



**Updates on Dengue outbreaks and vaccines**

# **An update on dengue epidemiology - 2024**

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**Brasil**

# Potential Conflicts of Interest

- **Dengue epidemiology discussions - Sanofi, Takeda, GSK, Merck, Butantã**
- **Member of dengue boards – Sanofi, Takeda & GSK**
- **Studies supported by Sanofi**
- **Congress and meetings supported by Sanofi & Takeda**
- **I've had dengue before**

# Dengue *Key Facts*

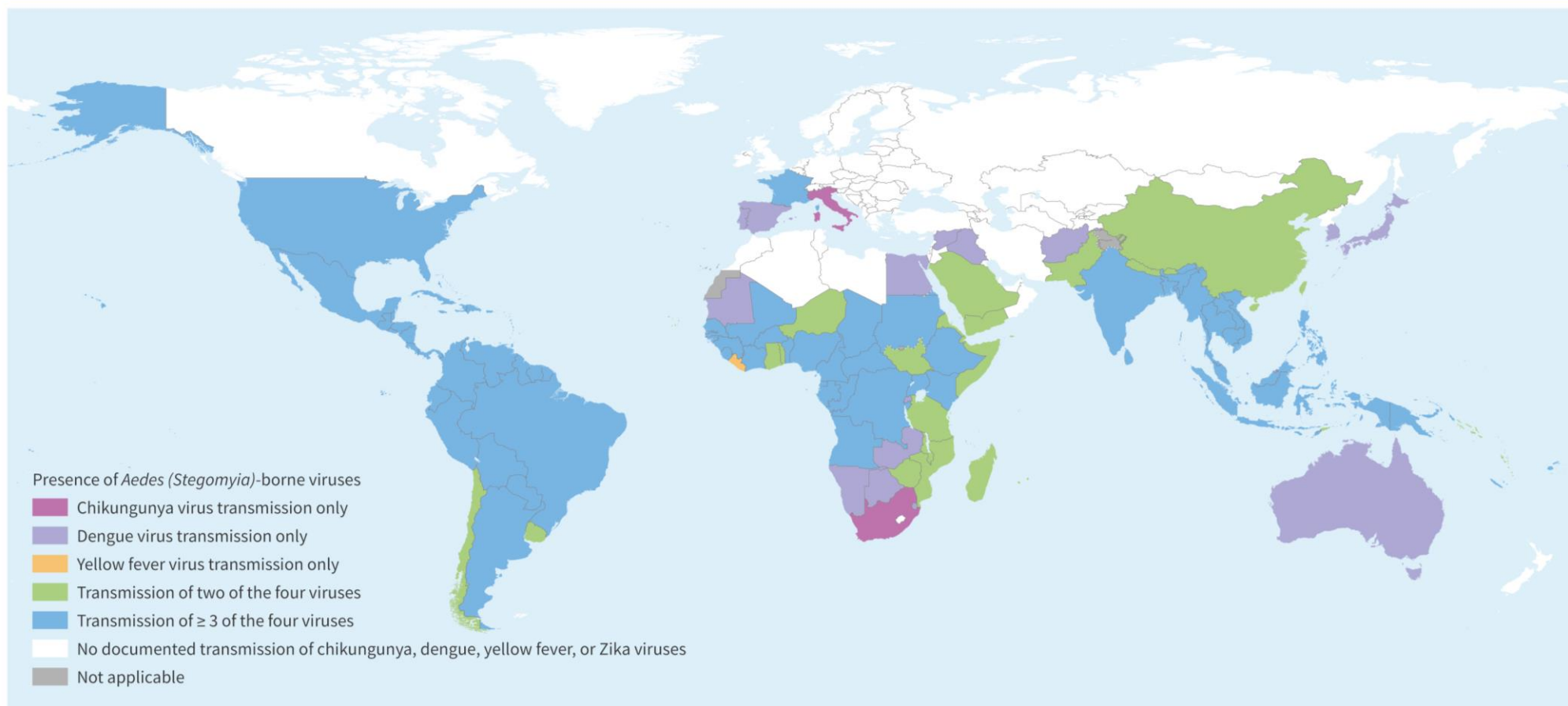
- **Virus of the family Flaviviridae - Four distinct serotypes**
- **Public health problem in over 130 countries**
- **No specific treatment for dengue**
- **100–400 million estimated infections each year.**
- **Ten-fold surge in reported cases from 2000 to 2019** (500,000 to 5.2 million)
- **Spreading to new areas including Europe**
- **High economic burden**

# Countries reporting cases of Aedes-borne diseases

Countries and territories with current or previous transmission of chikungunya, dengue, yellow fever, or Zika viruses  
(as of 25/10/2023)



**Almost  
4 billion  
people  
at risk of  
Aedes-borne  
infections**



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO 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.

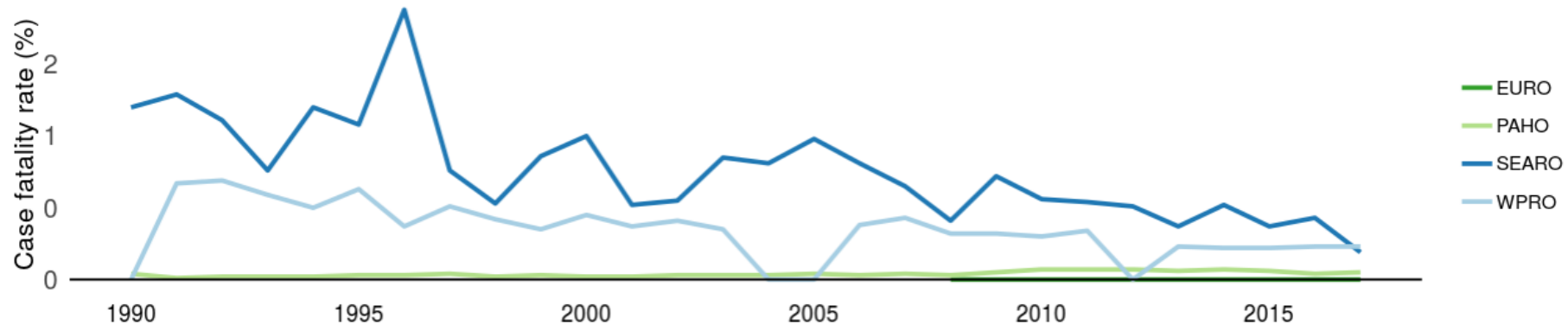
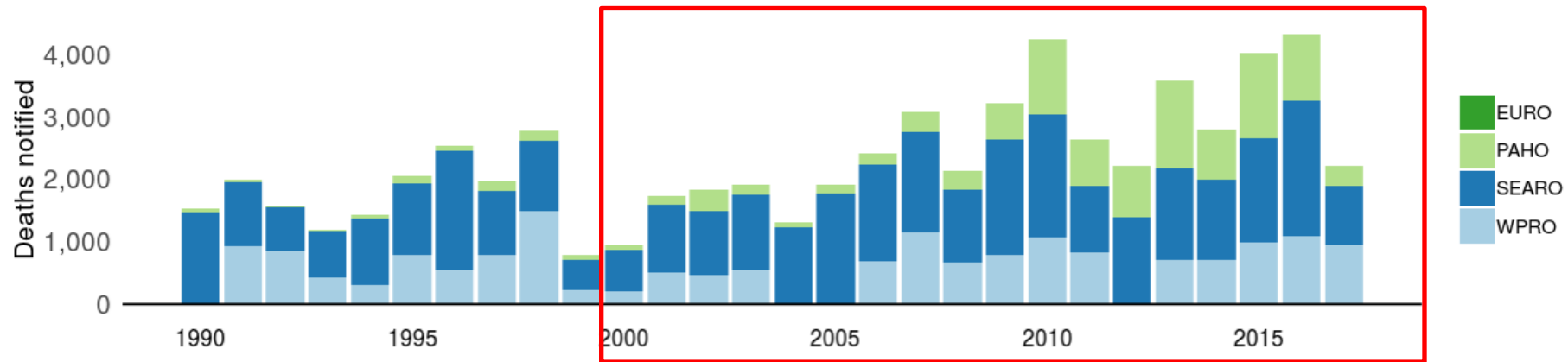
Data Source: World Health Organization  
Map Production: WHO Health Emergencies Programme  
Request ID: RITM00065

0 1,500 3,000  
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# Dengue deaths and case fatality rate (%) by WHO regions, 1990 - 2017



**PAHO – Pan American Helath Organization**  
**SEARO - World Health Organization South-East Asia Region**  
**WPRO - WHO Western Pacific Region**  
**EURO - Europe (travel-associated cases)**

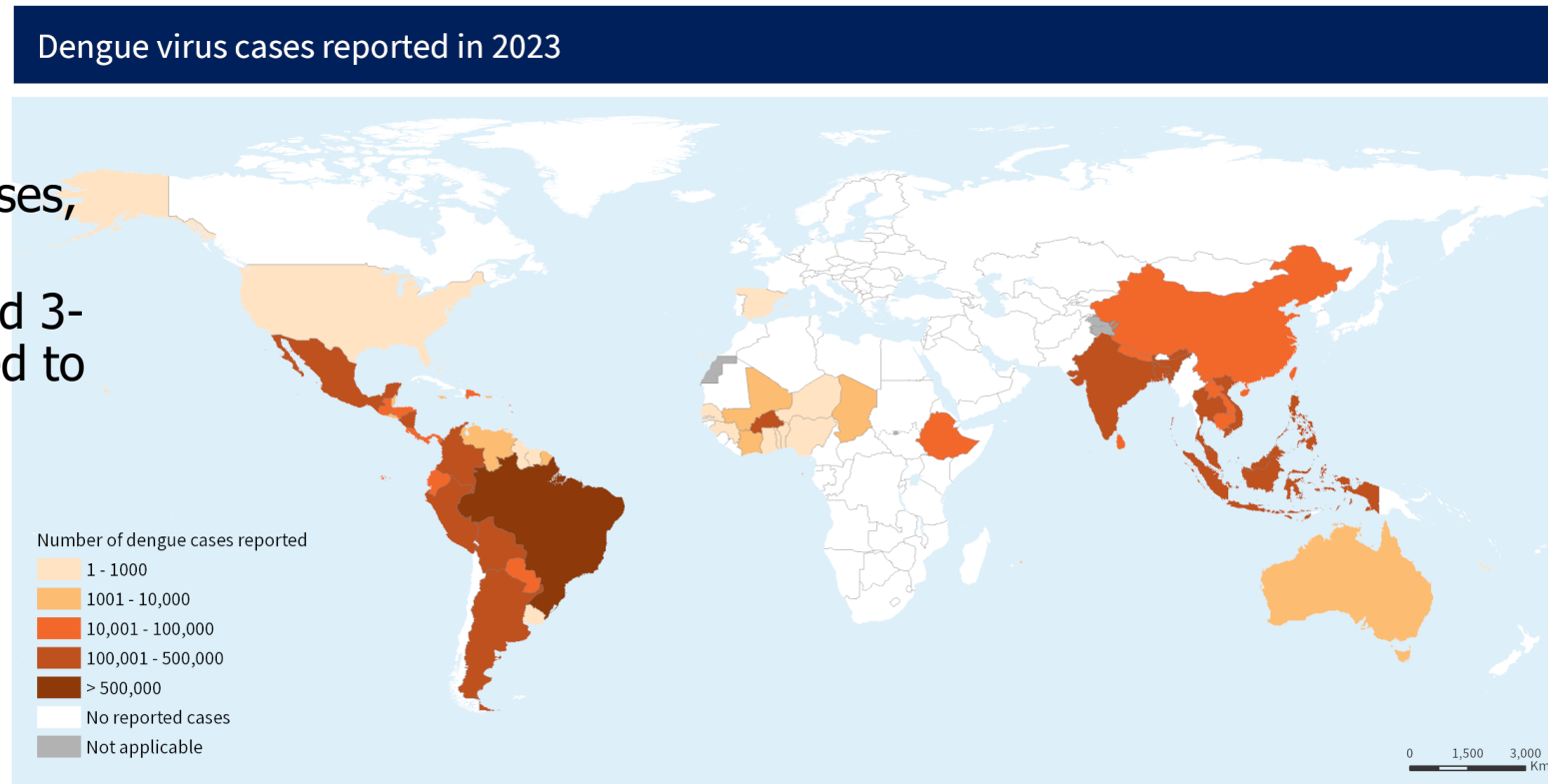
[https://www.who.int/denguecontrol/epidemiology/dengue\\_data\\_application/en/](https://www.who.int/denguecontrol/epidemiology/dengue_data_application/en/)

**How are we now?**

# Upsurge of dengue cases and deaths in 2023

## More than 6M cases and over 7,000 dengue-related deaths reported from 80 countries/territories

- Over the last four decades, dengue cases have been increasing, with the highest numbers reported in 2023:
  - PAHO (>4.5M cases, > 7600 severe cases, >2400 deaths)
  - SEARO (5-fold surge in Bangladesh and 3-fold surge in Thailand in 2023 compared to 2022)
  - EMRO (increase in incidence in 10 countries)
  - WPRO (8 countries reporting cases, mostly the Philippines and Viet Nam)
  - EURO (autochthonous transmission in France, Italy, Spain)
  - AFRO (12 countries, mostly Mauritius, Burkina-Faso)



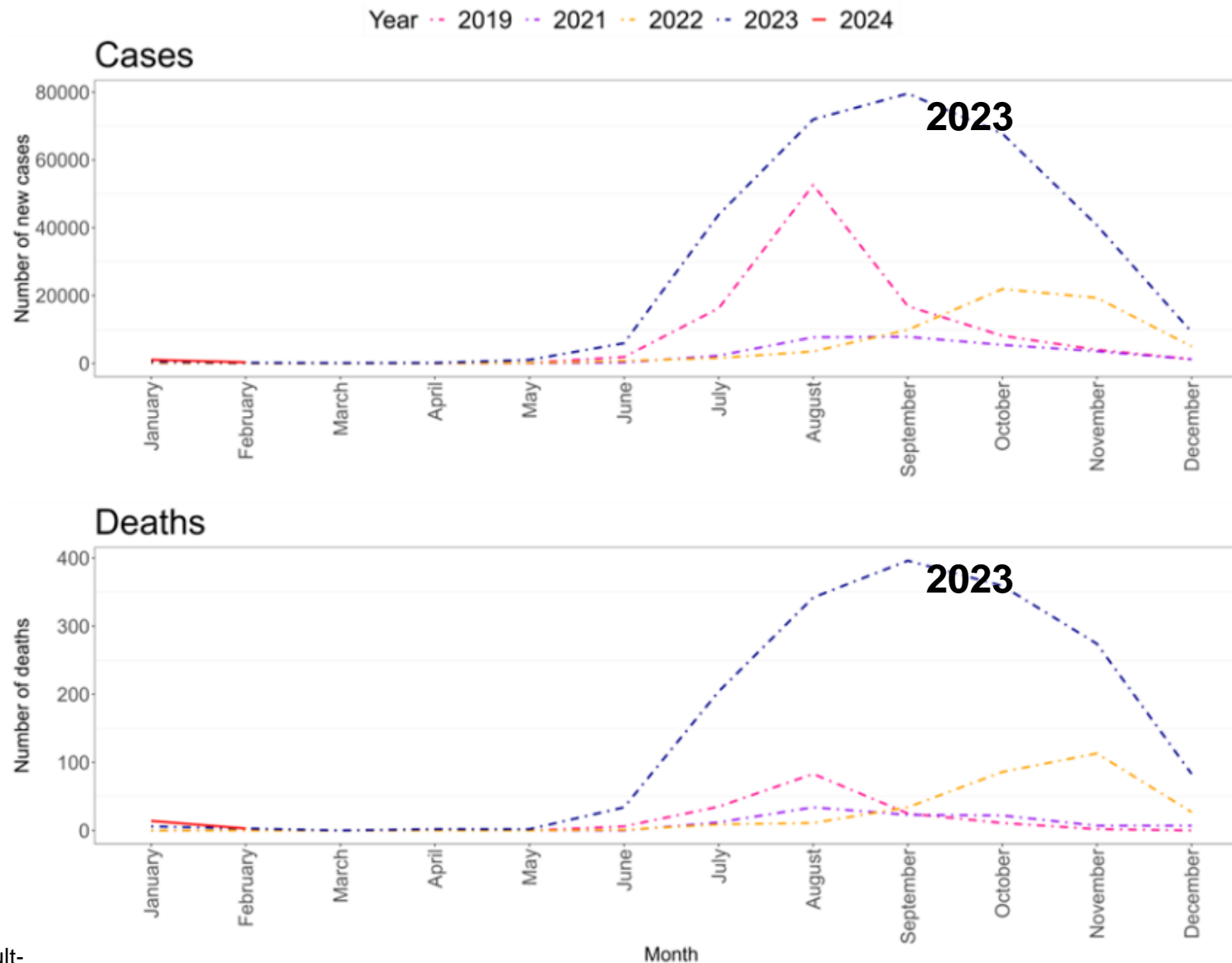
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Data Source: World Health Organization  
Map Production: WHO Health Emergencies Programme  
Map Date: 17 April 2024

- Active monitoring of outbreaks in 23 countries (17 in the Americas)

Kindly shared by Dr Diana Rojas / WHO Geneva

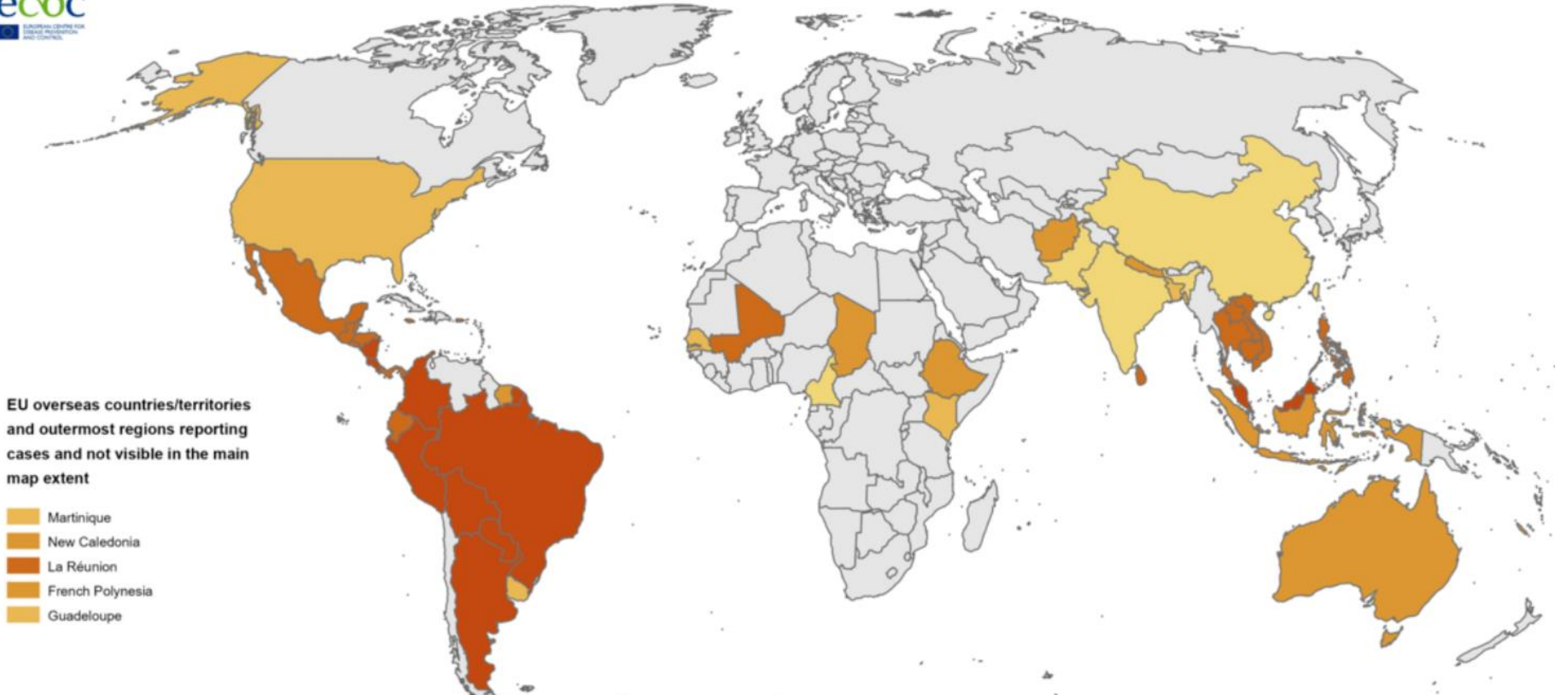
# Number of new cases of, and deaths from dengue by month in Bangladesh from January 2019 to February, 2024



[https://cdn.who.int/media/docs/default-source/searo/whe/wherepib/2024\\_5\\_searo\\_epi\\_bulletin2.pdf?sfvrsn=d2e5857\\_1#:~:text=During%202024%2C%20\(as%20of%2028,January%20and%20February%20in%202023\\*](https://cdn.who.int/media/docs/default-source/searo/whe/wherepib/2024_5_searo_epi_bulletin2.pdf?sfvrsn=d2e5857_1#:~:text=During%202024%2C%20(as%20of%2028,January%20and%20February%20in%202023*)



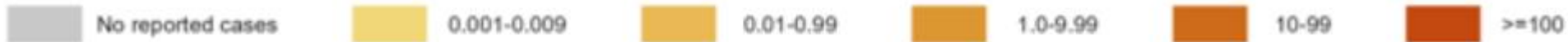
# Three-month dengue virus disease case notification rate\*, Jan-Mar 2024



EU overseas countries/territories and outermost regions reporting cases and not visible in the main map extent

- Martinique
- New Caledonia
- La Réunion
- French Polynesia
- Guadeloupe

\* Notification rate per 100 000 persons



February 26, 2024 8:44 PM GMT-3

Americas

# Peru declares health emergency as dengue outbreak 'imminent'

Reuters

February 26, 2024 8:44 PM GMT-3 · Updated a day ago

Bookmark icon, Font size icon (Aa), and a partial share icon.



LATIN AMERICA AND THE CARIBBEAN

# Costa Rica reports 1,260% increase in dengue in first six weeks of 2024



ROBERT HERRIMAN  
24 DE FEV. DE 2024

- <https://www.reuters.com/world/americas/peru-declare-emergency-parts-country-amid-rise-dengue-fever-cases-2024-02-26/>
- <https://www.laprensalatina.com/brazil-faces-more-than-700000-dengue-cases-in-two-months/>
- <https://outbreaknewstoday.substack.com/p/costa-rica-reports-1260-increase;>
- <https://www.unmc.edu/healthsecurity/transmission/2023/06/14/thailand-reports-a-nearly-500-increase-in-dengue-in-2023/>

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08 MAR 2024 | 04:00 PM UTC

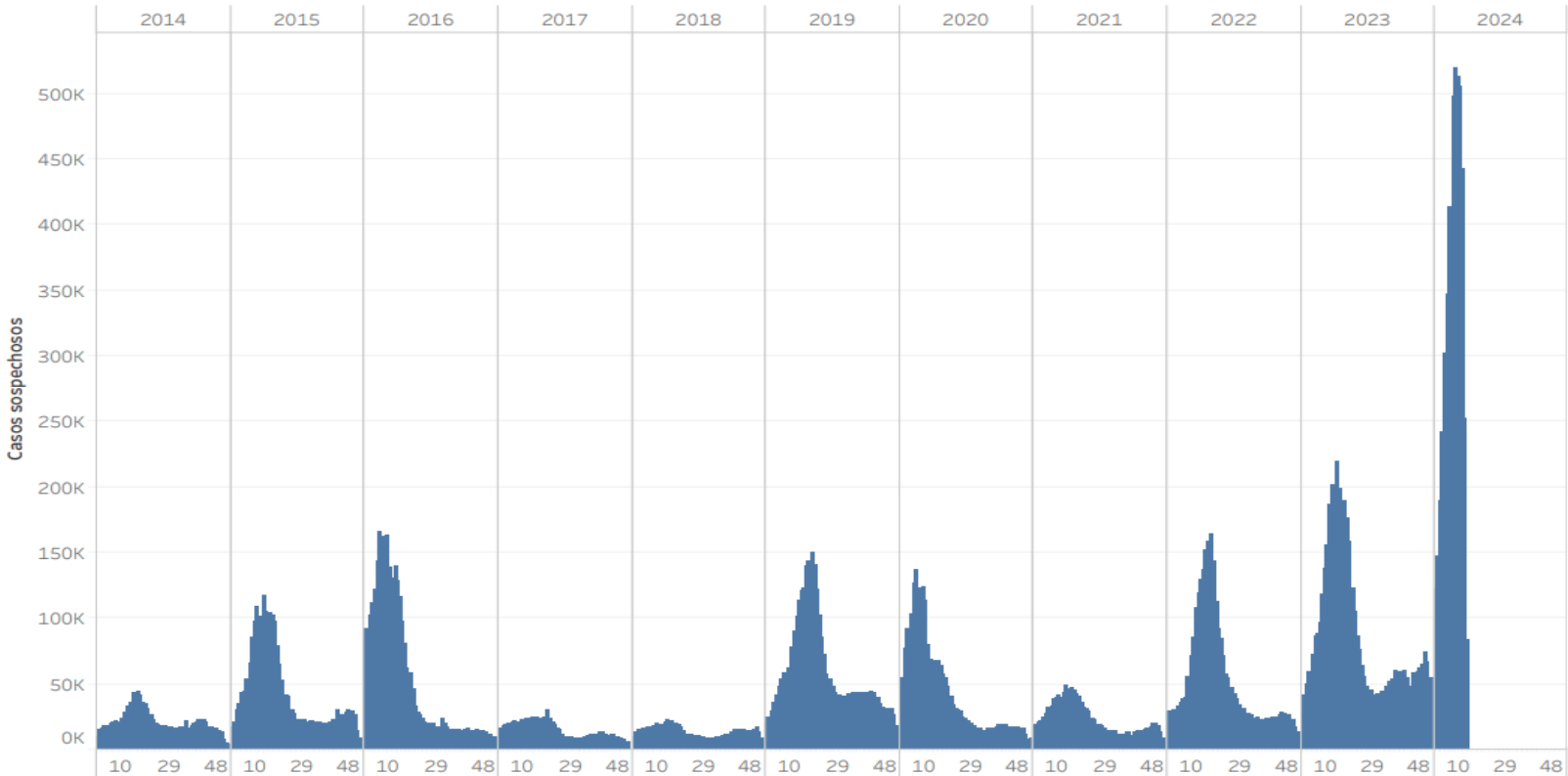
# Indonesia: Elevated dengue fever activity reported in multiple areas in March

09 FEB 2024 | 07:19 AM UTC

# Thailand: Elevated dengue fever activity reported in multiple areas in early February

# Dengue cases by week in the Americas, 2014-2024 (EW 14)

Americas	Suspected	Confirmed	Severe	Deaths	CFR
2024	5,225,804	2,147,630 (41%)	4,998	1,858	0.036

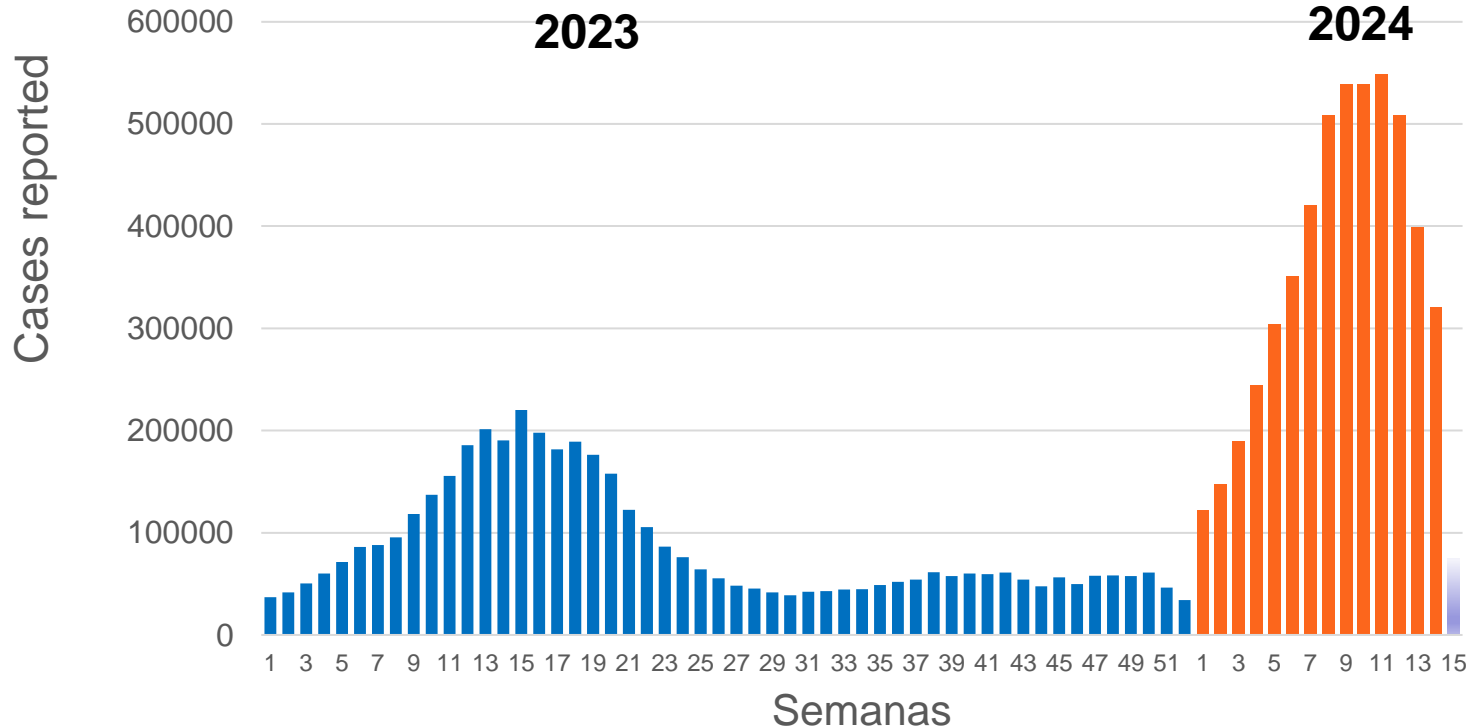


- **2023: 4,570,260** reported cases – Worst year until...
- **2024: First three months** have more cases than 2023. Over 5 million cases up to now

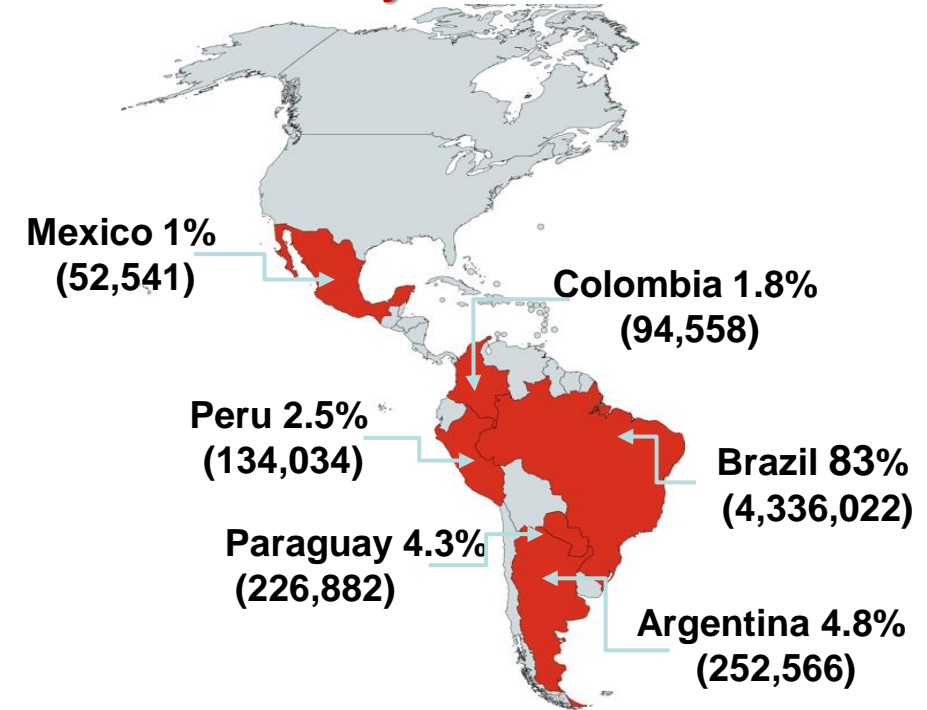
Fuente: Datos reportados por los Ministerios e Institutos de Salud de los Países y Territorios de las Américas a la Organización Panamericana de la Salud.

# Dengue Cases 2023 – 2024 (week 15\*) and most affected countries in the Américas

Dengue reported cases, 2023-2024 (EW 15)



Cases by countries<sup>\$</sup>

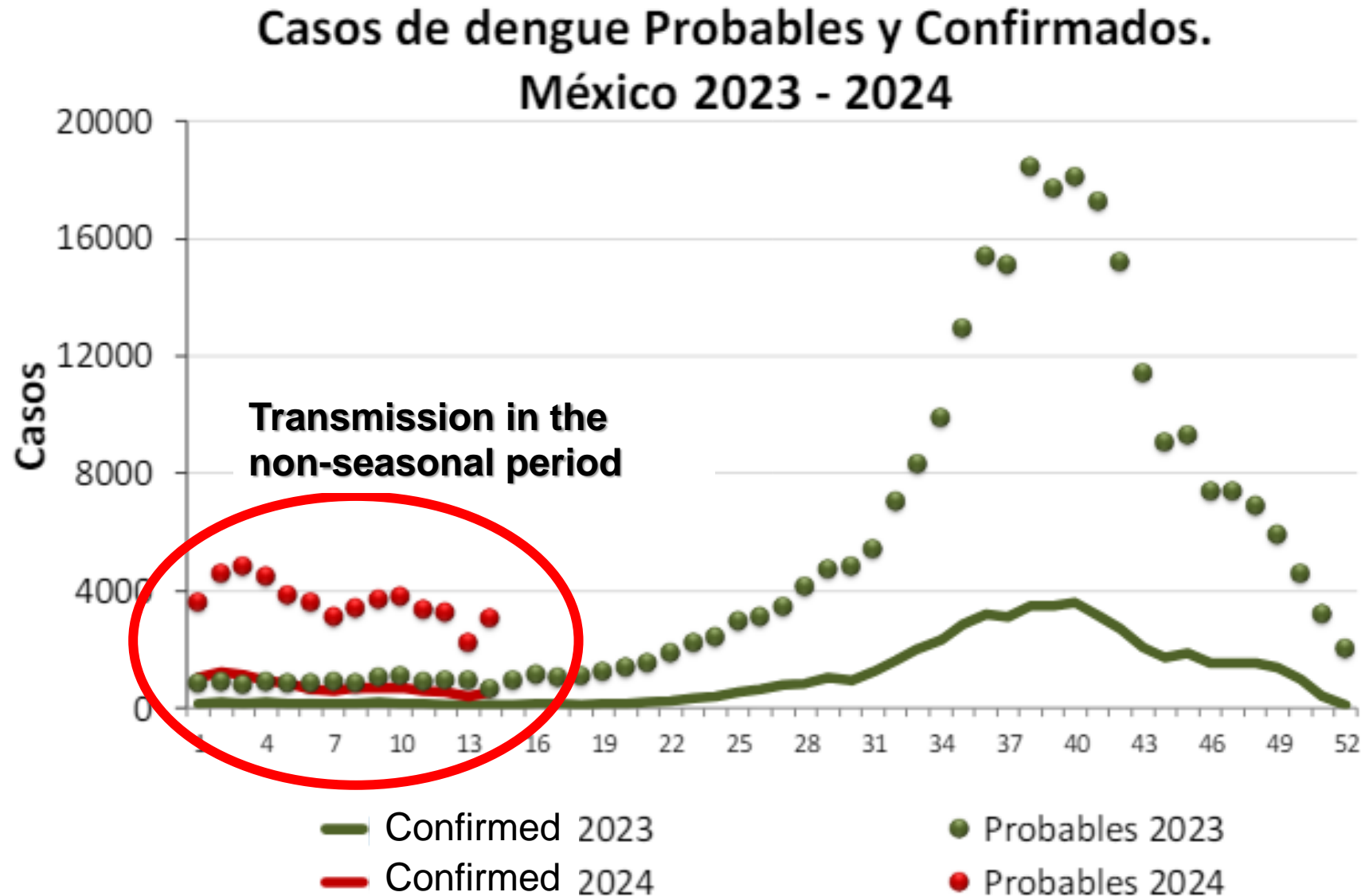


**\$ 97.5% of cases in red area**

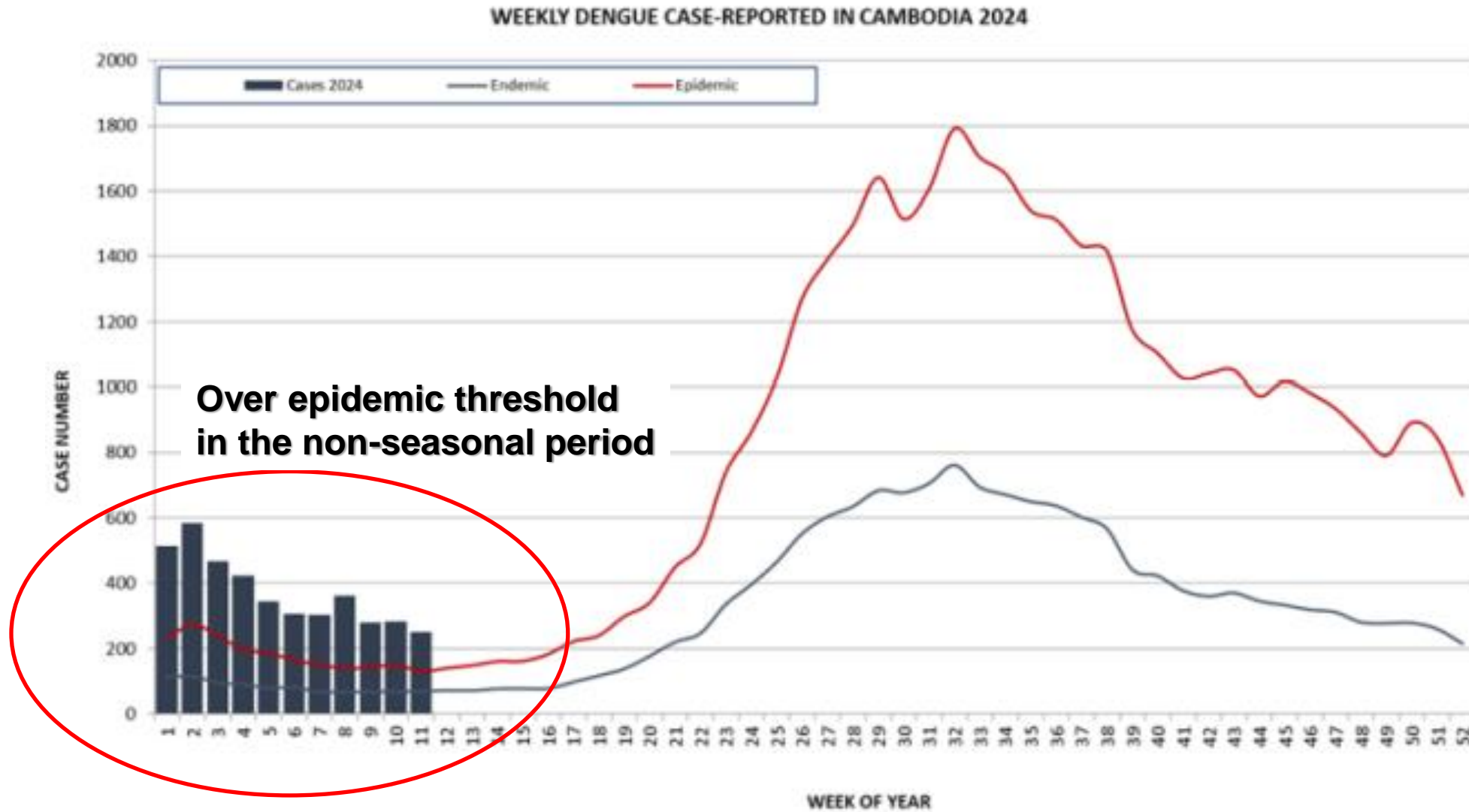
Source: Plataforma de Información en Salud (PLISA) OPS/OMS

\* Preliminary data

# Number of Dengue Cases by week, Mexico, 2023 -2024

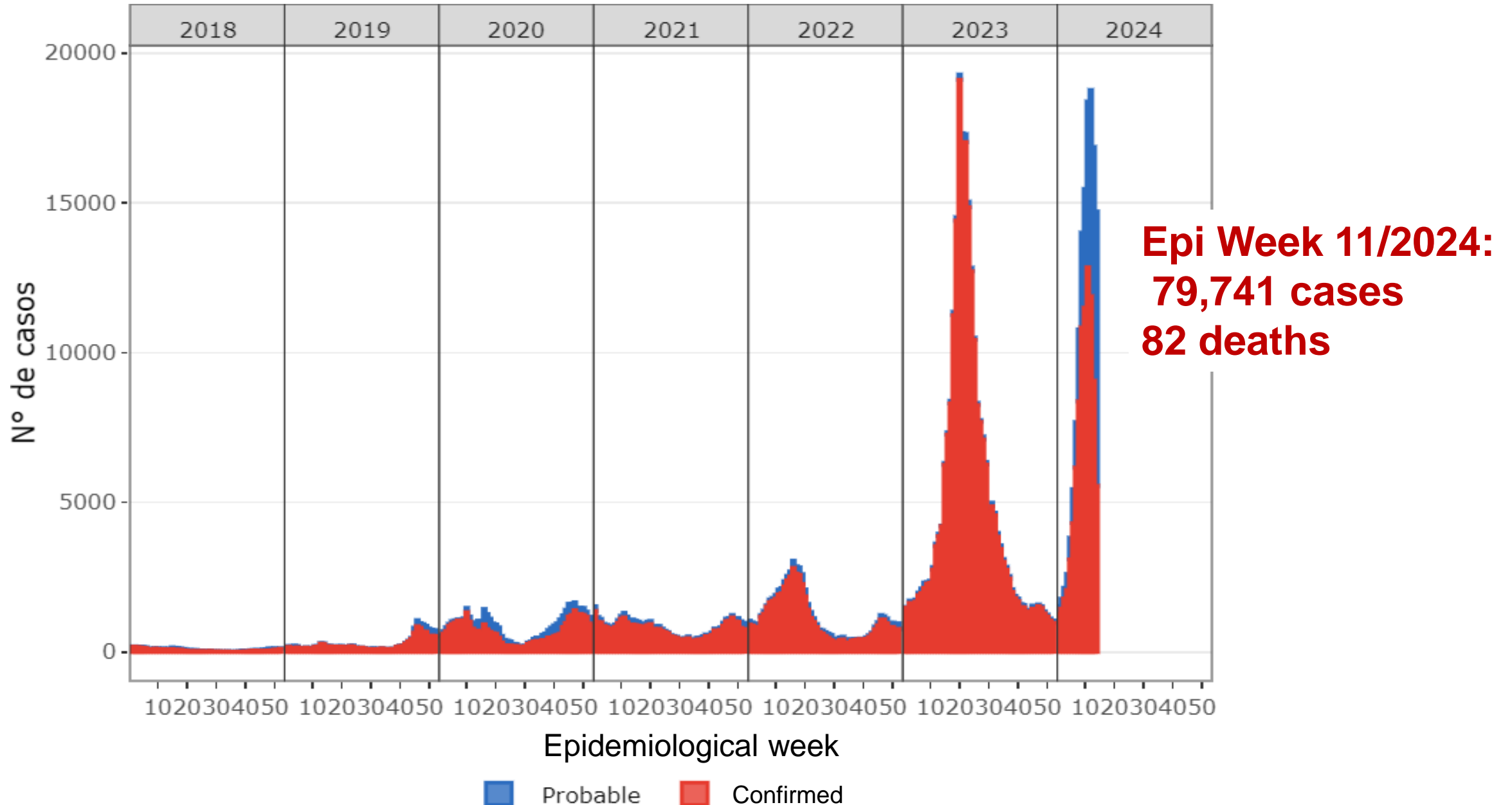


# Dengue cases reported weekly in 2024 vs endemic and epidemic alert lines in Cambodia



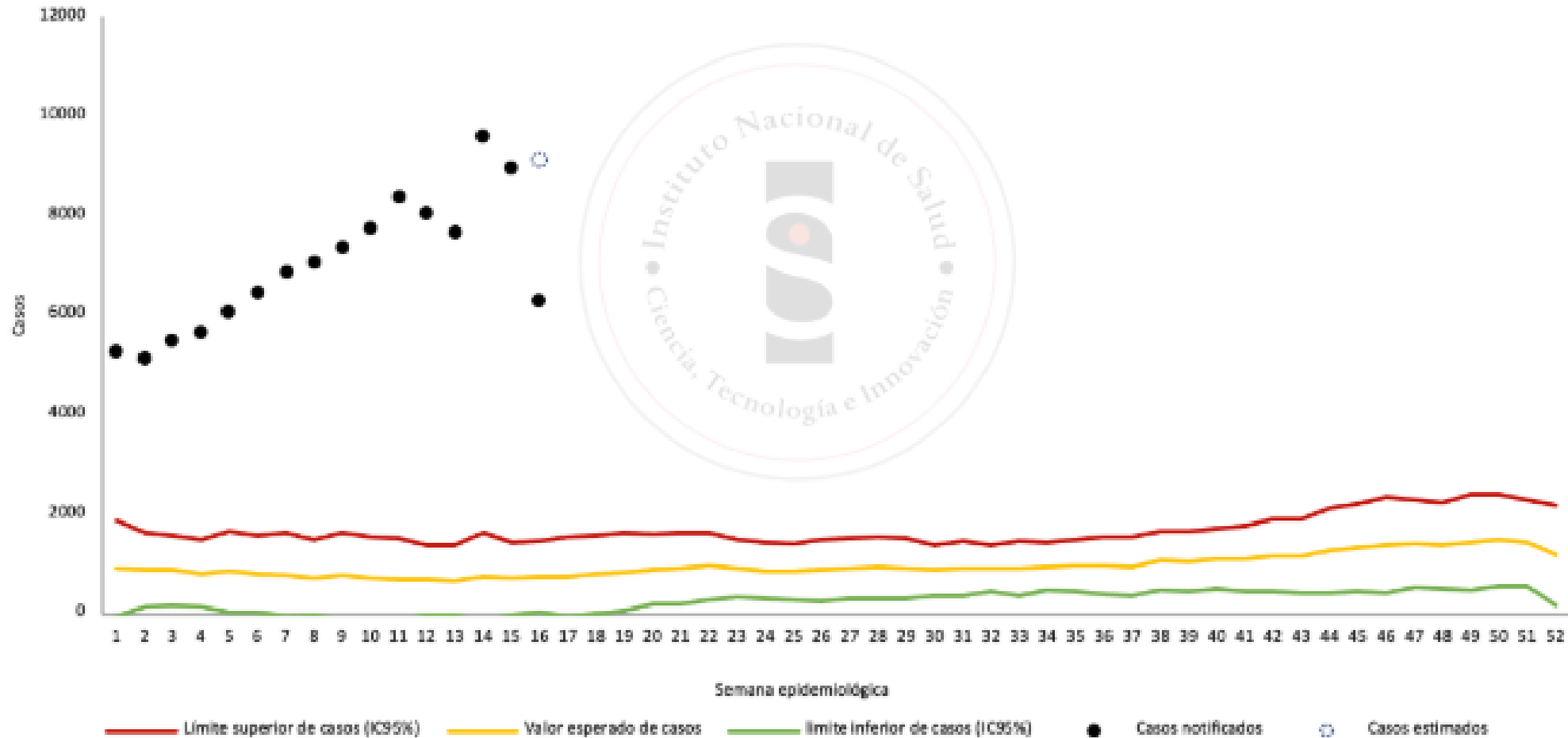


# Number of Dengue Cases by week, Peru, 2018 - 2024



# Number of Dengue Cases by week, Colombia, 2024

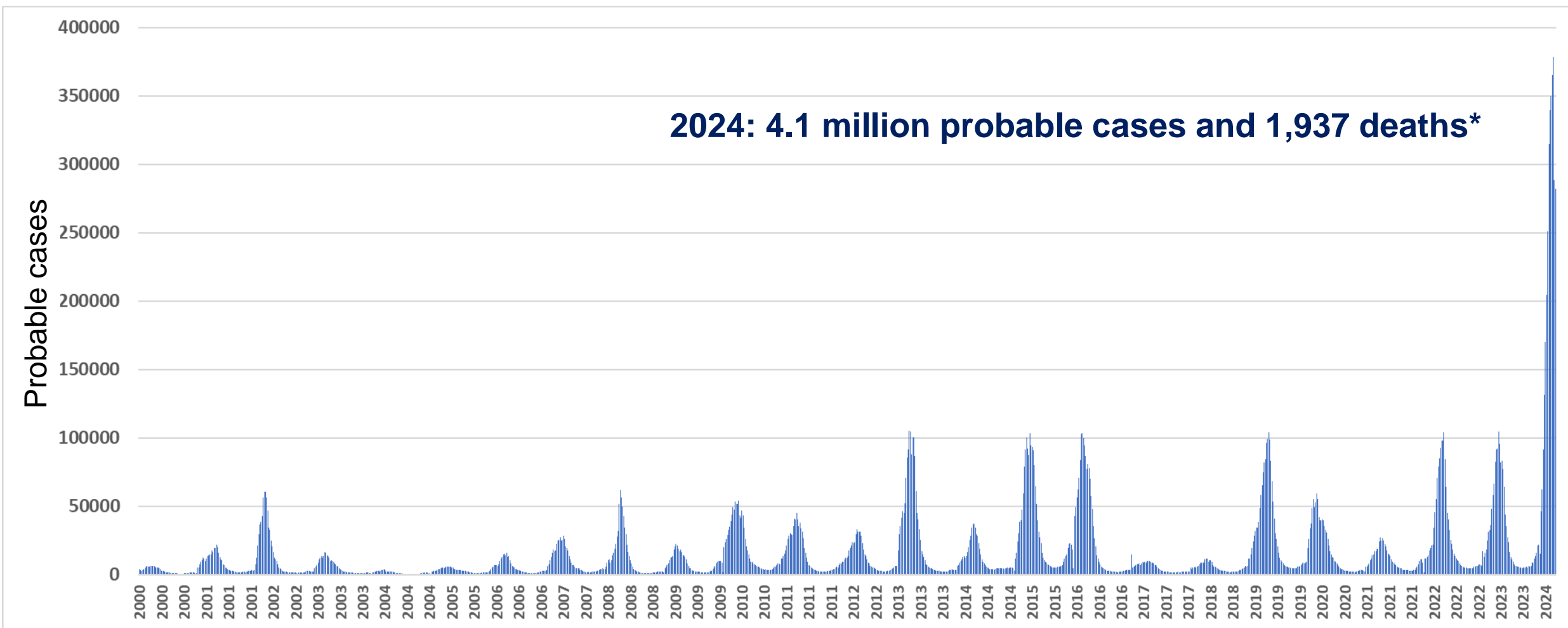
Figura 13. Canal endémico de dengue, Colombia, semanas epidemiológicas 01 a 16 de 2024



**EW 16: 112,140 probable cases (43,253 (38.6%) dengue with warning signs)**



# Number of Dengue Cases by week, Brazil, 2000- 2024\*



\*Preliminary data 29/04/2024. Additional 2,345 deaths currently under investigation

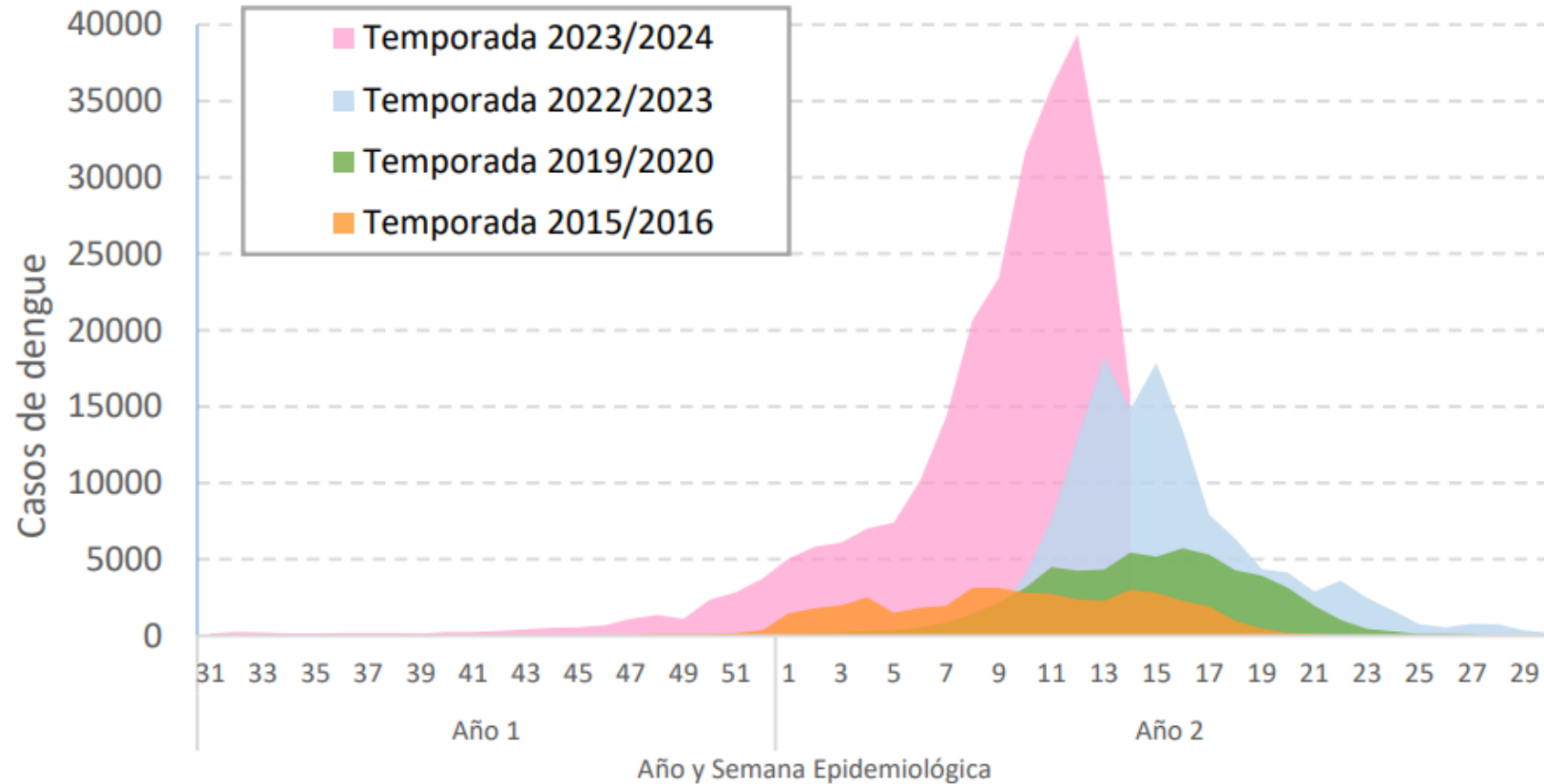
Source: Sinan/SVSA/MS <http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sinannet/cnv/denguebr.def>

SIH/SAS/MS <http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sih/cnv/nruf.def>

<https://www.gov.br/saude/pt-br/assuntos/saude-de-a-a-z/a/aedes-aegypti/monitoramento-das-arboviroses>

# Dengue Cases by week, Argentina, Epidemic years & 2024\*

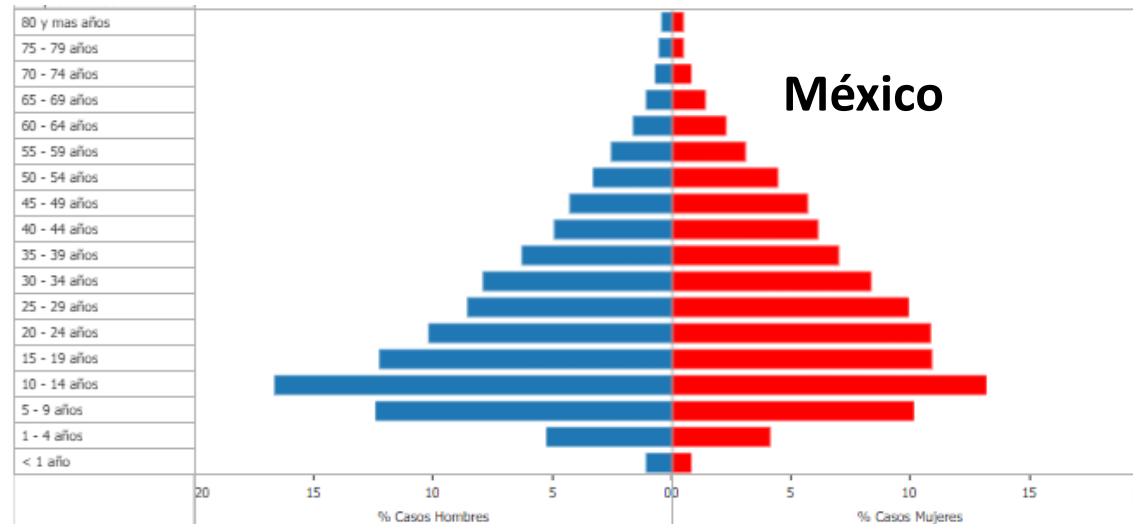
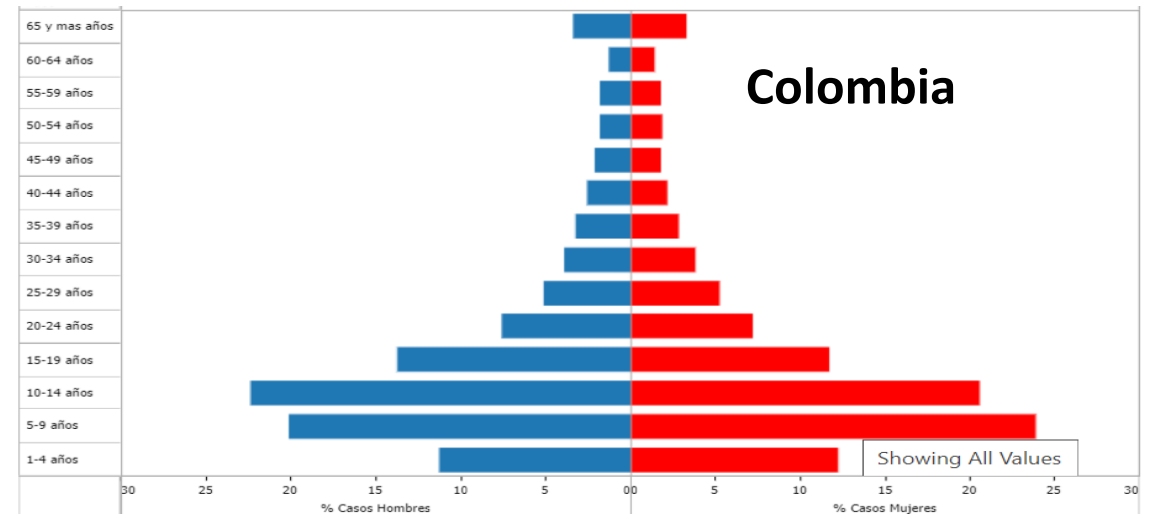
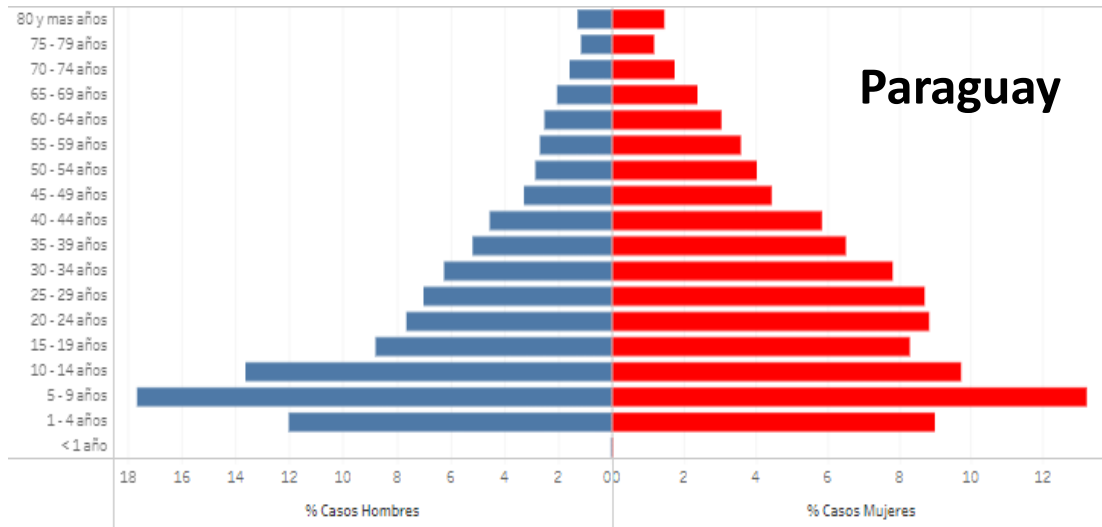
Gráfico 8. Dengue: Casos totales por semana epidemiológica (incluye autóctonos, importados y en investigación) en temporadas epidémicas. Argentina.



Fuente: Elaboración propia del Área de Vigilancia de la Salud de la Dirección de Epidemiología en base a información proveniente del Sistema Nacional de Vigilancia de la Salud (SNVS 2.0).

**Who is getting sick?**

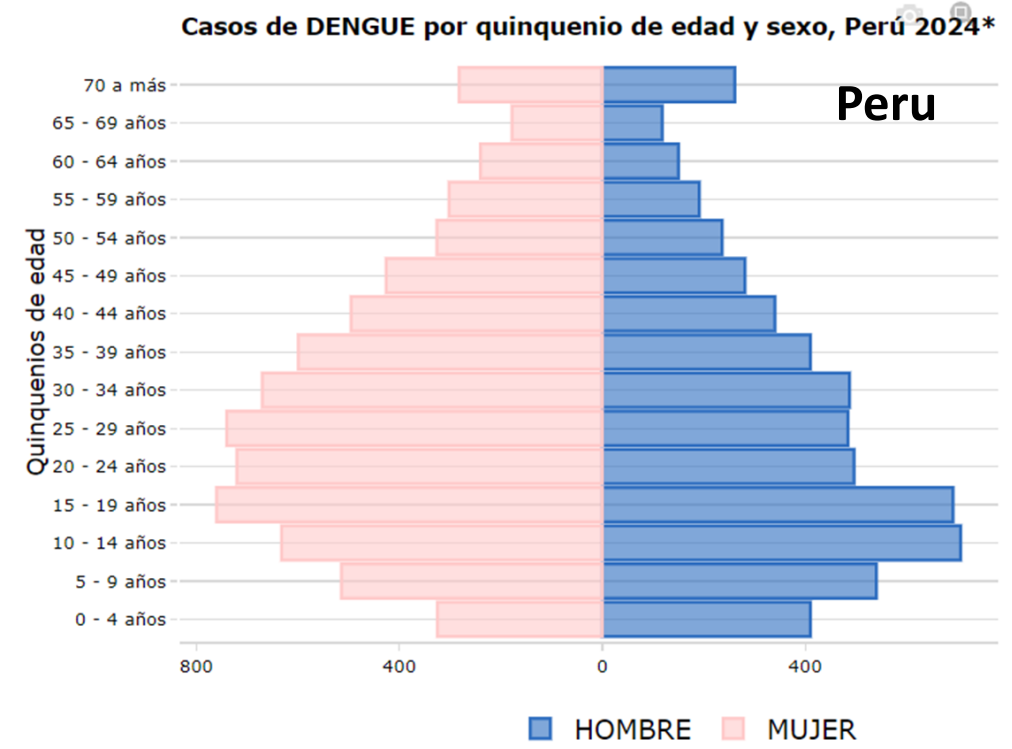
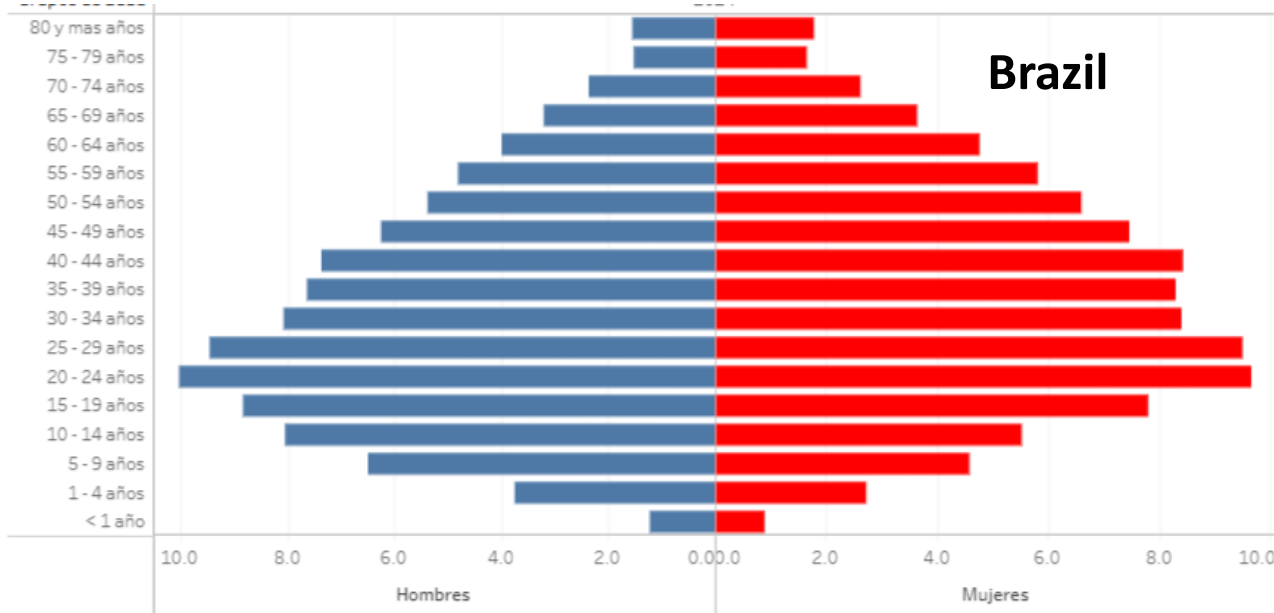
# Dengue cases by age group in selected countries, 2024\*



\*Epidemiological week 15

Source: Plataforma de Información en Salud (PLISA) OPS/OMS

# Dengue cases by age group in selected countries, 2024\*



Source: Plataforma de Información en Salud (PLISA) OPS/OMS

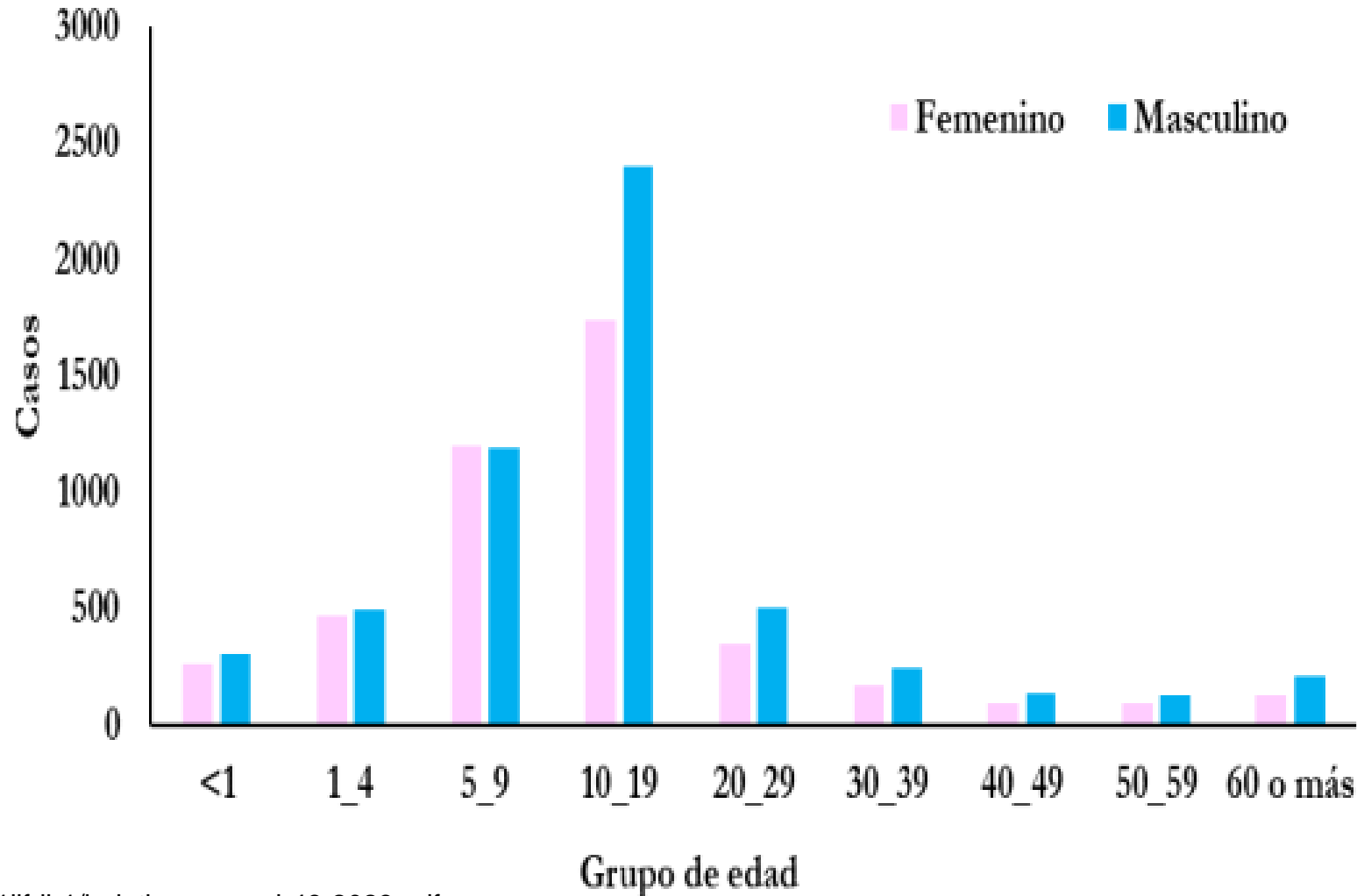
Fuente: Centro Nacional de Epidemiología, Prevención y Control de Enfermedades - MINSA. (\*) Hasta la SE 5

<https://www.dge.gob.pe/sala-situacional-dengue/#grafico01>

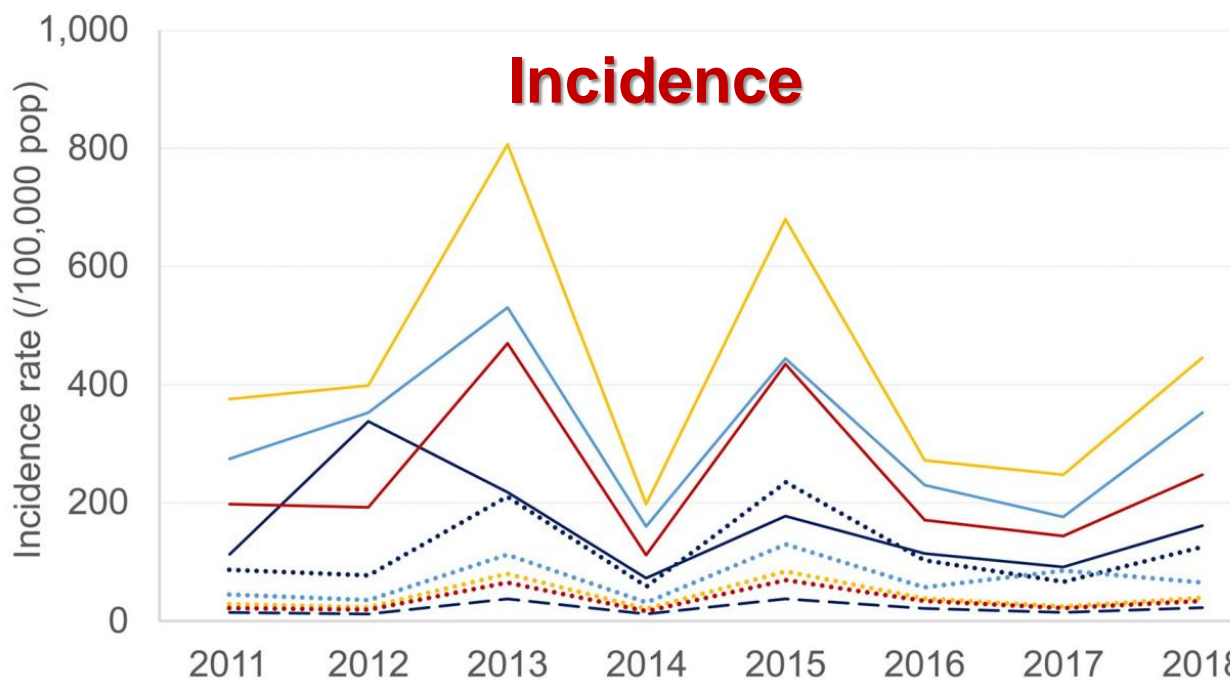
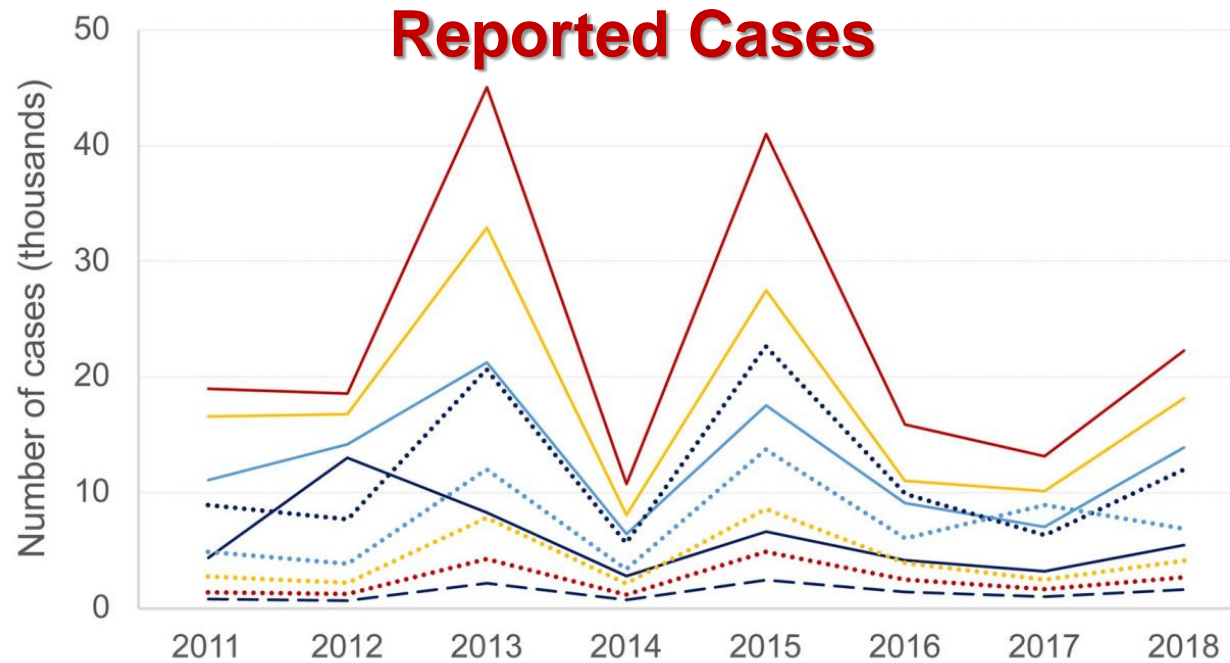
\*Epidemiological week 15

# Dengue cases by age group, Dominican Republic, 2022

Fig.-2. Distribución de casos probables de dengue según grupo de edad y sexo desde la SE 01 hasta la SE 48 de 2022. República Dominicana.



# Reported number of cases and incidence rate by age group, Thailand 2011-2018

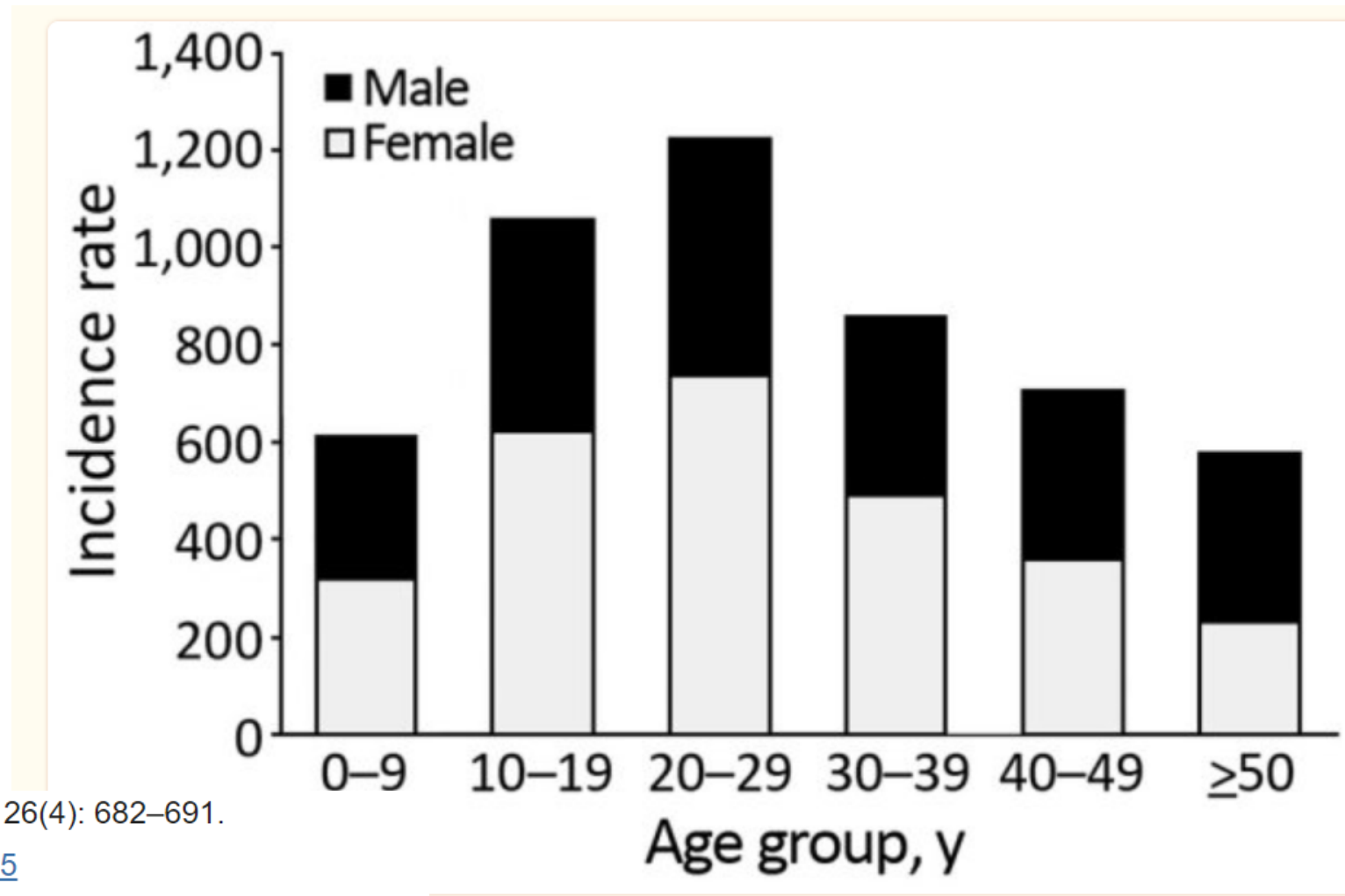


## Age group

- 0-4
- 5-9
- 10-14
- 15-24
- ..... 25-34
- ..... 35-44
- ..... 45-54
- ..... 55-64
- - - 65+

**Most cases and higher incidence**

# Dengue incidence rates per 100,000 population by age group and sex, Sri Lanka, 2017.



[Emerg Infect Dis.](#) 2020 Apr; 26(4): 682–691.

doi: [10.3201/eid2604.190435](https://doi.org/10.3201/eid2604.190435)

Severe Dengue Epidemic, Sri Lanka, 2017



What about the deaths?

# Dengue cases in Peru by age group, 2024

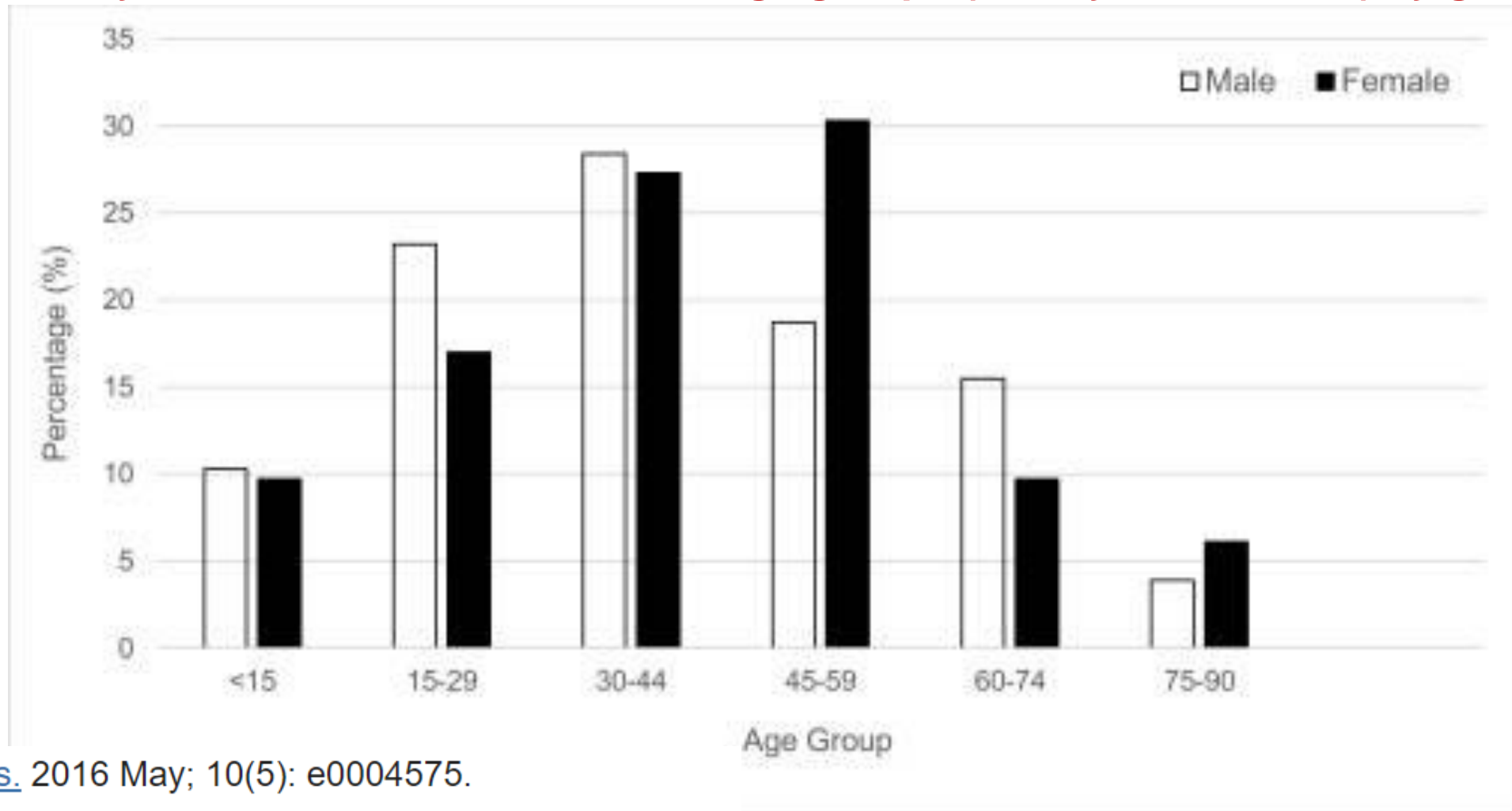
Distribución de casos de dengue por cursos de vida y sexo, Perú 2024\*

	N° Casos	%	TIA x 100000 Hab.	Fallecidos	Letalidad (%)
<b>Según curso de vida</b>					
Niños (0 - 11 años)	2258	17.4	34.02	0	0
Adolescentes (12 - 17 años)	1728	13.3	48.86	0	0
Joven (18 - 29 años)	3032	23.3	45.19	0	0
Adulto (30 - 59 años)	4763	36.6	36.58	1	0.02
Adulto mayor (60 + años)	1229	9.4	29.22	7	0.57
<b>Según sexo</b>					

Fuente: Centro Nacional de Epidemiología, Prevención y Control de Enfermedades - MINSA. (\*) Hasta la SE 5

# A Two-Year Review on Epidemiology and Clinical Characteristics of Dengue Deaths in Malaysia, 2013-2014

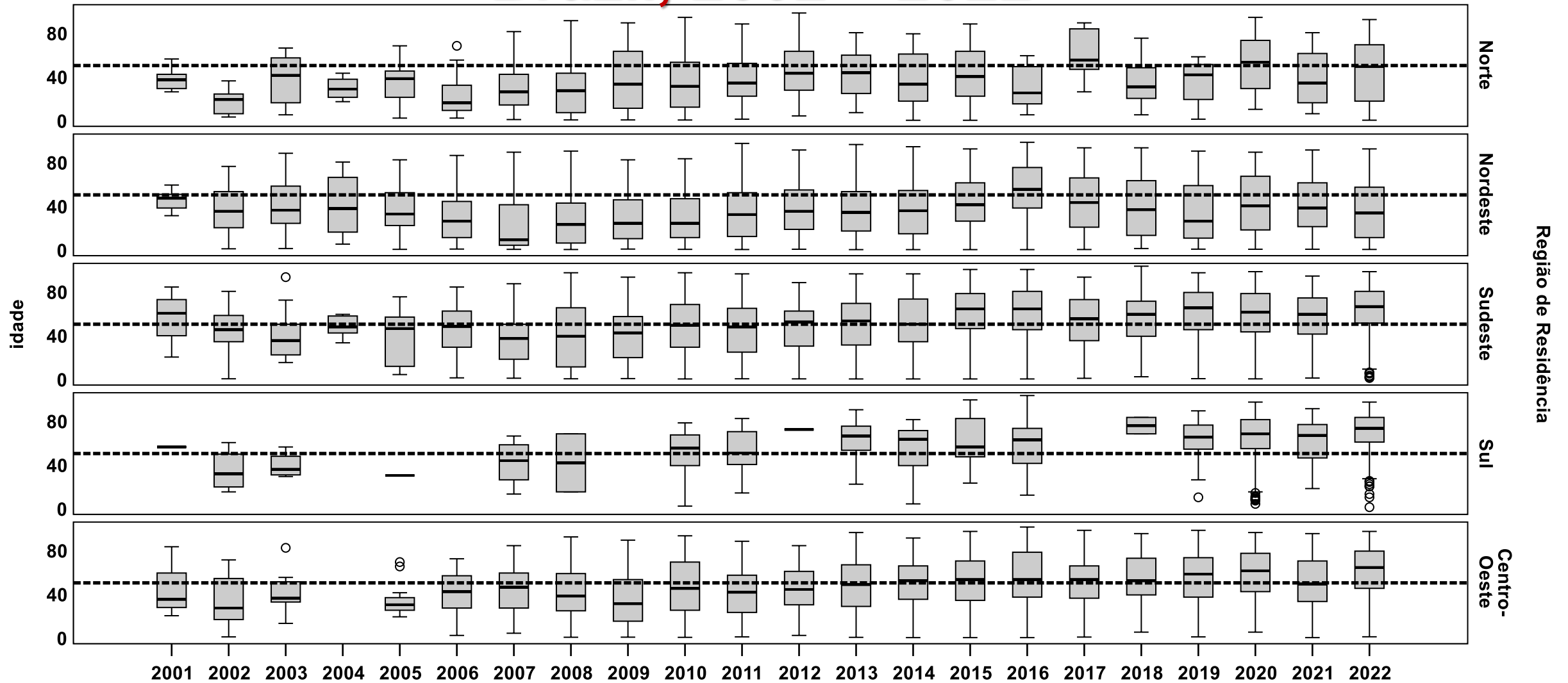
Mortality distribution across different age groups (of 15-year intervals) by gender.



[PLoS Negl Trop Dis.](#) 2016 May; 10(5): e0004575.

Published online 2016 May 20. doi: [10.1371/journal.pntd.0004575](https://doi.org/10.1371/journal.pntd.0004575)

# Dengue deaths by age and region of residence, Brazil, 2002 – 2022



\*Preliminary data. Source: Sinan/SVS/MS. Courtesy of Siqueira Jr, JB

# Final remarks

- Increasing trend of **dengue** transmission
- 2024 worst year up to date, especially in the Americas
- High burden in older children and adolescents
- Deaths mostly in the elderly?
- New cycle of DENV3 about to start in South America?
- Complex scenario of three urban arbovirus (DENV, ZIKAV, CHIKV)
- Challenge for the vaccines – objectives, communication, rumors

Multumesc Ua Tsaug Rau Koj **CHOKRANE** *Nirringrazzjak* *Terma* *Motondo* *Kasih*  
 Dank Je *Mochchakkeram* **CHOKRANE** **Merci** *Obrigado* *Obrigado* **Kiitos**  
**Maamana** *Maake* **CHOKRANE** **Obrigado** **Obrigado** **Kiitos**  
*Grazie* **THANK YOU** *Thank You* *Dankon* *Obrigado*  
*Maake* **THANK YOU** *Asante* *Salamat* **Vinaka**  
*Terma Kasih* **THANK YOU** *Nirringrazzjak* **Vinaka**  
**OBRIGADO** *Mochchakkeram* *Multumesc*  
 Dank Je **Kiitos** *Obrigado* *Ua Tsaug Rau Koj* *Thank You*  
**Merci** *Chokrane* *Maatur Nuwun* *Spasibo* **Kiitos** *Dank Je*  
*Obrigado* *Maake* *Nirringrazzjak* *Salamat* *Arigato* **Welalin** *Multumesc* *Spasibo*  
**Nirringrazzjak** *Maatur Nuwun* *Salamat* *Arigato* *Kiitos* *Multumesc* *Cam on ban* **Kiitos**  
*Mochchakkeram* *Raibh Maith Agat* *Obrigado* *Maake* *Welalin* *Kiitos* *Multumesc* *Raibh Maith Agat* **Merci**  
*Asante* *Obrigado* *Salamat* *Mochchakkeram* *Obrigado* *Maake* *Chokrane* *Grazie*  
*Obrigado* *Obrigado* *Obrigado* *Obrigado* *Obrigado* **Jusparaxar**

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