

Maladie de Chagas,

de l'Organisation mondiale de la Santé - OMS



Contrôle, élimination, éradication : où en est-on dans les MTN ?

Journée scientifique dématérialisée de la SFMTSI (ex SPE)

Jeudi 25 novembre 2021

Sur inscription uniquement

Visio conférence

une maladie tropicale négligée
typique...



7 common features of NTDs (2005)

Box 1.4.1 Common features of neglected tropical diseases

A proxy for poverty and disadvantage

Neglected tropical diseases have an enormous impact on individuals, families and communities in developing countries in terms of disease burden, quality of life, loss of productivity and the aggravation of poverty as well as the high cost of long-term care. They constitute a serious obstacle to socioeconomic development and quality of life at all levels.

Affect populations with low visibility and little political voice

This group of diseases largely affects low-income and politically marginalized people living in rural and urban areas. Such people cannot readily influence administrative and governmental decisions that affect their health, and often seem to have no constituency that speaks on their behalf. Diseases associated with rural poverty may have little impact on decision-makers in capital cities and their expanding populations.

Do not travel widely

Unlike influenza, HIV/AIDS and malaria and, to a lesser extent, tuberculosis, most NTDs generally do not spread widely, and so present little threat to the inhabitants of high-income countries. Rather, their distribution is restricted by climate and its effect on the distribution of vectors and reservoir hosts; in most cases, there appears to be a low risk of transmission beyond the tropics.

Cause stigma and discrimination, especially of girls and women

Many NTDs cause disfigurement and disability, leading to stigma and social discrimination. In some cases, their impact disproportionately affects girls and women, whose marriage prospects may diminish or who may be left vulnerable to abuse and abandonment. Some NTDs contribute to adverse pregnancy outcomes.

Have an important impact on morbidity and mortality

The once-widespread assumptions held by the international community that people at risk of NTDs experience relatively little morbidity, and that these diseases have low rates of mortality, have been comprehensively refuted. A large body of evidence, published in peer-reviewed medical and scientific journals, has demonstrated the nature and extent of the adverse effects of NTDs.

Are relatively neglected by research

Research is needed to develop new diagnostics and medicines, and to make accessible interventions to prevent, cure and manage the complications of all NTDs.

Can be controlled, prevented and possibly eliminated using effective and feasible solutions

The five strategic interventions recommended by WHO (preventive chemotherapy; intensified case-management; vector control; the provision of safe water, sanitation and hygiene; and veterinary public health) make feasible control, prevention and even elimination of several NTDs. Costs are relatively low.

A proxy for poverty and disadvantage

Affect populations with low visibility and little political voice

Do not travel widely

Cause stigma and discrimination, especially of girls and women

Have an important impact on morbidity and mortality

Are relatively neglected by research

Can be controlled, prevented and possibly eliminated using effective and feasible solutions

Ethical duty

Roberto Briceño-León

LA CASA ENFERMA



Fondo Editorial Acta Científica de Venezuela
y Consorcio de Ediciones Capriles

*La Casa Enferma: Sociología de la
Enfermedad de Chagas. Roberto Briceño-
León. Fondo Editorial Acta Científica de
Venezuela y Consorcio de Ediciones Capriles
C. A.: Caracas, Venezuela, 1990. 149 p.,
figuras, tabelas e bibliografía. (Brochura)
ISBN 980-6201-08-6*

❑ **1990s** (in 15 years)

- Fight against vectorial transmission
- With the AIDS pandemic, blood/blood products screening for Chagas disease

❑ **2005-2020** (in 15 years)

- Neglected Tropical Diseases
- Production and access to antiparasitic medicines
- WHO List of essential medicines
- WHO Partners
- Chagas disease in the world
- Technical Groups (5)
- Patients care at the same level of vectorial control, transfusional control...
- Patients associations, Findechagas, IAPO...
- IEC and the last Technical Group 6
- World Chagas disease Day
- WHO List of essential diagnostics
- 2021-2030 Road map

EDITORIALS

The hidden Chagas disease burden in Europe

P Albajar-Viñas (albajarvinasp@who.int)¹, J Jannin¹

1. World Health Organization (WHO), Department of Control of Neglected Tropical Diseases, WHO, Geneva, Switzerland

Citation style for this
Albajar-Viñas P, Jannin
Euro Surveill. 2011;16

SURVEILLANCE AND OUTBREAK REPORTS

Chagas disease in Italy: breaking an epidemiological silence

A Angheben (andrea.angheben@sacrocuore.it)^{1,2}, M Anselmi^{1,2}, F Gobbi^{1,2}, S Marocco¹, G Montelro¹, D Buonfrate^{1,2}, S Tals³, M Talamo⁴, G Zavarise⁵, M Strohmeier^{6,2}, F Bartalesi⁶, A Mantella⁶, M Di Tommaso⁷, K H Aiello⁷, G Veneruso⁸, G Graziani⁹, M M Ferrari¹⁰, I Spreafico¹⁰, E Bonifacio¹¹, G Galera¹², M Lanzafame¹³, M Mascarello¹³, G Cancrini¹⁴, P Albajar-Viñas¹⁵, Z Bisoffi^{1,2}, A Bartoloni^{6,2}

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4. Infectious Diseases, University of Turin, Italy
5. Paediatric Infectious Diseases, University of Turin, Italy
6. Infectious and Tropical Diseases, University of Turin, Italy
7. Obstetric and Gynaecology, University of Turin, Italy
8. Infectious Diseases, University of Turin, Italy
9. Immunohaematology, University of Turin, Italy
10. Obstetrics and Gynaecology, University of Turin, Italy
11. Obstetrics and Gynaecology, University of Turin, Italy
12. Infectious Diseases, University of Turin, Italy
13. Infectious Diseases, University of Turin, Italy
14. Public Health, University of Turin, Italy
15. WHO Programme on Neglected Tropical Diseases, Geneva, Switzerland

Citation style for this
Angheben A, Anselmi M, Gobbi F, Marocco S, Montelro G, Buonfrate D, Tals S, Talamo M, Zavarise G, Strohmeier M, Bartalesi F, Mantella A, Di Tommaso M, Aiello KH, Veneruso G, Graziani G, Ferrari MM, Spreafico I, Bonifacio E, Galera G, Lanzafame M, Mascarello M, Cancrini G, Albajar-Viñas P, Bisoffi Z, Bartoloni A
Euro Surveill. 2011;16

SURVEILLANCE AND OUTBREAK REPORTS

Chagas disease in European countries: the challenge of a surveillance system

L Basile¹, J M Jansà², Y Carlier³, D D Salamanca⁴, A Angheben⁵, A Bartoloni⁶, J Selxas⁷, T Van Gool⁸, C Cañavate⁹, M Flores-Chávez⁹, Y Jackson¹⁰, P L Chiodini¹¹, P Albajar-Viñas (albajarvinasp@who.int)¹², Working Group on Chagas Disease¹³

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10. Division of primary care medicine, Geneva University Hospitals and University of Geneva, Geneva, Switzerland
11. Hospital for Tropical Diseases, London, United Kingdom
12. WHO Programme on Neglected Tropical Diseases, Geneva, Switzerland
13. Working Group on Chagas Disease, Geneva, Switzerland

Chagas disease is a neglected tropical disease that has been largely forgotten in Europe since the discovery of its vectorial transmission in the early 20th century. In the last few decades, the disease has been brought back to light since the discovery of the disease in several European countries. In the last century, Chagas disease has been an endemic country in Latin America.

Diagnosed cases, observed and expected prevalence rates and percentage of underdiagnosis of Chagas disease in migrants from endemic areas residing in nine studied European countries, up to 2009

| Country | Cases diagnosed | Observed prevalence rate (%) | Expected prevalence rate (min-max, %) | Index of underdiagnosis (min-max, %) |
|-----------------|-----------------|------------------------------|---------------------------------------|--------------------------------------|
| Belgium | 19 | 0.043 | 1,6-2.1 | 97.2-97.9 |
| France | 111 | 0.066 | 1.3-1.7 | 94.8-96.1 |
| Germany | 2 | 0.002 | 1.3-1.7 | 99.8-99.9 |
| Italy | 114 | 0.03 | 1.7-3.1 | 98.3-99.0 |
| The Netherlands | 7 | 0.003 | 0.4-0.7 | 99.3-99.6 |
| Portugal | 8 | 0.007 | 1 | 99.4 |
| Spain | 3,821 | 0.218 | 2.7-4.9 | 92.0-95.6 |
| Switzerland | 180 | 0.223 | 2-4.8 | 89.2-95.2 |
| United Kingdom | 28 | 0.006 | 1.3-2.4 | 99.6-99.7 |
| Total | 4,290 | 0.13 | 2-3.6 | 93.9-96.4 |

L Basile¹, J M Jansà², Y Carlier³, D D Salamanca⁴, A Angheben⁵, A Bartoloni⁶, J Seixas⁷, T Van Gool⁸, C Cañavate⁹, M Flores-Chávez⁹, Y Jackson¹⁰, P L Chiodini¹¹, P Albajar-Viñas (albajarvinasp@who.int)¹², Working Group on Chagas Disease¹³

Euro Surveill. 2011;16(37):pii=19968



Volume 28, Issue 1
January 2021

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To the Editor

Authors Contributions

Funding

Conflicts of Interest

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Ongoing mother-to-child transmission of Chagas disease in Italy: 2014–18 estimates

Lorenzo Zammarchi, MD ✉, Andrea Angheben, MD, Luisa Galli, MD, Carlo Dani, MD, Mariarosaria Di Tommaso, PhD, Felice Petraglia, MD, Filomena Bruna Aliani, MD, Michele Trotta, MD, Michele Spinicci, MD, Pedro Albajar Viñas, MD ... Show more

Journal of Travel Medicine, Volume 28, Issue 1, January 2021, taaa201, <https://doi.org/10.1093/jtm/taaa201>

Published: 22 October 2020 Article history ▾

“ Cite Permissions Share ▾

Keywords: Trypanosomiasis, pregnancy, migrants, congenital, neonates, *Trypanosoma cruzi*

Issue Section: [Letter to the Editor](#)

We read with interest the systematic review and meta-analysis by Colombo V on Chagas disease (CD) in pregnancy.¹ Mother-to-child transmission (MTCT), mostly congenital, is currently the second more common route of transmission for CD worldwide, accounting for 22.5% of the 38 593 incident cases per year in continental Latin America (LA).² Outside LA, where the transmission by insect vectors does not occur and screening of blood donors and transplant donors and recipients have been implemented, MTCT is the first route of transmission hampering the elimination of the disease. In the USA, among 63 and 315 congenital infections per year are...

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Guggenbühl Noller et al. *BMC Infectious Diseases* (2020) 20:919
<https://doi.org/10.1186/s12879-020-05600-8>

BMC Infectious Diseases

RESEARCH ARTICLE

Open Access

Describing nearly two decades of Chagas disease in Germany and the lessons learned: a retrospective study on screening, detection, diagnosis, and treatment of *Trypanosoma cruzi* infection from 2000 – 2018

Jessica Michelle Guggenbühl Noller^{1,2†}, Guenter Froeschl^{1,2*†} , Philip Eisermann³, Johannes Jochum⁴, Stefanie Theuring⁵, Ingrid Reiter-Owona⁶, Alfred Lennart Bissinger⁷, Michael Hoelscher^{1,8}, Abhishek Bakuli¹, Franz-Josef Falkner von Sonnenburg¹, Camilla Rothe¹, Gisela Bretzel¹, Pedro Albajar-Viñas⁹, Lise Grout⁹ and Michael Pritsch¹

Abstract

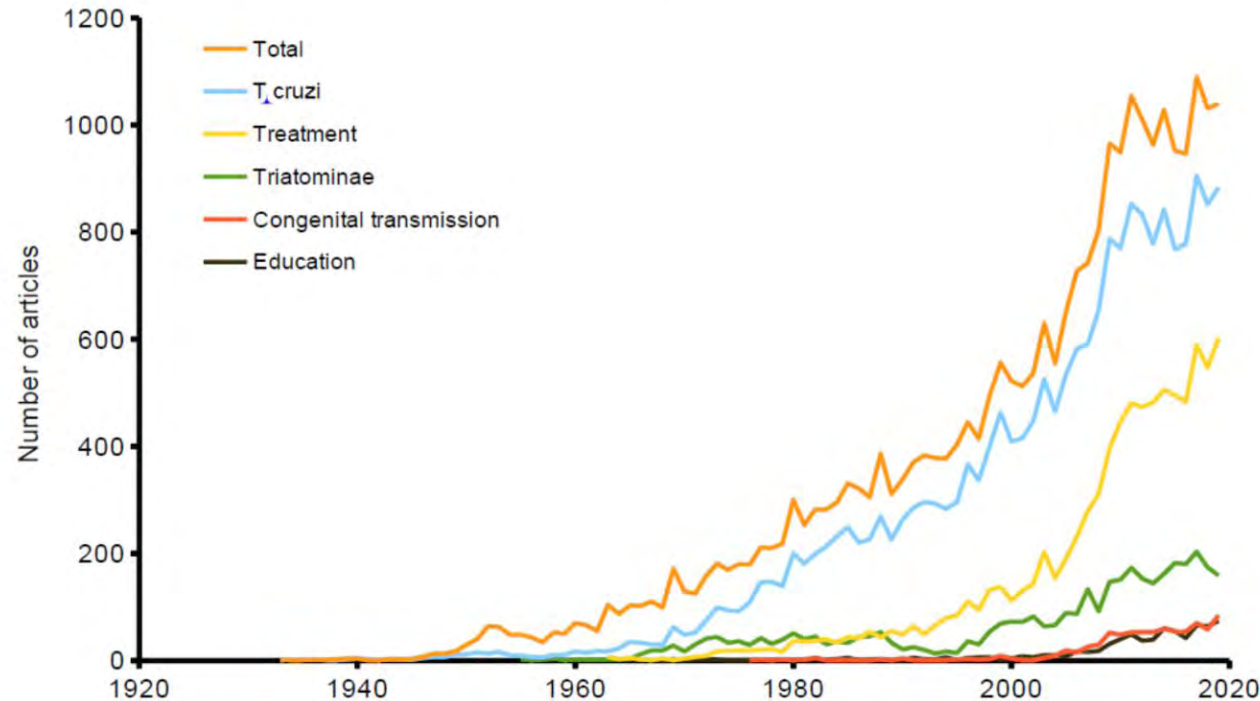
Background: The highly complex and largely neglected Chagas disease (CD) has become a global health problem due to population movements between Latin America and non-endemic countries, as well as non-vectorial transmission routes. Data on CD testing and treatment from routine patient care in Germany of almost two decades was collected and analysed.

Methods: German laboratories offering diagnostics for chronic *Trypanosoma cruzi* (*T. cruzi*) infection in routine patient care were identified. All retrievable data on tests performed during the years of 2000–2018 were analysed. Additional clinical information regarding patients diagnosed with CD was collected through questionnaires.

(Continued on next page)



Number of scientific articles published on main aspects of Chagas disease (1920-2020) Search carried out in Scopus in March 2020



Categories are not mutually exclusive

"Total" query: ((TITLE-ABS-KEY("chagas disease" OR triatominae OR "trypanosoma cruzi")) AND ("trypanosoma cruzi"))
 "T. cruzi" query: ((TITLE-ABS-KEY("chagas disease" OR triatominae OR "trypanosoma cruzi")) AND ("trypanosoma cruzi"))
 "Treatment" query: ((TITLE-ABS-KEY("chagas disease" OR triatominae OR "trypanosoma cruzi")) AND ("treatment"))
 "Triatominae" query: ((TITLE-ABS-KEY("chagas disease" OR triatominae OR "trypanosoma cruzi")) AND ("triatominae"))
 "Congenital transmission" query: ((TITLE-ABS-KEY("chagas disease" OR triatominae OR "trypanosoma cruzi")) AND ("congenital transmission"))
 "Education" query: ((TITLE-ABS-KEY("chagas disease" OR triatominae OR "trypanosoma cruzi")) AND ("education"))

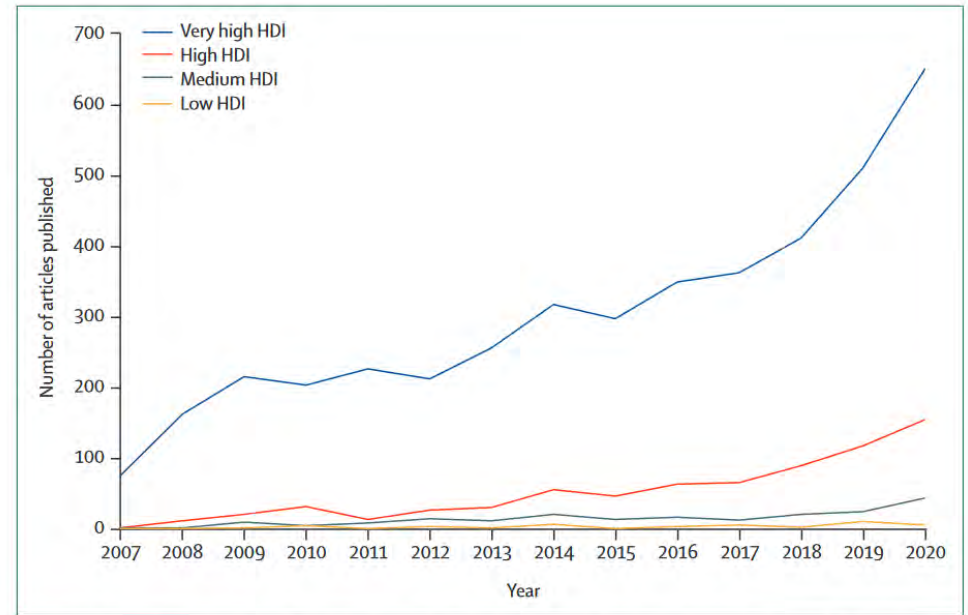


Figure 22: Scientific journal articles relating to health and climate change by 2019 HDI group of the main country of affiliation of the first author, 2007–20

The Lancet, October 20, 2021

Changement de
scenarios?



Health Topics ▾

Countries ▾

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Emergencies ▾

Data ▾

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WHO Model Lists of Essential Medicines

The WHO Model Lists of Essential Medicines has been updated every

es List (EML)
MLc)

WHO Model List of Essential Medicines

19th List
(April 2015)
(Amended November 2015)

Status of this document

This is a reprint of the text on the WHO Medicines website

<http://www.who.int/medicines/publications/essentialmedicines/en/>



WHO Electronic EML

Short description: The eEML is a comprehensive, freely accessible, online database containing information on essential medicines.



WHO AWaRe

Short description: WHO framework based on three different categories – Access, Watch and Reserve – which all together forms the AWaRe categorization of antibiotics.



WHO Global EML

Short description: Database of the essential medicines lists for 137 countries based on the World Health Organization's National Essential Medicines Lists Repository.



Global Chagas disease meeting, Geneva, 2007

Funding for biomedical research across all health categories: Analysis of grants by major funders (May 2020)

Investments on grants for biomedical research by funder, type of grant, health category and recipient (World RePORT)

https://www.who.int/research-observatory/monitoring/inputs/world_report_grantamount/en/

[WHO Global Observatory on Health R&D](#) allows users to explore the distribution of funding for biomedical research. For example, data shows:

- 3/4 of the total grants for biomedical research were awarded by the USA's National Institutes of Health (NIH).
- Almost 85% of all the grants were awarded to recipient organizations in the USA.
- Almost 2/3 of all the grants were awarded for noncommunicable diseases (NCDs); >25% of all investments in this area were for research relating to malignant neoplasms.
- Almost 85% of all grants awarded for communicable, maternal, perinatal and nutritional conditions were for research relating to infectious and parasitic diseases. Around 60% of this was for research relating to HIV (38%), malaria (13%) and tuberculosis (10%).
- Only a tiny proportion of grants (approx. 1%) target a WHO neglected tropical diseases.

Health products in the pipeline from discovery to market launch for all diseases

(https://www.who.int/research-observatory/monitoring/processes/health_products/en/)

11-Jul-19

New analysis shows for the first time a comprehensive overview of health products (medicines, vaccines and diagnostics that include an active pharmaceutical ingredient), from discovery to market launch for all indications, using the Springer Nature Adisinsight database.

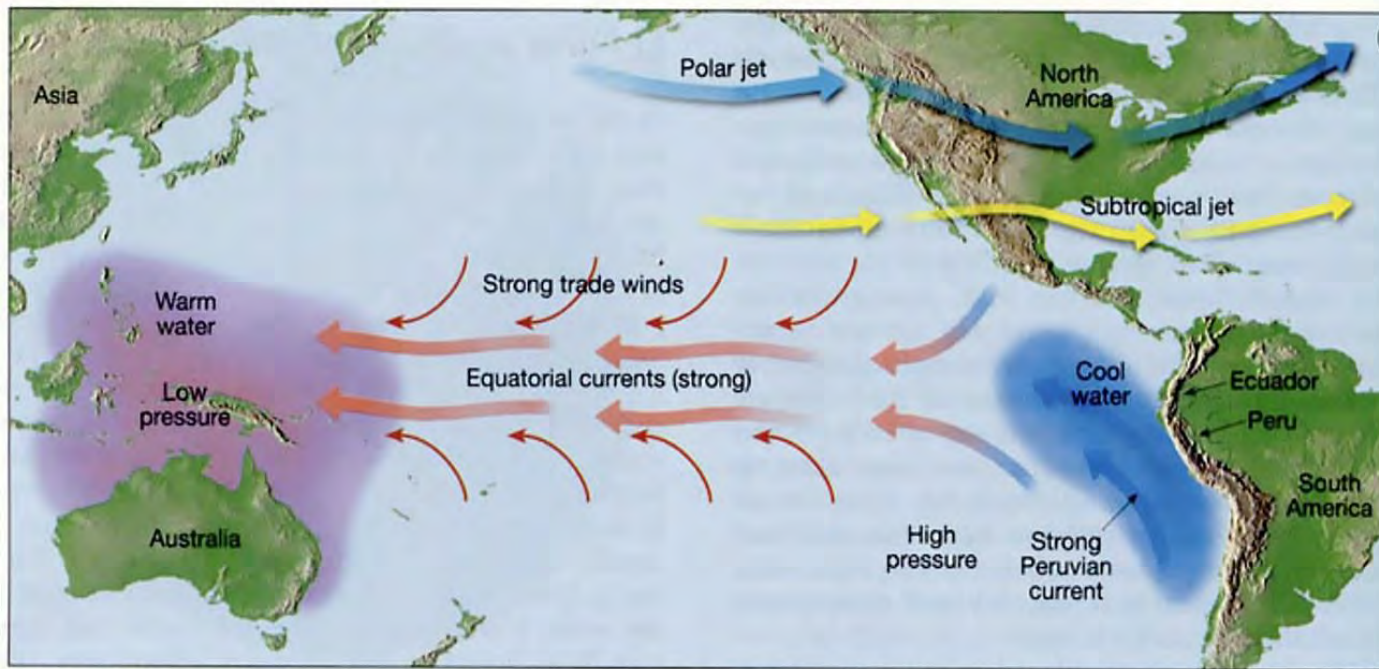
The analysis of > 86 000 products currently tracked by this data source shows that:

- ✓ < 50% of these products are active
- ✓ Out of products that are active and in a clinical phase of development, **far more are for noncommunicable diseases (87%)** than for other disease categories
- ✓ **Only a tiny proportion of active products target a WHO neglected tropical diseases (<0.5%)** or a WHO R&D Blueprint pathogen (< 0.4%).

Une maladie étroitement liée à des
déterminants sociaux et
environnementaux ...



July 2020



**Fig.6 Normally, the trade winds and strong equatorial currents flow toward the west.
At the same time, an intense Peruvian current causes upwelling of
cold water along the west coast of South America.**



(Kon-Tiki, 1947)



BREAKING | Oct 20, 2021, 03:38pm EDT | 3,613 views

Scientists Identify Viking Presence In North America Centuries Before Columbus



Téa Kvetenadze Forbes Staff

Business

I'm a New York-based reporter covering breaking news.



0:12



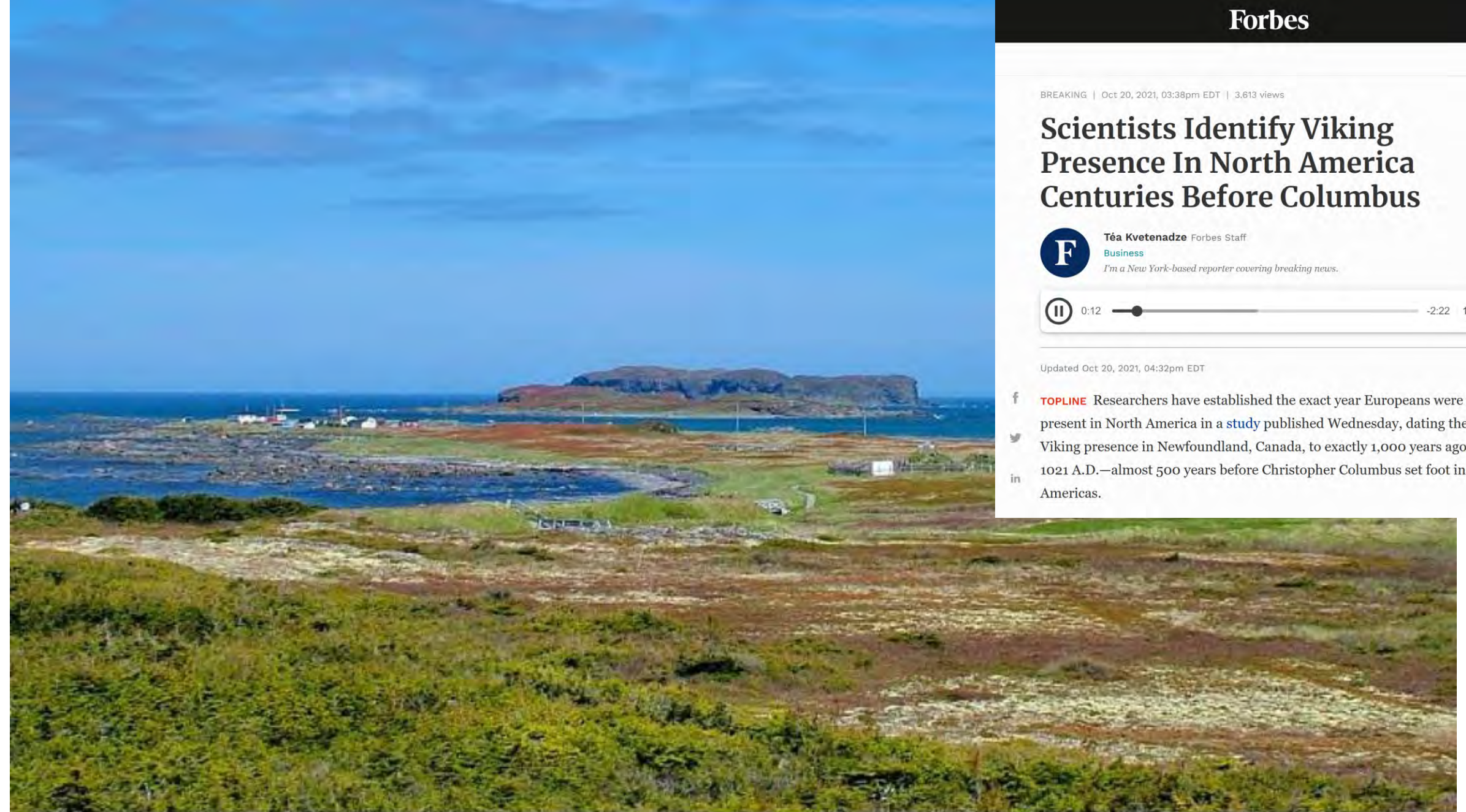
-2:22

1.0x

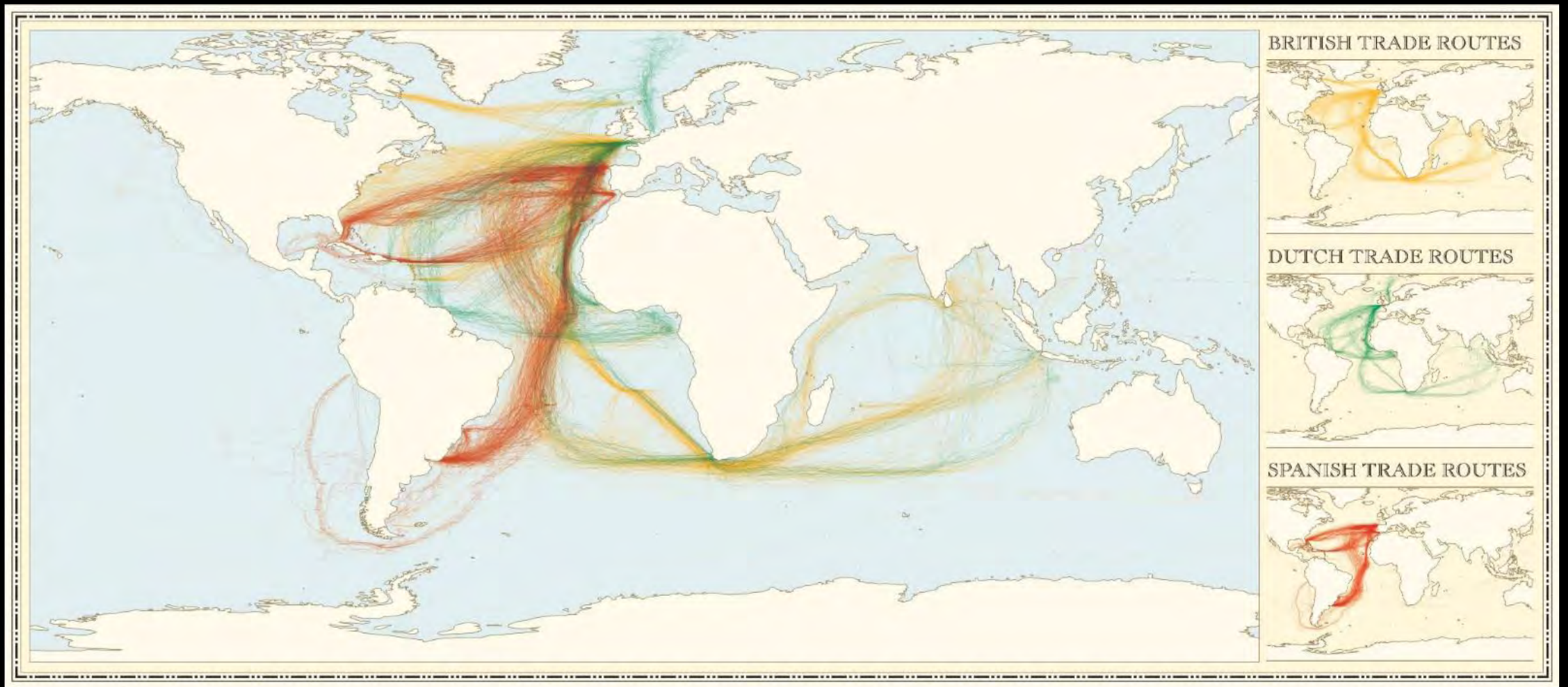
Updated Oct 20, 2021, 04:32pm EDT



TOPLINE Researchers have established the exact year Europeans were first present in North America in a [study](#) published Wednesday, dating the Viking presence in Newfoundland, Canada, to exactly 1,000 years ago in 1021 A.D.—almost 500 years before Christopher Columbus set foot in the Americas.



L'Anse aux Meadows, an archaeological site in Newfoundland, Canada where this study was conducted. - Bob



CDWO Sheshire J. 2014 Maritime Trade Routes



As the world population grows so does the number of international migrants: there are three times more international migrants in 2015 than in 1970

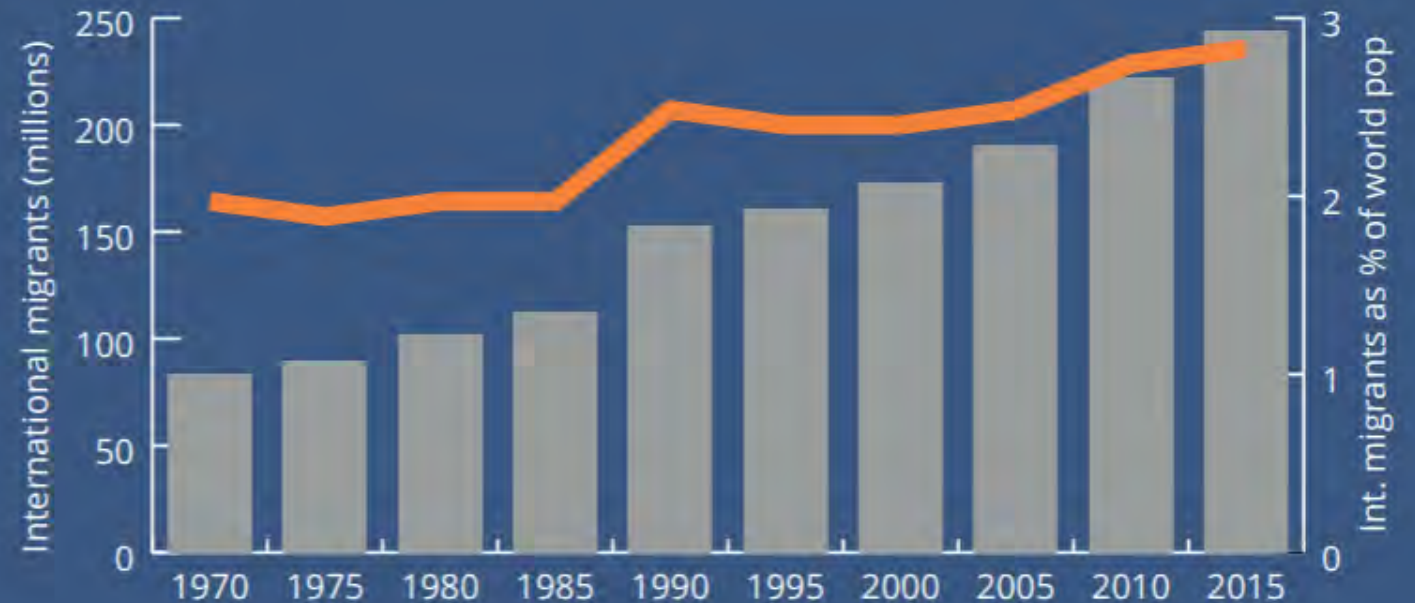
HEALTH OF MIGRANTS: RESETTING THE AGENDA

Report of the 2nd Global Consultation
Colombo, Sri Lanka, 21–23 February 2017



The international migrant population has remained relatively stable over the last few decades:

2.2 to 3.3 per cent of the world's population



WHO/EURO disputes the belief that immigrants transmit infectious diseases to the host population.

January 25, 2019

1st Report on the health of refugees and migrants in the WHO European Region, published in collaboration with the Italian National Institute of Health, Migration and Poverty (INMP), and which summarizes the latest available evidence to from a review of >13,000 documents.

- ✓ Despite the assumption that refugees and migrants transmit infectious diseases to the host population, the data shows otherwise. WHO rates this risk as very low.
- ✓ **Both immigrants and refugees have good general health.**
- ✓ They may run **the risk of getting sick during the transition or staying in receiving countries** due to poor living conditions or lifestyle adjustments, meaning their risk of falling ill increases during the trip or in the country of destination.
- ✓ Around 68.5 million people worldwide are currently displaced, of which 25.4 million cross international borders in search of protection.
- ✓ International migrants represent only 10% (90.7 million) of the total population in the WHO European Region. ~~Less than 7.4% of these are refugees.~~
- ✓ **85% of refugees worldwide are housed in developing countries.**

Climate epochs and the anthropocene....

- ✓ **The current global and uniform temperature warming is unique in 2,000 years of history** (Common era)
- ✓ Climate variability has always been naturally occurring (warmer and colder periods, more humid or drier ones)
- ✓ The coldest periods were: Little Ice Age in the XV century in the central and eastern Pacific Ocean, in the XVII century in northwestern Europe and southeastern North America, in the mid XIX century over most of the remaining regions.
- ✓ **The warmest period is: during the XX century for >98% of the globe**

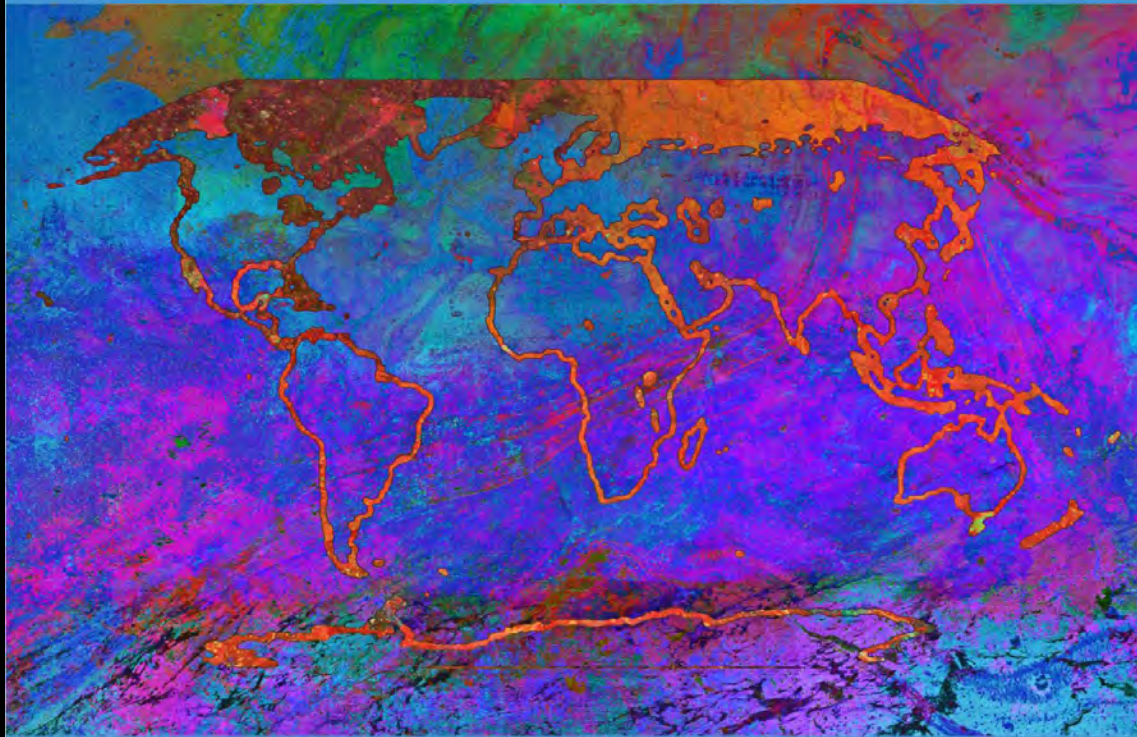
- *The great climate conundrum. Editorial. Nature Geoscience, 2019.*
- *No evidence for globally coherent warm and cold periods over the preindustrial Common Era. Neukom R et al. Nature, 2019*
- *Last phase of the Little Ice Age forced by volcanic eruptions. Brönnimann S et al. Nature Geoscience, 2019*
- *Consistent multidecadal variability in global temperature reconstructions and simulations over the Common Era. Nature Geoscience 2019*

ipcc

INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2021

The Physical Science Basis



Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the Science related to climate change

WGI

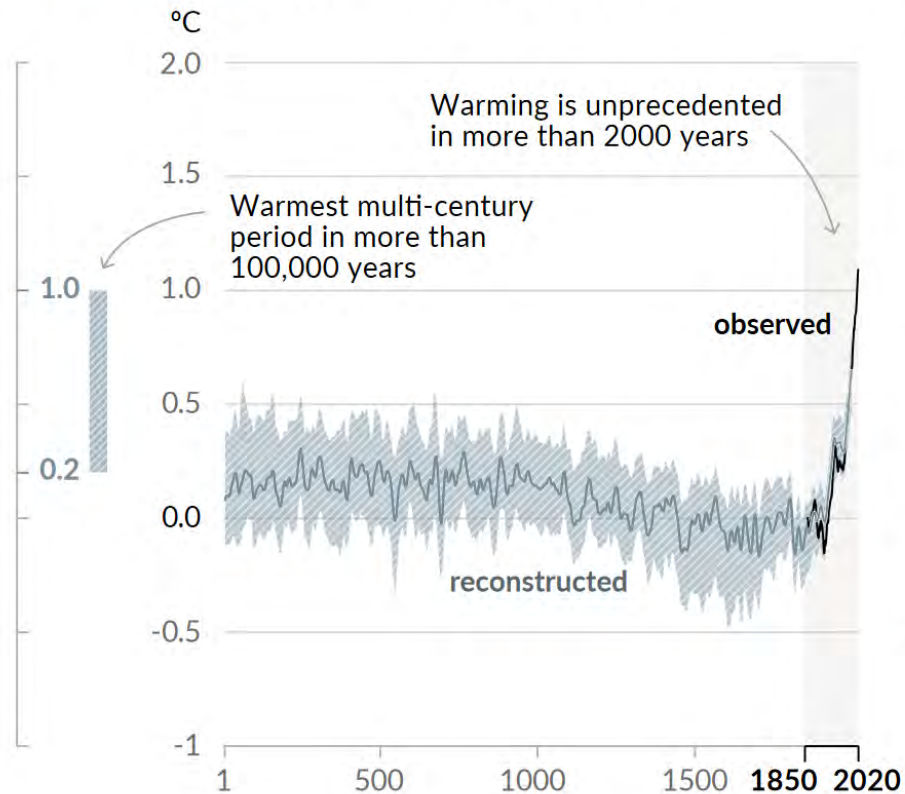
Working Group I contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change



Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years

Changes in global surface temperature relative to 1850-1900

a) Change in global surface temperature (decadal average) as **reconstructed** (1-2000) and **observed** (1850-2020)



b) Change in global surface temperature (annual average) as **observed** and simulated using **human & natural** and **only natural** factors (both 1850-2020)

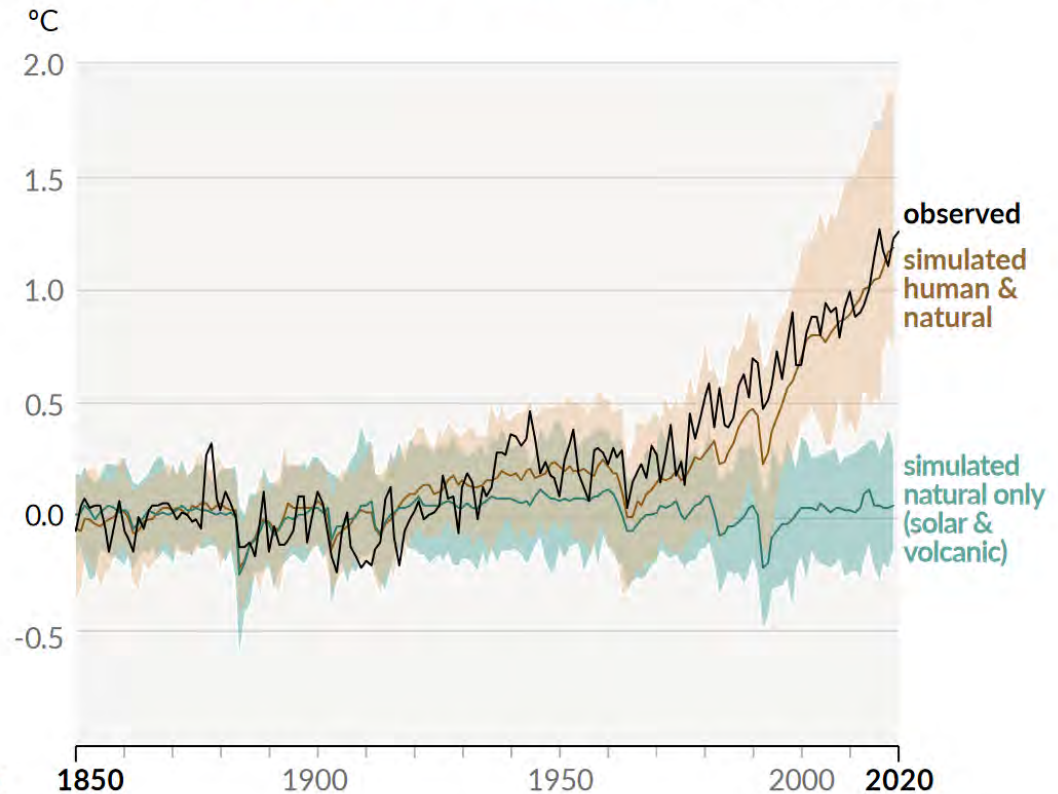
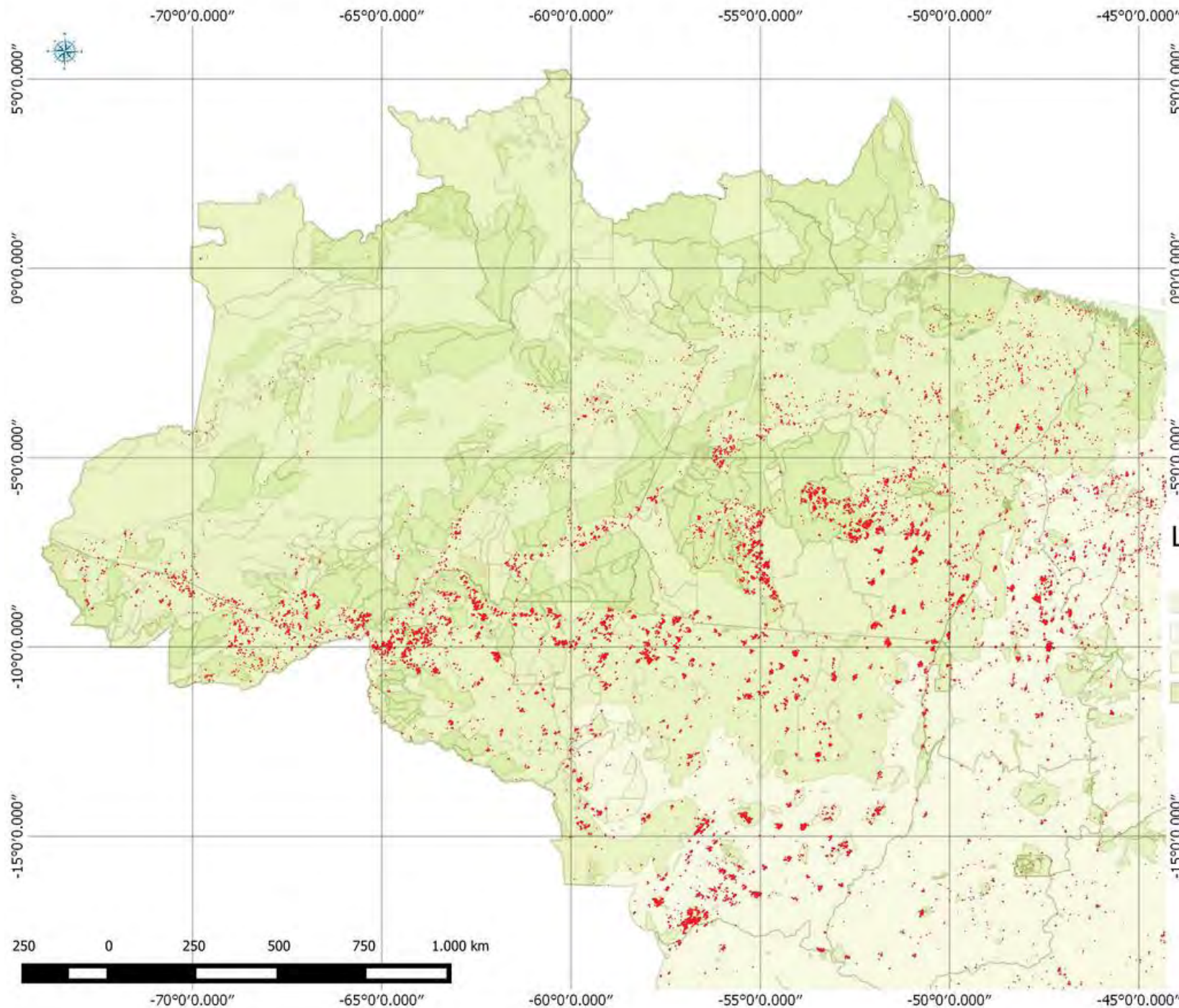


Figure SPM.1: History of global temperature change and causes of recent warming.



Forest fires and fires
Amazon Biome
September 8, 2020

Legenda

- Forest fires
- Environmental Conservation Units
- Indigenous Territories
- Brazilian states
- Bioma Amazônia

Source of information
Inpe/<http://queimadas.dgi.inpe.br/queimadas/bdqueimadas/>, 2020
Ibge, 2019
MMA, 2019
FUNAI, 2019
Created by: QGIS
Version: 2.8.9 - Wien
Datum: Sirgas 2000
Prepared by Tarcísio Feitosa

WMO GREENHOUSE GAS BULLETIN

The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2020

No. 17 | 25 October 2021

Roughly half of the carbon dioxide (CO₂) emitted by human activities today remains in the atmosphere. The rest is absorbed by oceans and land ecosystems. The fraction of emissions remaining in the atmosphere, called airborne fraction (AF), is an important indicator of the balance between sources and sinks. AF varies a lot from year to year, and over the past 60 years the relatively uncertain annual averages have varied between 0.2 (20%) and 0.8 (80%). However, statistical analysis shows that there is no significant trend in the average AF value of 0.42 over the long term (about 60 years) (see Figure 1). This means that only 42% of human CO₂ emissions remain in the atmosphere. Land and ocean CO₂ sinks have continued to increase proportionally with the increasing emissions. It is uncertain how AF will change in the future because the uptake processes are sensitive to climate and land-use changes.

Changes in AF will have strong implications for reaching the goal of the Paris Agreement, namely to limit global warming to well below 2° C, and will require adjustments in the timing and/or size of the emission reduction commitments. Ongoing climate change and related feedbacks, such as more frequent droughts and the connected increased occurrence and intensification of wildfires [2], might reduce CO₂

uptake by land ecosystems. Ocean uptake might also be reduced as a result of higher sea-surface temperatures, decreased pH due to CO₂ uptake [3] and the slowing of the meridional ocean circulation due to increased melting of sea ice [4]. Timely and accurate information on changes in AF is critical to detecting future changes in the source/sink balance.

Luckily, information is of atmospheric CO₂ in the world from the WMO (GAW) Programme and These long-term and accurate insight into the trend in other greenhouse gases and previous editions of can be combined with other of stable isotope ratio (O₂/N₂) ratio) and inverse tracer transport models information on the stratospheric processes in the global and the factors contributing

Based on this direct observations projections of CO₂ level scenarios can be provided

Carbon Dioxide (CO₂)

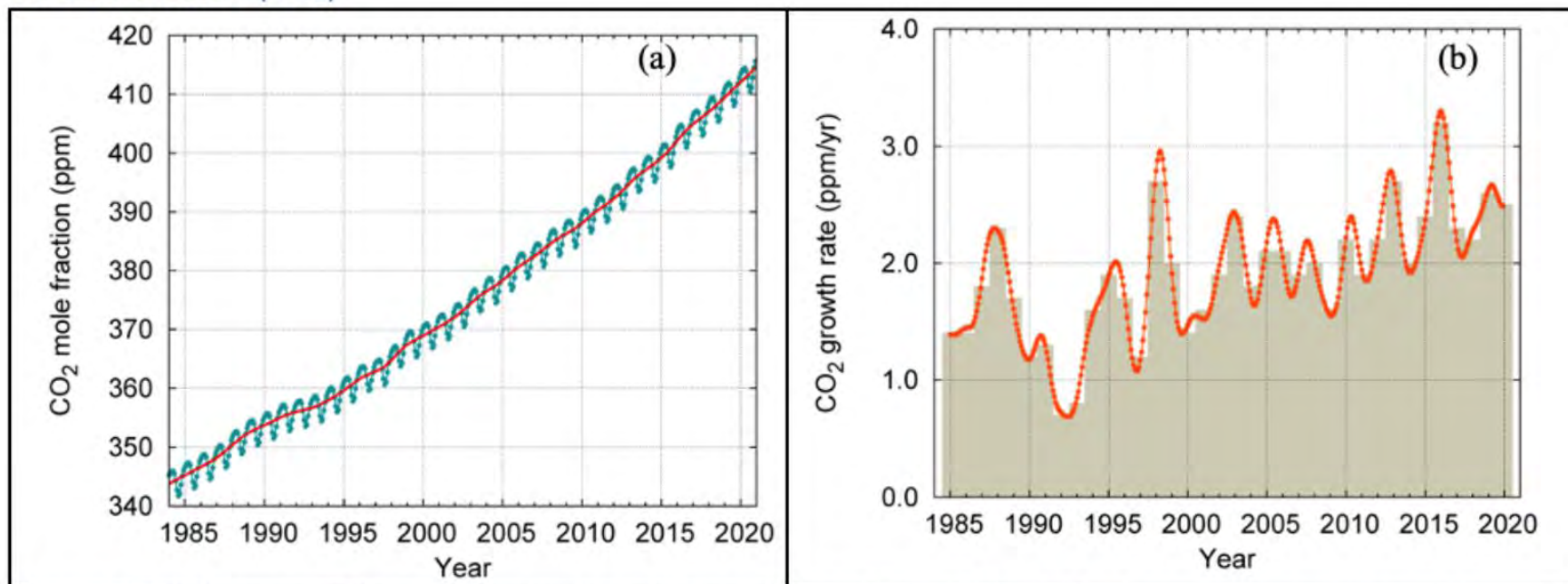


Figure 4. Globally averaged CO₂ mole fraction (a) and its growth rate (b) from 1984 to 2020. Increases in successive annual means are shown as the shaded columns in (b). The red line in (a) is the monthly mean with the seasonal variation removed; the blue dots and blue line in (a) depict the monthly averages. Observations from 139 stations were used for this analysis.

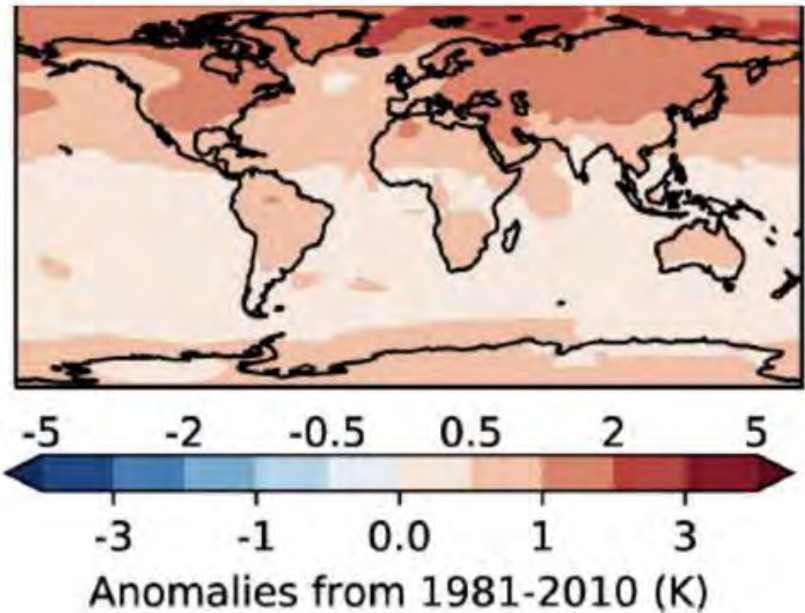
Les gaz à effet de serre (CO₂, CH₄, N₂O) battent un nouveau record en 2020

CO₂ à 149% des niveaux préindustriels, CH₄ à 263% et N₂O à 123%

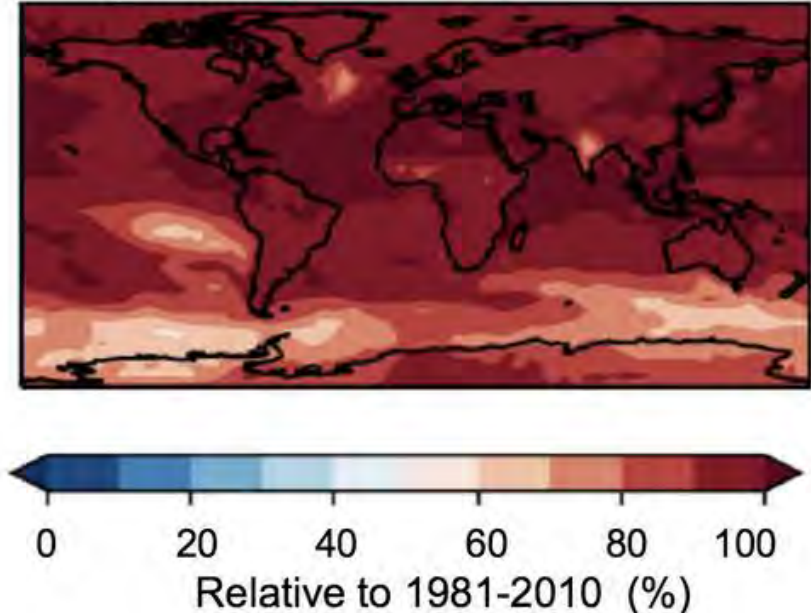
La transition d'une partie de l'Amazonie, d'un puits à une source de carbone, est déjà évidente...

Global temperatures are predicted to continue to rise over the next five years

Predicted surface temperature
(2020-2024)



Probability of above average surface
temperature (2020-2024)



Met Office



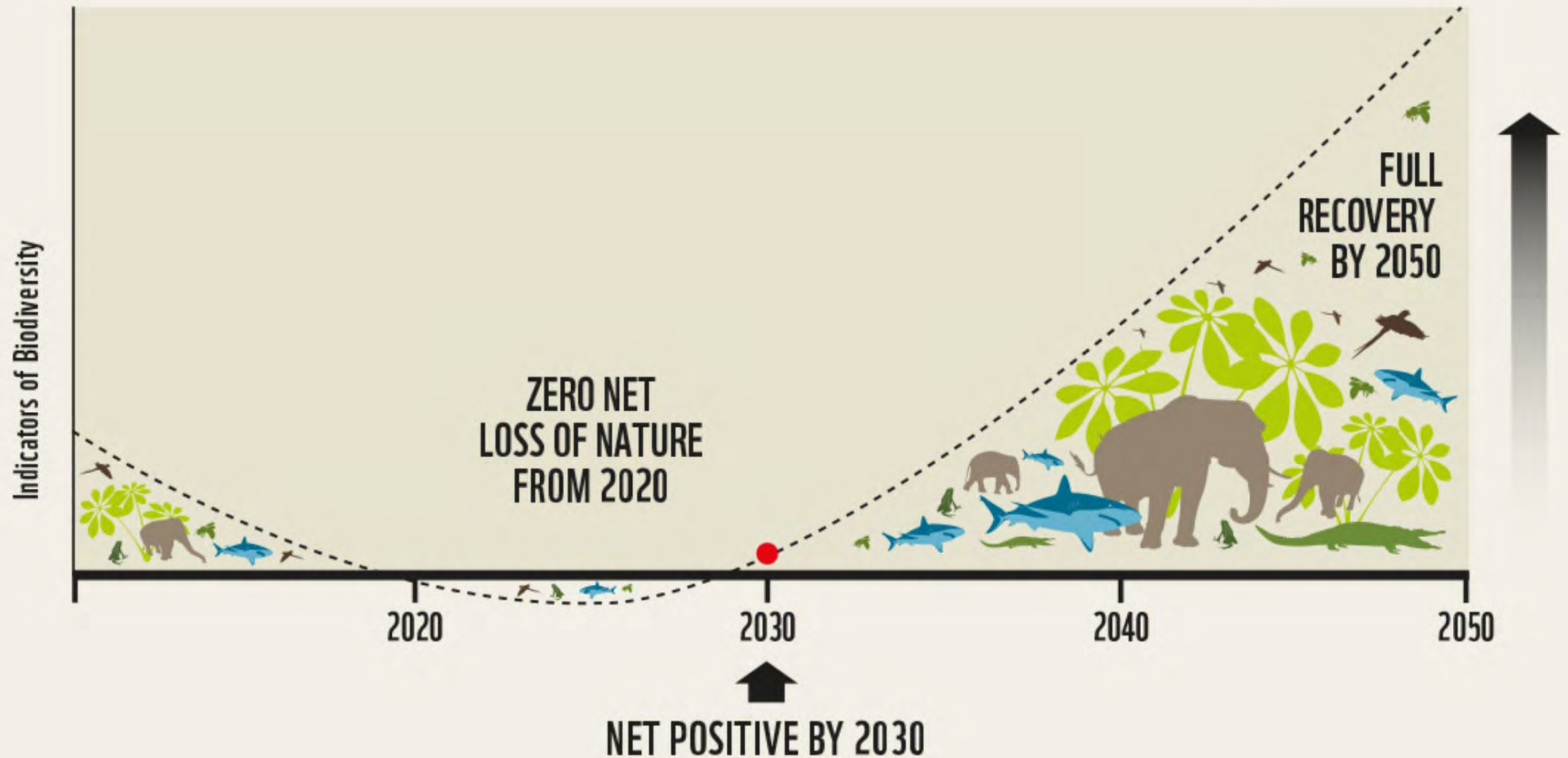
"It is still possible to bridge the Emissions Gap"



NATURE POSITIVE BY



Global Goal for Nature: Nature Positive by 2030



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The 2021 report of the *Lancet* Countdown on health and climate change: code red for a healthy future

[Marina Romanello, PhD](#) • [Alice McGushin, MSc](#) • [Claudia Di Napoli, PhD](#) • [Paul Drummond, MSc](#) • [Nick Hughes, PhD](#)

[Louis Jamart, MSc](#) • et al. [Show all authors](#)

Published: October 20, 2021 • DOI: [https://doi.org/10.1016/S0140-6736\(21\)01787-6](https://doi.org/10.1016/S0140-6736(21)01787-6)

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The *Lancet* Countdown is an international collaboration that independently monitors the health consequences of a changing climate. Publishing updated, new, and improved indicators each year, the *Lancet* Countdown represents the consensus of leading researchers from 43 academic institutions and UN agencies. The 44 indicators of this report expose an unabated rise in the health

[References](#)[Article Info](#)[Linked Articles](#)

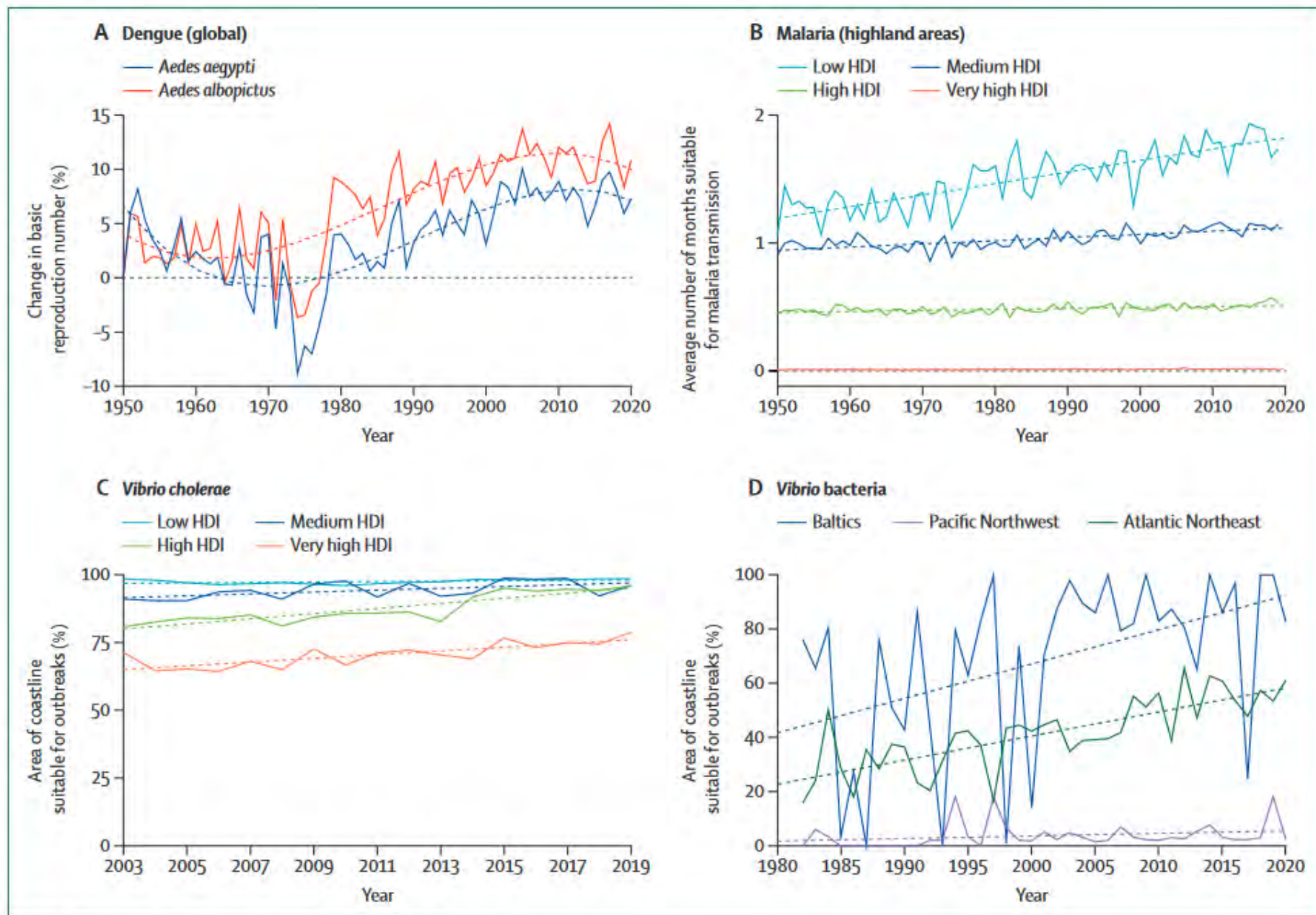


Figure 8: Change in climate suitability for infectious diseases

Solid lines represent the annual change. Dashed lines represent the trend since 1950 (for dengue and malaria), 1982 (for *Vibrio bacteria*), and 2003 (for *Vibrio cholerae*). HDI=human development index.

REVIEW

COVID-19: Implications for People with Chagas Disease

Ezequiel José Zaidel^{1,2}, Col
Antonio Luiz P. Ribeiro^{7,8},
Luis Eduardo Echeverría¹¹,
Pablo Perel^{14,15}, Sheba K. M
Sergio Sosa-Estani^{3,18}

ARTICLE IN PRESS

JACC: BASIC TO TRANSLATIONAL SCIENCE

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VOL. ■, NO. ■, 2021

CLINICAL RESEARCH

SARS-CoV-2 Infects Human Engineered Heart Tissues and Models COVID-19 Myocarditis



Adam L. Bailey, MD, PhD,^{a,*} Oleksandr Dmy
Pan Ma, PhD,^b Jing Liu, MS,^b Vinay Penna,
Ajith P. Nair, MD,^f Kent A. Heck, MD,^g Anik
Dan Hobohm, MD,ⁱ W. Tom Stump, PhD,^c Ja
Pei-Yong Shi, PhD,^k J. Travis Hinson, MD,^{l,m}
Florian Leuschner, MD,ⁿ Chieh-Yu Lin, MD,
Kory J. Lavine, MD, PhD^{a,b,p,q}

Articles

Effects of the COVID-19 pandemic on maternal and perinatal outcomes: a systematic review and meta-analysis



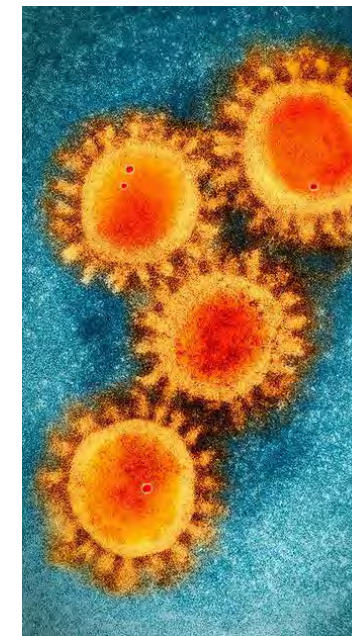
Barbara Chmielewska, Imogen Barratt, Rosemary Townsend, Erkan Kalafat, Jan van der Meulen, Ipek Gurd-Urganici, Pat O'Brien, Edward Morris, Tim Draycott, Shakila Thangaratnam, Kirsty Le Doare, Shamez Ladhani, Pieter von Dadelszen, Laura Magee, Asma Khalil



Summary

Background The COVID-19 pandemic has had a profound impact on health-care systems and potentially on pregnancy

Lancet Glob Health 2021



Neglected tropical diseases: tackling stigmatization, discrimination and mental health through a person-centred approach

12 October 2020 | Geneva — Women in sub-Saharan Africa affected by genital schistosomiasis suppress their health-seeking behaviour and are reluctant to speak about their condition, fearing matrimonial and societal consequences. Children as young as 12 years with swollen legs from lymphatic filariasis are booed at school. People with leprosy resist health-seeking behaviour for fear of stigmatization and ostracization. Buruli ulcer is often attributed to mystical causes, prompting people to seek treatment from traditional healers. Individuals affected by Chagas disease are discriminated against because the disease is almost always associated with the poorest populations who live in thatched homes infested by triatomine bugs that can carry *Trypanosoma cruzi*, the causative parasite.

These are a few real-life stories that panelists evoked to illustrate the stigmatization, discrimination and societal attitudes towards people affected by neglected tropical diseases (NTDs) and the link with mental health during the webinar on *What role does disability, stigma and mental health play in achieving the NTD road map targets?* held on 7 October 2020.



Fatima Harouk
Individuals affected by neglected tropical diseases are often reluctant to speak about their conditions, fearing societal consequences

WHO | 2020

Mental health of people with neglected tropical diseases

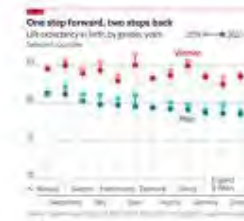
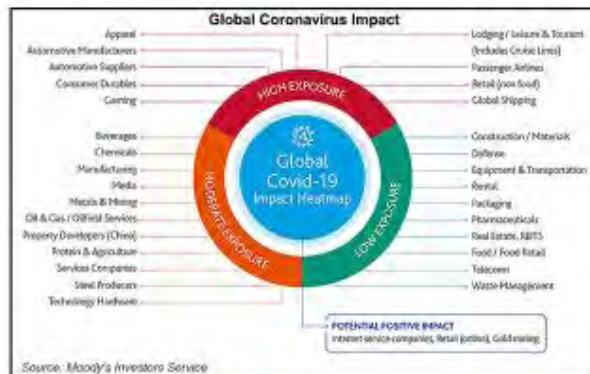
Towards a
person-centred
approach



Impacte de la pandémie de COVID-19

- Impact sur le système de santé (perturbation de l'accès au dépistage et aux soins médicaux)
- Pauvreté avec équité réduite
- Discrimination et stigmatisation accrues

Impacto na saúde, economia, turismo & educação



COVID-19's Staggering Impact On Global Education

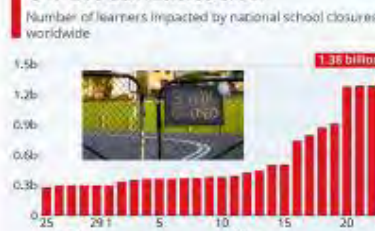
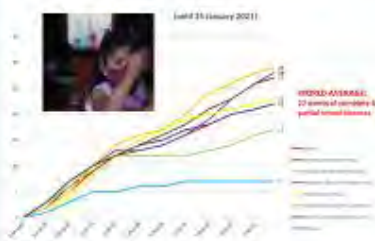


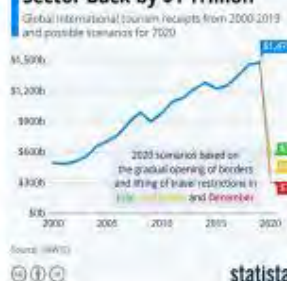
Figure refers to learners enrolled at pre-primary, primary, lower-secondary, and upper-secondary levels of education, as well as at tertiary education levels.

Source: UNESCO

Duration of complete and partial school closures (in weeks) by region



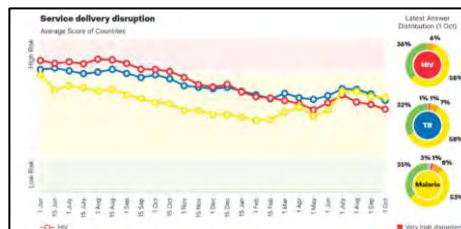
Pandemic Could Set Tourism Sector Back by \$1 Trillion



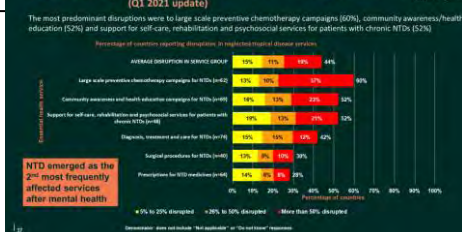
Demography's impact on the mortality distribution



Source: Schellekens and Sourmaille (2020), JHU CSSE, WPP, Updated: 2021-09-27. Latest: pandemo-ic.com. Note: Acronyms: high (HIC), upper-middle (UMIC), lower-middle (LMIC) & low income (LIC) countries. Simulations isolate effect of demography. Assumptions: everyone gets infected equally (same infection prevalence ratio across countries and age cohorts); countries face the same age-adjusted infection fatality risk (IFRs by Verity 2020; Lancet Infect Dis 2020-20).



Pulse survey: continuity of essential health services during COVID-19 (Q1 2021 update)



Neglected tropical diseases

About us

Diseases

Preventive chemotherapy and
transmission control

Innovative and intensified disease
management

Vector ecology and management

Neglected zoonotic diseases

Water, sanitation and hygiene

COVID-19: WHO issues interim guidance for implementation of NTD programmes

1 April 2020 | Geneva — The COVID-19 pandemic has prompted almost every country to implement unprecedented public health measures. WHO continues to provide guidance to Member States to assist them to respond quickly and confidently to this emergency. A range of public health measures are being implemented that include hand hygiene, respiratory etiquette, and practicing physical distancing.

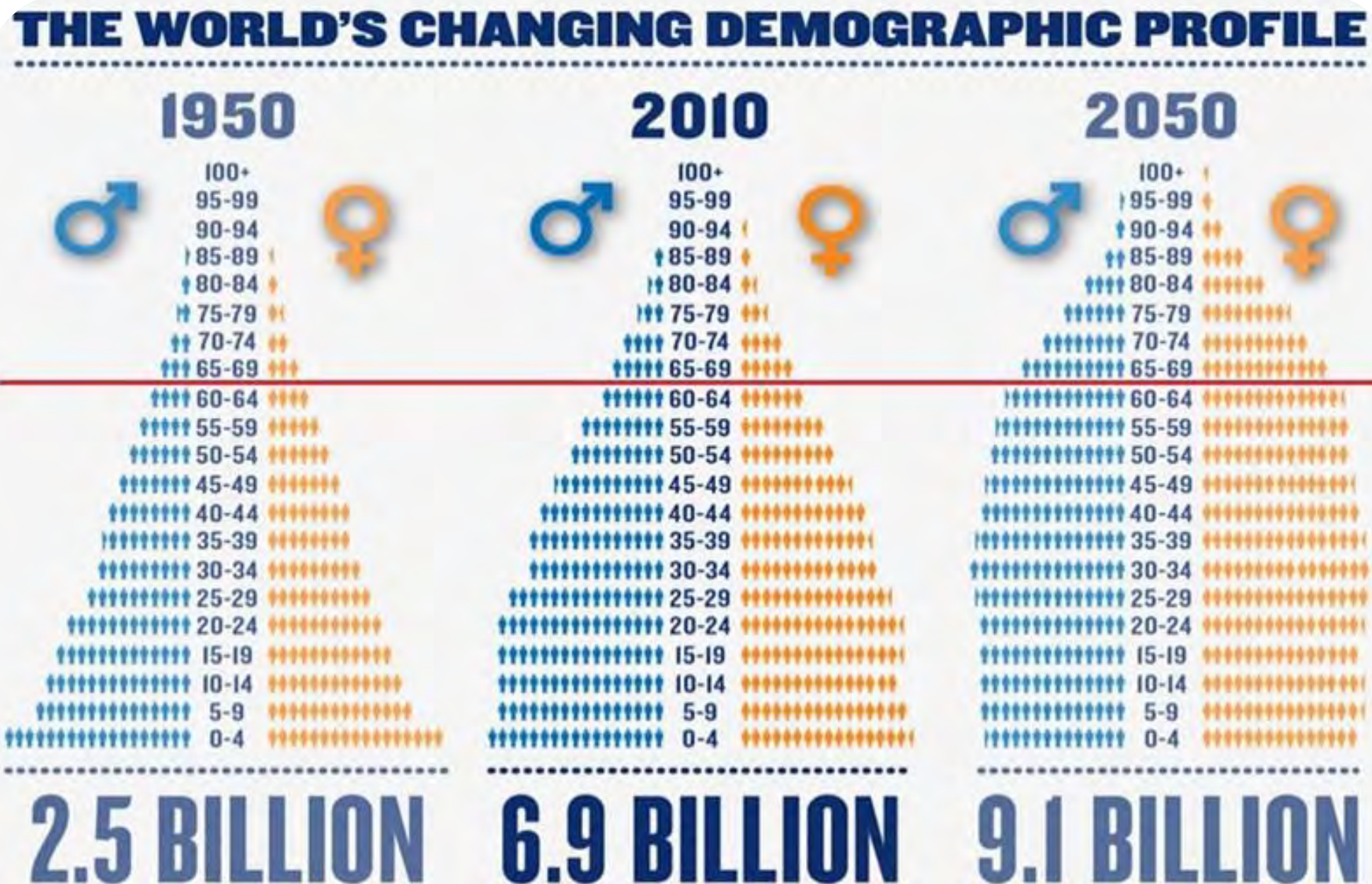


RTI International/Damien Schumann
Volunteers administer treatment for trachoma during a treatment campaign in Mozambique., 2019

Consistent with these public health measures, particularly physical distancing, WHO recommends that community-based surveys, active case-finding activities and mass treatment campaigns for neglected tropical diseases be postponed until further notice.

Further reading

- [Neglected Tropical Diseases](#)
- [WASH and COVID-19](#)
- [Coronavirus disease \(COVID-19\) advice for the public](#)



SOURCE: UN POPULATION DIVISION

SOURCE: UN POPULATION DIVISION

Quelles sont les avancées sans précédent en matière de contrôle et d'élimination ?





☐ History beginning

- Progressive appearance of writing in Mesopotamia, Egypt, India, China, Mesoamerica, agricultural and Neolithic societies...
- Creation of nations that needed to fix memory, laws..., and official writers were the first to learn how to read and write...

☐ Printer revolution

- XV Century (Gutenberg, 1439): reproduction outside castles, monasteries...

☐ Industrial revolutions

- 1760-1850: steam power and telegraph (energy and communication...)
- 1850-1945: petrol vehicles, phone, radio, TV...

☐ Digital revolutions

- 1945-today: global connectivity...
- Internet of things, artificial intelligence...

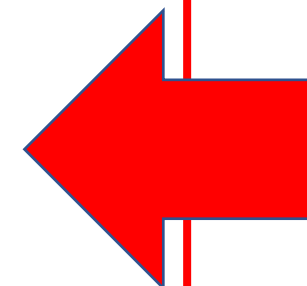
10 medical advances that will revolutionize the future

Toni Pou & Lara Bonilla, 01/06/2019

(https://www.ara.cat/dossier/Avencos-medics-que-revolucionaran-futur_0_2244975540.html)

“Customized treatments -> Stop treating illnesses in people and treat people with illness...”

- 1) Genetic editing: AIDS prevention, new medications, genetic therapy**
- 2) Assisted reproduction**
- 3) Bioprint of tissues**
- 4) Nanotechnology**
- 5) Microbiotics and Immunotherapy**
- 6) Celular therapy**
- 7) Mecanics of the cells or Mecano-biology**
- 8) Telemedicine and telesurgery**
- 9) Research with gender vision**
- 10) Big data, artificial intelligence, virtual reality**



Trends on urbanization and technology

- Today there are **more people living in cities than outside**, a transition that required **about 5,000 years** to consolidate.
- Today, **>50% of the planet's population is connected**, although **only 25 years** have passed since the network began its release.
- Only in the **last 3 years about 726 million people have joined the online world**. China is still growing at a high speed. But much of the increase comes from poorer environments, especially from **India and Africa**.
- In reach societies the online world has been used to socialize, play..., but **in poor societies or for migrant population the contact Apps will permit to keep contact with their families, friends...**
- People is afraid about fake news, polarization, persecution of minorities..., but it is also true that **smartphones will make possible: farmers to contrast harvest prices; population to be trained through online education...**

E-PHR

The aim of the **electronic Personal Health Record (e-PHR)** and its platform is to enhance knowledge amongst stakeholders about refugees' migrants' health needs; to ensure that migrant health assessment records are available at transit and destination countries; and to strengthen national and cross-border disease surveillance and response capacities.

PHR AND ACCOMPANYING HANDBOOK FOR HEALTH PROFESSIONALS



Electronic Personal & Health Record



[Health Topics](#) ▾[Countries](#) ▾[Newsroom](#) ▾[Emergencies](#) ▾[Home](#) / [Activities](#) / Implementing an information and surveillance system of Chagas disease

Implementing an information and surveillance system of Chagas disease

[Neglected tropical diseases](#)[About us](#)[Diseases](#)[Preventive chemotherapy and transmission control](#)[Innovative and intensified disease management](#)[Vector ecology and management](#)[Neglected zoonotic diseases](#)[Water, sanitation and hygiene](#)

WISCENTD

Introduction

The importance of data

Neglected tropical diseases (NTDs) disfigure and disable, leading to stigmatization and social discrimination. Severe complications and death can result if treatment is not provided early and adequately. This group of diseases largely affects low-income, politically marginalized people living in rural and periurban areas with low visibility and little political voice and with limited access to health care. NTDs are mainly focal and present in remote areas. However, they can be controlled, prevented and possibly eliminated or even eradicated with proven interventions. Strong surveillance systems should be in place in order to understand the burden of NTDs, to describe their geographical distribution and to identify populations at risk in order to best target control interventions in this resource constrained context and take evidence-based decisions.

In May 2013, the Sixty-sixth World Health Assembly adopted resolution [WHA66.12](#) on neglected tropical diseases, urging Member States to “further strengthen the disease surveillance system especially on neglected tropical diseases targeted for eradication” and requesting WHO “to monitor progress in achieving the targets for neglected tropical diseases set in WHO’s roadmap for accelerating work to overcome the global impact of neglected tropical diseases, and to provide support to Member States in their efforts to collect, validate and analyse data from national surveillance systems”.

WHO is also focusing on a global world information and surveillance system to control Chagas disease. Surveillance is a key intervention to break the epidemiological silence (in different times and geographical spaces) of a ‘silent and silenced’ disease.

The global information and surveillance system created by WHO is an open-source system used to collect available information on Chagas disease from different sources (official documents, WHO Event Management System, medicine distribution system, and the WHO pharmacovigilance system in collaboration with the Uppsala Monitoring Centre, among others), detects possible epidemiological silences (in time and space) and facilitates: (i) access to disease statistics and dashboard elements; (ii) monitoring and guidance about the control and elimination of the disease; and (iii) verification processes to sustain the

WHO 2030 roadmap for NTDs

By 2030, close to 900 verification processes (for either eradication or elimination) are expected to be finished for different NTDs (e.g., 15 for Chagas elimination) in different countries.

Surveillance
processes require an
information system

Control Interventions
Surveillance Processes





World Health
Organization



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



WHO Information System
to Control/Eliminate NTDs



WHO Integrated
Data Platform



WHO Integrated
Medical Supplies System

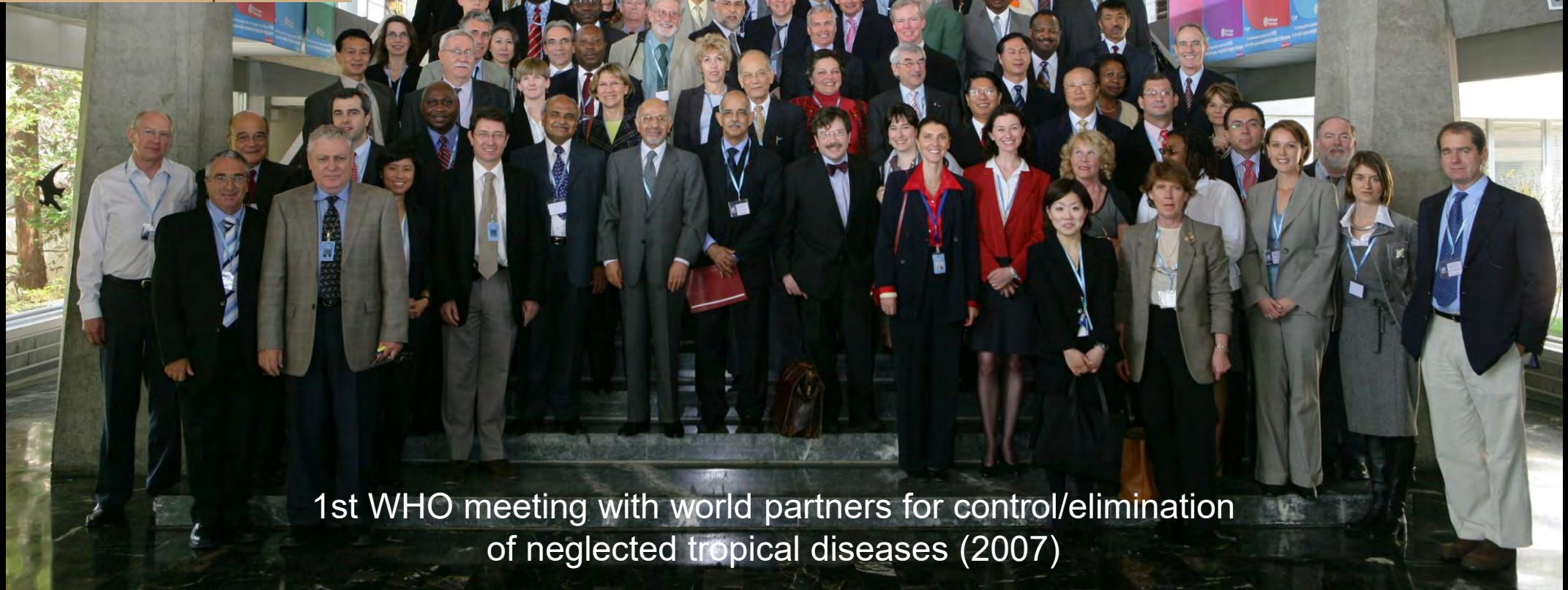


WISCENTD
Consolidating Data

DTIM

Database Technologies and
Information Management





1st WHO meeting with world partners for control/elimination
of neglected tropical diseases (2007)

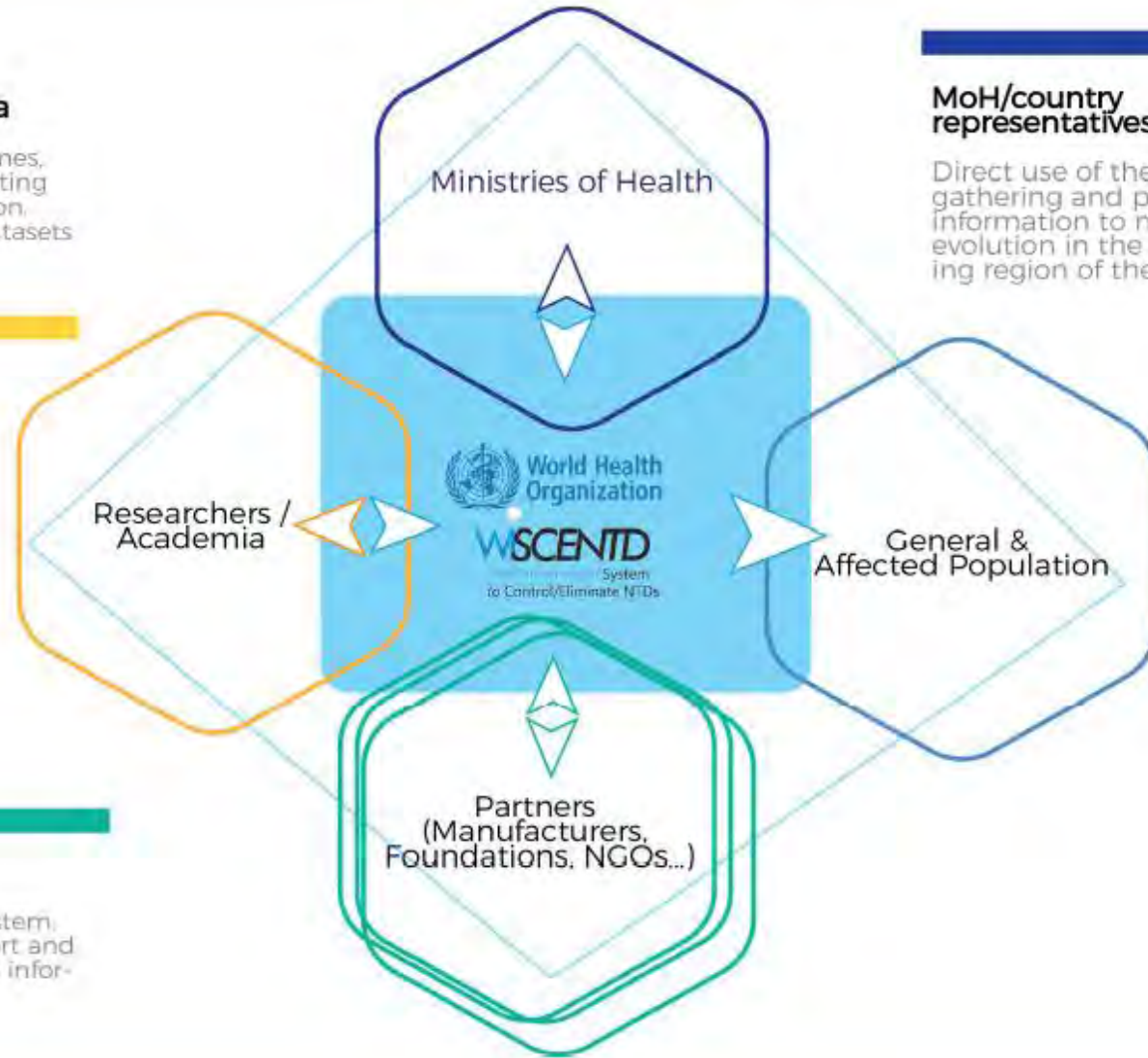
Vision

Researchers/Academia

Providing research outcomes, data, study results and getting epidemiological information. Also using downloaded datasets in their studies.

MoH/country representatives

Direct use of the system gathering and providing information to monitor the evolution in the corresponding region of the World.



Partners

Crucial pillars for the system. Different types of support and getting epidemiological information

General & Affected Population:

The ultimate beneficiary, getting benefits through the use of the system



DIÁRIO OFICIAL DA UNIÃO

Publicado em: 19/02/2020 | Edição: 35 | Seção: 1 | Página: 97

Órgão: Ministério da Saúde/Gabinete do Ministro

PORTARIA Nº 264, DE 17 DE FEVEREIRO DE 2020

Altera a Portaria de Consolidação nº 4/GM/MS, de 28 de setembro de 2017, para incluir a doença de Chagas crônica, na Lista Nacional de Notificação Compulsória de doenças, agravos e eventos de saúde pública nos serviços de saúde públicos e privados em todo o território nacional.

O MINISTRO DE ESTADO DA SAÚDE, no uso das atribuições que lhe conferem os incisos I e II do parágrafo único do art. 87 da Constituição, e

Considerando a Lei nº 6.259, de 30 de outubro de 1975, que dispõe sobre a organização das ações de Vigilância Epidemiológica, sobre o Programa Nacional de Imunizações, estabelece normas relativas à notificação compulsória de doenças, e dá outras providências;

Considerando a Lei nº 10.778, de 24 de novembro de 2003, que estabelece a notificação compulsória, no território nacional, do caso de violência contra a mulher que for atendida em serviços de saúde, públicos ou privados;

Considerando a Lei nº 12.527, de 18 de novembro de 2011, que regula o acesso às informações previsto no inciso XXXIII do art. 5º, no inciso II do § 3º do art. 37 e no § 2º do art. 216 da Constituição Federal; altera a Lei nº 8.112, de 11 de dezembro de 1990; revoga a Lei nº 11.111, de 5 de maio de 2005, e dispositivos da Lei nº 8.159, de 8 de janeiro de 1991; e dá outras providências; e

Considerando a necessidade de atualizar a Lista Nacional de Notificação Compulsória de doenças, agravos e eventos de saúde pública no âmbito do Sistema Único de Saúde (SUS), resolve:

Art. 1º Esta Portaria inclui, na Lista Nacional de Notificação Compulsória de doenças, agravos e eventos de saúde pública, a doença de Chagas crônica, a criptococose, a esporotricose humana e a paracoccidioidomicose.



acesso webmail

apresentações



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Início / Conass Informa

Conass informa n. 42/2020 – Publicada a Portaria GM n. 264 que altera a Portaria de Consolidação nº 4/GM/MS, de 28 de setembro de 2017, para incluir a doença de Chagas crônica, na Lista Nacional de Notificação Compulsória de doenças, agravos e eventos de saúde pública nos serviços de saúde públicos e privados em todo o território nacional.

Conass Informa n. 42/2020 – Publicada a Portaria GM n. 264 que altera a Portaria de Consolidação nº 4/GM/MS, de 28 de setembro de 2017, para incluir a doença de Chagas crônica, na Lista Nacional de Notificação Compulsória de doenças, agravos e eventos de saúde pública nos serviços de saúde públicos e privados em todo o território nacional

Publicado em 19 fev 2020



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Seventy-third World Health Assembly

#WHA73



World Health
Organization

SEVENTY-THIRD WORLD HEALTH ASSEMBLY
Provisional agenda item 11.8

A73/8
6 May 2020

Neglected tropical diseases

Draft road map for neglected tropical diseases 2021–2030

Report by the Director-General

1. In decision EB146(9) (2020), the Executive Board at its 146th session, having considered the report on neglected tropical diseases¹ and recalling resolution WHA66.12 (2013) on neglected tropical diseases, WHO's road map for accelerating work to overcome the global impact of neglected tropical diseases (2012–2020) and Member States' commitment to target 3.3 of Sustainable Development Goal 3, requested the Director-General to develop, in consultation with Member States and in collaboration with relevant stakeholders, the road map for neglected tropical diseases 2021–2030, aligning it with Sustainable Development Goal targets for 2030, in order to maintain the momentum and sustain the gains achieved in addressing neglected tropical diseases, as well as applying lessons learned from implementing the road map for 2012–2020, and to submit it for consideration by the Seventy-third World Health Assembly.



Credits



be virtually from 9–14 November 2020, in light of the ongoing
ple follow proceedings on the webcast below.

duced (*de minimis*) meeting of 18–19 May 2020. All
in [documents](#) page for the WHA73.

DATES:

18–19 May 2020 (*de minimis*)

9–14 November 2020 (resumed)

Decision approved on 12 November 2020, at 12:48'

Chagas disease

Chagas disease is a potentially life-threatening illness caused by infection with the protozoan parasite *Trypanosoma cruzi*. The disease is mainly a chronic condition and co-infections and co-morbidities are common.

Disease and epidemiology

- Chagas disease is a potentially life-threatening illness caused by infection with the protozoan parasite *Trypanosoma cruzi*.
- Transmission of infection is (i) vector-borne (through the faeces and urine of triatomine bugs) in the Americas and (ii) oral/foodborne, (iii) congenital, (iv) transfusional (through blood products), (v) organ transplantation and (vi) laboratory accidents everywhere.
- During the acute and chronic phases, most patients have no (or nonspecific) symptoms; without treatment, up to 30% develop cardiac alterations and up to 10% digestive, neurological or mixed alterations. Afterwards, the destruction of the muscle and nervous system can lead to cardiac arrhythmias and/or heart failure and sudden death.
- The disease is mainly a chronic condition and co-infections and co-morbidities are common.

Core strategic interventions

| | |
|--------------------------|---|
| Preventive chemotherapy | N/A |
| WASH | • Good hygiene practices in food preparation, transportation, storage and consumption |
| Vector control | • Spraying with residual insecticides to remove triatomine bugs from dwellings • Home cleanliness and housing improvements (e.g. crack-free walls, bednets) |
| Veterinary public health | N/A |
| Case management | • Two antiparasitic medicines (benznidazole and nifurtimox) can cure infection during the acute or early chronic phase, or can prevent or curb progression of the disease • Life-long medication or surgery may be necessary for specific heart and/or digestive alterations |
| Other | • Blood screening is vital to prevent transmission through blood transfusions and organ transplantation • Treatment of girls or women of childbearing age can prevent congenital transmission |

Progress against WHO 2020 targets

| Impact indicator | 2020 target | Current status |
|---|--|---|
| Interruption of transfusional transmission by 2015 | Americas, European and Western Pacific regions | 66% of countries are at an advanced stage |
| Interruption of domiciliary vectoral transmission by 2020 | Region of the Americas | 33% of countries have succeeded |

Burden of disease

6–7 million
people infected with *T. cruzi* in 2018

About 10 000
deaths in 2017

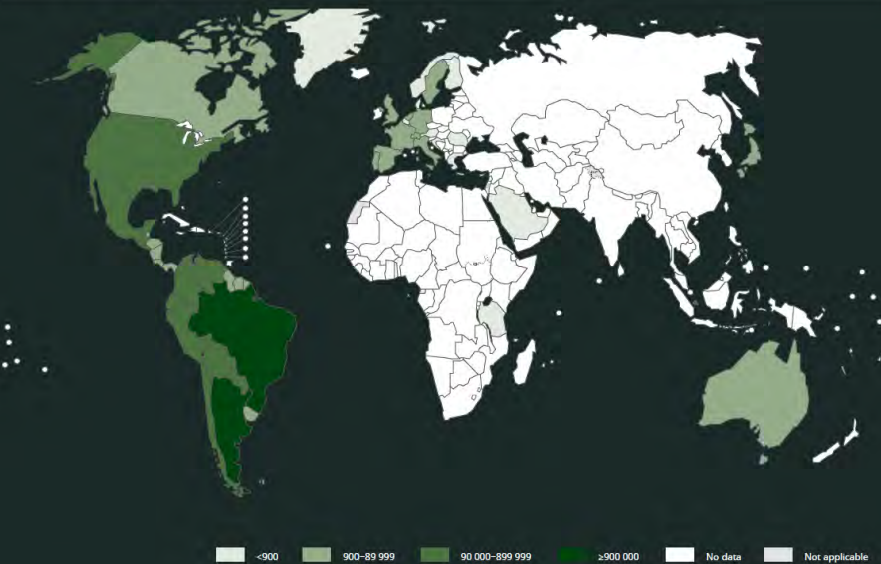
About 75 million
people at risk of infection

Estimated number of *T. cruzi* infected people worldwide according to 1990–2017 publications, millions



Chagas disease occurs principally in 21 continental Latin American countries¹ During the past decades, however, population mobility has led to increased detection of the disease in the USA, Canada, many European and some Western Pacific countries.

Global distribution of Chagas disease, 2006–2018



¹ Argentina, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of)


Que met sur la table la feuille de route 2021-2030 ?

1. **Vérification** de l'interruption de la transmission des insectes vecteurs domestiques
2. **Vérification** de l'interruption de la transmission transfusionnelle
3. **Vérification** de l'interruption de la transmission par greffe d'organe
4. **Élimination** de la maladie de Chagas congénitale
5. **75 % de couverture** du traitement antiparasitaire de la population mondiale éligible

Roadmap evaluation parameters


- 2023: progress evaluation coinciding with end of GPW 13
- 2025: mid-review evaluation to potentially re-adjustment of strategies/targets
- 2030: End of NTD roadmap and Sustainable Development Goals

Chagas disease: Current status of 1/6 ways of transmission in 21 countries of 1 region

| Without any 1 st administrative division with interruption of domiciliary vectorial transmission | Active transmission of domiciliary vectorial transmission due to sylvatic cycles | 1 st administrative divisions with interruption of domiciliary vectorial transmission | Domiciliary vectorial transmission by the principal triatomine bug transmitting <i>T. cruzi</i> infection interrupted | Domiciliary vectorial transmission interrupted |
|---|--|---|---|---|
| Bolivarian Republic of Venezuela Ecuador | Plurinational State of Bolivia Brazil Colombia Ecuador French Guiana Guyana Panama Peru Suriname Bolivarian Republic of Venezuela | Argentina Plurinational State of Bolivia Colombia French Guiana Guyana Mexico Peru | Belize Brazil Chile Costa Rica El Salvador Guatemala Honduras Nicaragua Paraguay Uruguay |  Belize Chile Costa Rica Honduras Nicaragua Paraguay Uruguay |
| 2 (10%) | 10 (48%) | 7 (33%) | 10 (48%) | 7 (33%) |

2019-20 priorities: 1. Increase case detection & follow-up; 2. Monitoring & verification of new achievements


Chagas disease: Current status of 1/6 ways of transmission in 41 countries of 3 regions

| Blood/blood products transfusional transmission interruption moderate | Blood/blood products transfusional transmission interruption intermediate | Blood/blood products transfusional transmission interruption advanced | Elimination of Transmission Verified |
|---|--|--|---|
| Australia USA | Austria Belgium Canada Croatia Denmark Finland Italy Germany Luxembourg The Netherlands Romania | Argentina, Belize, Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Bolivarian Republic of Venezuela France, Japan, Portugal, Spain, Sweden, Switzerland, United Kingdom |  (The challenge of different ways of transmission in different territories of the world) |
| 2 (5%) | 11 (27%) | 27 (66%) | |

2019-20 priorities: 1. Increase case detection & follow-up; 2. Monitoring & verification of new achievements

Research Article

Development of a New Lateral Flow Assay Based on IBMP-8.1 and IBMP-8.4 Chimeric Antigens to Diagnose Chagas Disease

Edimilson D. Silva,¹ Ângelo A. O. Silva,² Emily F. Santos,² Leonardo M. Leony,² Natália E. M. Freitas,² Ramona T. Daltro,² Antônio G. P. Ferreira,¹ Rafaela L. Diniz,¹ Aline R. Bernardo,¹ Alejandro O. Luquetti,³ Marco A. Krieger,^{4,5} Paola A. F. Celedon,⁵ Pedro A. Viñas,⁶ Nilson I. T. Zanchin,⁴ and Fred L. N. Santos ²

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³*Center of Studies for Chagas Disease, Federal University of Goiás, Goiânia, Brazil*

⁴*Carlos Chagas Institute (Fiocruz/PR), Curitiba, Brazil*

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Academic Editor: Pengjun Shi

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Geographical origin of chronic Chagas disease patients in Brazil impacts the performance of commercial tests for anti-*T. cruzi* IgG

Amadeo Sáez-Alquezar^{1/+}, Angela Cristina Verissimo Junqueira², Andressa da Matta Durans^{3,4}, André Valpassos Guimarães¹, José Abol Corrêa¹, José Borges-Pereira², Patrícia Lago Zauza², Pedro Hernan Cabello^{5,6}, Pedro Albajar-Viñas⁷, David William Provance Jr^{3,4}, José Rodrigues Coura^{2,+}

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BACKGROUND Chagas disease, caused by *Trypanosoma cruzi*, affects nearly six million people worldwide. Various serological tests have been developed for its diagnosis.

OBJECTIVE Examine the performance of a set of commercial immunological assays in relation to the geographical origin of the patient sample comparing four states of Brazil: Amazonas (AM), Mato Grosso do Sul (MS), Minas Gerais (MG) and Piauí (PI).

METHODS Seven immunoassays were employed to detect anti-*T. cruzi* IgG antibodies in 379 patient samples that had been previously diagnosed using the two-step protocol required by the Brazilian Ministry of Health.

FINDINGS A significant variation in the percent reactive was calculated for the samples from AM and MS, while the PI and MG showed a significant variation in the percent non-reactive. The average reactivity index was significantly higher for samples from the states of PI and MG states than AM and MS.

MAIN CONCLUSIONS All tests presented a satisfactory performance overall. Yet, variations were observed that were associated to the region of origin of the samples. Our analyses suggest that future evaluations of immunoassays should include a sampling of sera from regions where the test will be applied in addition to the available International Biological Reference Standards.

Key words: *Trypanosoma cruzi* - human Chagas disease - serological diagnostic test - immunoassays - International Biological Reference Standards

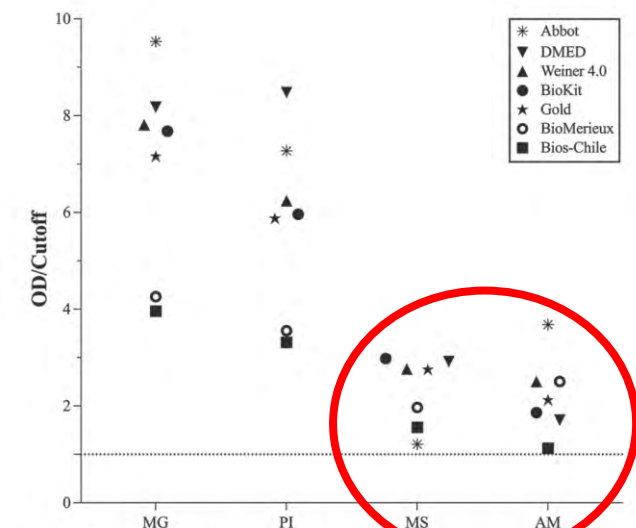


Fig. 4: the reactivity index (OD/CO) measured from each test in the detection of anti-*T. cruzi* IgG according to the Brazilian state of origin. The mean optical density measured by each kit for reactivity biological samples were divided by the cutoff to generate the RI and plotted according to the state of Brazil where the sample was collected. MG - Minas Gerais; PI - Piauí; MS - Mato Grosso do Sul; AM - Amazonas.

Application of WHO International Biological Reference Standards to evaluate commercial serological tests for chronic Chagas disease

Amadeo Sáez-Alquezar^{1/+}, Angela Cristina Verissimo Junqueira², Andressa da Matta Durans^{3,4}, André Valpassos Guimarães¹, José Abol Corrêa¹, D William Provance Jr^{3,4}, Pedro Hernan Cabello^{5,6}, José Rodrigues Coura², Pedro Albajar Viñas⁷

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²Fundação Oswaldo Cruz-Fiocruz, Instituto Oswaldo Cruz, Laboratório de Doenças Parasitárias, Rio de Janeiro, RJ, Brasil

³Fundação Oswaldo Cruz-Fiocruz, Centro de Desenvolvimento Tecnológico em Saúde, Rio de Janeiro, RJ, Brasil

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⁶Universidade do Grande Rio, Laboratório de Genética, Rio de Janeiro, RJ, Brasil

⁷World Health Organization, Department of Control of Neglected Tropical Diseases, Geneva, Switzerland



BACKGROUND Chagas disease, resulting from *Trypanosoma cruzi* infections, continues to be a health concern mainly in Latin American countries where the parasite is endemic. The laboratory diagnosis of a chronic infection is determined through serological assays for antibodies against *T. cruzi* and several tests are available that differ in key components, formats and methodologies. To date, no single test meets the criteria of a gold standard. The situation is further complicated by the difficulties associated with performance comparisons between different immunoassays or methodologies executed at different times and geographical areas.

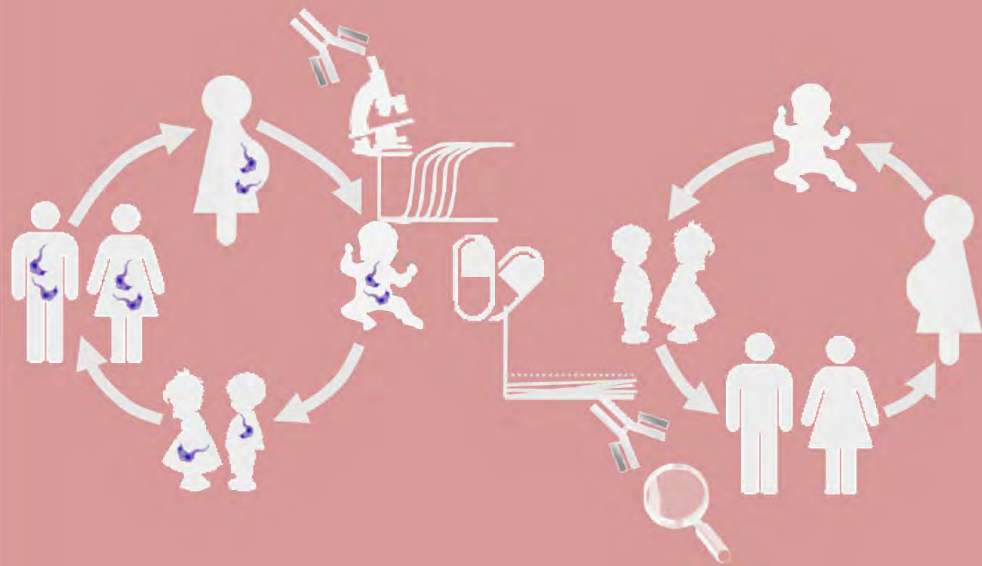
OBJECTIVE To improve the diagnosis of Chagas disease, the WHO coordinated the development of two International Biological Reference Standards for antibodies against anti-*T. cruzi*: NIBSC 09/186 and NIBSC 09/188 that respectively represent geographical regions with the highest prevalence of TcII and TcI lineages of the parasite.

METHODS The principle goal of this study was to verify the behavior of these standards when assayed by several commercially available serological tests that employ different methods to capture and detect human anti-*T. cruzi* antibodies.

FINDINGS AND MAIN CONCLUSIONS The results reinforce the recommendation that these standards be considered for performance evaluations of commercialised immunoassays and should be an integral step in the development of new test components or assay paradigms.

REUNIÓN CIENTÍFICO – TÉCNICA DE LA RED DE LABORATORIOS DE DIAGNÓSTICO DE LA ENFERMEDAD DE CHAGAS EN ÁREA NO ENDÉMICA

14 y 15 de diciembre de 2020



Detección,
monitoreo y
evaluación de
la infección por el *Trypanosoma cruzi*
en el umbral de una nueva década
(2021-2030).

Desafíos,
oportunidades y
la (aún) inexistente comparabilidad en
el tiempo y en el espacio.

Con el patrocinio científico de la:

Second WHO Model List of Essential In Vitro Diagnostics

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Making available free paediatric medicine can accelerate elimination of congenital Chagas disease

[Français](#)

VIEWPOINTS

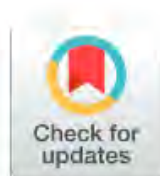
Congenital Chagas disease: Updated recommendations for prevention, diagnosis, treatment, and follow-up of newborns and siblings, girls, women of childbearing age, and pregnant women

Yves Carlier^{1,2✉*}, Jaime Altcheh^{3✉}, Andrea Angheben^{4✉}, Hector Freilij^{3✉}, Alejandro O. Luquetti^{5✉}, Alejandro G. Schijman^{6✉}, Manuel Segovia^{7✉}, Noemie Wagner^{8✉}, Pedro Albajar Vinas^{9✉}

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✉ These authors contributed equally to this work.

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OPEN ACCESS

Citation: Carlier Y, Altcheh J, Angheben A, Freilij H, Luquetti AO, Schijman AG, et al. (2019) Congenital Chagas disease: Updated recommendations for prevention, diagnosis, treatment, and follow-up of newborns and siblings, girls, women of childbearing age, and pregnant women. *PLoS Negl Trop Dis* 13(10): e0007694. <https://doi.org/10.1371/journal.pntd.0007694>

Introduction

In 2005, the World Health Organization (WHO) recognized Chagas disease (CD; *Trypanosoma cruzi* infection) as a neglected tropical disease (NTD) [1] and included it into the global plan to combat NTDs [2]. The Target 3.3 of the United Nations Sustainable Development Goals (UN/SDG) aims at ending the epidemics of NTDs by 2030 [3]. Mother-to-child (congenital/connatal) transmission is currently the main mode of transmission of *T. cruzi* over

Neglected tropical diseases

Neglected tropical diseases

Preventing mother-to-child transmission of Chagas disease: from control to elimination

16 November 2018 | Geneva | Murcia (Spain) -- The World Health Organization (WHO) is shifting its focus towards active screening of girls and women of childbearing age to detect the presence of *Trypanosoma cruzi*, the causative parasite of Chagas disease. Recent evidence^{1,2} demonstrates that diagnosing and treating women of this age group before pregnancy can effectively prevent congenital transmission.

"Identifying pregnant women already infected with the parasite, as well as newborns and siblings, has been a major challenge in both endemic and non-endemic countries" said Dr Pedro Albajar Viñas, Medical Officer, WHO Department of Control of Neglected Tropical Diseases. "With the progressive control of transmission by vectors and through blood transfusion, updating, reinforcing and expanding standardized screening measures for congenital transmission make absolute sense."



Vector ecology and management

Neglected zoonotic diseases

Water, sanitation and hygiene



World Health
Organization



25 NOVEMBER 2019 | STATEMENTS

Unitaid seeks to support new approaches to tackle Chagas disease

SHARE



Brasilia – Unitaid has launched a [call for proposals](#) for new projects that can help eliminate congenital infection of Chagas disease through better diagnosis and treatment, within the context of its work in maternal and child health. The new call reflects increased global attention and country commitment to fight Chagas disease.

SEMANA DE LA INNOVACIÓN PÚBLICA

Inicio Agendas

Detalle agenda/

5/ marzo 2019

Presentación de la campaña iberoamericana “Ningún Bebé con Chagas”

Martes 5 de marzo, 11:00h. Secretaría General Iberoamericana, Paseo de Recoletos, 8, Madrid, España

El martes 5 de marzo a las 11:00h tendrá lugar la presentación de la campaña iberoamericana “Ningún Bebé con Chagas” en Madrid.

El evento contará con la presencia de [Rebeca Grynspan](#), secretaria general iberoamericana; Pedro Albajar, director del programa de Chagas en la OMS; Javier Martos, director ejecutivo de UNICEF



para dialogar sobre la situación actual de la región y los temas que se elevarán a la reunión de Jefes de Estado, a ser celebrada en Andorra, en abril de 2021.

La XXVII Cumbre Iberoamericana de Jefes de Estado y de Gobierno se celebrará el 21 de abril de 2021 | f t in

Será la primera vez que Andorra acoja la Cumbre Iberoamericana, cuyo lema será “Innovación para el desarrollo sostenible. Objetivo 2030. Iberoamérica frente al reto del coronavirus”.

16 February 2021



Réflexions finales...

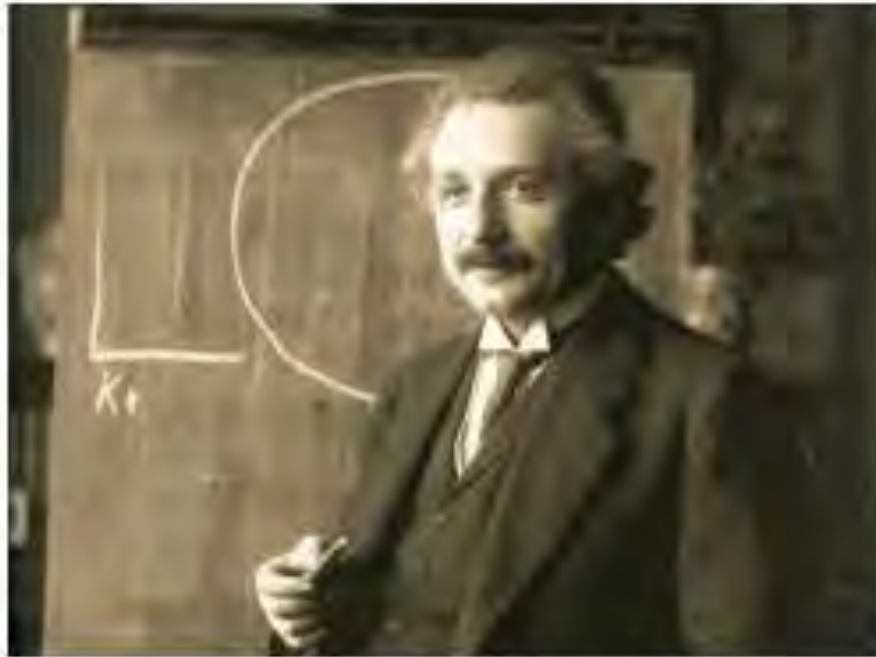


Organisation
mondiale de la Santé

« Si j'avais 1 heure pour résoudre un problème,
je passerais 55 minutes à étudier le sujet et 5
minutes à proposer une solution »

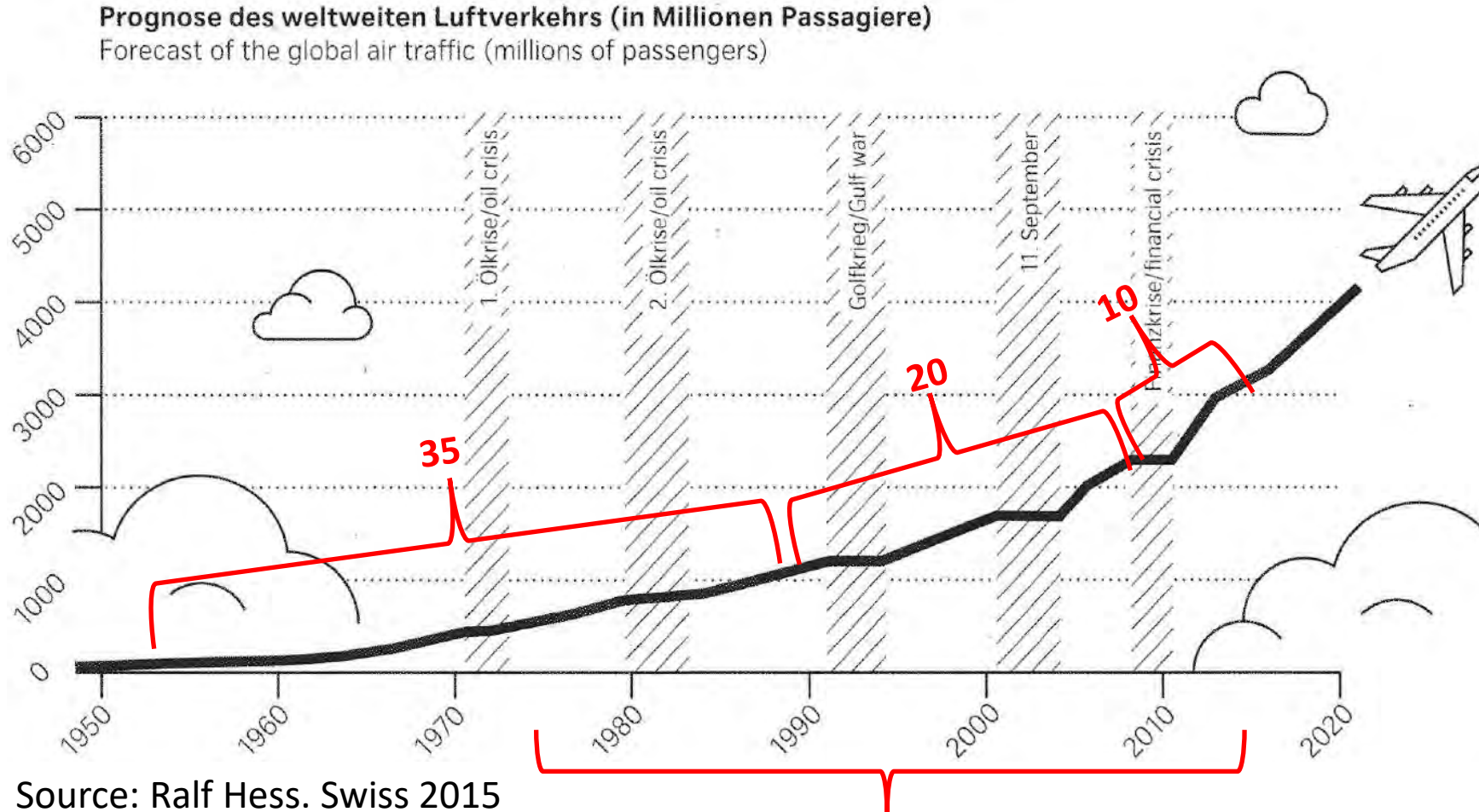


55 Minutes



Albert Einstein

Forecast of the global air traffic per year (millions of passengers)



In 40 years an increase of >7 times

The multidimensional comprehension of Chagas disease. Contributions, approaches, challenges and opportunities from and beyond the Information, Education and Communication field

Mariana Sanmartino^{1/+}, Colin J Forsyth², Andrea Avaria³,
Mar Velarde-Rodriguez^{4,5}, Jordi Gómez i Prat⁶, Pedro Albajar-Viñas⁷

¹Consejo Nacional de Investigaciones Científicas y Técnicas, Instituto de Física de Líquidos y Sistemas Biológicos, Grupo de Didáctica de las Ciencias, La Plata, Buenos Aires, Argentina

²Drugs for Neglected Diseases *initiative* - Latin America, Rio de Janeiro, RJ, Brasil

³Universidad Autónoma de Chile, Facultad de Ciencias Sociales y Humanidades, Santiago, Región Metropolitana, Chile

⁴Swiss Tropical and Public Health Institute, Department of Epidemiology and Public Health, Basel, Switzerland

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⁶Hospital Universitari Vall d'Hebron, Servei de Medicina Preventiva, Unitat de Salut Internacional Drassanes-Vall d'Hebron, Equip de Salut Pública i Comunitària, Barcelona, Catalunya

⁷World Health Organization, Department of Control of Neglected Tropical Diseases, Geneva, Switzerland

Chagas is a complex, multidimensional phenomenon in which political, economic, environmental, biomedical, epidemiological, psychological, and sociocultural factors intersect. Nonetheless, the hegemonic conceptualisation has long envisioned Chagas as primarily a biomedical question, while ignoring or downplaying the other dimensions, and this limited view has reinforced the disease's long neglect. Integrating the multiple dimensions of the problem into a coherent approach adapted to field realities and needs represents an immense challenge, but the payoff is more effective and sustainable experiences, with higher social awareness, increased case detection and follow-up, improved adherence to care, and integrated participation of various actors from multiple action levels. Information, Education, and Communication (IEC) initiatives have great potential for impact in the implementation of multidimensional programs of prevention and control successfully customised to the diverse and complex contexts where Chagas disease persists.

Key words: Chagas disease - multidimensional comprehension - information - education - communication - public health



Interlocking gears to address the multidimensionality of Chagas (Illustration: Iván Pasanau)



-> **L'Amazonie est aujourd'hui le territoire du monde avec le plus grand nombre de cas aigus...**

3 scénarios épidémiologiques en Amazonie :

- **indigènes** (indigènes, saigneurs de caoutchouc...) liés à l'extractivisme, la chasse et la pêche (maladie vectorielle, professionnelle) ;
- **les migrants arrivés avec l'infection ou la maladie** (migration et santé) ;
- **concentrations urbaines et transmission orale par des aliments consommés localement ou exportés !**

3 grands défis actuels :

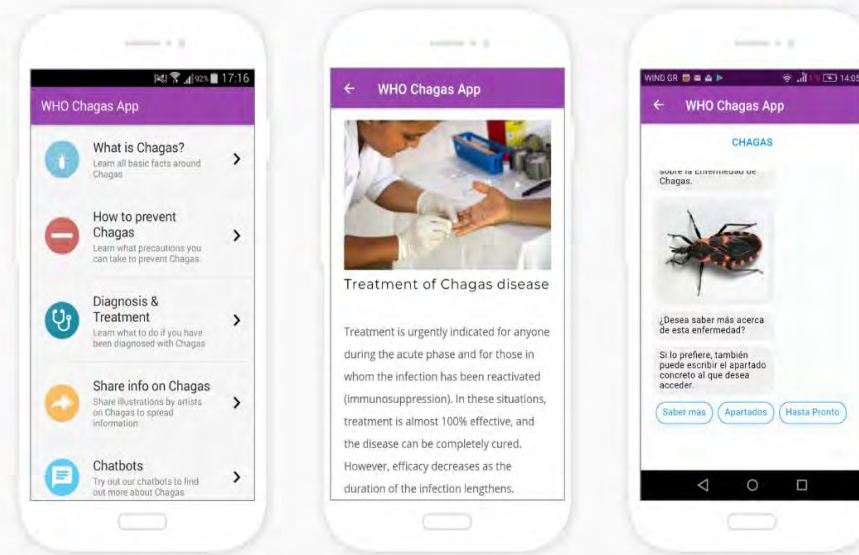
- **détection précoce** des cas ou des foyers de transmission oral, avec leur **notification** essentielle ;
- **suivi** (dans le temps et dans l'espace) **des personnes concernées** ;
- **pérennité des actions et réalisations** de prévention et de contrôle

La détection, le suivi et surtout la pérennité des actions sont directement liés au degré de communication et d'implication des personnes affectées, de leurs communautés et des organisations de la société civile (groupements, associations, organisations...).

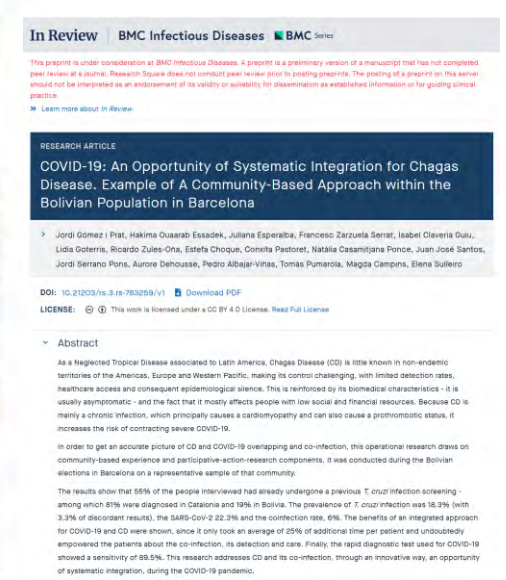
First Dual
Epidemiology
Hub App:

Chagas &
CVD

DUAL EPIDEMIOLOGY HUB APP

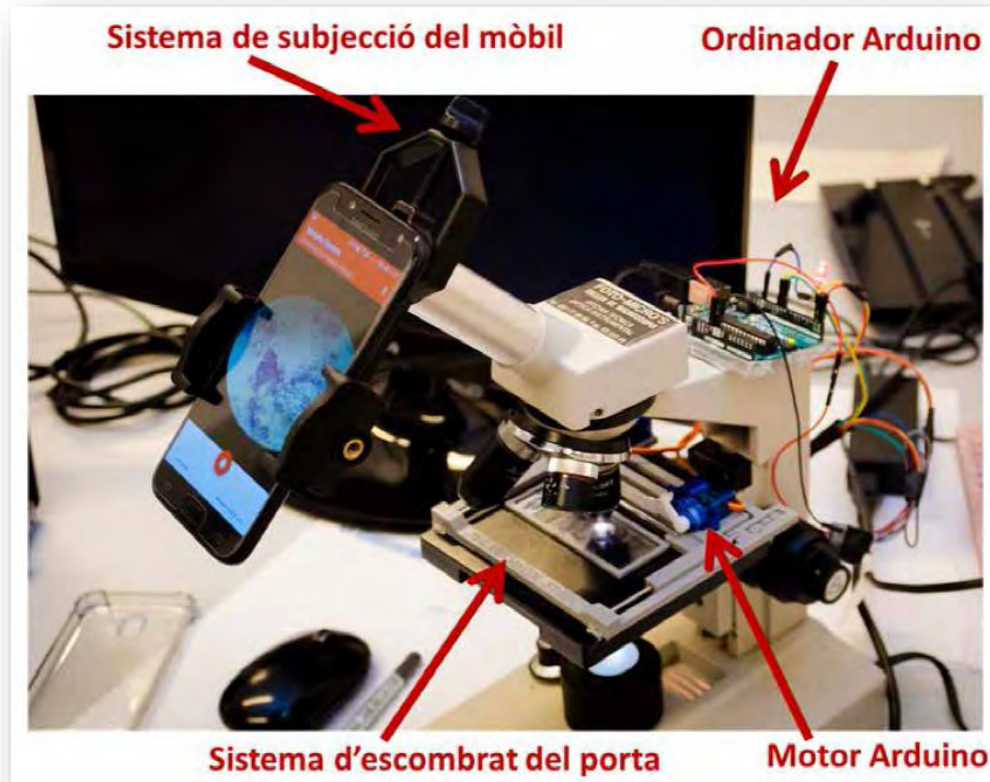


- places the **patient as the first and principal actor**;
- is an instrument of **information, education and communication (IEC)** for those affected (infected, family, friends ...) and health personnel;
- simultaneously addresses **chronic diseases (infectious and non-infectious)** that pose a heart risk: Chagas disease, rheumatic heart disease, hypertension, diabetes, obesity, cardio-renal syndrome ...;
- promotes an **operational and basic research** agenda on the subject of coinfections and co-morbidities, at the level of risk factors, management ...



Implementation through "**opportunities for systematic integration**" - OSI:

- Opportunities occur in the **coincidence** of two or more processes **in time and space**;
- They already exist and the challenge is to **identify them**;
- Possibility of increasing **efficiency and effectiveness** in detection, diagnostic confirmation, health care, prevention, control, cost-effectiveness...
- Once an OSI has been identified, its **non-use could be categorized as malpractice**.
- Many examples: diagnosis of hemoparasitic infections (malaria, filariasis, and Chagas disease) through malaria films; HIV, hepatitis B, syphilis and Chagas disease screening at birth; screening for opportunistic infections that define AIDS; addressing dual epidemiology (for infectious and non-infectious diseases) in screening for chronic diseases that can cause heart disease...



Haemoparasites detection in malaria films:

- *Plasmodium* spp.
- Filariasis
- *Trypanosoma cruzi*

An Automatic System for Computing Malaria Parasite Density in Thin Blood Films

Allisson Dantas Oliveira¹, Bruno M. Carvalho¹, Clara Prats²,
Mateu Espasa³, Jordi Gomez i Prat³, Daniel Lopez Codina²,
and Jones Albuquerque⁴

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² BarcelonaTech, Universitat Politècnica de Catalunya, Barcelona, Spain
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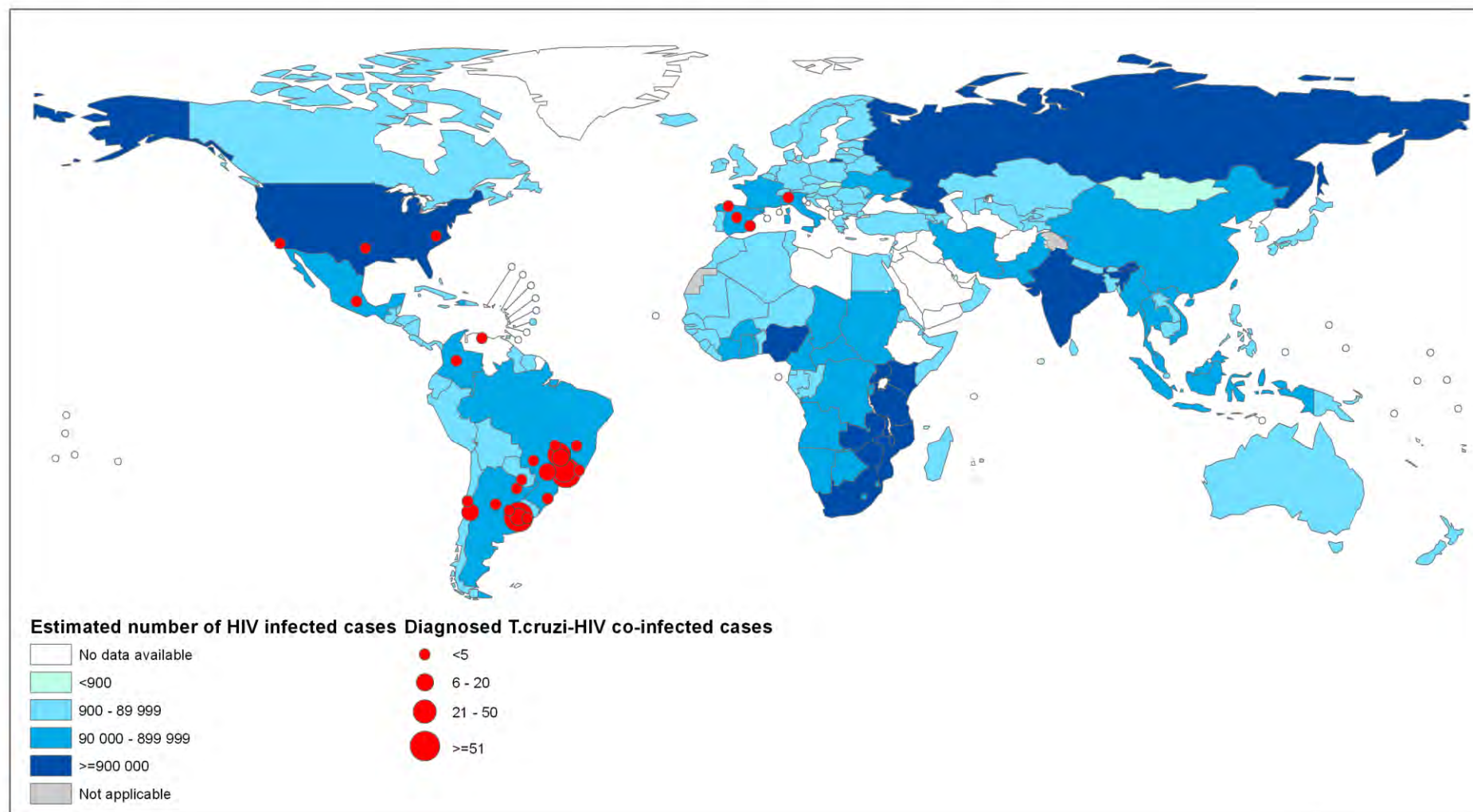
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Abstract. Malaria is a major worldwide health problem, specially in countries with tropical climates and remote areas. In this paper, we present an automatic system for estimating malaria parasite density in thin blood smears. The proposed approach is based on simple image processing methods that can be implemented efficiently even on low budget devices. The method has been tested on images acquired under different illumination and acquisition setups and has produced encouraging results, achieving a sensitivity of 89.3%.

Keywords: Malaria · Parasite density · Medical image processing

Global map of diagnosed *T. cruzi* – HIV co-infected cases and officially estimated number of HIV infected cases per country, 2006-2010



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 and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Control of Neglected
Tropical Diseases (NTD)
World Health Organization



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WHO to continue support for Chagas disease programme that promotes patient self-care

[Français](#)

Research Article

Coinfections between Persistent Parasitic Neglected Tropical Diseases and Viral Infections among Prisoners from Sub-Saharan Africa and Latin America

Lilian Da Silva Santos,^{1,2} Hans Wolff,¹ François Chappuis,² Pedro Albajar-Viñas,³ Marco Vitoria ,⁴ Nguyen-Toan Tran,¹ Stéphanie Baggio,¹ Giuseppe Togni,⁵ Nicolas Vuilleumier,⁶ François Girardin,⁷ Francesco Negro,⁸ and Laurent Gétaz ^{1,2}

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³Department of Control of Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland

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Guest Editor: Claire D. Bourke

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Major Article

Community-based approaches for malaria case management in remote communities in the Brazilian Amazon

Jordi Gómez i Prat^[1], Paulo Morais^[2], Mercè Claret^[3], Pere Badia^[4], Romeo R. Fialho^[5], Pedro Albajar-Vinas^[6], Leopoldo Villegas^[7] and Carlos Ascaso^[8]

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[3]. Project Manager Probitas Foundation, Barcelona, Spain.

[4]. Site supervisor EE.RR. IDOM, Barcelona, Spain.

[5]. Fundação de Vigilância em Saúde do Amazonas, Departamento de Vigilância Ambiental, Manaus, AM, Brasil.

[6]. Department of Control of Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland.

[7]. Freelance, Washington, USA.

[8]. Department of Public Health, University of Barcelona, Barcelona, Spain.

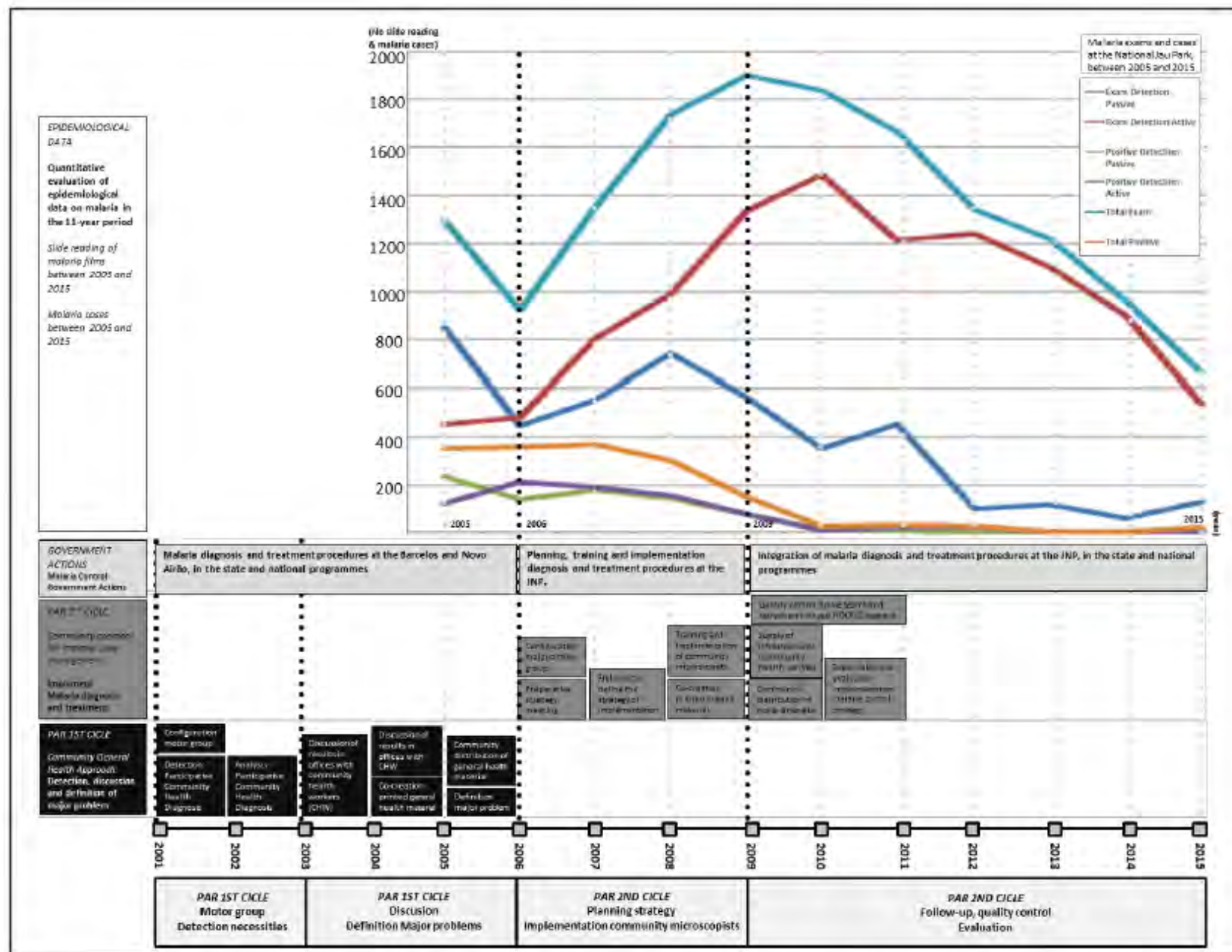
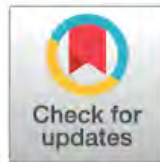


FIGURE 2: Timeline of project interventions at the Jaú National Park between 2001 and 2015, with epidemiological malaria data between 2005 and 2015.

RESEARCH ARTICLE

Comparative evaluation of community interventions for the immigrant population of Latin American origin at risk for Chagas disease in the city of Barcelona

Jordi Gómez i Prat^{1,2*}, Paula Peremiquel-Trillas^{1,3,4}, Isabel Claveria Guiu^{1,2}, Johanna Caro Mendivelso¹, Estefa Choque^{1,2}, Juan José de los Santos⁵, Elena Sulleiro¹, Hakima Ouabarab Essadek¹, Pedro Albajar Viñas⁶, Carlos Ascaso Terren⁷



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OPEN ACCESS

Citation: Gómez i Prat J, Peremiquel-Trillas P, Claveria Guiu I, Caro Mendivelso J, Choque E, de los Santos JJ, et al. (2020) Comparative evaluation of community interventions for the immigrant population of Latin American origin at risk for Chagas disease in the city of Barcelona. PLoS ONE 15(7): e0235466. <https://doi.org/10.1371/journal.pone.0235466>

Editor: Wen-Jun Tu, Chinese Academy of Medical Sciences and Peking Union Medical College, CHINA

Received: October 30, 2019

Abstract

Introduction

Chagas disease presents bio-psycho-social and cultural determinants for infected patients, their family members, close friends, and society. For this reason, diagnosis and treatment require an active approach and an integral focus, so that we can prevent the disease from creating stigma and exclusion, as is actively promoting access to diagnosis, medical atten-

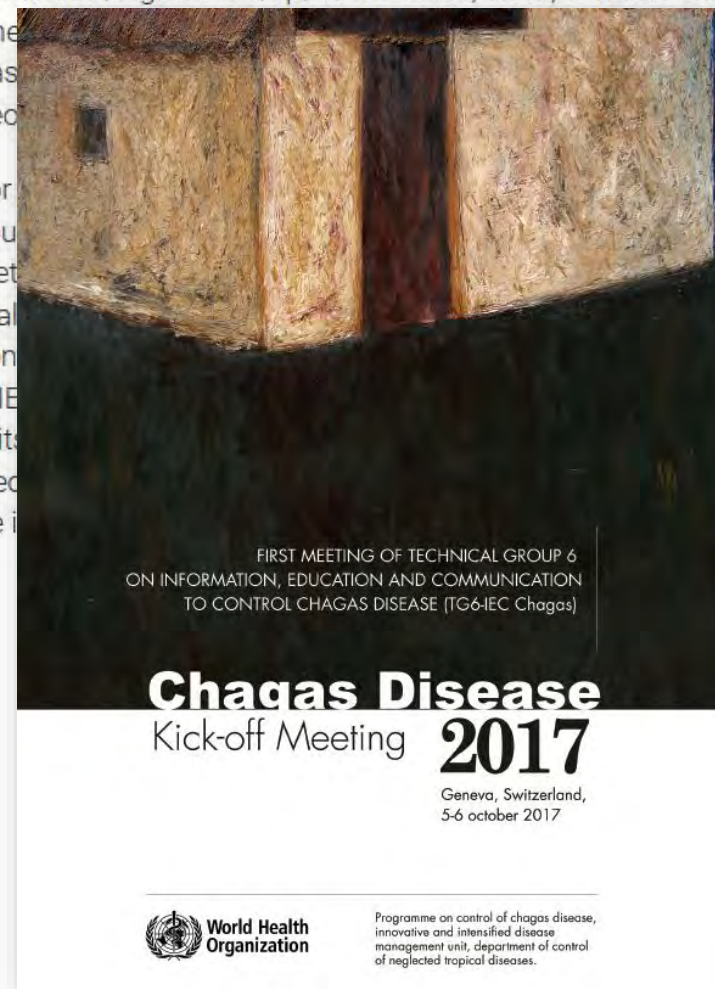


Octubre 2017: Primera reunión del Grupo Técnico en la sede de la Organización Mundial de la Salud. Ginebra (Suiza)

TG6IEC

Technical Group 6 (WG6-IEC) is convened by the Chagas Disease Control Program, Department of Control of Neglected Tropical Diseases, WHO, to make technical contributions in the problem of Chagas disciplines and geo

It's not centered on without me tell you the group will meet Chagas exists, eval to address in a con Communication (IE representative of its evaluations and ted global level on the Nations.



C) regarding the in different the subject.

t on each one s expected that ties where ical proposals , Education and WHO and is not e, with laborating at a of the United

“Insight and Impact Measurement”

is one of the Communications key roles and responsibilities

The Framework's 4 Basic Elements:

1 INPUTS

The things you do

- Advocacy/Campaigns
- Stakeholder engagement
- Media/Social media
- Events

2 OUTPUTS

The things you deliver

- **Voice:** “Did you land your messages?”
- **Reach:** “Did you reach the right audience?”
- **Engagement:** “Did the right audience respond?”

3 OUTCOMES

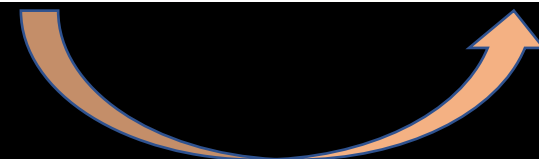
The effects your activities have on audiences

- **Understanding** of a particular issue
- **Trust/Reputation** of the World Bank
- **Sector Leadership** in a specific area
- **Influence** on audience’s opinions or actions

4 IMPACT

*The behavioral shifts caused by communication**

- Financial and political support
- Thought leadership
- Policy change/regulatory action



COST

VALUE



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CONTACTA CON NOSOTROS

Castellano

English

Português

Síguenos en redes sociales



FINDECHAGAS

EL CAMINO PARA FORTALECER
LA ACCIÓN COLECTIVA



International Alliance of
Patients' Organizations

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Who We Are

What We Do

Get Involved



The global voice for patient-centred healthcare

IAPO is a unique global alliance representing patients of all nations across all disease areas and promoting patient-centred healthcare across the world.

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ASSOCIATIONS OF PEOPLE AFFECTED BY CHAGAS DISEASE

ASIA

25. Asociación Nipona de Afectados de Chagas - ANACHA (Japan)

EUROPA

16. Asociación de Amigos de las Personas con la Enfermedad de Chagas - ASAPECHA Barcelona, Catalunya (Spain) *
17. Asociación de Chagas de la Comunidad Valenciana - ACHACOVA (Spain) *
18. Asociación de Amigos de las Personas con la Enfermedad de Chagas - ASAPECHAMUR (Spain) *
19. ILLIMANI (Spain) *
20. ACHAFRANC (France) *
21. Associazione Italiana per la Lotta alla Malattia di Chagas - AILMAC (Italy) *
22. ASWISSCHAGAS (Switzerland) *

NORTH AMERICA

13. Asociación Mexicana de Personas Afectadas por la Enfermedad de Chagas - AMEPACH (Mexico) *
15. Latin American Society of Chagas - LASOCHA (USA) *

OCEANIA

23. Australian Chagas Disease Association (Australia)



* Miembros asamblearios de la Federación Internacional de Asociaciones de Personas Afectadas por la Enfermedad de Chagas (FINDECHAGAS)

SOUTH AMERICA

1. Asociación Buenos Aires Sur Frente Al Chagas - ASOBA (Argentina) *
2. Entre Ríos Unidos Frente Al Chagas (Argentina) *
28. Chagas disease alliance, Buenos Aires (Argentina)
3. Asociación De Afectados, Amigos Y Médicos Unidos Por El Chagas - ASSAMUCH (Santa Cruz, Bolivia) *
4. Asociación . Monteagudo (Bolivia) *
5. Corazones Unidos Por El Chagas (Aiquile, Bolivia)
6. Corazones Unidos Por El Chagas (Cochabamba, Bolivia) *
27. ACHABENI Trinidad-Beni (Bolivia)
7. Associação dos Chagásicos da Grande São Paulo - ACHAGRASP (Brazil) *
8. Associação dos portadores de doença de Chagas do Rio de Janeiro (Brazil) *
9. Associação dos Portadores de doença de Chagas, Insuficiência Cardíaca e Miocardiopatia de Pernambuco- APDCIM (Brazil) *
10. Associação dos portadores de doença Chagas de Campinas e região- ACCAMP (Brazil) *
11. Associação Goiana Dos Portadores De Doenças De Chagas - AGPDC (Brazil) *
24. Associação de Chagas da Bahia - ACHABA (Brazil) *
12. ASOCHAGAS (Colombia) *
26. Fundación Ecuatoriana Nuevo Amanecer sin Chagas FENASCH (Ecuador)
14. Fundación De Unichagas (Venezuela)





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World Chagas Disease Day

14 April 2020



Chagas disease is prevalent mainly among poor populations of continental Latin America and affects 6–7 million people.

[Neglected tropical diseases](#)[About us](#)[Diseases](#)[Preventive chemotherapy and transmission control](#)[Innovative and intensified disease management](#)[Vector ecology and management](#)[Neglected zoonotic diseases](#)[Water, sanitation and hygiene](#)

World Chagas Disease Day: raising awareness of neglected tropical diseases

24 May 2019 | Geneva -- The 72nd World Health Assembly today approved the designation of a World Chagas Disease Day which aims, among others, to raise public awareness of this neglected tropical disease (NTD) that affects mainly poor people.



"An annual day celebrated at global level is bound to attract international attention," said Dr Pedro Albajar Viñas, WHO Medical Officer (Chagas disease). "These days can help to provide visibility and commit countries to enhance control interventions for a disease that has remained largely neglected, but still present in many countries."

Chagas disease, also called American trypanosomiasis, has also been termed as a "silent and silenced disease", not only because of its slowly progressing clinical course but also because it affects mainly poor people who have no political voice or access to health care.

During the past decades, it has been increasingly detected in the United States of America and Canada and in many European and some Western Pacific countries.

Without treatment, Chagas disease can lead to severe cardiac and digestive alterations and become fatal.

Further reading

- [Chagas disease fact sheet](#)
- [Chagas disease website](#)

WORLD CHAGAS DISEASE DAY

LET'S MAKE CHAGAS DISEASE VISIBLE NOW

Campaign materials

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BEATCHAGAS PLATFORM

BeatChagas Platform is a tool used by the Technical Group on Information, Education and Communication (TG6IEC Chagas Disease) from WHO created to share information related with activities organized by this group.

It contains some news, Information, and Educational and Communicative materials (IEC) in order to give support to the objectives themselves as well as to the execution of different activities proposed by the World Health Organization (WHO) in order to control and prevent Chagas Disease around the world and to share some other interesting information.

In 2017 the Technical Group 6 was created with information and training with some assistance provided by World Health Organization (TG6IEC Chagas Disease - WHO). It is composed by different researchers working on the psycho-social field.



CALL FOR IEC TOOLS
TO 14TH APRIL 2020
WORLD CHAGAS DAY

If you have one or more IEC tools, didactic resources or you have developed IEC strategies or experiences you can share them.

15th March
SUBMISSION DEADLINE

SUBMIT NOW 

+ INFO: www.beatchagas.info

RESOURCES

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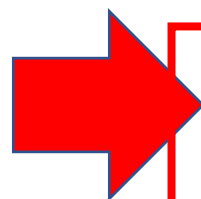
GLOSSARY

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CHATBOT

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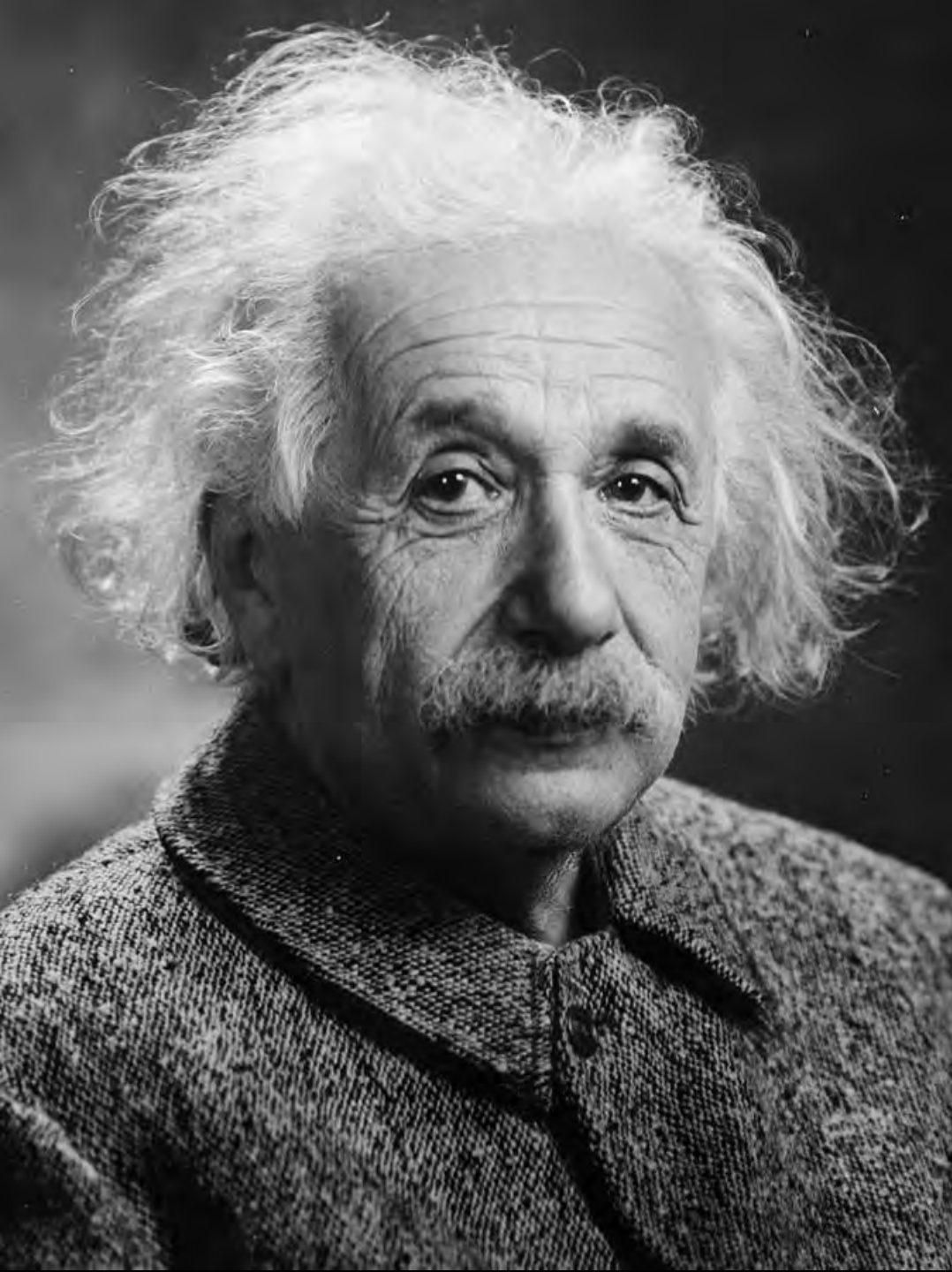
Thème proposé par Findechagas (<https://findechagas.org/>) pour la deuxième édition de la Journée mondiale de la maladie de Chagas, le 14 avril 2021



Appel à une prise de charge universelle et globale des personnes touchés par la maladie de Chagas

Commentaires:

- Le thème proposé pour cette année 2021 a été fortement conditionné par le contexte et les expériences vécues durant la pandémie actuelle de COVID-19.
- Le concept important d'accessibilité (équité) est inclus dans celui d'universalité.
- La notion de diagnostic d'infection et maladie est incluse dans celle de soins.
- Le concept d'intégralité comprend les trois niveaux de soins médicaux, les références et les contre-références nécessaires, ainsi que d'autres types de soins nécessaires et de prévention de la maladie.



« Étrange est notre situation ici sur Terre.

Nous venons chacun pour une brève visite, sans savoir pourquoi, mais semblant parfois deviner un but.

Du point de vue de la vie quotidienne, cependant, il y a une chose que nous savons : que l'homme est ici (à cause de) pour le bien des autres hommes »

Merci beaucoup
pour votre attention !