



The Darien Gap and the ID and Health Gaps Among Migrants

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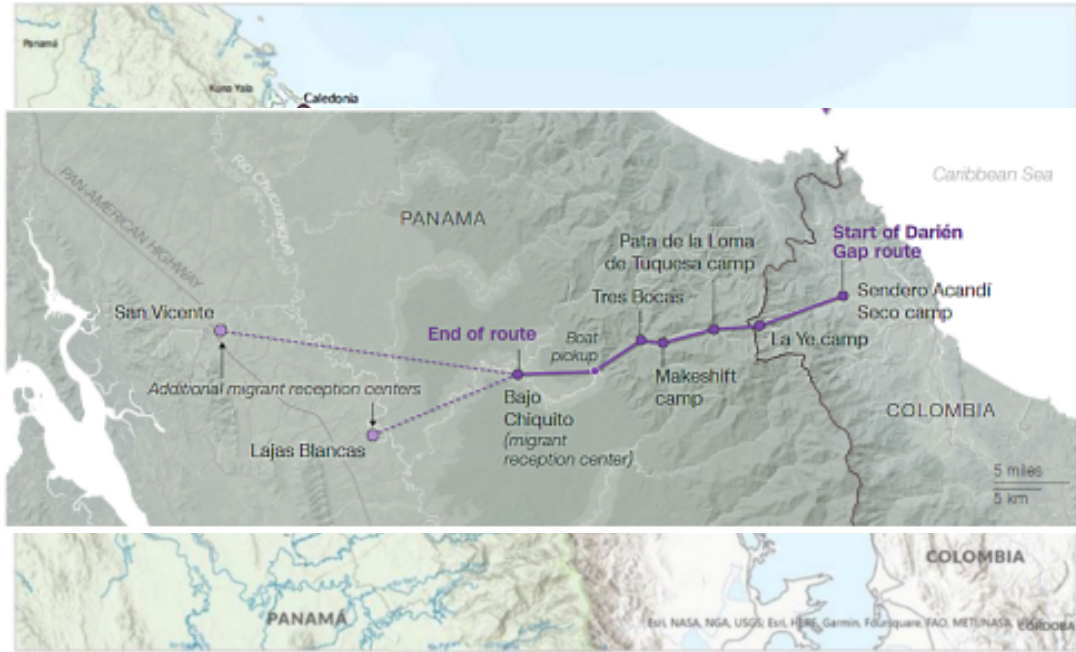
Nothing to disclose

DARIEN GAP (TAPON DEL DARIEN)

Figure 3. Major Routes through the Darien Gap



- Geographic region in the Isthmus of Darien or Panama connecting the South American continent with Central America, consisting of a large watershed, forest, and mountains in Panama's Darién Province and the northern portion of Colombia's Chocó Department.
- One of the rainiest and most dangerous places on the planet, a lawless, unpoliced region, with many drug smugglers and sometimes political rebels.
- The three-eight day hiking trail is a challenge even for a person in good physical shape.



Migrants have two options for crossing the Darien Gap:

- First is to pay for boats to take them to the border area. Migrants who start their journey by boat will have to walk for two to three days. **Several thousand dollars per person**
- Second is to walk through the jungle. For those who decide to take the route on foot, the walk can take up to ten days (MSF21/06/2022). **Several hundred dollar per person**

Figure 1. Migrants Recorded Crossing the Darien Gap, 2010-23*

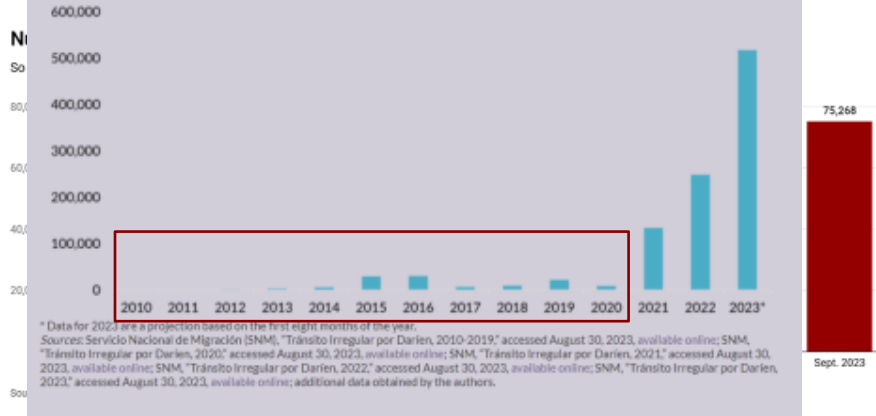
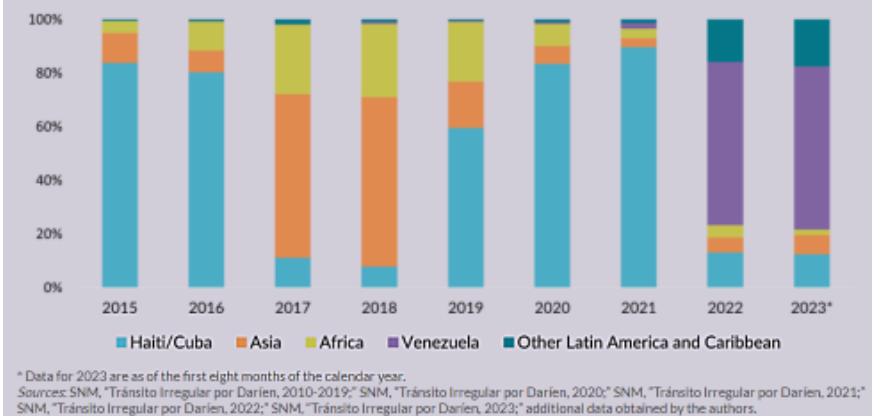


Figure 2. Shares of Migrants Crossing the Darien Gap by Nationality, 2015-23*



- More than 81,000 people crossed the Darien Gap in August, the highest number reported to date.
- Migrants from Venezuela (>209,000), Ecuador (almost 45,000) and Haiti (>35,000). have accounted for about 84% of all people crossing the Darien Gap so far in 2023

All forensic cases of migrant deaths in the Darién Gap from Jan 1, 2018, to Dec 31, 2022

	Frequency (n=138)	Percentage (95% CI)
Estimated age group		
Children (<13 years)	9	6.5% (3.5–11.9%)
Adolescents and young adults (13–20 years)	8	5.8% (3.0–11.0%)
Adults (21–60 years)	116	84.1% (77.0–89.2%)
Older people (>60 years)	5	3.6% (1.6–8.2%)
Sex		
Female	53	38.4% (30.7–46.7%)
Male	65	47.1% (39.0–55.4%)
Unable to identify	20	14.5% (9.6–21.3%)

Season		
Rainy season (May to November)	95	68.8% (60.7–76.0%)
Dry season (December to April)	43	31.2% (24.0–39.3%)
Cause of death‡		
Gunshot wound	7	5.1% (2.5–10.1%)
Stabbing	2	1.4% (0.4–5.1%)
Drowning	27	19.6% (13.8–27.0%)
Illness	13	9.4% (5.6–15.5%)
Unknown	89	64.5% (56.2–72.0%)

Pachar J, et al. *Lancet* September 26, 2023

- The authors identified 17 deaths (12.3%; 95% CI 7.8–18.8%) among children or adolescents
- Panamanian authorities have reported 124 corpses in the Gap between January 2021 and April 2023 (a fraction of the deaths). Main cause: drowning



- A particularly worrying development is the increase in the number of children and adolescents under age 18 crossing the gap (about 16% in 2022, near 21% between January and August 2023. Nearly 64,000 children in those eight months). Half of these children on the move are under five years old and have specific needs
- Additionally, UNICEF reported in May 2023 that, on average, 8 to 10 unaccompanied children were crossing the Darien each day. Many travel with a guardian who is not a parent or have been separated from their parents while trekking through the jungle.
- A recent UNICEF report said that **at least 92 migrant children had died or gone missing last year** – more than any other year since 2014.

The Endless Vulnerability of Migrant Children In-Transit across the Darién Gap

Laura Naranjo ^{1 2}, Yesenia Williams ³, Jacqueline Levy ³, Rosela Obando ⁴, José A González ⁵, Mónica Pachar ^{6 7}, Roderick Chen ⁸, Carlos Franco-Paredes ^{9 10}, Nelson Agudelo Higueta ¹¹, Andrés Henao-Martínez ¹², Yamilka Díaz ⁸, José A Suárez ^{2 13 14}



77% of parents interviewed by the IOM reported that their infants had suffered from infections, GI issues, rashes, and fevers

Sexual and reproductive health and access: Results of a rapid epidemiological assessment among migrant peoples in transit through Darién, Panamá

Erausquin JT, et al.



- A rapid epidemiological assessment found high recent sexual activity, low condom use with casual partners, and a need for increased HIV and syphilis testing and treatment. There is a need for increased testing, condom provision, and SRH healthcare access at migrant reception stations that receive migrant peoples in transit through Panamá.
- Women are mainly exposed to sexual violence, including the risk of trafficking, prostitution, or sexual abuse, inside the jungle. There are also reports of sexual abuse in migrant reception stations in Panama
- According to IFRC (Red Cross) estimations, 10–15% of the migrants crossing the Darien Gap become victims of sexual violence during the journey

HIV/STI transmission can occur partly due to high risk of sexual violence and abuse: 180 cases of rape within the Gap were reported to Doctors Without Borders during the period May-September 2021



Unlawful border crossings by Venezuelans

In between ports of entry along the U.S.-Mexico border.

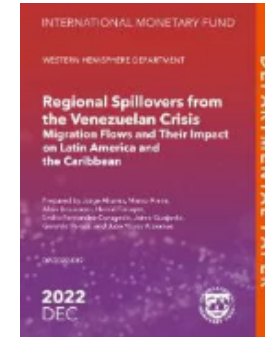


Source: U.S. Customs and Border Protection - Created with Datawrapper

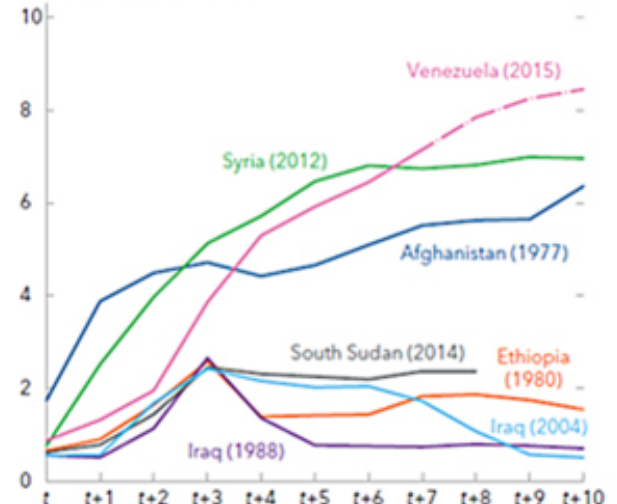


- According to the DTM conducted in Darien in the early months of 2023, 96% of individuals planned to reach the USA, with the drivers for migration being economic hardship and high levels of insecurity.
- The enormous flood of migrants is feeding a growing political problem in the USA, where >2.3 million people have been apprehended at the southern border this year. Only twice in U.S. history that threshold has been surpassed, according to US DHS
- While some of them were deported or returned to Mexico, many migrants have been released and allowed to seek asylum, a process that, on average, takes years to be resolved

- Venezuela experienced one of the most severe economic and humanitarian crises on record during the last decade.
- Real GDP contracted >75% between 2013 and 2021—the single largest economic collapse for a non-conflict country in almost half a century.
- Worsening economic conditions, collapsing basic services, and deteriorating security led 7 million Venezuelans (23% of the population) flee the country by August 2022, most of whom have settled in other LAC countries.
- Following a temporary interruption in 2020 due to the COVID-19 pandemic, migration outflows from Venezuela have resumed and are expected to continue going forward, reaching about 8 million by 2025.



1. Main Migration Episodes
(Millions of migrants)



AUGUST 2023

REFUGEES AND MIGRANTS FROM VENEZUELA

R4V Inter-Agency Coordination Platform for Refugees and Migrants from Venezuela

ESTIMATE NUMBER OF VENEZUELAN REFUGEES AND MIGRANTS GLOBALLY

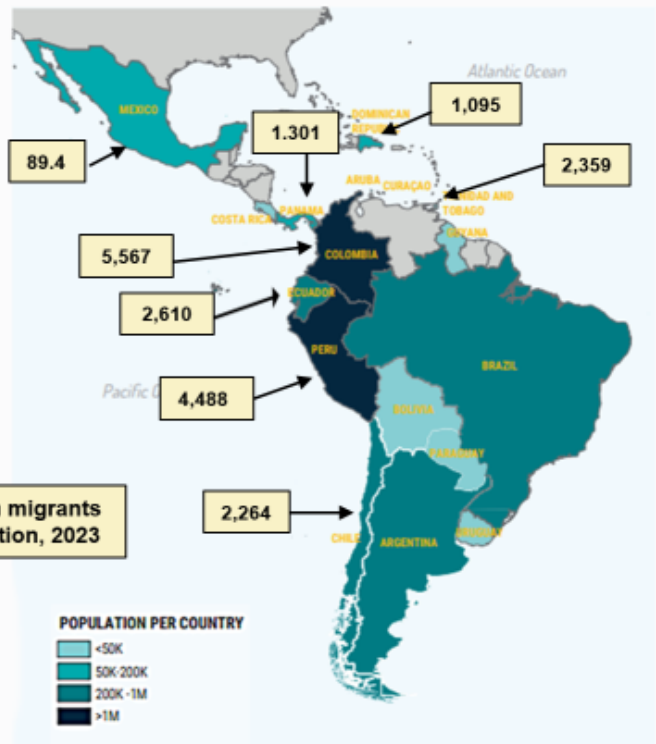
0.122

7.71 M

ESTIMATE NUMBER OF VENEZUELAN REFUGEES AND MIGRANTS IN LATIN AMERICA AND THE CARIBBEAN.

6.53 M

Rate of Venezuelan migrants per 100,000 population, 2023



Torres, J. R., & Castro, J. S. (2018). Venezuela's migration crisis: a growing health threat to the region requiring immediate attention. *Journal of Travel Medicine*.

Globally, the top destinations for Venezuelans living abroad, as of the most recent, mid-2020 United Nations Population Division Estimates, were Colombia (2.89 million), Peru (1.54 million), Ecuador (474,495), Chile (444,423), and the United States (506,000)

A Scoping Review of Non-Communicable Diseases and Maternal and Child Health Needs of Venezuelan Migrants in South America

Benjamin Gallo Marin, AB¹, Andres Amaya, MPH¹, Giancarlo Medina Perez, AB¹, Adam C. Levine, MD, MPH^{1,2}, Katelyn Moretti, MD, MS^{1,2}, Stephanie C Garbern, MD, MPH^{1,2}



Prevalence of non-communicable Diseases of Venezuelan migrants

Noncommunicable Disease	Prevalence	Number of References	Countries included
Chronic condition (general)	10–31%	11 [31,32,34,35,40,43, 43,44,45,46,49]	Argentina, Colombia, Chile, Peru, Regional
Physical disability	11–13%	5 [31,32,34,41,43]	Argentina, Chile, Peru, Regional
Diabetes	4.2–4.6%	5 [33,35,43,46,49]	Chile, Colombia, Peru, Regional
Hypertension	10.9–18.4%	4 [35,43,46,49]	Colombia, Peru, Regional
Mental health (depression)	68.9%	7 [32,35,40,42,45,46, 49]	Argentina, Colombia, Peru, Regional
Asthma	8.5–39%	3 [35,43,49]	Colombia, Peru
Malignancy	2.1%	2 [43,46]	Peru, Regional

MIGRATION AND EMERGING INFECTIOUS DISEASES

- Migrants are considered at higher risk for a range of health problems including infectious diseases as HIV, hepatitis B, tuberculosis, schistosomiasis and malaria. This higher risk is partly due to poor socioeconomic conditions and, in some countries, is due to the lack of rights to health coverage for undocumented migrants
- There is little evidence to support the theories by which migrants would expose the host population to significant infectious risk.
- However, human diseases acquire a social status based on their perceived risk that determines their acceptability

Vignier N, et al. *EJIFCC*, 2018; 29: 175–179



Travel, migration and emerging infectious diseases
Nicolas Vignier^{1,2}, Olivier Bouchaud^{3,4}

Sanitary alert issued due to 19 cases of malaria among migrants in El Paraiso



Published Date: 2023-10-04 23:58:11 -04

Subject: PRO/ESP> Malaria – Honduras: ex Darien, brote, población migrante, alerta sanitaria

Archive Number: 20231005.8712471

MALARIA – HONDURAS: ex DARIEN, BROTE, POBLACIÓN MIGRANTE, ALERTA SANITARIA

Un comunicado de ProMED-mail

<http://www.promedmail.org>

ProMED-mail es un programa de la

Sociedad Internacional de Enfermedades Infecciosas

<http://www.isid.org>

Fecha: 04 de octubre, 2023

Fuente: La Tribuna, Honduras.

<https://www.latribuna.hn/2023/10/04/emiten-alerta-sanitaria-en-el-paraiso-por-19-casos-de-malaria-en-migrantes/>

[Editado por Jaime Torres]

- Malaria 19 cases in Venezuelan, Peruvian and Ecuadorian migrants from Darien
- One suspected case of yellow fever and 1 local suspected case of measles (disease eradicated in Honduras). A previous migrant child with measles scaped on follow up and was later localized in Mexico.

Table 1. Imported cases of malaria in Colombia, total and from Venezuela, 2016-2018 and etiological distribution by *Plasmodium* species. Sources: National Institute of Health (www.ins.gov.co), Colombia and WHO.

		2016	2017	2018	2016-2018
Total cases reported in Colombia	N	115,125	80,357	62,141	257,623
Total imported cases	N	605	965	1,825	3,395
From Venezuela	n	508	882	1,734	3,124
	%	84.0	91.4	95.0	92.0
					2017-2018
Total imported cases of <i>P. vivax</i>	N	N/A	738	1,481	2,219
Total imported cases of <i>P. vivax</i> from Venezuela	n	N/A	678	1,371	2,049
	%	N/A	91.9	92.6	92.3
Total imported cases of <i>P. falciparum</i>	N	N/A	173	276	449
Total imported cases of <i>P. falciparum</i> from Venezuela	n	N/A	151	249	400
	%	N/A	87.3	90.2	89.1
Total imported cases of <i>P. falciparum</i> / <i>P. vivax</i>	N	N/A	54	68	122
Total imported cases of <i>P. falciparum</i> / <i>P. vivax</i> from Venezuela	n	N/A	53	64	117
	%	N/A	98.1	94.1	95.9

Only 1.21% of the cases reported in the country were imported from Venezuela. A storm in a glass of water?

Consequences of Venezuela's massive migration crisis on imported malaria in Colombia, 2016–2018

Alfonso J. Rodríguez-Morales, José Antonio Suárez, Alejandro Rísquez, Wilmer E. Villamil-Gómez, Alberto Paniz-Mondolfi



REFUGEES IN THE THIRD WORLD
Perceptions and facts....!

MIGRATION AND REINTRODUCTION OF ID

- A particular concern is the possibility of creating conditions conducive to endemic transmission, which would perpetuate the circulation of reintroduced infectious pathogens.
- The occurrence of spillover from diphtheria (Venezuela, Haiti, 2016), and measles (Venezuela 2017), controlled until recently on the continent, is emblematic. The impossibility of achieving sufficiently high vaccination coverage represents a real threat that requires the adoption of coordinated continental initiatives, otherwise, importation to other countries would only increase



Torres, J. R., & Castro, J. S. (2018). Venezuela's migration crisis: a growing health threat to the region requiring immediate attention. *J Travel Medicine*.

Strauss R, et al. *Nature Sci Reports* 2021, 11: 6378



ARE MIGRANTS A RISK OF EMERGING INFECTIOUS DISEASES TO DEVELOPED COUNTRIES?

- The risk appears low for EIDs, or very low for high-risk EIDs
- Immigrants don't play the role of sentinel epidemic, so far.
- A particular concern is that of Multidrug Resistant Enterobacteriaceae (MRE) carriage among migrants. MRE acquisition is very frequent among travelers to tropical regions (31% in Latin America). But, this MRE carriage is limited in time and disappears after a few months. [Ruppe E, et al. *Clin Infect Dis* 2015, 61:593-600]
- The role played by migrants is weaker than imagined (except for tuberculosis).

Vignier N, et al. *EJIFCC*, 2018; 29: 175–179



Travel, migration and emerging infectious diseases
Nicolas Vignier^{1,2}, Olivier Bouchaud^{1,4}



Evidence on tuberculosis in migrants at Brazil's international borders: A scoping review

Déborah de Almeida Soares,¹ Aline Fiaceres,² Ricardo A. Araújo,³ Inês Fronteira,⁴

- **Incidence rates of 61.2 per 100,000 population in the Caribbean, 46.2 in South America, and 25.9 in Mexico and Central America; 10% HIV coinfection; estimated overall prevalence of MDR TB in the region 13.0% (up to 26% in retreated cases)**

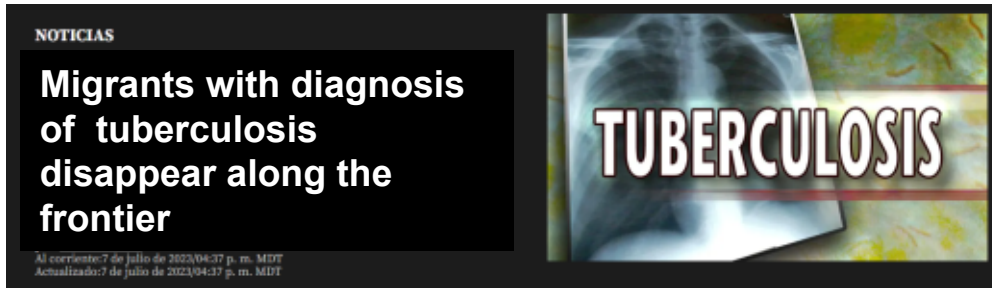
- International migrants are considered particularly vulnerable to tuberculosis (Guidance document on migration and health - PAHO/WHO). During the migration process, it is common for migrants to be subjected to high-stress situations, such as food shortages, precarious and overcrowded housing, and lack of access to health services, which can induce the spread and maintenance of high TB burdens (Tavares). et al., 2017, Boudville et al., 2020).
- Another situation that reinforces vulnerabilities is the process of relocation of these immigrants in the host country, where language barriers, documentary difficulties, costs of access to health systems, precarious housing conditions and difficulties in accessing income and essential services expose these immigrants to a greater risk of contact with tuberculosis (Moreira et al., 2020).



JOURNAL ARTICLE

Long-term risk of tuberculosis among migrants according to migrant status: a cohort study

Kristina Langholz Kristensen, Pernille Ravn, Joergen Holm Petersen, Sally Hargreaves, Laura B Nellums, Jon S Friedland, Peter Henrik Andersen, Marie Norredam, Troels Lillebaek Author Notes



- More than two dozen migrants who entered the United States and were diagnosed with tuberculosis before being returned to Mexico and other countries last year remain missing.
- According to information published by Mexico's Ministry of Health, a total of 74 migrants were diagnosed with tuberculosis and most of them sought follow-up medical attention south of the border. But 25 of them are still missing and their whereabouts are unknown.
- Of the 74 cases last year, 62 of the diagnosed migrants were sent back to Mexico and others were referred to Venezuela, El Salvador, Guatemala and Peru.
- The National Tuberculosis Control Program in Mexico reports that between 2017 and 2022, 1,260 cases of migrants contracting tuberculosis along the border have been reported.

Some special considerations....



[Am J Trop Med Hyg](#). 2018 Mar; 98(3): 742–746.
Published online 2018 Feb 5. doi: [10.4269/ajtmh.17-0735](#)

Prevalence of Chagas Disease among Solid Organ–Transplanted Patients in a Nonendemic Country



[Am J Trop Med Hyg](#). 2021 Mar; 104(3): 800–804.
Published online 2021 Feb 1. doi: [10.4269/ajtmh.19-0871](#)

Chagas Disease in the United States: A Perspective on Diagnostic Testing Limitations and Next Steps

The Journal of Infectious Diseases
MAJOR ARTICLE



Recommendations for Screening and Diagnosis of Chagas Disease in the United States

Colin J. Forsyth,^{1,2} Jennifer Maeno-Goshlec,^{3,4} Corya Bern,⁵ Jeffrey Whitman,⁶ Natasha S. Hochberg,^{5,6,7} Mervyn Edwards,⁸ Rachel Marzec,^{5,9}



IDCases

Volume 5, 2016, Pages 72-75



Case report

Congenital Chagas' disease transmission in the United States: Diagnosis in adulthood

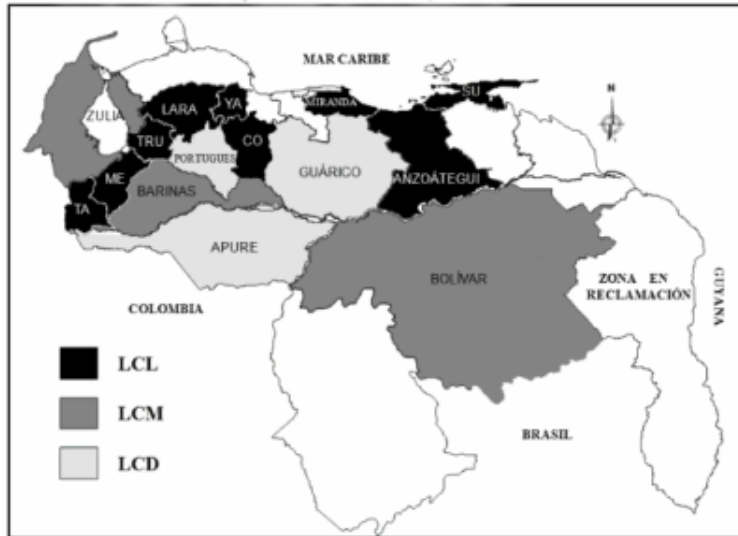
Jorge Murillo MD FACP,^{a,b} Lina M. Bofill MD MPH FACP (Assistant Director),^{c,d,1} Hector Bolivar MD,^e Carlos Torres-Viera MD MPH,^{a,b} Julio A. Urbina PhD,^f Daniel Benhayon MD,^g Jaime R. Torres MD MPHTM.^{c,h}



- ChD affects an estimated 300,000 people in the US, only about 1% of them have been identified, usually through blood donor screening
- ChD causes a burden of morbidity and mortality of >27,000 lost disability-adjusted life-years (DALYs)

Some special considerations....

Fig. 4. Distribución de las principales formas clínicas de LCA de acuerdo con los estados que presentan las mayores tasas de incidencia de cada una de ellas. Venezuela 1988-2016



Nota: CO: Cojedes; ME: Mérida; SU: Sucre; TA: Táchira; TRU: Trujillo; YA: Yaracuy.



In Venezuela, 90-99% of cases by *Leishmania viannia* (*L. braziliensis* Complex). Require treatment with Pentavalent antimonials, Amph B or Fluconazol



- Localized cutaneous leishmaniasis (LCL) ±98%
- Muco-cutaneous leishmaniasis (LCM) 1,2%
- Difuse cutaneous leishmaniasis (LCD) 0,2%

Some special considerations....

Tabla 1

Micosis diagnosticadas en el Hospital Militar de Venezuela, 1984-2010

M		Porcentaje
Su		60,5
		19,0
		18,9
		1,1
		0,4
		0,1
		100
Pr		33,9
		33,3
		17,4
		6,0
		4,5
		3,1
Zigomicosis	36	1,8
Subtotal	1.989	100
<i>Profundas localizadas</i>		
Cromoblastomicosis	553	65,1
Esporotricosis	220	25,9
Micetoma	49	5,8
Otras (feohifomicosis, lobomicosis y neumocitosis)	27	3,2
Subtotal	849	100
Total	39.806	

Fuente: Boletín Informativo Las Micosis en Venezuela. Años 1984-2010.

Paracoccidioidomicosis and HIV



Progressive Disseminated Histoplasmosis and HIV



- Febrile syndrome, diarrhea, hyperchromic macules or papules, hepatomegaly, splenomegaly, leukopenia, thrombocytopenia, and elevated SGOT and LDH levels

Venezuela - Historical Net Migration Rate Data

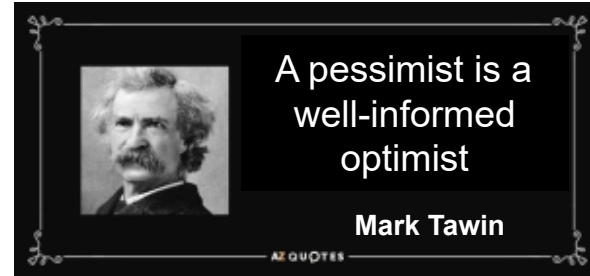
A light at the end of the tunnel...?



Latin America and the Caribbean: GDP Growth Projections for 2023-2024

	GDP growth	
	2023	2024
Latin America and the Caribbean	1.7	1.5
Latin America	1.7	1.5
South America	1.2	1.2
Argentina	-3.0	-1.6
Bolivia (Plurinational State of)	2.2	2.1
Brazil	2.5	1.4
Chile	-0.3	1.8
Colombia	1.2	1.9
Ecuador	2.3	2.6
Paraguay	4.2	4.0
Peru	1.3	2.5
Uruguay	1.0	2.6
Venezuela (Bolivarian Republic of)	3.2	2.7

Net migration rate: difference between the number of immigrants and the number of emigrants divided by the population



In Latin America, only Costa Rica (0.731) and Brazil (0.028) had also positive Net Migration Rates in 2023

LESSONS LEARNT

- **Strengthening policies to ensure regular migration between Panama and Colombia may reduce the use of the Darien Gap as an alternative route.**
- **Since at least a third of the Darien Gap's migrants are non-Spanish speakers, the presence of translators (mainly into French) could contribute to making humanitarian assistance more accessible to migrants.**
- **Medical facilities at the Panamanian arrival camps need to be improved as they remain insufficiently staffed and medical supplies are scarce or insufficient.**
- **The Colombian government should set up a referral mechanism in cases of unaccompanied children registered at the pier before boarding the boats, and UNICEF must install permanent local staff to identify and support them there.**
- **Governments across the region and the USA, should agree to resettle larger numbers of displaced people from countries in the region and also create labor pathways to move migrants out of irregularity, allow them to contribute to the host countries' economies, and establish family reunification programs**



"To raise new questions, new possibilities, to regard old problems from a new angle, requires **creative imagination** and marks **real advance in science.**" Albert Einstein



Thanks a lot!
¡Muchas gracias!

