	209	200	223
	(0.5)	(0.5)	(0.4)	(0.5)	(0.4)	(0.3)	(0.3)	(0.3)	(0.2)	(0.3)
European – Europe	-	-	4	1	2	4	4	-	13 <sup>d</sup>	10
South-East Asia – Asie du Sud-Est	8 525	8 572	7 538	6 513	5 626	4 817	2 713	2 953	3 771	3 899
	(4.5)	(4.5)	(3.9)	(3.3)	(2.8)	(2.4)	(1.3)	(1.4)	(1.8)	(1.9)
Western Pacific – Pacifique occidental	337	321	373	306	260	264	192	199	166	197
	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
World – Monde	14 115ª	14 385 <sup>ь</sup>	13 053	12 274	11 318	10 840	7 212º	8 469	9 557₫	9 729
	(1.9)ª	(2.0) <sup>ь</sup>	(1.8)	(1.6)	(1.5)	(1.4)	(0.9)	(1.1)	(1.2)	(1.2)

- 5.3% of all new cases detected during 2023;
- New cases with G2D: ↑ 1.8%;

https://www.who.int/publications/i/item/who-wer9937-501-521

#### TRENDS IN NEW LEPROSY CASE DETECTION WITH G2D, BRAZIL, 2013-2022



#### LATE DIAGNOSIS









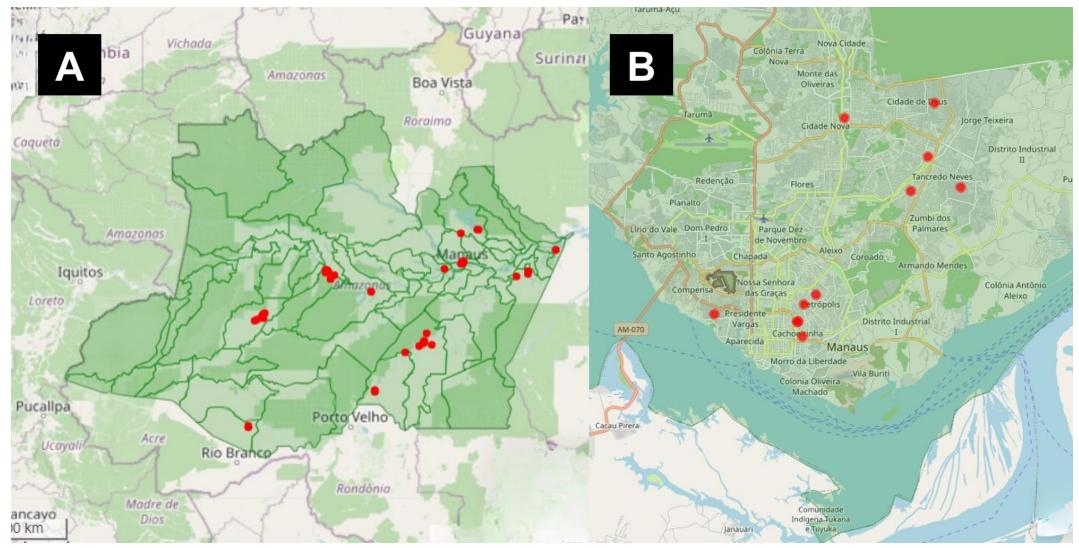








### NEW LEPROSY CASES DIAGNOSED DURING THE AMAZON SKIN HEALTH PROGRAM (2023)



2023: 13,023 individuals examined, 69 (0.5%) new cases of leprosy

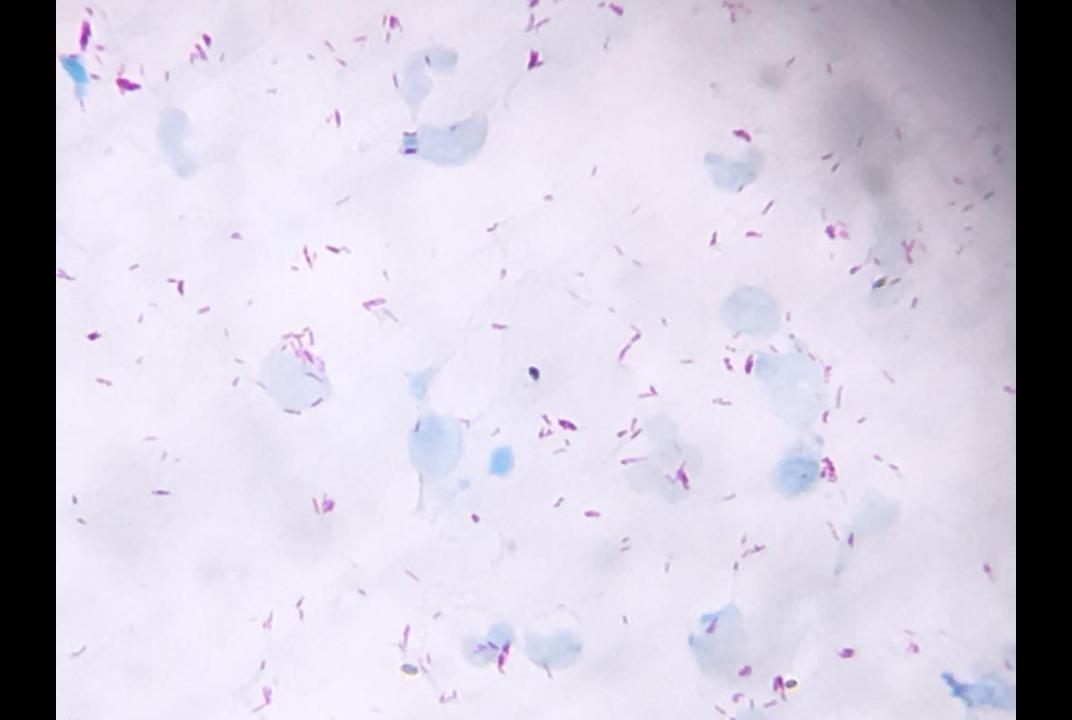
Article submitted







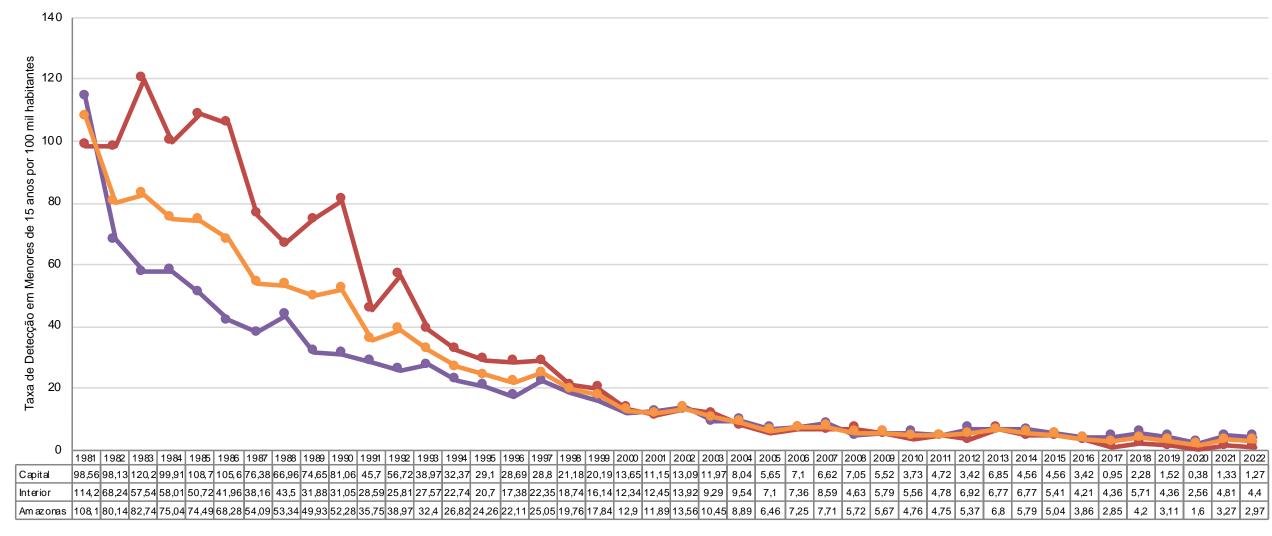








#### NEW LEPROSY CASE DETECTION AMONG CHILDREN, AMAZONAS STATE, 1981 - 2022







Sinesio Talhari



Sinesio Talhari

# A study of leprosy and other skin diseases in school children in the state of Amazonas, Brazil



Head Lice	2	8,301
Naevi	16,694	
Eczematid	13,290	
Tinea Versicolor———	11,206	
Scabies ———	6,714	
Acne ———	5,101	
Miliaria ———	3,366	
Warts	2,985	
Pyoderma	2,824	
Tinea ————	2,035	
Piedra Nigra ———	1,084	
Strophulus tun Infan	749	
Keratosis Pilaris ———	353	
Larva Migrans ———	278	
Keloid	180	
Leprosy	107	

**1979-1982:** 

- 104,000 schoolchildren examined
- 107 new cases of leprosy
- 10.6 cases of leprosy per 10,000 children

Lepr Rev (1987) 58, 233–237

Almost 40 years later...



#### **RESEARCH ARTICLE**

### Leprosy among schoolchildren in the Amazon region: A cross-sectional study of active search and possible source of infection by contact tracing

Valderiza Lourenço Pedrosa<sup>1</sup>\*, Luiz Claudio Dias<sup>1</sup>, Enrique Galban<sup>2</sup>, André Leturiondo<sup>1</sup>, Jamile Palheta, Jr<sup>1</sup>, Monica Santos<sup>1,3</sup>, Milton Ozório Moraes<sup>4</sup>, Carolina Talhari<sup>1,3</sup>

1 Departamento de Ensino e Pesquisa, Fundação Alfredo da Matta, Manaus, Brazil, 2 Departamento de Epidemiologia, Facultad de Medicina Calixto García, La Habana, Cuba, 3 Escola de Ciências da Saúde, Universidade do Estado do Amazonas, Manaus, Brazil, 4 Laboratório de Hanseníase, Fundação Oswaldo Cruz, Rio de Janeiro, Brazil

\* valpedrosa@fuam.am.gov.br

http://journals.plos.org/plosntds/article/file?id=10.1371/journal.pntd.0006261&type=printable



#### Leprosy among schoolchildren in the Amazon region: a cross-sectional study of active search and possible source of infection by contact tracing

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- **2014-2016**
- 34,547 schoolchildren were examined
- 40 new leprosy cases were diagnosed
- Leprosy prevalence was 11.58 per 10,000 children

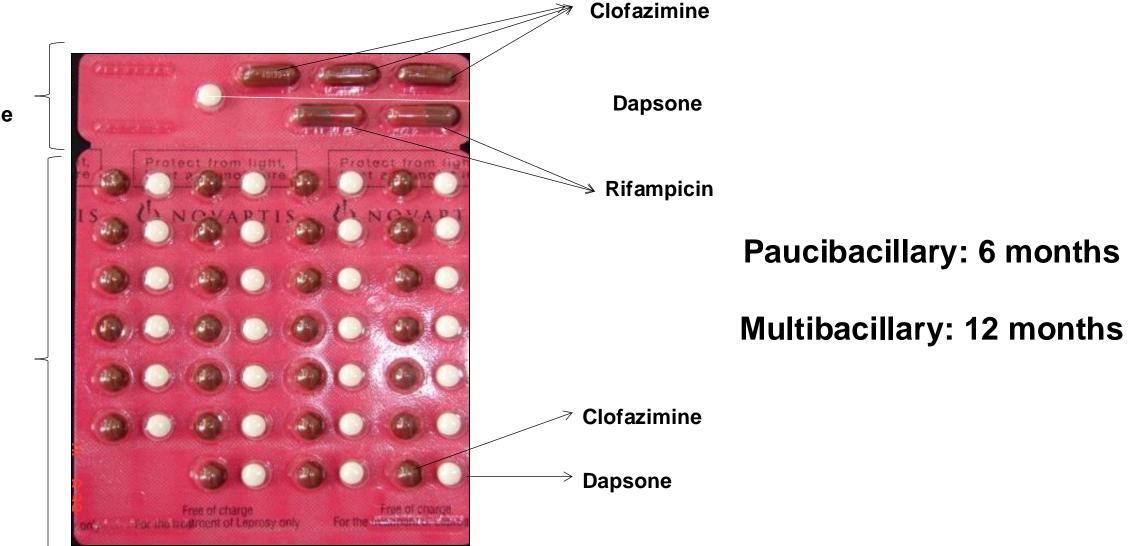
I7 times higher than the registered rate in 2013 and higher than the study conducted in 1979



## **LEPROSY UNIFORM TREATMENT**

Supervised monthly dose

Selfadministered dose

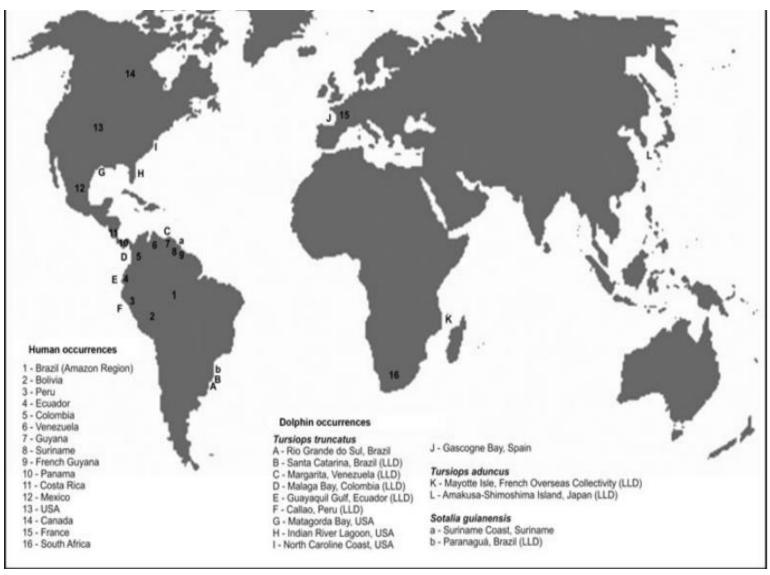


## GEOGRAPHICAL OCCURRENCE OF LOBOMYCOSIS IN BOTH HUMANS AND DOLPHINS



A.Paniz-Mondolfi, C. Talhari, L. Sander Hoffmann, D. L. Connor, S. Talhari et al. Lobomycosis: an emerging disease in humans and delphinidae Mycoses, 2012, 55, 298–309

## GEOGRAPHICAL OCCURRENCE OF LOBOMYCOSIS IN BOTH HUMANS AND DOLPHINS

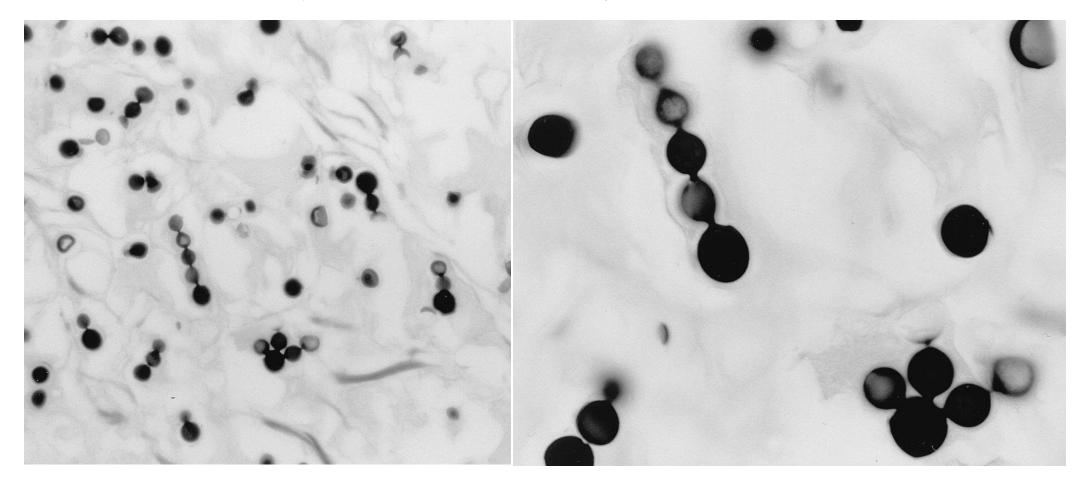


A.Paniz-Mondolfi, C. Talhari, L. Sander Hoffmann, D. L. Connor, S. Talhari et al. Lobomycosis: an emerging disease in humans and delphinidae Mycoses, 2012, 55, 298–309 JOURNAL OF CLINICAL MICROBIOLOGY, Mar. 2000, p. 1283–1285 0095-1137/00/\$04.00+0 Copyright © 2000, American Society for Microbiology. All Rights Reserved. Vol. 38, No. 3

#### Report of the First Human Case of Lobomycosis in the United States

ROBERT A. BURNS,<sup>1</sup> J. STEPHEN ROY,<sup>2</sup> CAVAN WOODS,<sup>1</sup> ARVIND A. PADHYE,<sup>3\*</sup> AND DAVID W. WARNOCK<sup>3</sup>

North Georgia Surgical Associates, Dalton, Georgia 30722<sup>1</sup>; Dianon Systems Inc., Stratford, Connecticut 06615<sup>2</sup>; and Mycotic Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia 30333<sup>3</sup>











Talhari A et al. Archives of Dermatology, 2007

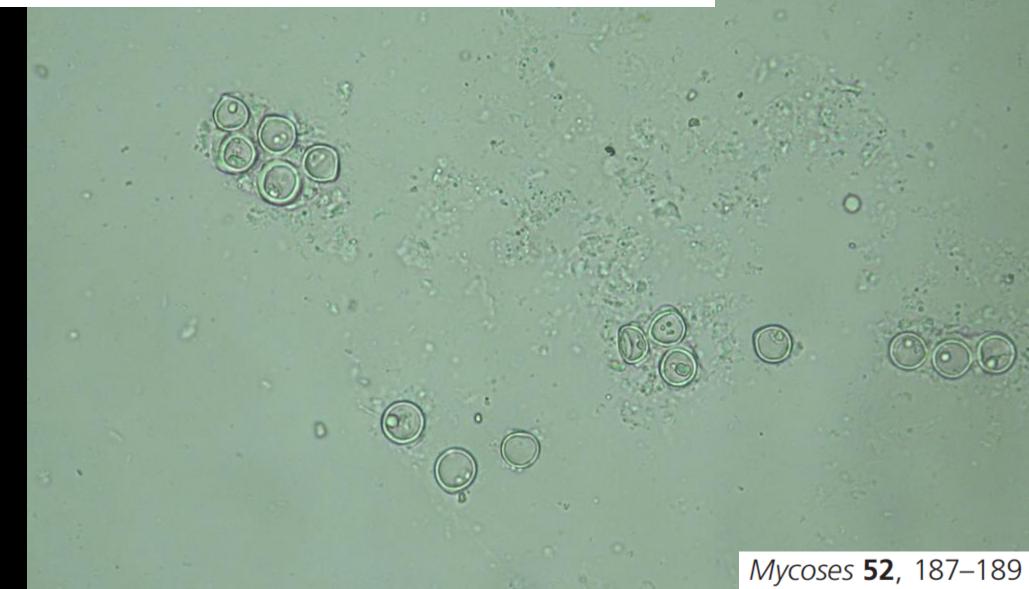
Talhari C et al. Int J of Dermatology, 2008

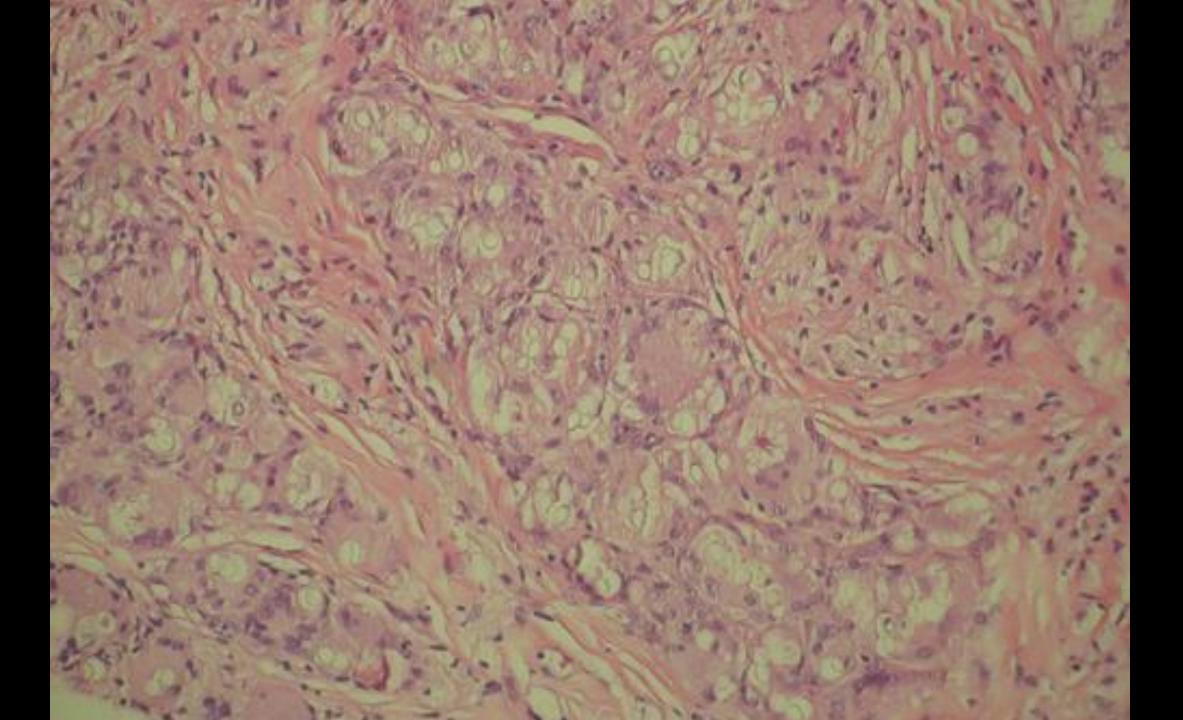


Talhari C et al. An Bras Dermatol

Exfoliative cytology as a rapid diagnostic tool for lobomycosis

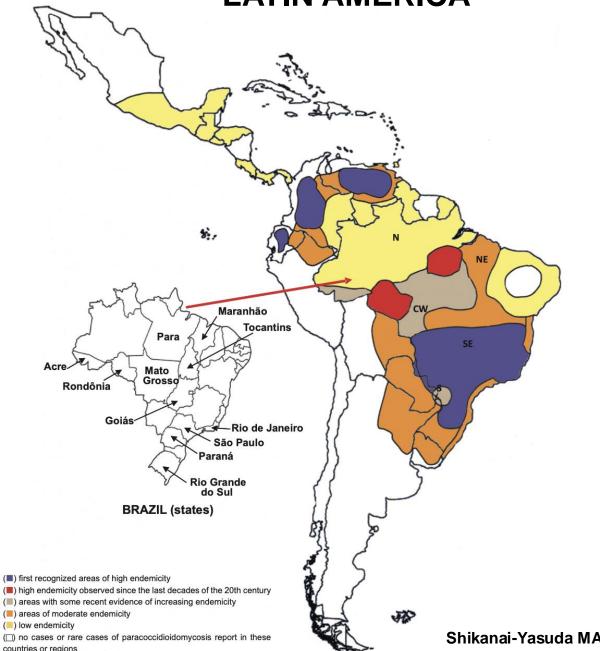
Carolina Talhari,<sup>1,2</sup> Anette Chrusciak-Talhari,<sup>1</sup> João Vicente Braga de Souza,<sup>3</sup> José Ribamar Araújo<sup>4</sup> and Sinésio Talhari<sup>1</sup>







#### GEOGRAPHICAL AREAS OF PARACOCCIDIOIDOMYCOSIS ENDEMICITY IN LATIN AMERICA

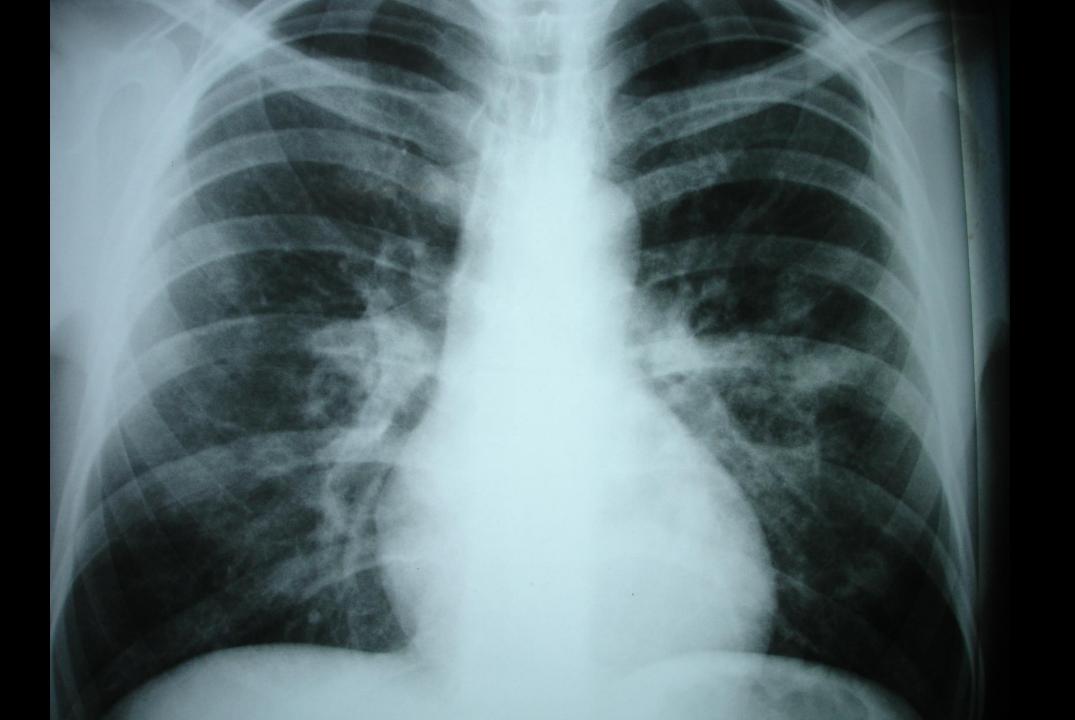


Shikanai-Yasuda MA et al. Bras Med Trop. 2017 Sep-Oct;50(5):715-740.









Oral exfoliative cytology as a rapid diagnostic tool for paracoccidioidomycosis

Carolina Talhari,<sup>1,2</sup> João Vicente Braga de Souza,<sup>3</sup> Vilmar José Parreira,<sup>4</sup> Dieter Reinel<sup>5</sup> and Sinésio Talhari<sup>1</sup>



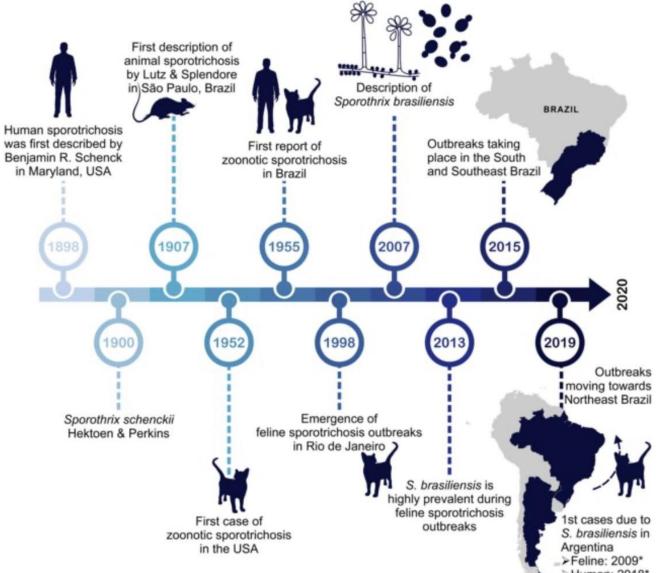


#### BRAZILIAN GUIDELINES FOR THE CLINICAL MANAGEMENT OF PARACOCCIDIOIDOMYCOSIS

#### MOST COMMONLY USED DRUGS IN PATIENTS WITH PARACOCCIDIOIDOMYCOSIS.

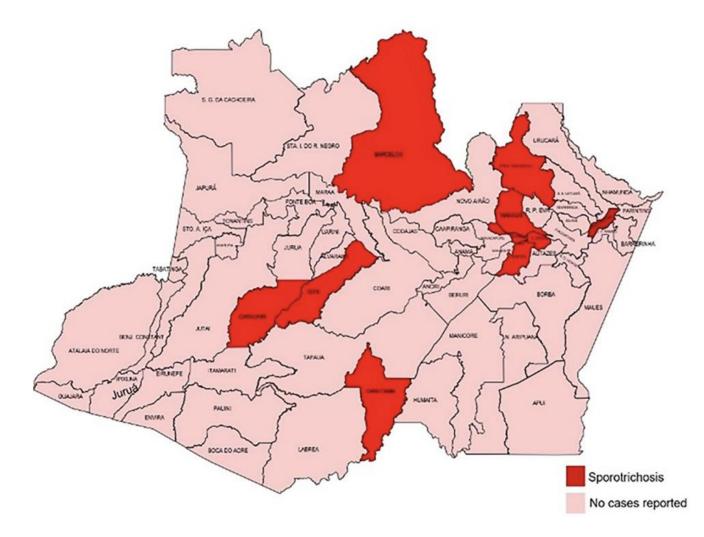
Drugs	Dose	Average duration
Itraconazole*	200mg daily **Children < 30kg e > 5 years, 5 to 10mg/kg/day, adjust dose without opening the capsule	9-18 months
Cotrimoxazole*	Trimethoprim, 160mg + Sulfamethoxazole, 800mg (VO 8/8h or 12/12h) Children – Trimetoprim, 8 to 10mg/kg + Sulfamethoxazole, 40 to 50mg/kg, VO 12/12h	18-24 months***
Amphotericin B	Deoxycholate 0.5-0.7mg/kg/day (IV) Lipid formulation 3-5mg/kg/day (IV)	2-4 weeks**** (until improvement)

#### TIMELINE OF KEY GROUNDBREAKING EVENTS THAT CONTRIBUTED TO THE 120-YEAR HISTORY OF HUMAN AND ANIMAL SPOROTRICHOSIS



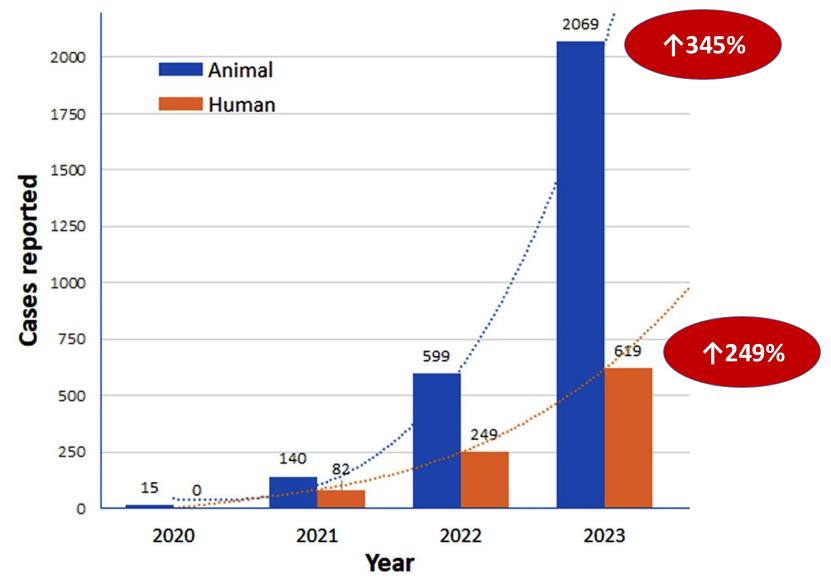
#### **RESEARCH ARTICLE**

# Zoonotic Sporotrichosis outbreak: Emerging public health threat in the Amazon State, Brazil



Mesquita VA, Talhari S, Leturiondo AL, de Souza GC, de Brito EM, de Andrade SL, et al. (2024) Zoonotic Sporotrichosis outbreak: Emerging public health threat in the Amazon State. Brazil. PLoS Negl Trop Dis 18(7): e0012328.

#### GRAPHIC CURVE REPRESENTATION OF THE EXPONENTIAL NUMBER OF SPOROTRICHOSIS CASES IN ANIMALS AND HUMANS, IN AMAZON STATE, BRAZIL, FROM 2021 TO 2023



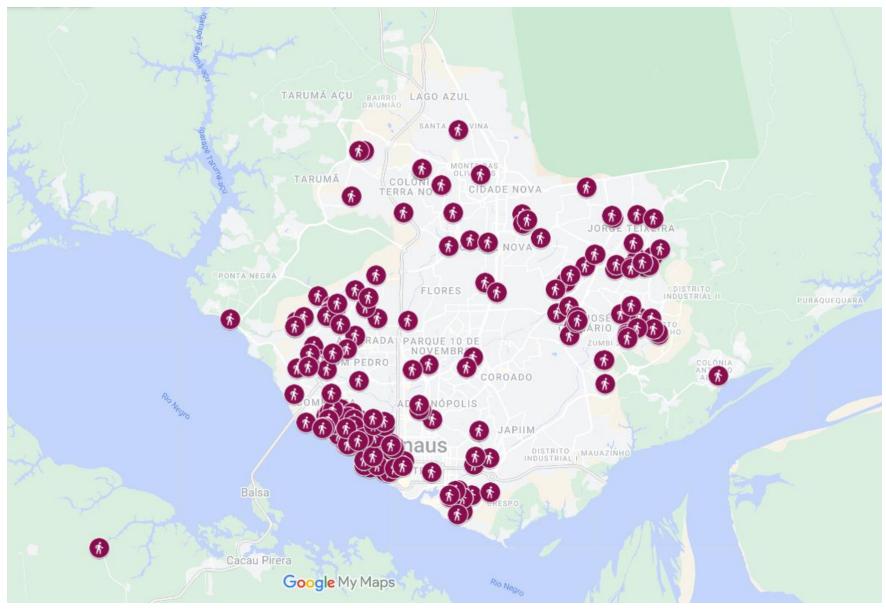
Mesquita VA, Talhari S, Leturiondo AL, de Souza GC, de Brito EM, de Andrade SL, et al. (2024) Zoonotic Sporotrichosis outbreak: Emerging public health threat in the Amazon State. Brazil. PLoS Negl Trop Dis 18(7): e0012328.

## **HUMAN CASES OF SPOROTHRICOSIS IN MANAUS, 2021**



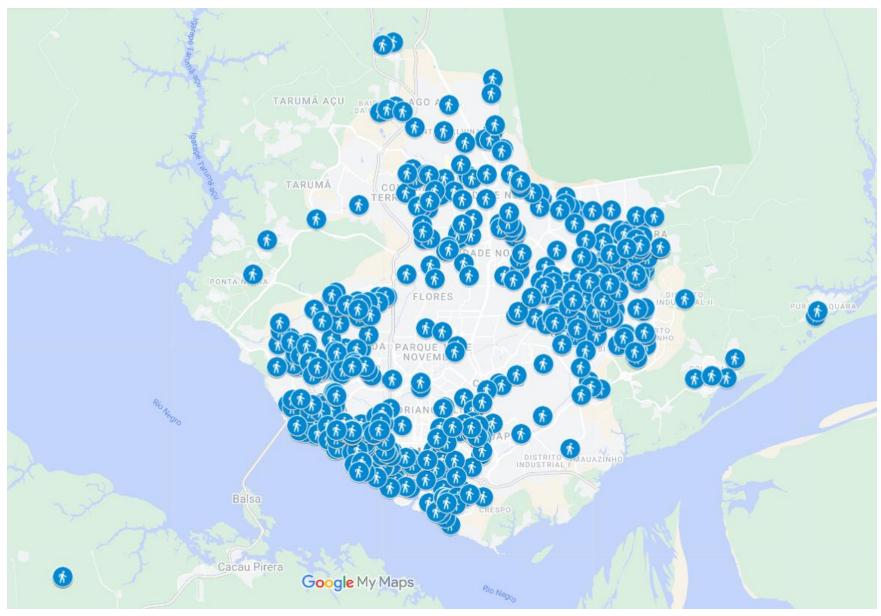
#### Source: SINAN-NET

## HUMAN CASES OF SPOROTHRICOSIS IN MANAUS, 2022

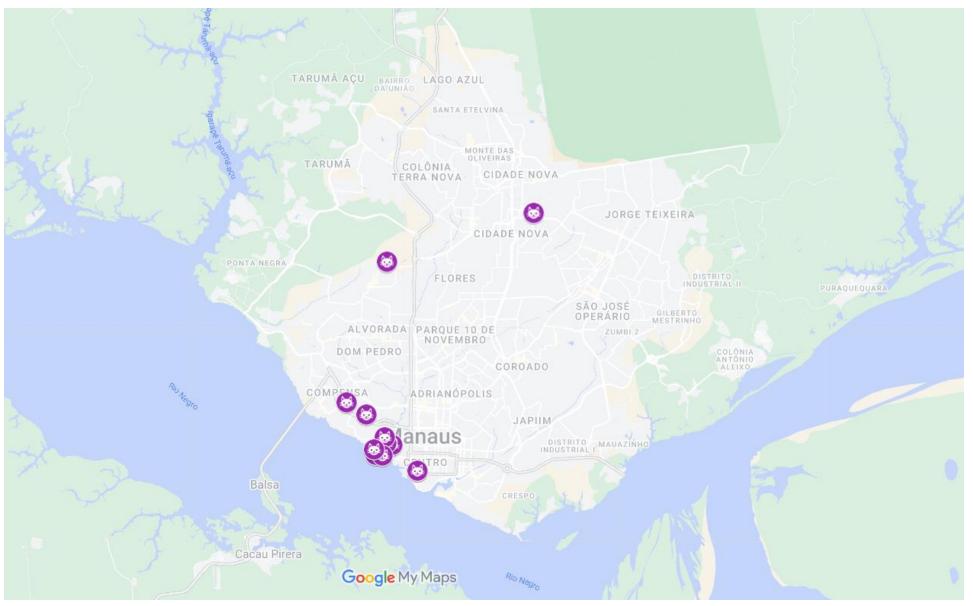


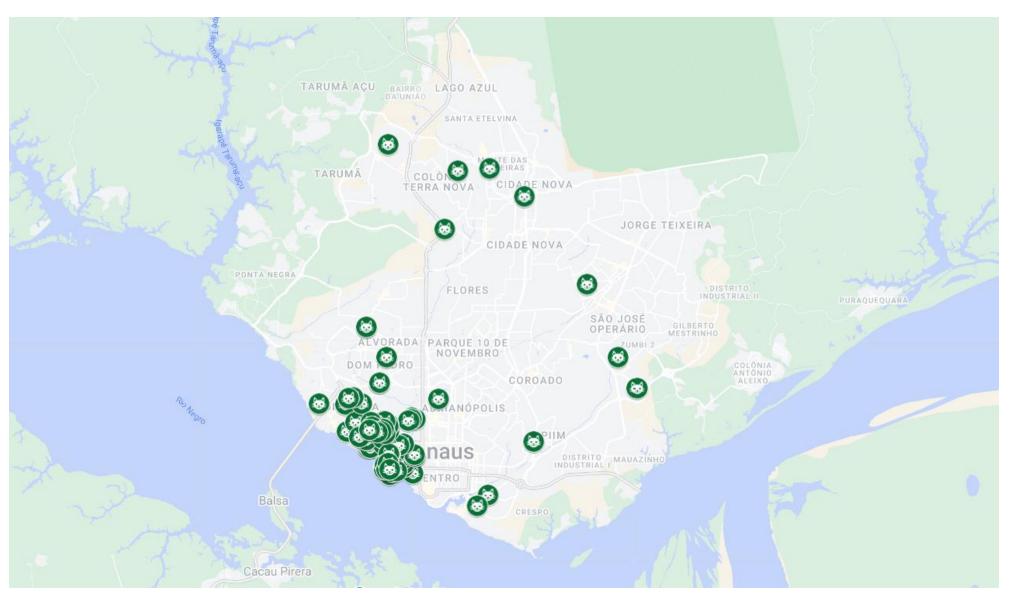
#### Source: SINAN-NET

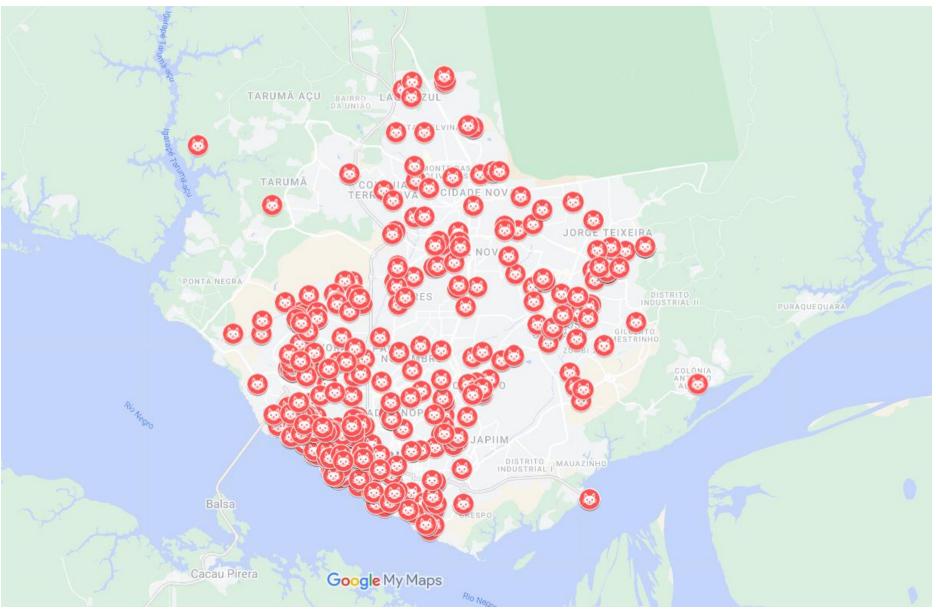
## HUMAN CASES OF SPOROTHRICOSIS IN MANAUS, 2023

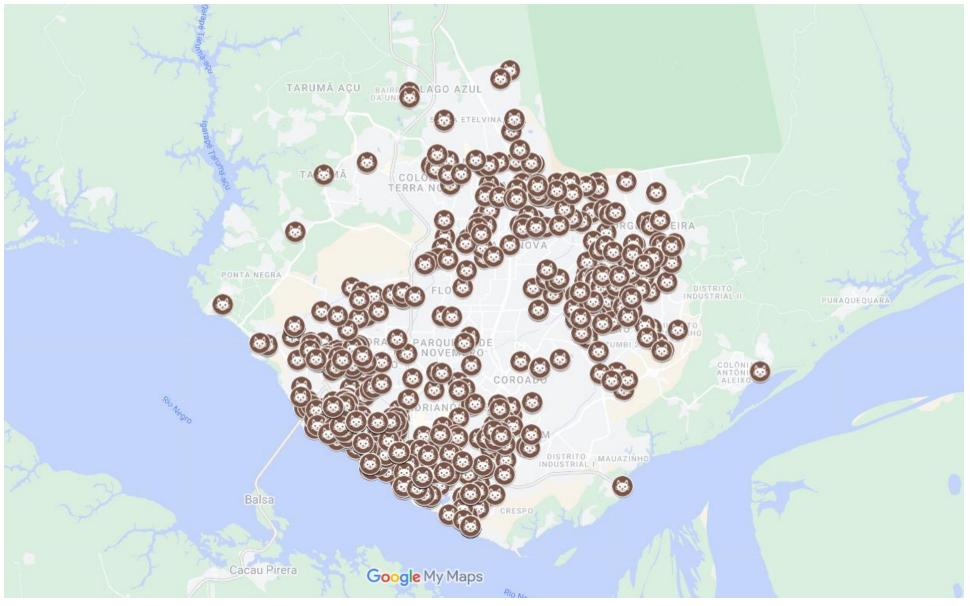


#### Source: SINAN-NET













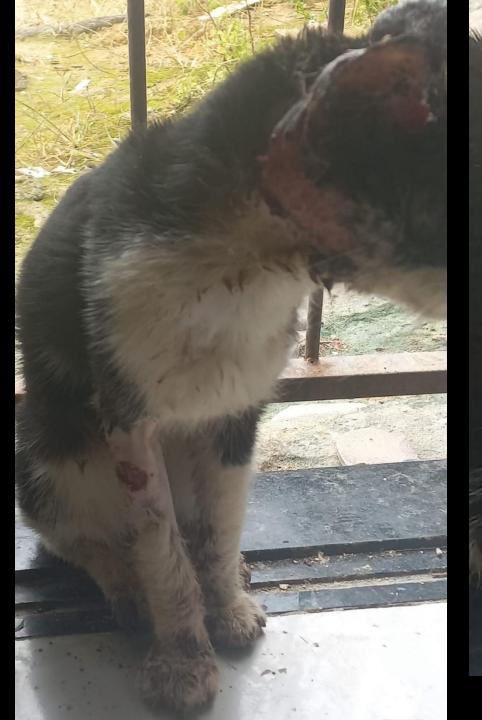


















# Human sporotrichosis: recommendations from the Brazilian Society of Dermatology for the clinical, diagnostic and therapeutic management $\stackrel{\star}{\sim}$

Treatment	Clinical forms						
Cutaneous (LC, FC, multiple inoculations) Mucosal			Osteoarticular <sup>a</sup>		Systemic <sup>b</sup>		Immunoreactive
	Immuno- competent	lmmuno- suppressed <sup>1</sup>	lmmuno- competent	lmmuno- suppressed <sup>1</sup>	lmmuno- competent	Immuno- suppressed <sup>1</sup>	Hyperergic
Itraconazole <sup>2</sup> 100 mg capsule	100-200 mg/d	200–400 mg/d	200-400 mg/d	400 mg/d	200–400 mg/d	400 mg/d	100 mg/d
Terbinafine <sup>3</sup> 250 mg tablet	250-500 mg/d	250–1000 mg/d	Rarely	Rarely	Rarely	Not indicated as monother- apy	250 mg/d
Potassium iodide <sup>4</sup> 0.07 g/drop aqueous solution	2.8-3.5 g/d	Not indicated	Not indicated	Not indicated	Not indicated	Not indicated	2.8-3.5 g/d <sup>5</sup>
Amph. B deoxycholate <sup>6</sup> 50 mg lyophilized powder	Rarely	0.5–1.0 mg/Kg/d	Rarely	Rarely	0.5-1.0 mg/Kg/d	0.5–1.0 mg/Kg/d	No indication
Amph. B lipid/liposomal complex <sup>7</sup> 5 mg/mL suspension	Rarely	3.0-5.0 mg/Kg/d	Rarely	Rarely	3.0-5.0 mg/Kg/d	3.0-5.0 mg/Kg/d	No indication
Adjuvant <sup>8</sup>	Specific	Specific	Specific	Specific cases	Specific	Specific	Specific cases

#### Anais Brasileiros de Dermatologia 2022;97(6):757-777

New report flags major increase in sexually transmitted infections, amidst challenges in HIV and hepatitis

Countries ~

Newsroom ~

1	Data ~	Ab	out WHO <b>v</b>	•	
	العربية	中文	Français	Русский	
	Españo	ы			

#### 21 May 2024 | News release |Reading time: 3 min (921 words)

World Health Organization

Health Topics ~

Global HIV, viral hepatitis epidemics and sexually transmitted infections (STIs) continue to pose significant public health challenges, causing 2.5 million deaths each year, according to a new WHO report - <u>Implementing the global health sector strategies on HIV, viral hepatitis and</u> sexually transmitted infections, 2022–2030.

New data show that STIs are increasing in many regions. In 2022, WHO Member States set out an ambitious target of reducing the annual number of adult syphilis infections by ten-fold by 2030, from 7.1 million to 0.71 million. Yet, new syphilis cases among adults aged 15-49 years increased by over 1 million in 2022 reaching 8 million. The highest increases occurred in the Region for the Americas and the African Region.

#### **Media Contacts**



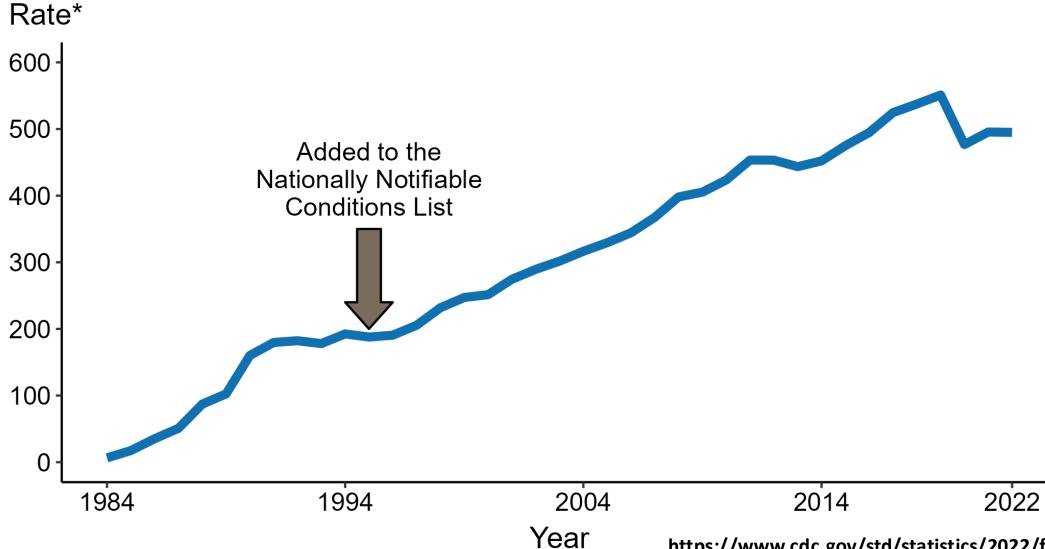
**Emergencies** ~

WHO Media Team

World Health Organization Email: mediainquiries@who.int

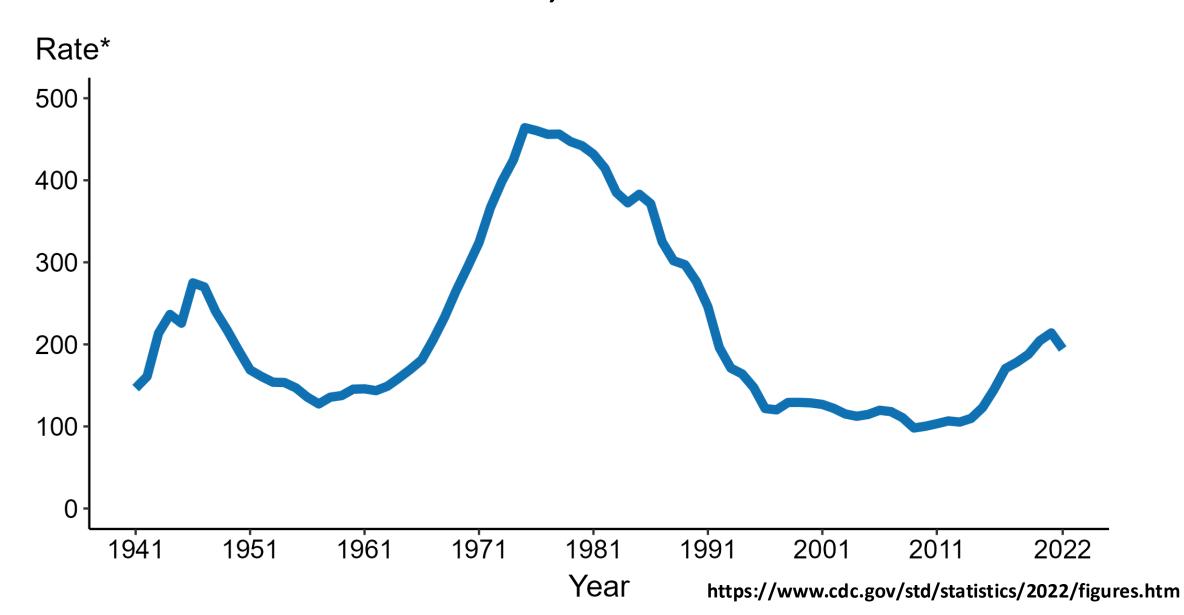
#### Related

#### CHLAMYDIA — RATES OF REPORTED CASES BY YEAR, UNITED STATES, 1984–2022



https://www.cdc.gov/std/statistics/2022/figures.htm

#### GONORRHEA — RATES OF REPORTED CASES BY YEAR, UNITED STATES, 1941–2022







Main etiological agents identified in 170 men with urethritis attended at the Fundação Alfredo da Matta, Manaus, Amazonas, Brazil $^{3,33}$ 

Lucilene Sales de Souza <sup>(D)</sup> <sup>a</sup>, José Carlos Sardinha <sup>(D)</sup> <sup>a</sup>, Sinésio Talhari <sup>(D)</sup> <sup>a</sup>, Marcel Heibel <sup>(D)</sup> <sup>b</sup>, Mônica Nunes dos Santos <sup>(D)</sup> <sup>b,c</sup>, Carolina Talhari <sup>(D)</sup> <sup>a,b,\*</sup>

Etiological agents	n*	%
N. gonorrhoeae	46	27.1
N. gonorrhoeae and C. trachomatis	21	12.4
C. trachomatis	13	7.6
N. gonorrhoeae and HSV-2	11	6.5
N. gonorrhoeae and U. urealyticum	9	5.3
U. urealyticum	7	4.1
M. genitalium	5	2.9

N. gonorrhoeae was identified by PCR in 102 (60.0%) patients and C. trachomatis in 50 (29.4%) – 89.4% had N. gonorrhoeae and/or C. trachomatis

### **TREATMENT OF NONGONOCOCCAL URETHRITIS - CDC**

**Recommended Regimen for Nongonococcal Urethritis** 

**Doxycycline** 100 mg orally 2 times/day for 7 days

#### Alternative Regimens

Azithromycin 1 g, orally in a single dose

OR

Azithromycin 500 mg orally in a single dose; then 250 mg orally daily for 4 days

### **TREATMENT OF GONOCOCCAL URETHRITIS**

### Regimen for uncomplicated gonococcal infections of the cervix, urethra, or rectum:

Ceftriaxone 500 mg IM as a single dose for persons weighing <150 kg (300 lb).

- For persons weighing ≥150 kg (300 lb), 1 g of IM ceftriaxone should be administered.
- If chlamydial infection has not been excluded, providers should treat for chlamydia with doxycycline 100 mg orally twice daily for 7 days. During pregnancy, azithromycin 1 g as a single dose is recommended to treat chlamydia.

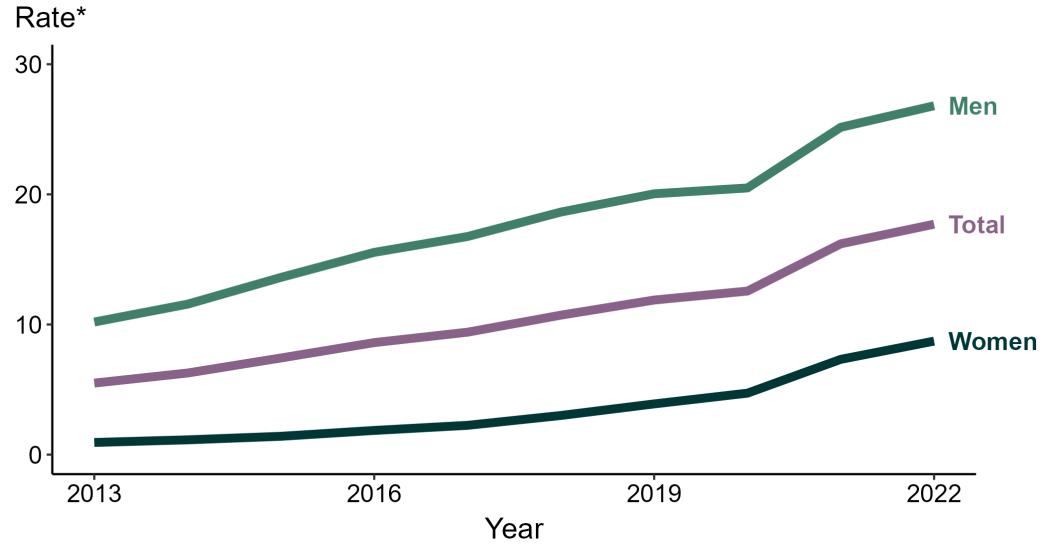
https://www.cdc.gov/std/treatment-guidelines/urethritis-and-cervicitis.htm

### **TREATMENT OF URETHRITIS – BRAZILIAN GUIDELINES**

CONDIÇÃO CLÍNICA	PRIMEIRA OPÇÃO	SEGUNDA OPÇÃO	COMENTÁRIOS
	Ceftriaxona 500mg, IM, dose única	Ceftriaxona 500mg, IM, dose única	
Uretrite sem identificação do agente etiológico	<b>MAIS</b> Azitromicina 500mg, 2 comprimidos, VO, dose única	MAIS Doxiciclina 100mg, 1 comprimido, VO, 2x/ dia, por 7 dias	_
Uretrite gonocócica e demais infecções gonocócicas NÃO complicadas (uretra, colo do útero, reto e faringe)	Ceftriaxona 500mg, IM, dose única <b>MAIS</b> Azitromicina 500mg, 2 comprimidos, VO, dose única		

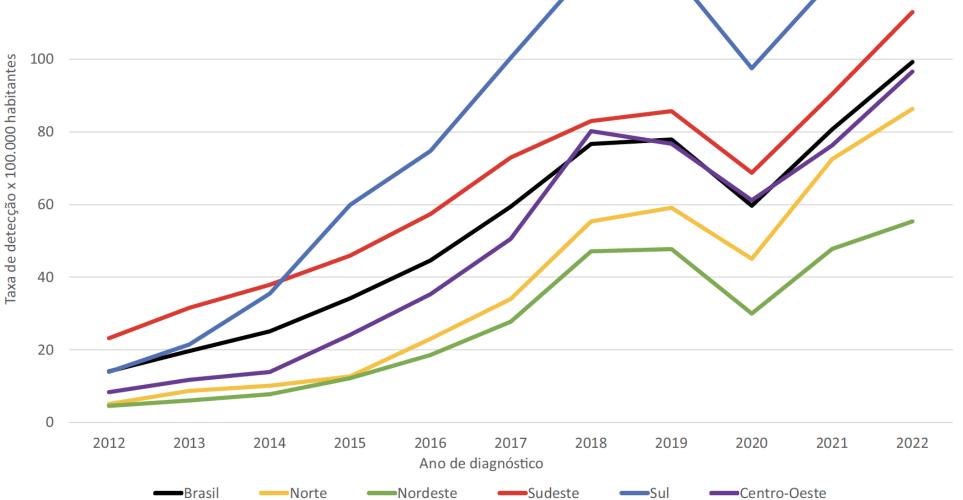
Protocolo Clínico e Diretrizes Terapêuticas para Atenção Integral às Pessoas com Infecções Sexualmente Transmissíveis. 2020

#### PRIMARY AND SECONDARY SYPHILIS — RATES OF REPORTED CASES BY SEX, UNITED STATES, 2013–2022



https://www.cdc.gov/std/statistics/2022/figures.htm

## ACQUIRED SYPHILIS INCIDENCE, ACCORDING TO REGION, BRAZIL – 2012-2022



Boletim Sífilis. Ministério da Saúde. 2023

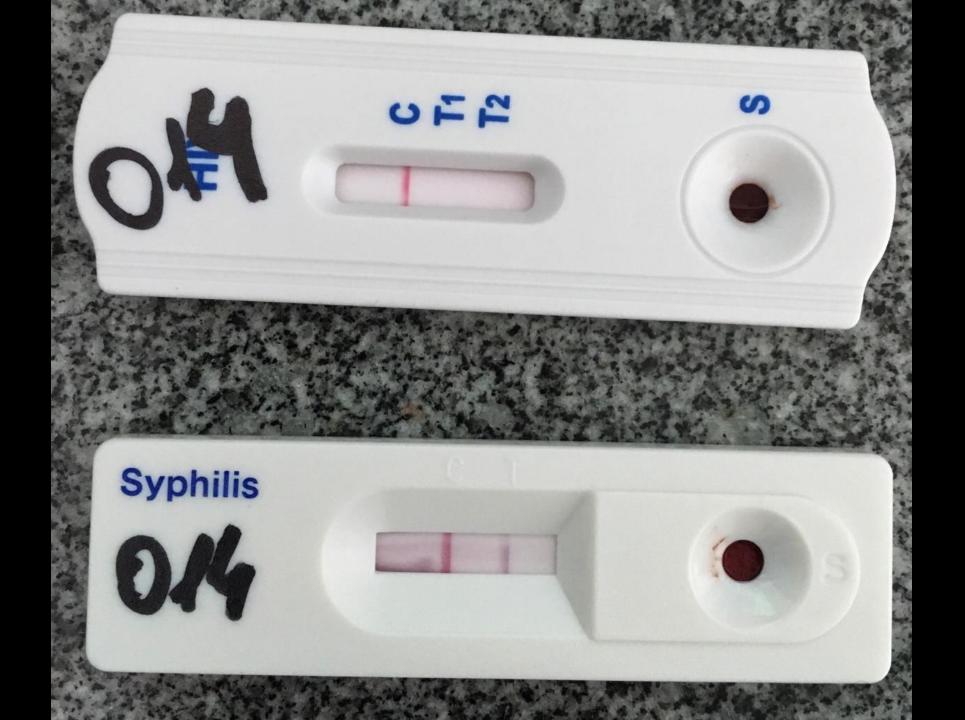












### **TREATMENT OF ACQUIRED SYPHILIS**

#### Recommended Regimen for Primary and Secondary Syphilis\* Among Adults

Benzathine penicillin G 2.4 million units IM in a single dose

\* Recommendations for treating syphilis among persons with HIV infection and pregnant women are discussed elsewhere in this report (see Syphilis Among Persons with HIV Infection; Syphilis During Pregnancy).

Available data demonstrate that use of additional doses of benzathine penicillin G, amoxicillin, or other antibiotics do not enhance efficacy of this recommended regimen when used to treat primary and secondary syphilis, regardless of HIV status (*591–593*).

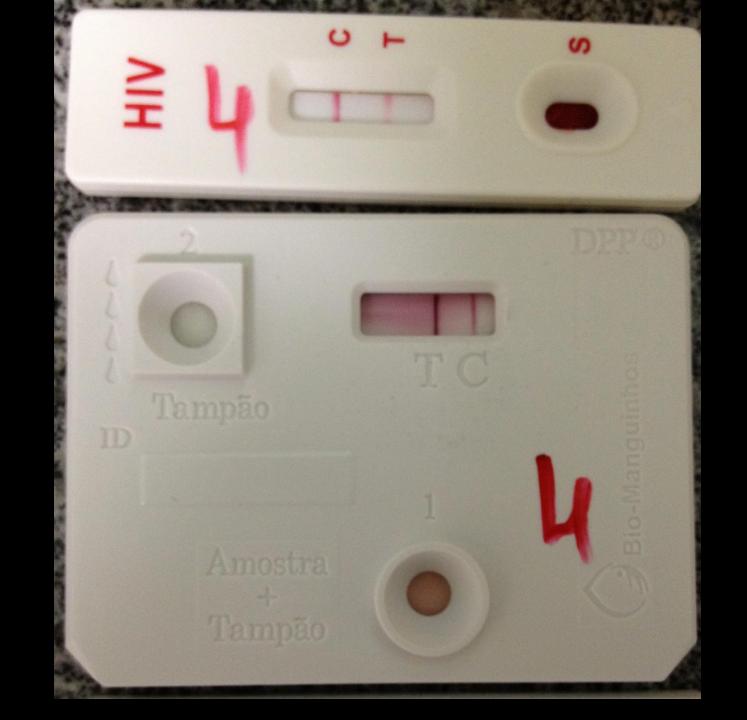
#### Recommended Regimen for Syphilis Among Infants and Children

Benzathine penicillin G 50,000 units/kg body weight IM, up to the adult dose of 2.4 million units in a single dose

https://www.cdc.gov/std/treatment-guidelines/p-and-s-syphilis.htm

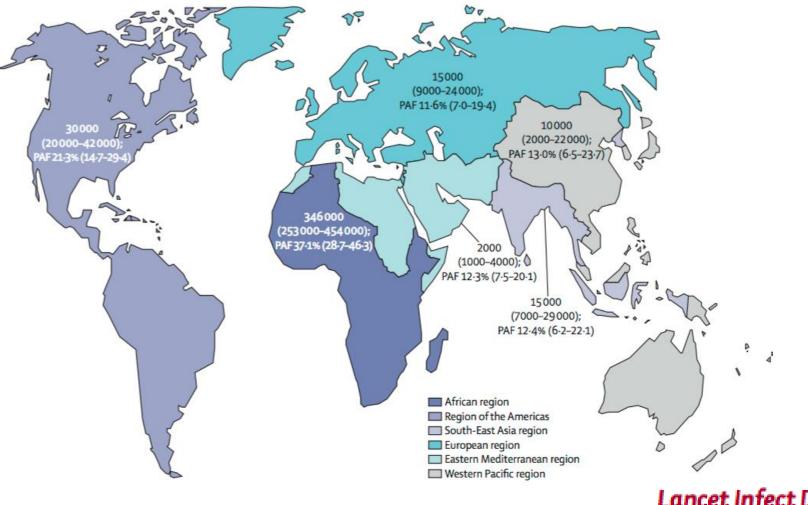






Global and regional estimates of the contribution of herpes simplex virus type 2 infection to HIV incidence: a population attributable fraction analysis using published

epidemiological data

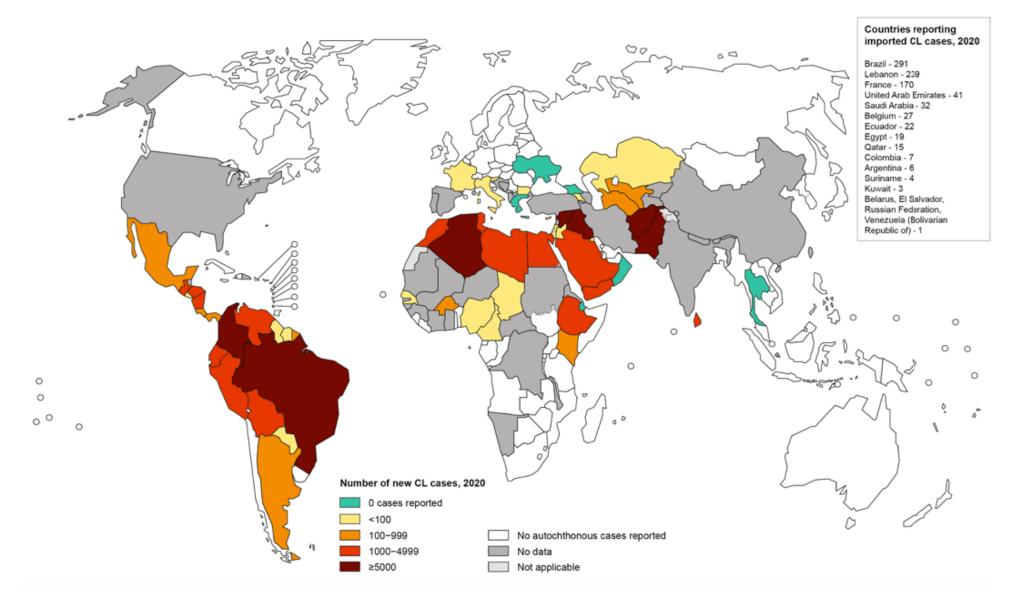


Lancet Infect Dis 2020; 20: 240–49



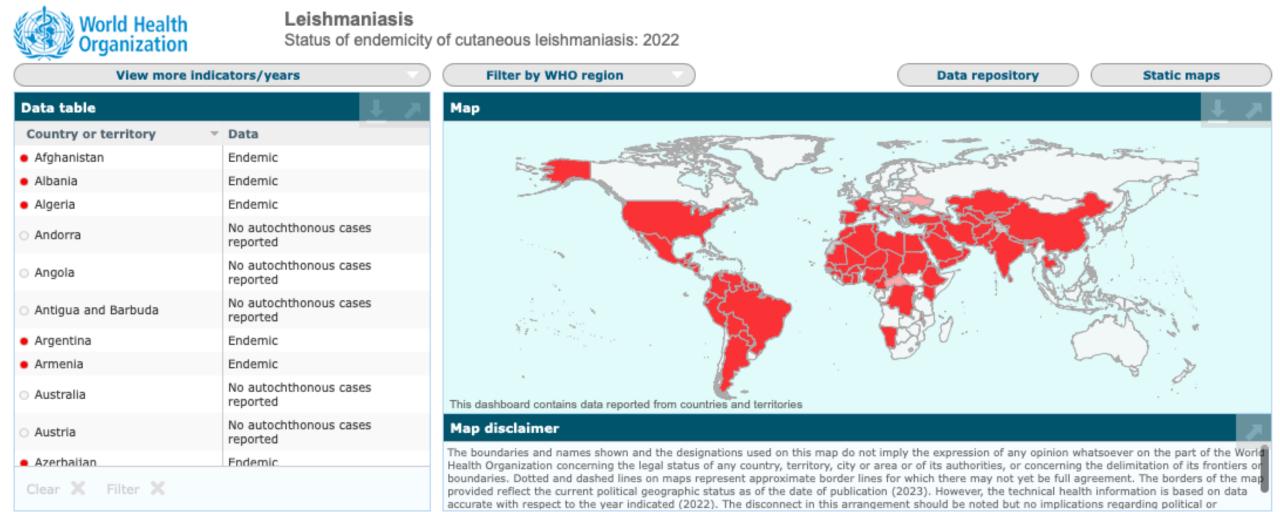


#### **GLOBAL DISTRIBUITON OF CUTANEOU LEISHMANIASIS, 2020**



https://cdn.who.int/media/docs/default-source/2021-dha-docs/leishmaniasis\_cl\_2020.pdf?sfvrsn=716850a8\_9

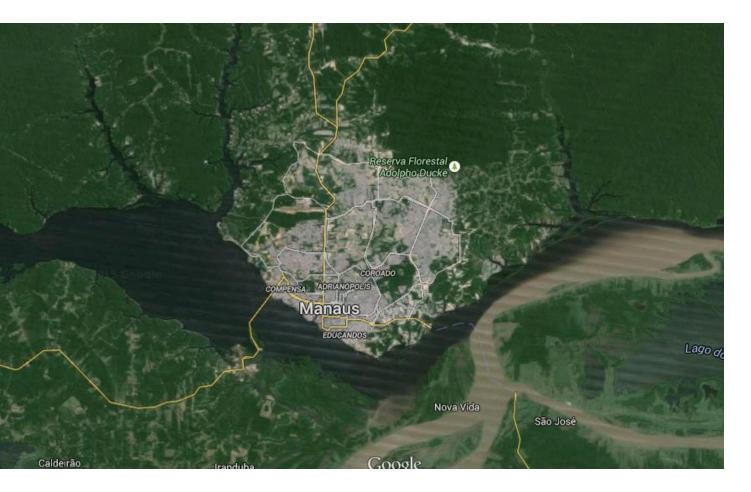
### **GLOBAL DISTRIBUITON OF CUTANEOU LEISHMANIASIS, 2022**



https://apps.who.int/neglected\_diseases/ntddata/leishmaniasis/leishmaniasis.html

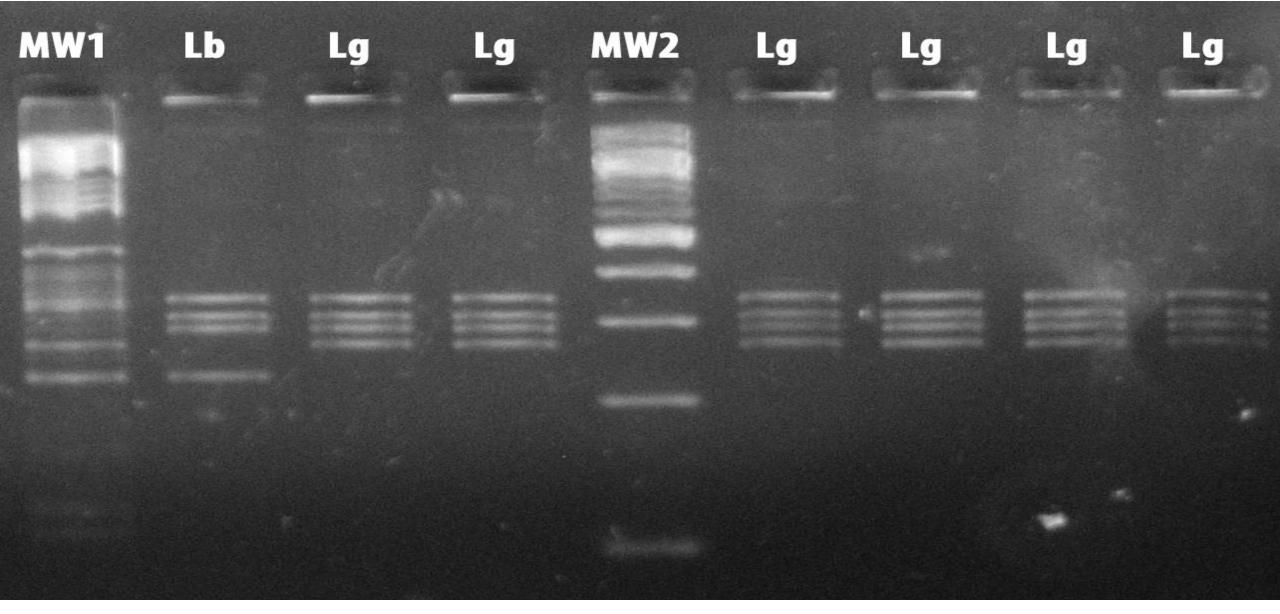


### SUSTAINED PRESENCE OF CUTANEOUS LEISHMANIASIS IN URBAN MANAUS, THE LARGEST HUMAN SETTLEMENT IN THE AMAZON

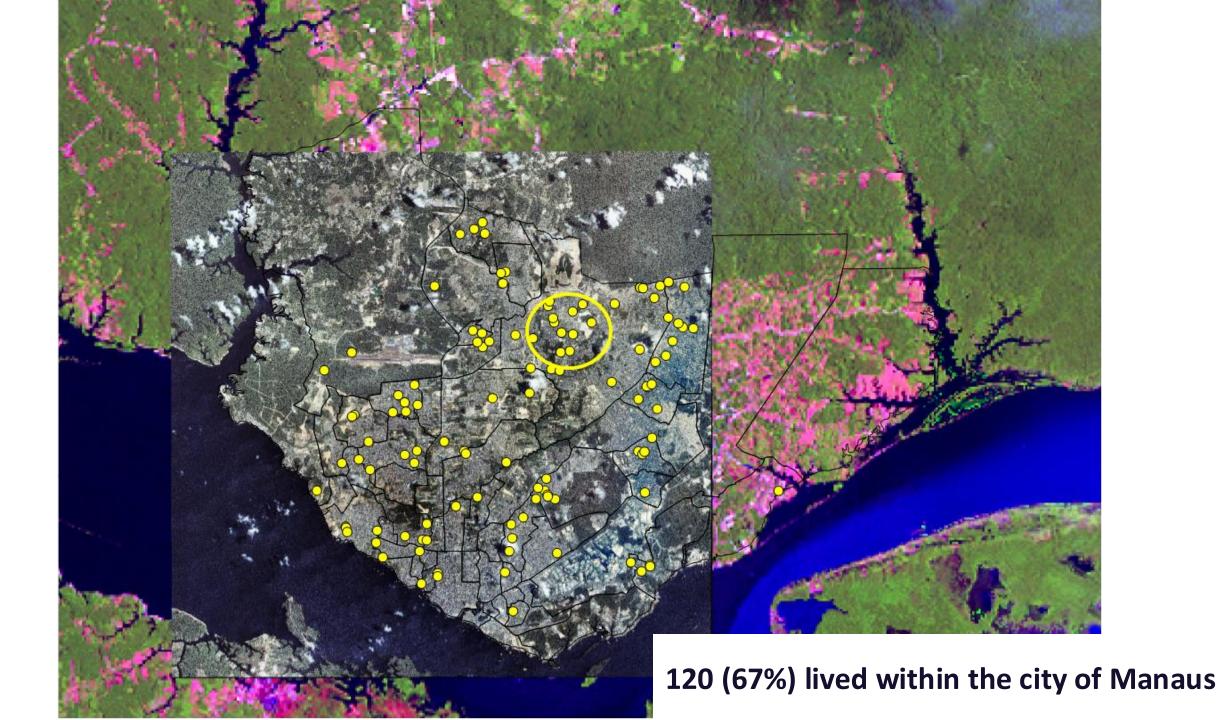


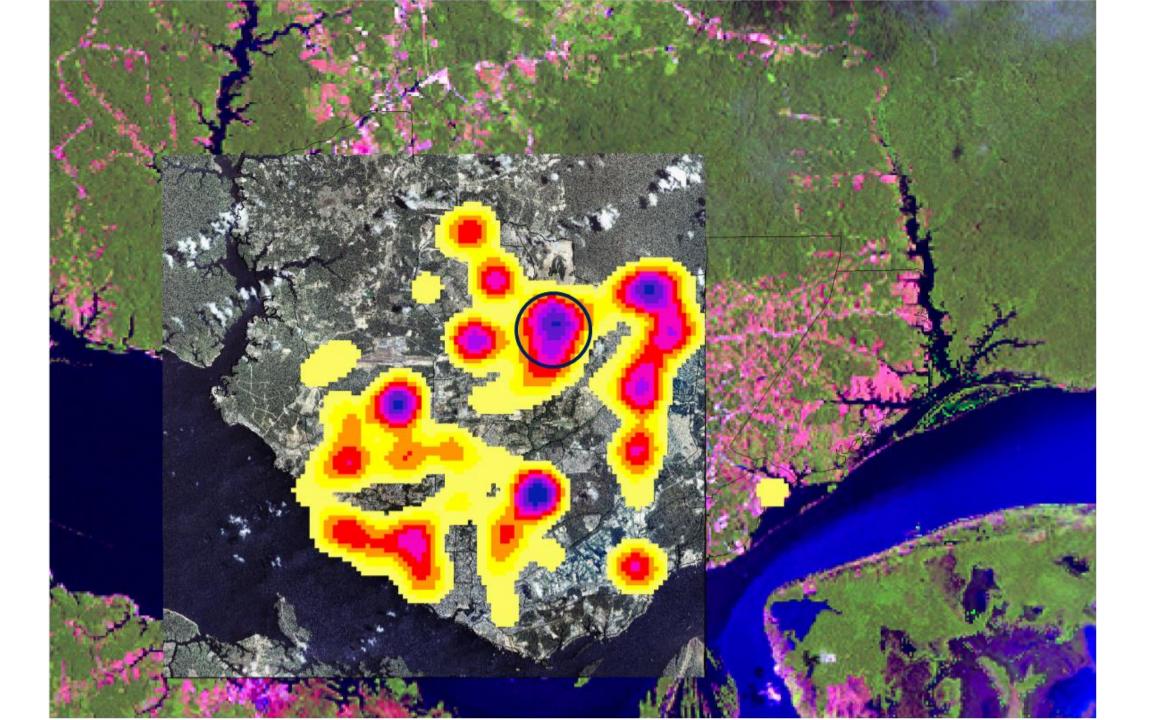
- 172 patients included
- NWL was confirmed by direct microscopic examination, histopathology and PCR
- Cases were classified in urban or rural according to their places of residence

Benicio et al., The American Journal of Tropical Medicine and Hygiene, 2015



9 (5.2%) - *L. (V.) braziliensis* 163 (94.8%) - *L. guyanensis* 















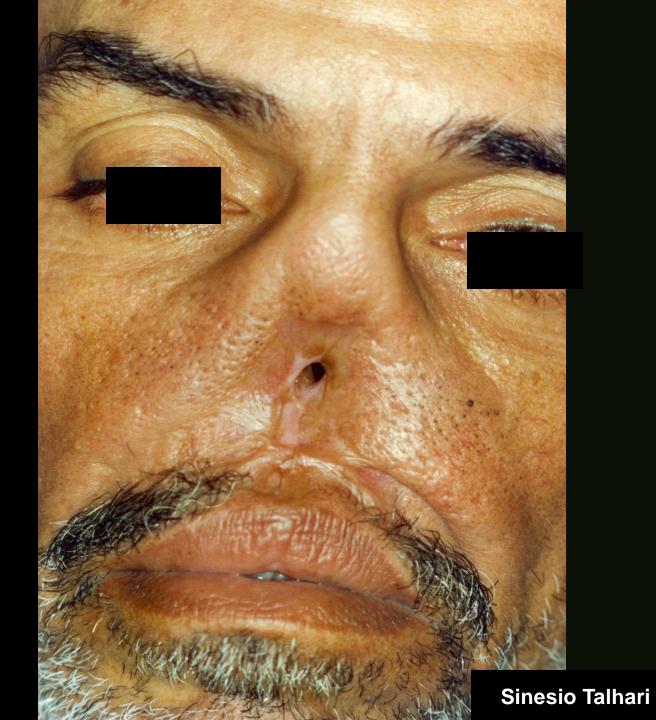




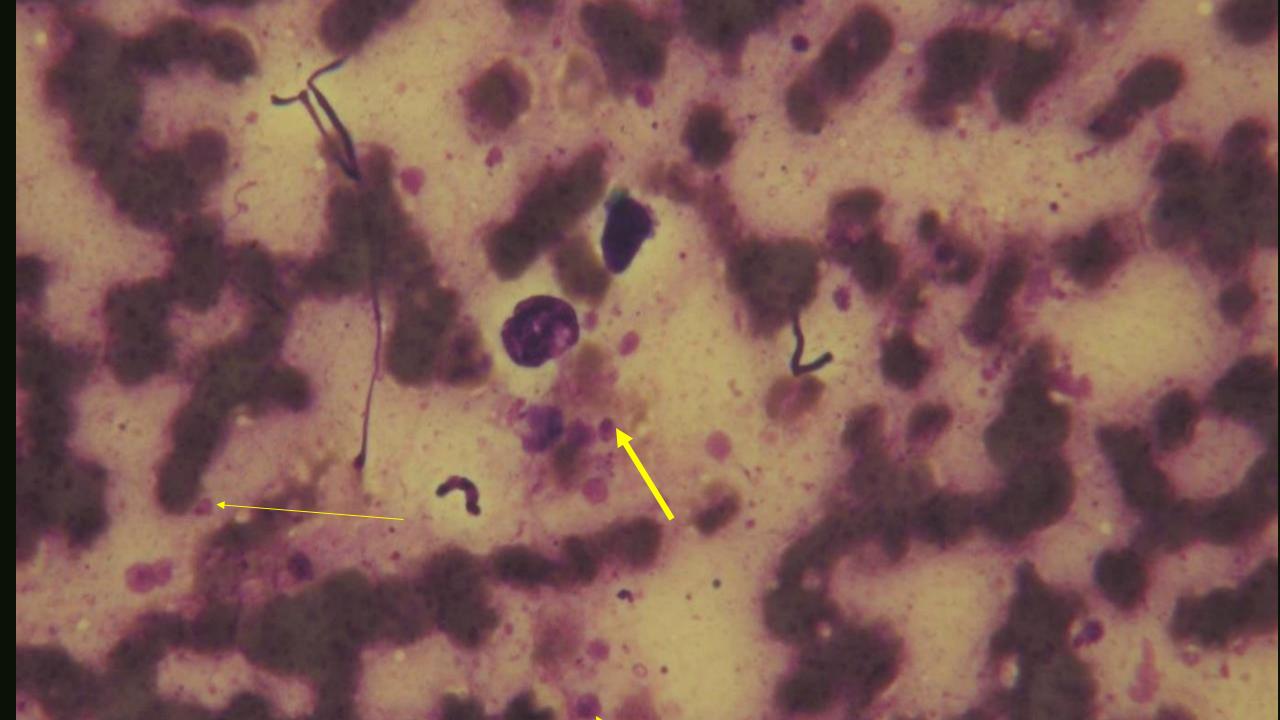


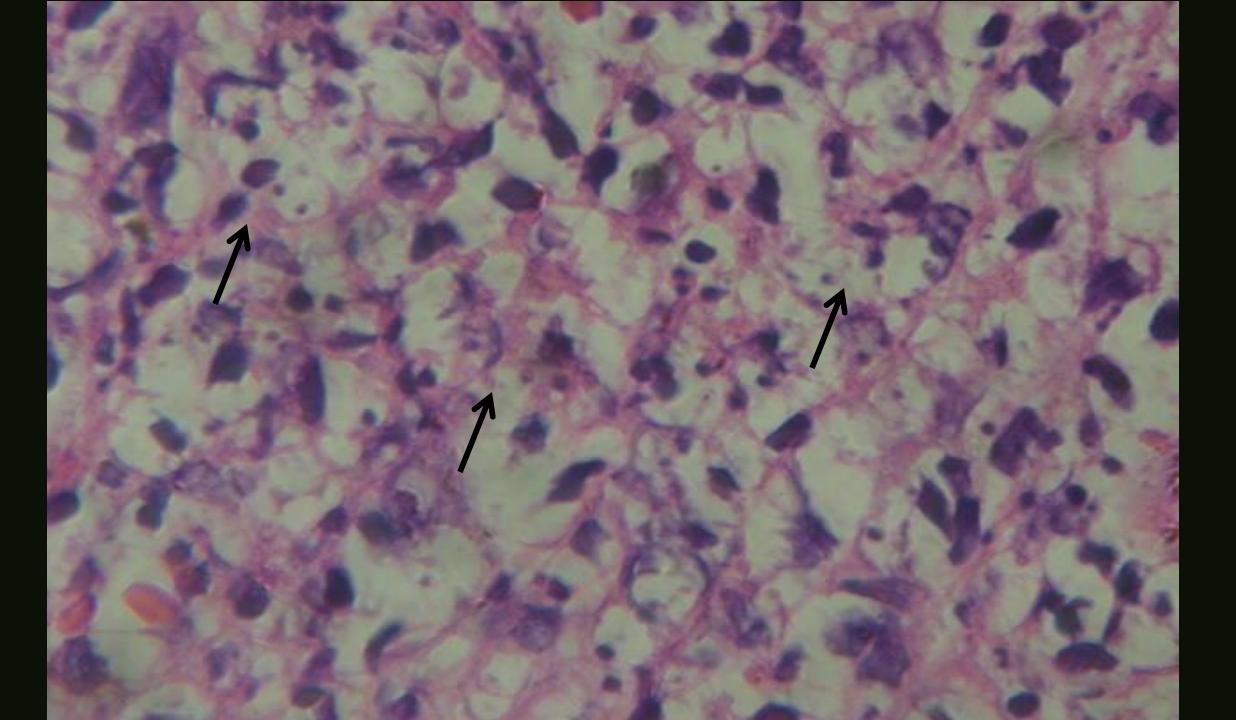




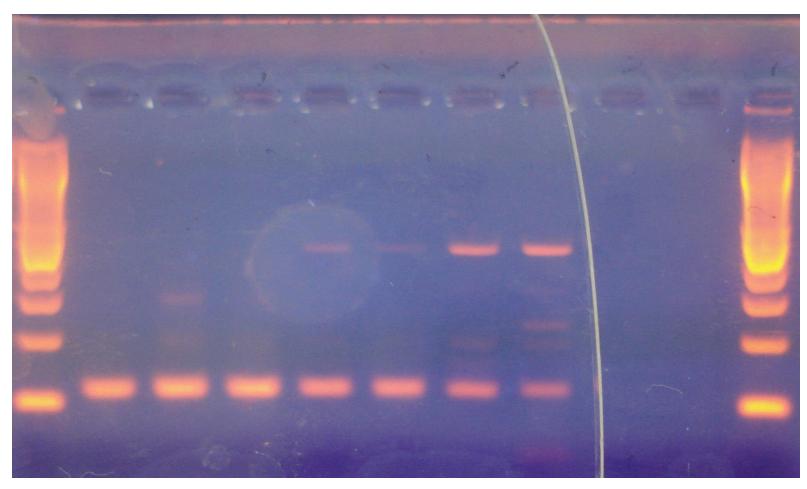








## **REAL-TIME PCR APPLICATIONS FOR DIAGNOSIS OF LEISHMANIASIS**



qPCR-based methods having proven to be very effective, however, a standardized method does not exist.

## **TREATMENT FOR NEW WORLD CUTANEOUS LEISHMANIASIS**

**Pentavalent antimonial (Sb<sup>v</sup>) therapy** – 20 mg of Sb<sup>v</sup> per kg, IV or IM, 30 days

Amphotericin B deoxycholate or lipid formulations of amphotericin B – 3 mg per kg daily, by IV infusion, for a total of 6 to 10 or more doses

**Pentamidine isethionate** – 4 mg per kg, IM, for a total of 3 doses

http://bvsms.saude.gov.br/bvs/publicacoes/manual\_vigilancia\_leishmaniose\_tegumentar\_americana.pdfcl

A randomized clinical trial comparing meglumine antimoniate, pentamidine and amphotericin B for the treatment of cutaneous leishmaniasis by Leishmania guyanensis \*

	Meglumine	%	Pentamidine	%	
Cura definitiva	35	53.8	36	57.1	
Clinical Failure	23	35.4	22	34.9	
Loss	5	7.7	4	6.3	
Excluded	2	3.1	1	1.6	
Total		65		63	
	p = 0.99 *				
<b>ITT</b> CI 95%	35/63	55.5 (42.5 - 68.1)	36/62	58.1	
	p = 0.857*		(44.8 - 70.5)		
РР	35/58	60.3	36/58	62.1	
CI 95%		(46.7 - 72.9)		(48.4 - 74.5)	
	p = 0.99*				

Neves LO, Talhari AC, Gadelha EP, Silva Júnior RM, Guerra JA, Ferreira LC, Talhari S. An Bras Dermatol. 2011 Nov-Dec;86(6):1092-101.

#### AN OPEN LABEL RANDOMIZED CLINICAL TRIAL COMPARING THE SAFETY AND EFFECTIVENESS OF ONE, TWO OR THREE WEEKLY PENTAMIDINE ISETHIONATE DOSES (SEVEN MILLIGRAMS PER KILOGRAM) IN THE TREATMENT OF CUTANEOUS LEISHMANIASIS IN THE AMAZON REGION

Follow-up endpoints	one dose		two doses		three doses		p-valor
	healed	failed	healed	failed	healed	failed	-
2 months after treatment							
No. of patients healed/failed	50	3	52	1	53	0	0,325
%	94,3%	5,7%	98,1%	1,9%	100,0%	0,0%	
confidence interval 95%	(83,3–98,5)		(88,6–99,99)		-		
6 months after treatment							
No. of patients healed/failed	24	29	43	10	51	2	<0,001
%	45,3%	54,7%	81,1%	18,9%	96,2%	3,8%	
confidence interval 95%	(33,5-61,2)		(67,6-90,1)		(85,9-99,3)		
Fisher's Exact Test							

### Leishmania guyanensis

PLOS Neglected Tropical Diseases | https://doi.org/10.1371/journal.pntd.0006850 October 31, 2018

Treatment of cutaneous leishmaniasis with a sequential scheme of pentamidine and tamoxifen in an area with a predominance of *Leishmania (Viannia) guyanensis*: A randomised,

non-inferiority clinical trial



Penini SN et al. Trop Med Int Health. 2023 Dec;28(12):871-880. doi: 10.1111/tmi.13943.



 Pentavalent antimonial (Sbv) therapy – 20 mg of Sbv per kg, IV, 120 days



# Pentamidine- 7 mg /week - 3 weeks





Pentavalent antimonial (Sbv) therapy – 20 mg of Sbv per kg, IV, 120 days

Itraconazol, 100 mg, PO, 30 days



## Pentamidine- 7 mg /week - 3 weeks



#### Environment

# Deforestation of Brazilian Amazon rises in September -satellite data

Reuters



https://www.reuters.com/business/environment/brazil-vp-says-preliminary-dat-fall-amazon-deforestation-2021-10-08.



#### In Lula's Brazil, Amazon deforestation rises for first time in 15 months

By Lisandra Paraguassu and Jake Spring

August 7, 2024 5:15 PM GMT-4 · Updated 2 months ago



https://www.reuters.com/world/americas/lulas-brazil-amazon-deforestation-rises-first-time-15-months-2024-08-07/

De Manaus a Porto Alegre: as imagens que mostram 'corredor' com fumaça de queimadas se espalhando pelo Brasil



https://g1.globo.com/meio-ambiente/noticia/2024/08/19/de-manaus-a-porto-alegre-as-imagens-que-mostramcorredor-com-fumaca-de-queimadas-se-espalhando-pelo-brasil.ghtml/

