



PAHO

Collaborative surveillance of arboviral diseases in the Americas

Thais H. dos Santos

Advisor, Surveillance and Control
of Arboviral Diseases

PAHO



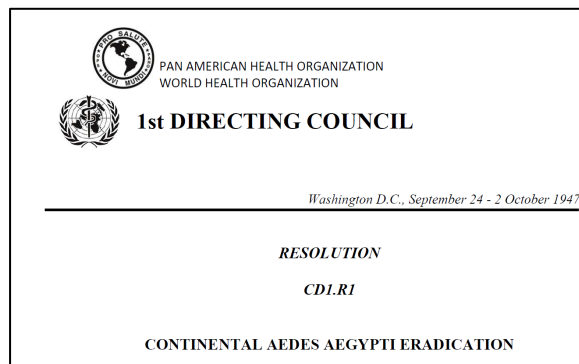
Pan American
Health
Organization



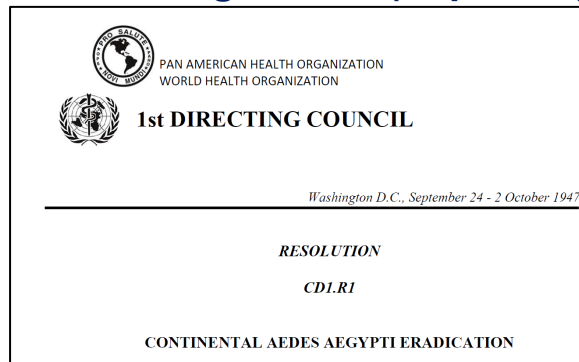
World Health
Organization
REGIONAL OFFICE FOR THE
Americas

Dengue and other arboviruses: resolutions

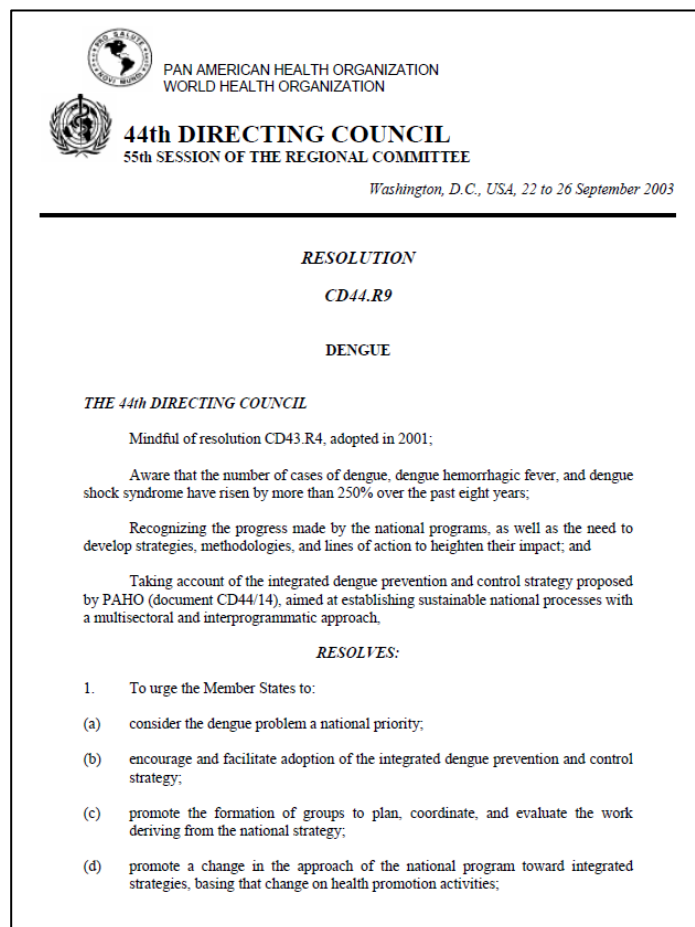
CD1.R1 Continental *Aedes aegypti* eradication, (Sep-1947)



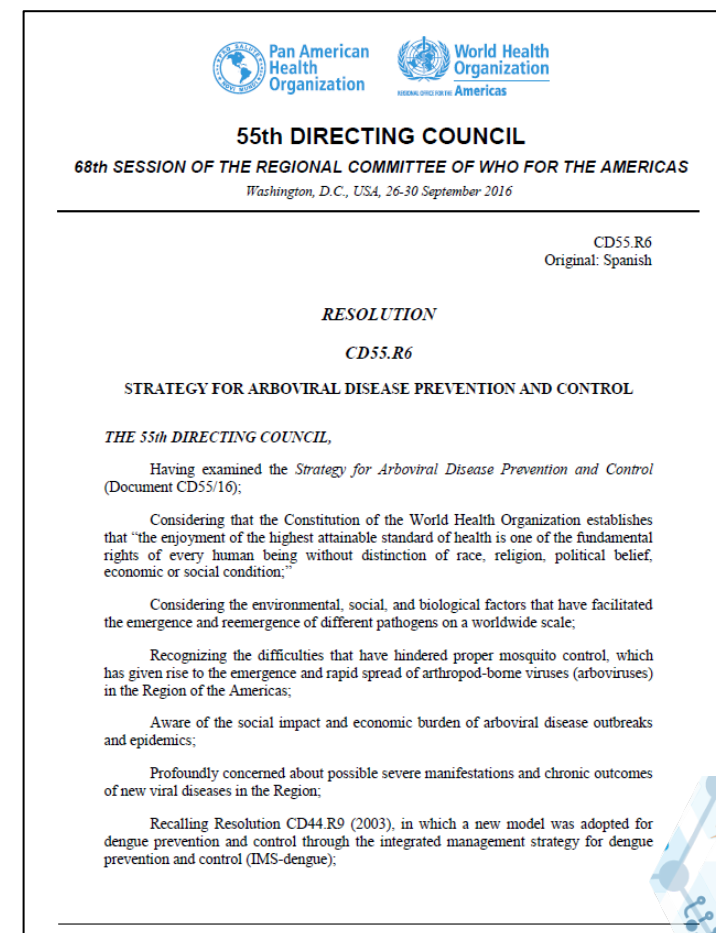
CD43.R4 Dengue and dengue hemorrhagic fever (Sep-2001)



CD44.R9 Dengue (Sep-2003)

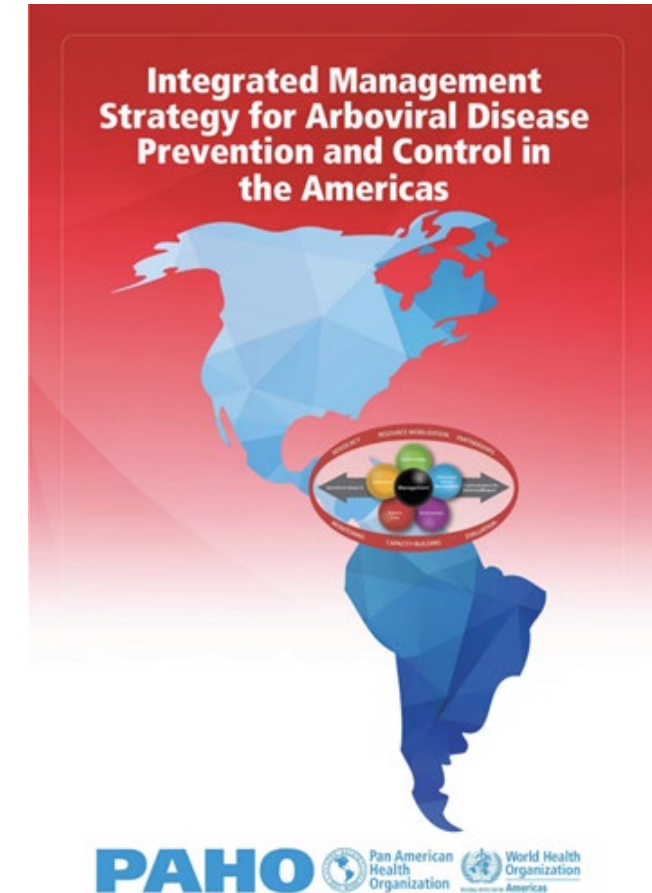
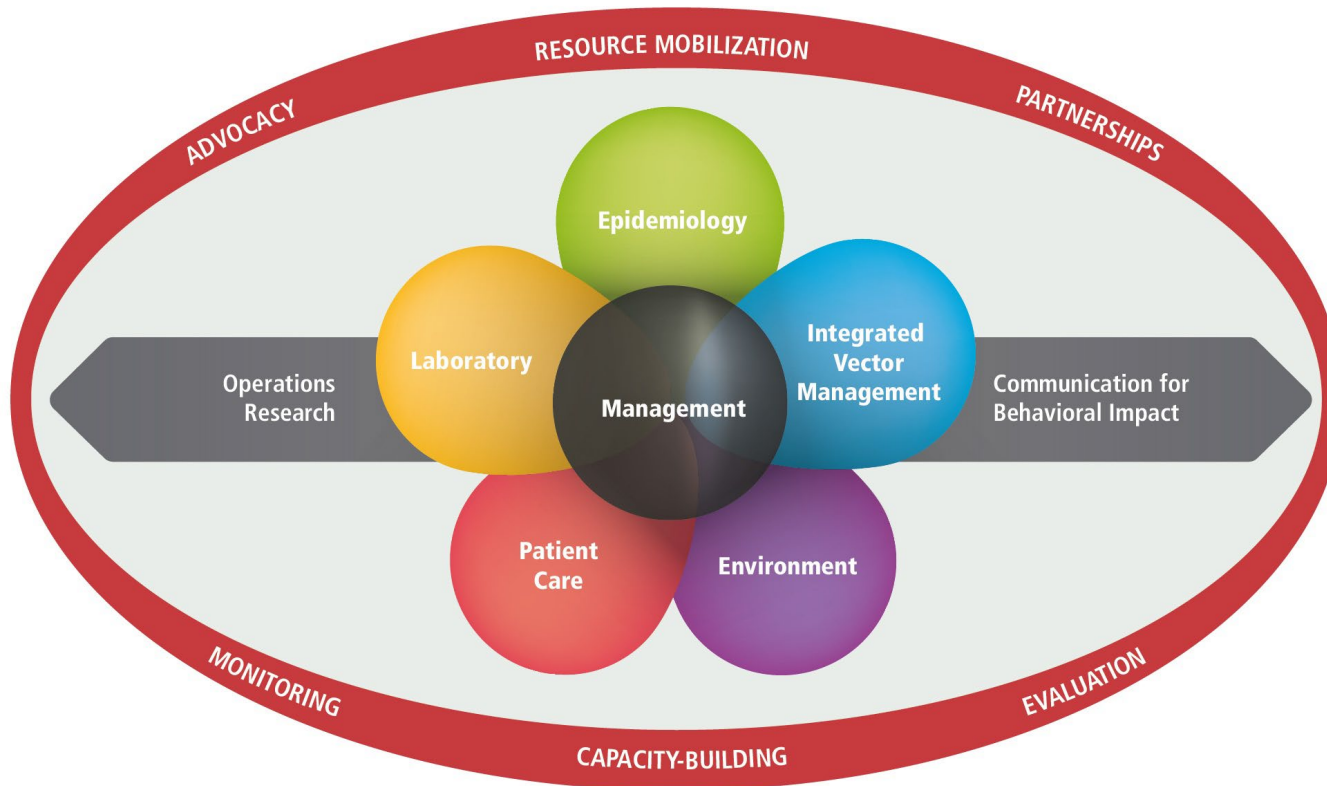


CD55.R6 Strategy for Arboviral Disease Prevention and Control (Sept-2016) **IMS-Arbovirus**



Framework for integration: IMS-Arbovirus

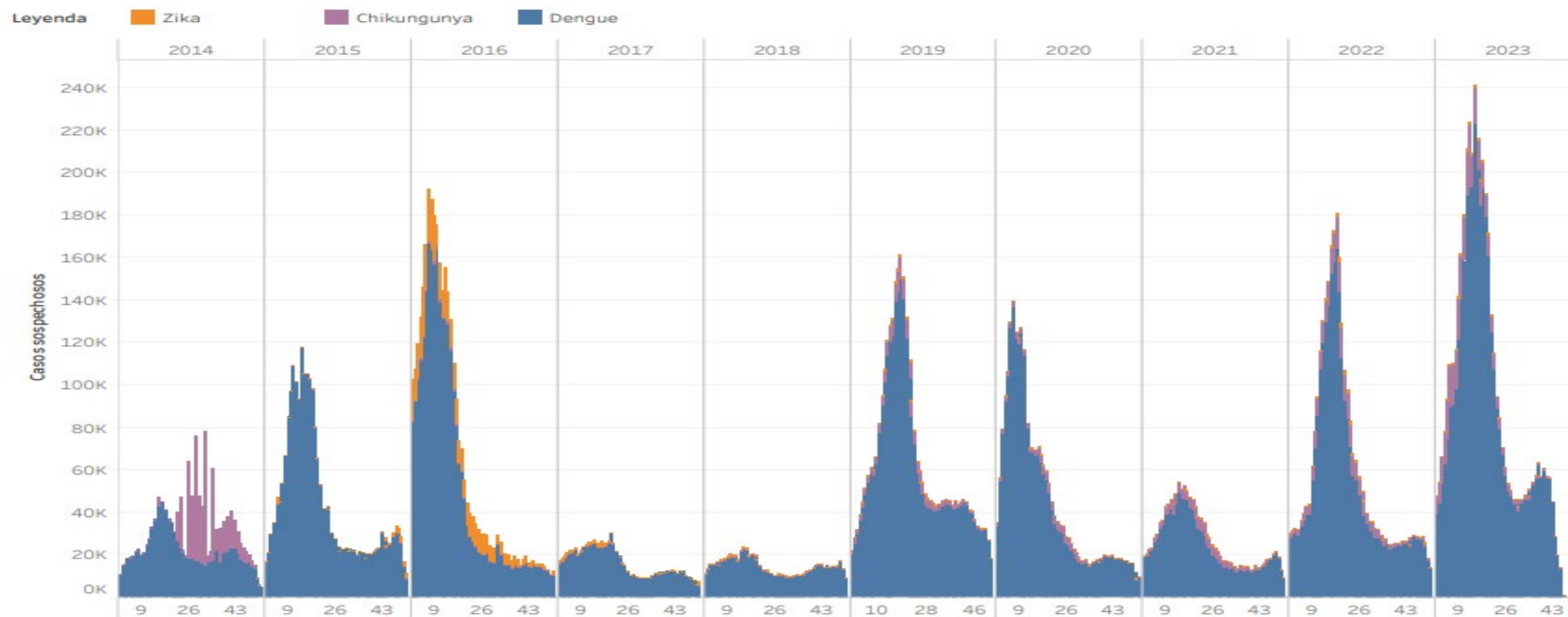
Integrated Management Strategy for the Prevention and Control of Arboviral Diseases



<https://iris.paho.org/handle/10665.2/52492>



Total number of reported cases of dengue, chikungunya, and Zika in the Americas, 2014-2023 EW 46



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.

Cases of **Chikungunya** 2014 – 2023: 3,840,534 (14.4%)

Cases of **Zika** 2015-2023: 968,947 (3.6%)

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Organization

World Health
Organization
Regional Office for the Americas

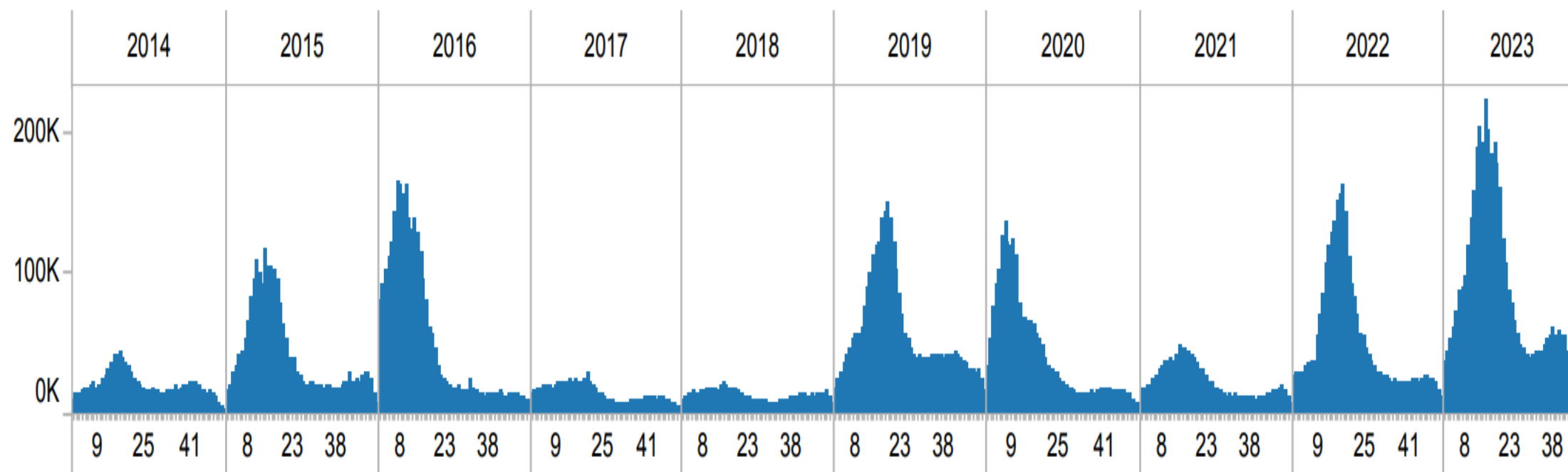
Source: PAHO's Health Information Platform for the Americas (PLISA)



Cases of Dengue in the Americas, 2014 – 2023*



Americas	Suspected	Cum. incidence	Confirmed	Severe dengue	Deaths	CFR
Year 2023	4,150,724	417 per 100,000	1,885,670 (45%)	6,622	2,025	0.049%



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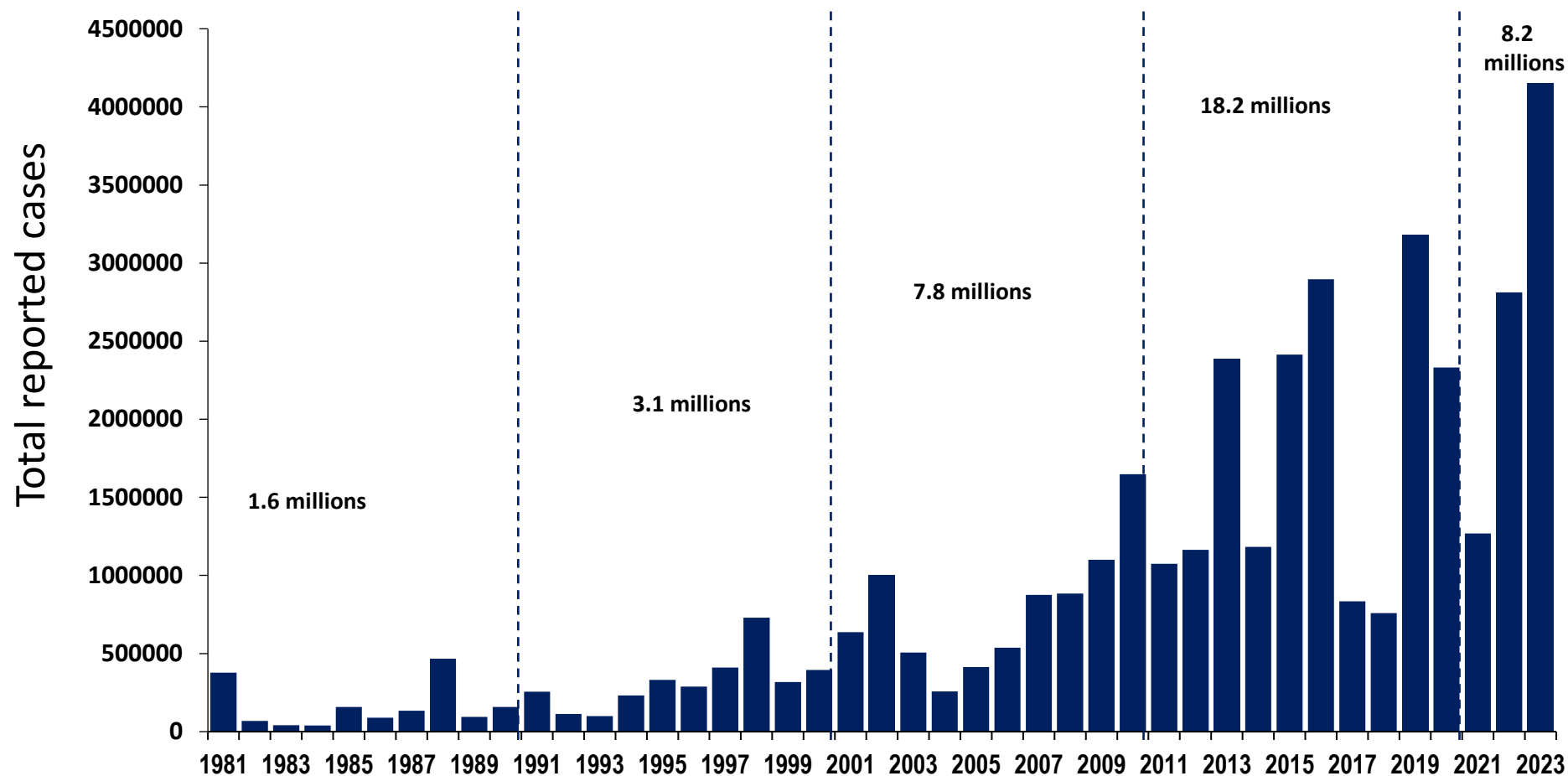


*Up to Epi Week 46

Source: PAHO's Health Information Platform for the Americas (PLISA)



Total number of dengue cases[&] in the Americas, 1981 – 2023 EW 46



Increasing trend in the number of dengue cases

- **2002:** >1 million cases
- **2013:** >2 million cases
- **2019 :** >3 million cases
- **2023:** >4 million cases

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Pan American
Health
Organization

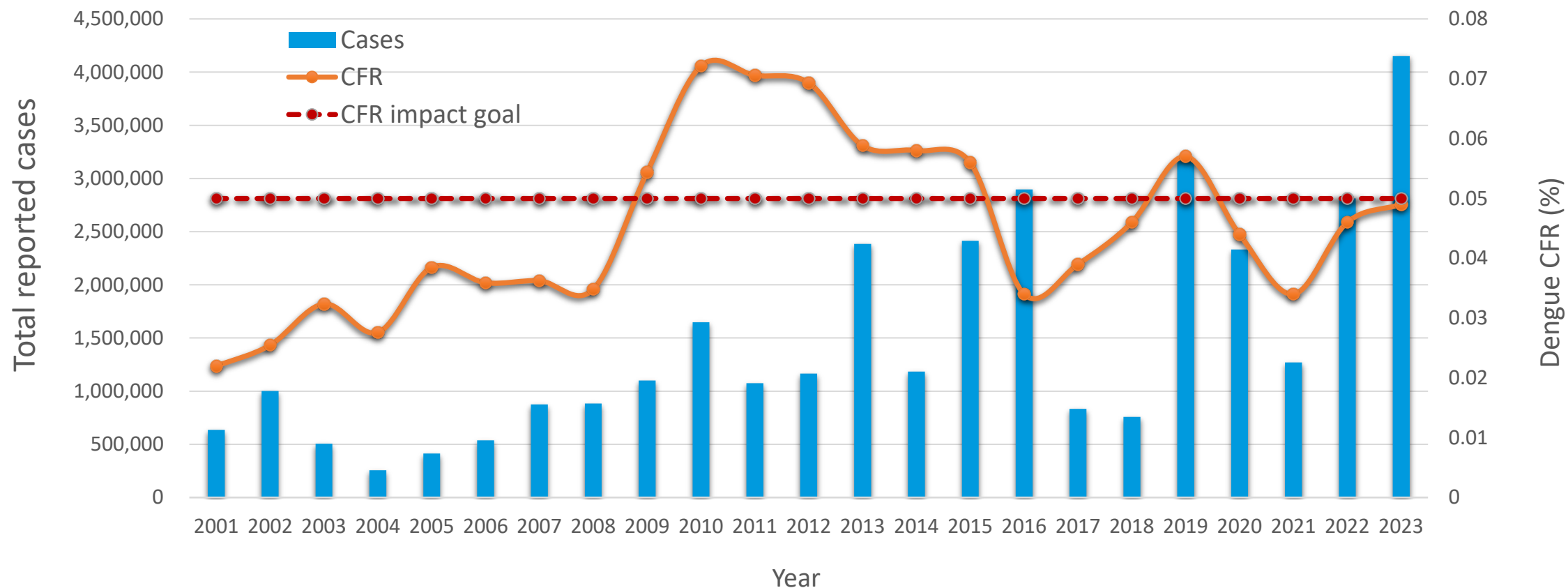
World Health
Organization
REGIONAL OFFICE FOR THE AMERICAS

Source: PAHO/WHO. PLISA

& En dengue se reportan todos los casos sospechosos clínicamente

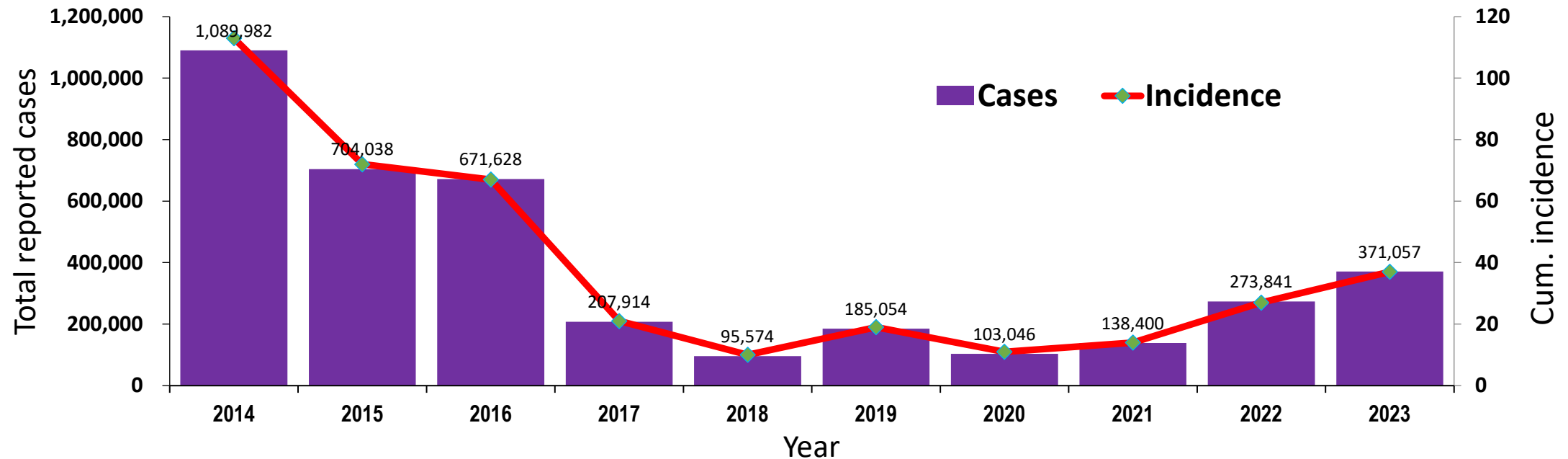


Total reported cases and case fatality rate (CFR) due to dengue, the Americas, 2001 – 2023*



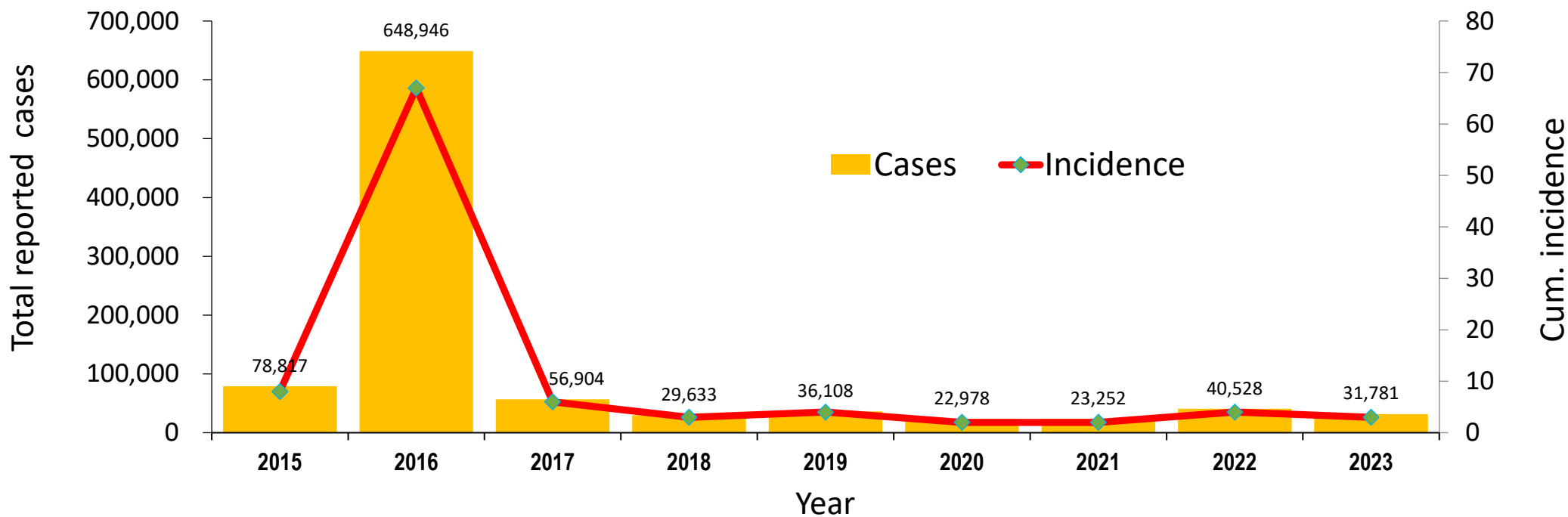
Cases of Chikungunya in the Americas, 2014 – 2023*

Americas	Suspected	Cumul. incidence	Confirmed	Deaths/CFR
Year 2023	371,057	37 per 100,000	231,550 (62%)	366/0.098



Cases of Zika in the Americas, 2015 – 2023*

Americas	Suspected	Cumul. incidence	Confirmed	Deaths
Year 2023	31,781	3 per 100,000	3,290 (10%)	0



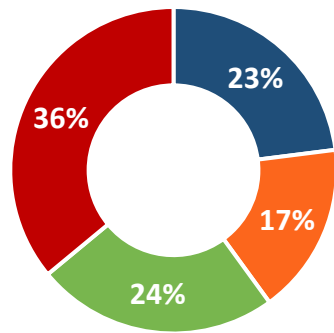
Distribution of dengue serotypes in countries and territories of the Americas, 1995 – 2010 – 2023



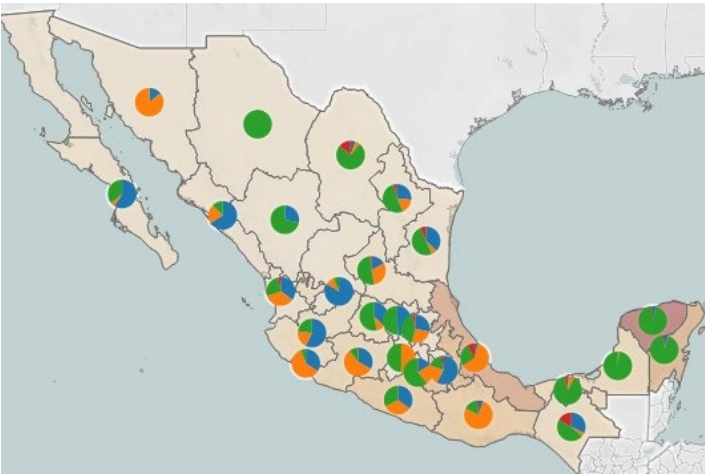
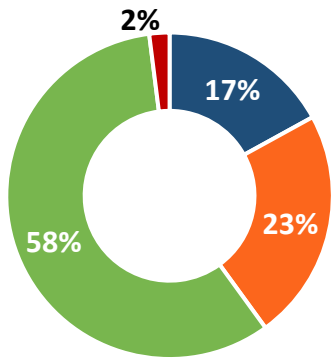
Distribution of dengue serotypes at subnational level, selected countries, 2023 EW46

- DENV1
- DENV2
- DENV3
- DENV4

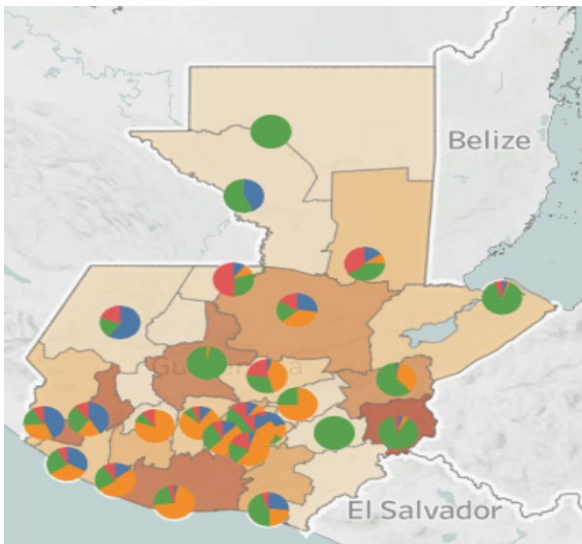
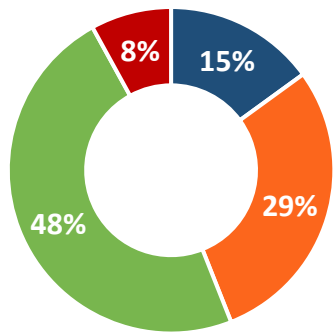
Costa Rica



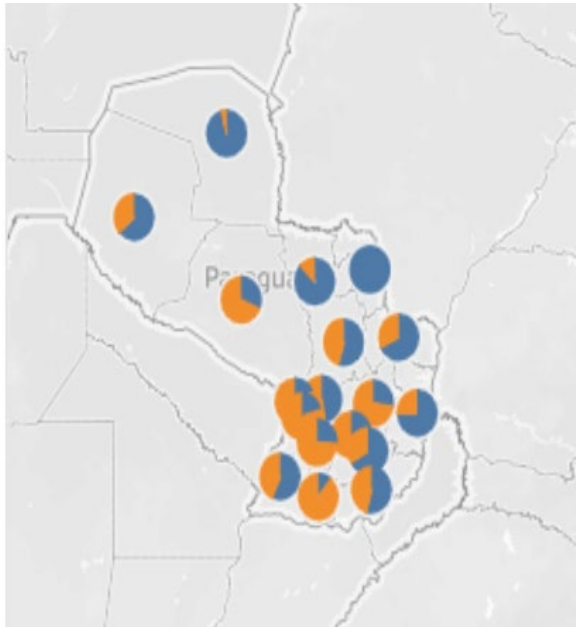
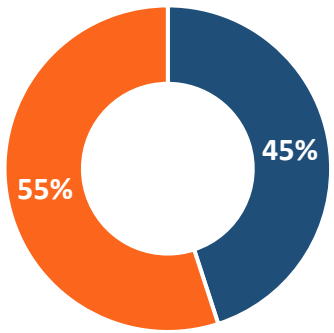
México



Guatemala



Paraguay





Collaborative Surveillance & the Arbovirus Information Platform





Collaborative Surveillance

"systematic strengthening of capacity and collaboration among diverse stakeholders...with the ultimate goal of enhancing public health intelligence and **improving evidence for decision-making.**"

PAHO



Source: WHO. Defining Collaborative Surveillance

<https://apps.who.int/iris/bitstream/handle/10665/367927/9789240074064-eng.pdf?sequence=1&isAllowed=y>

What do we want with the VCS?

Epidemiology

Entomology

Virology

Climatology

Sanitary Services

Data-based

decision-
making

PAHO



Two Spaces for Arboviral Surveillance in the Americas

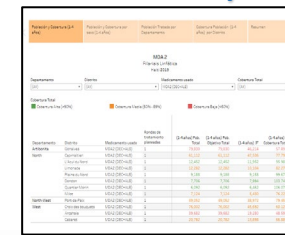
Data sources



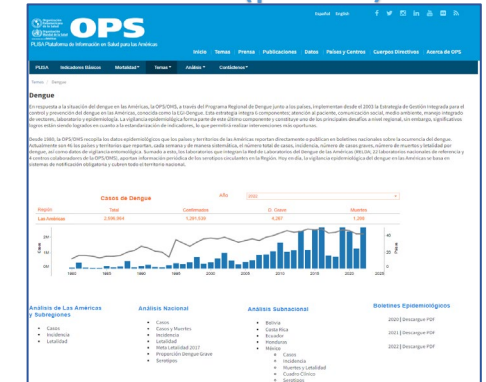
Consolidated databases



Data Analysis



PLISA (public)



PAHO/WHO Data - PLISA

Virtual Collaboration Spaces (private)



Millions of records processed weekly and available for analysis
>50,000,000 data points



Published data referenced worldwide



Español English



Home Topics Media Publications Data Countries and Centers Governing Bodies About PAHO

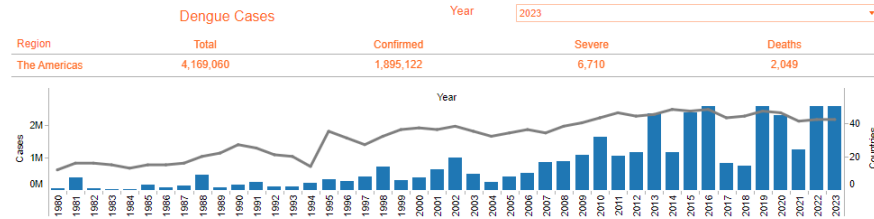
PLISA Core Indicators Mortality Topics Analysis Contact Us

Topics / Dengue

Dengue

Since 2003, and in response to the dengue situation in the Americas, the PAHO/WHO Regional Dengue Program, along with the countries in the Americas, implemented the Integrated Management Strategy for dengue prevention and control in the Americas (IMS-Dengue). This strategy integrates six components: patient care, social communication, environment, integrated vector management, laboratory and epidemiology. The epidemiological surveillance is part of this last component and represents one of the main challenges at Regional level, however, significant achievements are being made in terms of standardization of indicators, which will allow for timely interventions.

Since 1980, PAHO/WHO has collected epidemiological data regarding the occurrence of dengue that the countries and territories in the Americas have reported directly or have published in national bulletins. Currently, there are 46 countries and territories reporting, weekly and systematically, the number of dengue cases, incidence rate, number of severe cases, number of deaths and case fatality rate, as well as entomological surveillance data. Additionally, the laboratories that integrate the Dengue Laboratory Network of the Americas ("RELDA"); 22 national laboratories of reference and 4 collaborating centers of PAHO/WHO provide periodic information regarding the circulating serotypes in the Region. Nowadays, the epidemiologic surveillance of dengue in the Americas is based on a system of mandatory notification that covers all of the national territory.



The Americas Region and Subregions Analysis

- Cases
- Case Fatality Rate
- Incidence

Country Analysis

- Cases
- Cases and Deaths
- Case Fatality Rate
- Case Fatality Rate - 2025 Goal
- Incidence
- Serotypes
- Severe Dengue Proportion

Subnational Analysis

- Bolivia
- Costa Rica
- Ecuador
- Honduras
- Mexico
 - Cases
 - Clinical
 - Deaths and Case Fatality Rate

Epidemiological Bulletins

- 2020 | Download PDF
- 2021 | Download PDF
- 2022 | Download PDF

www.paho.org/PLISA



INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES



Surveillance des arboviroses
Guadeloupe, Martinique, Saint-Martin, Saint-Barthélemy

Point épidémiologique N°01/2022



WEEKLY BULLETIN

Communicable Disease Threats Report
Week 44, 30 - 5 November 2022

SCIENTIFIC DATA



疾病监测 DISEASE SURVEILLANCE
JIBING JIANCE
Volume 37, Number 10
October 2022

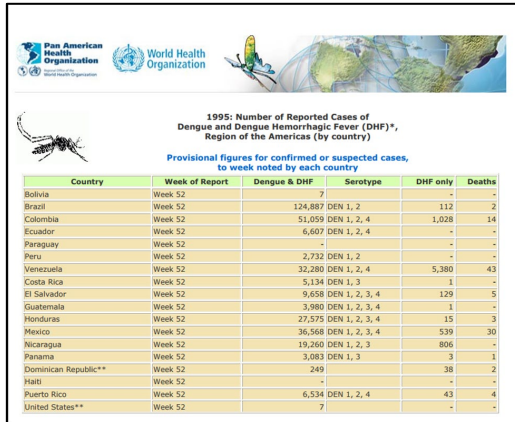


BOLETÍN INTEGRADO DE VIGILANCIA | EDICIÓN SEMANAL

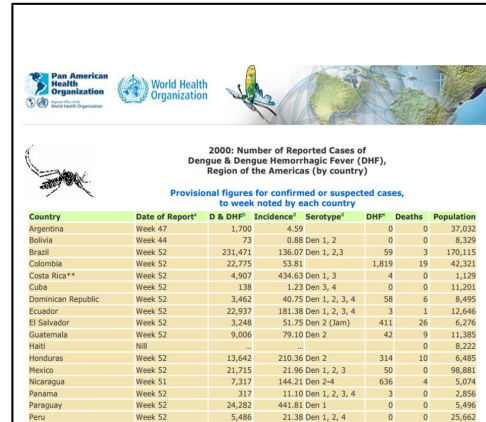


Modernization from a pdf format into an interactive format

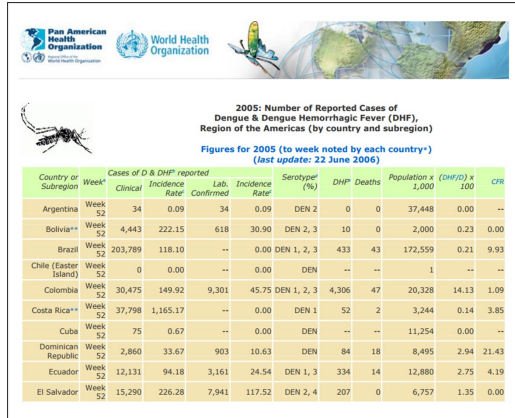
1995 - 1999



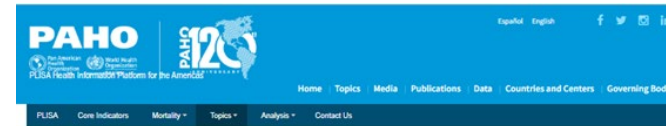
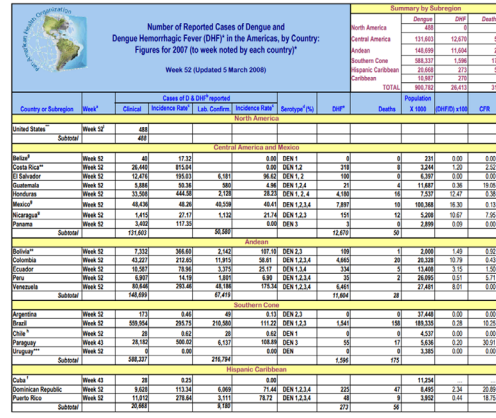
2000 - 2004



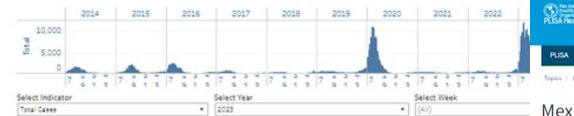
2005 - 2009



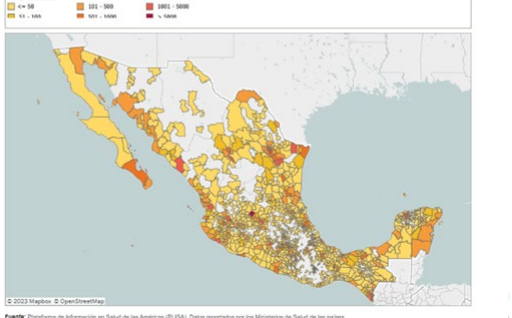
2009 - 2014



Bolivia - Dengue Cases



Mexico - Dengue Cases



What are VCS?

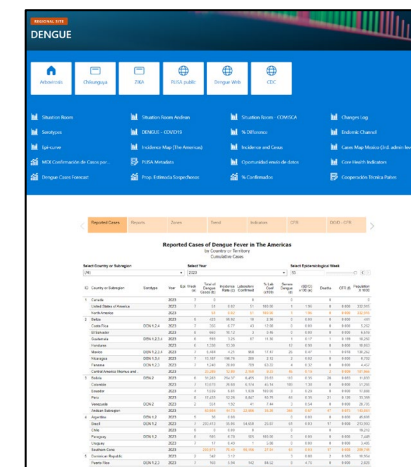
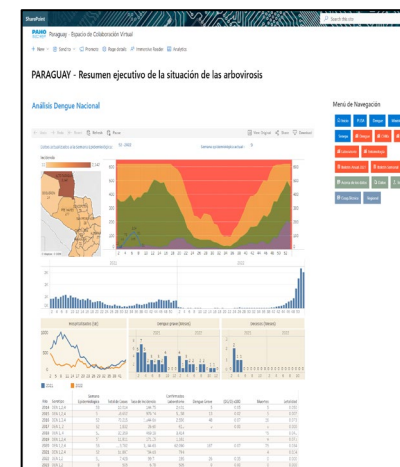
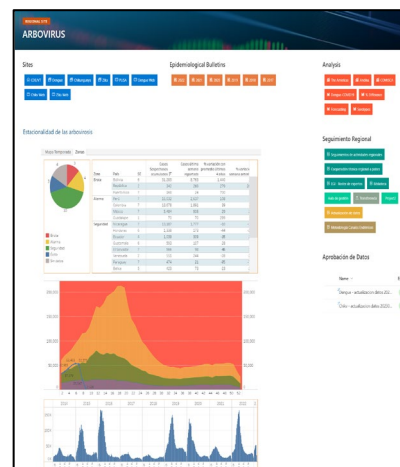
Virtual Collaboration Spaces (ECV) are the mechanism through which we operationalize collaborative surveillance. They facilitate communication, collaboration and technical cooperation of the different arbovirus work groups (Country/PAHO). They also facilitate the publication of information to support decision making on the adoption of control measures

Main characteristics

They are flexible and dynamic spaces that can easily modify their structure and content based on the needs of the users. They are constantly changing and developing.

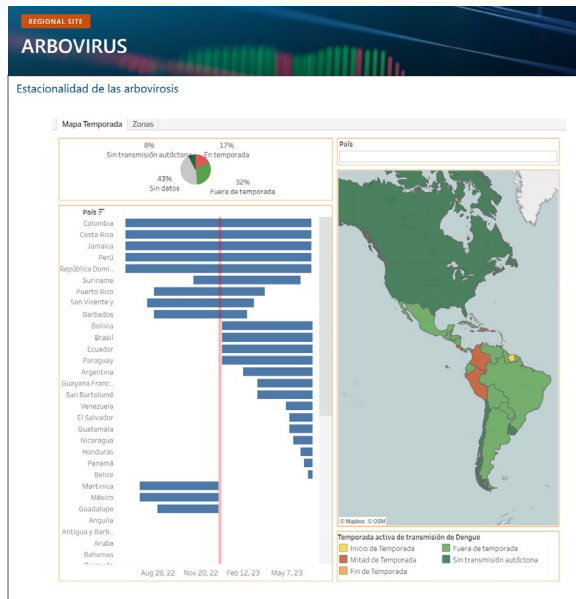
Tailored based on country needs

Developed with information security and confidentiality in mind. Transparency facilitates partners' trust

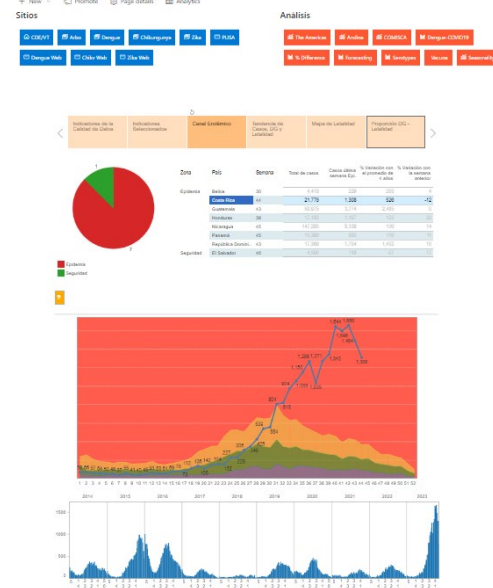


Different VCS for Different Users

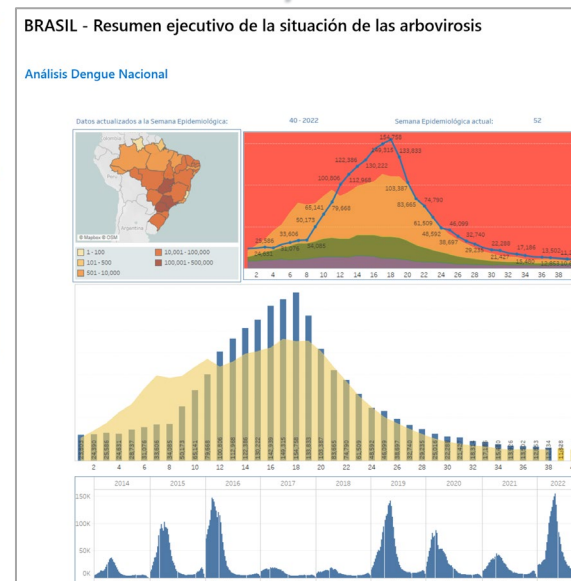
Regional Level



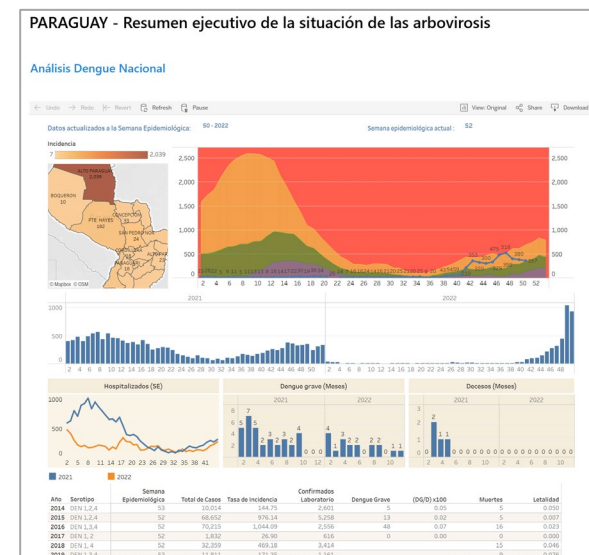
Sub-regional



Country level



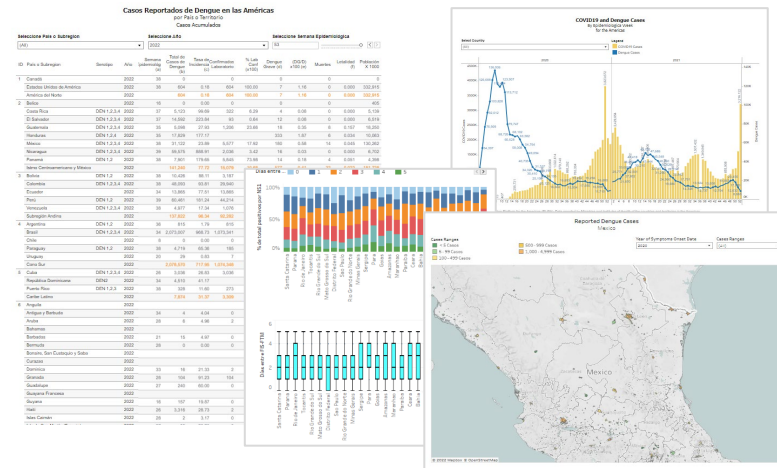
Sub-national level



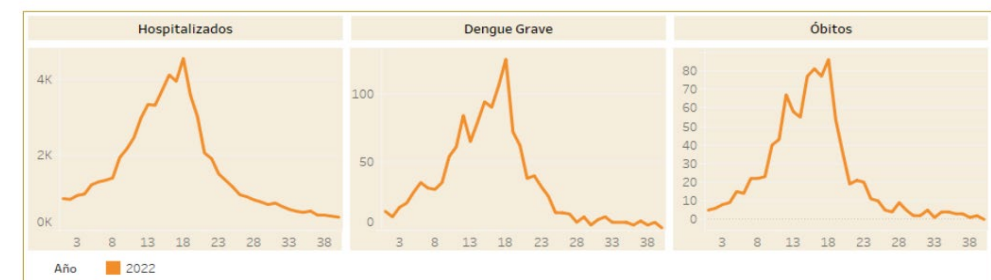
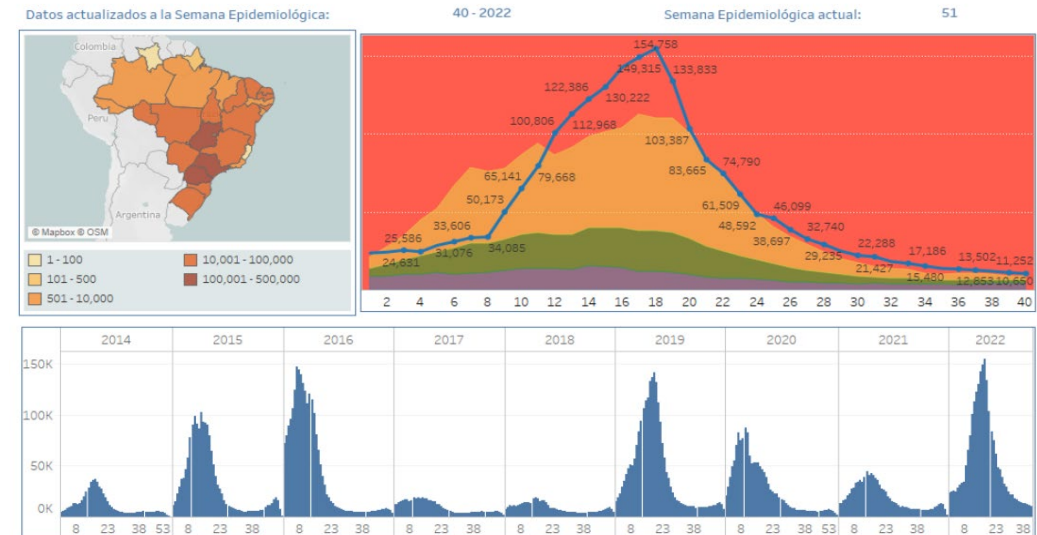
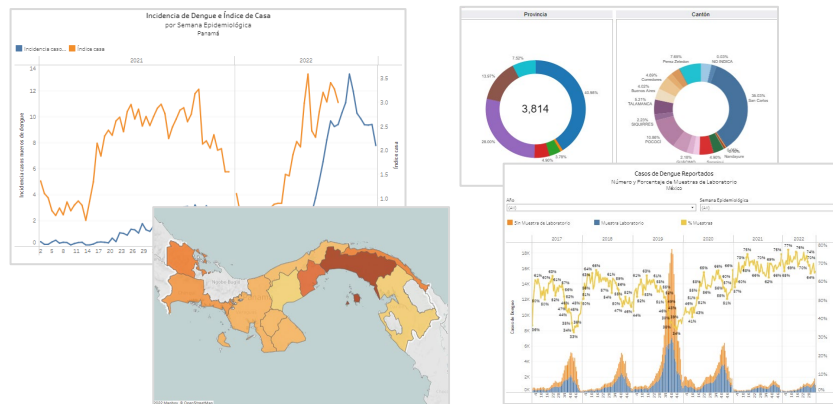
42 years of Dengue Data, 10 years of Chikungunya data, 8 years of Zika data available through interactive visualizations

More than 800 visualizations

Dashboards and “situation rooms”



Includes entomologic and virologic surveillance data

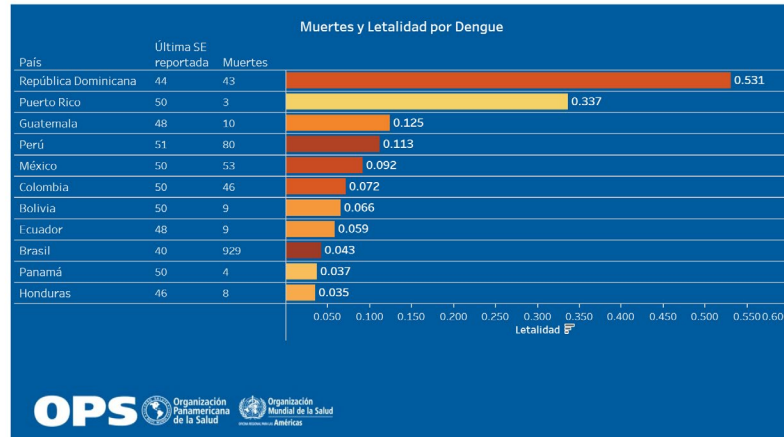


Año	Serotipo	Semana Epidemiológica	Total de Casos	Tasa de Incidencia	Confirmados Laboratorio	Dengue Grave	(DG/D) x100	Muertes	Letalidad
2014	DEN 1,2,3,4	40	538,077	266.33	213,980	666	0.12	397	0.074
2015	DEN 1,2,3,4	40	1,523,039	747.85	465,153	1,529	0.10	843	0.055
2016	DEN 1,2,3,4	40	2,142,496	1,022.34	1,019,348	904	0.04	692	0.032
2017	DEN 1,2,3,4	40	447,880	214.00	145,605	255	0.06	135	0.030
2018	DEN 1,2,3,4	40	385,944	183.03	153,457	290	0.08	145	0.038
2019	DEN 1,2,3,4	40	2,119,860	1,016.74	1,237,682	1,411	0.07	800	0.038
2020	DEN 1,2,3,4	40	1,395,986	669.55	752,589	810	0.06	544	0.039
2021	DEN 1,2	40	874,203	408.52	386,239	344	0.04	230	0.026
2022	DEN 1,2,3,4	40	2,182,229	1,019.77	1,141,264	1,364	0.06	929	0.043

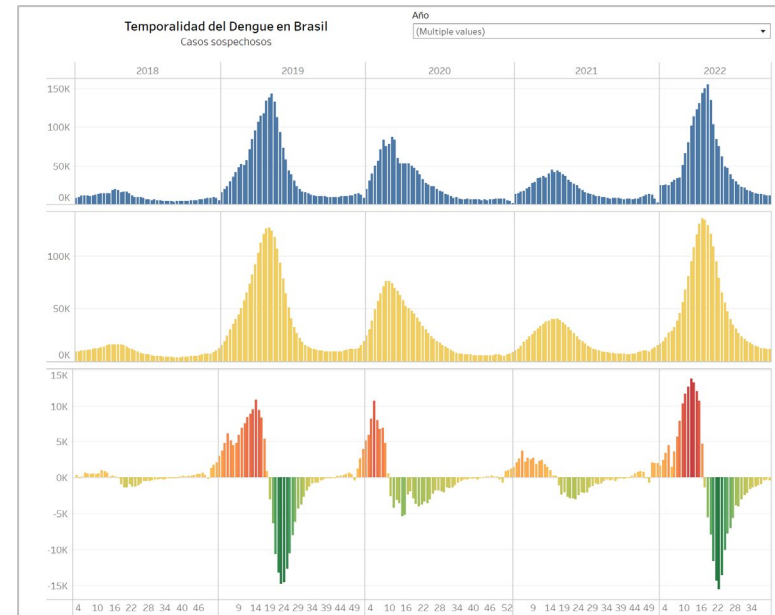


Special Analyses within the VCS

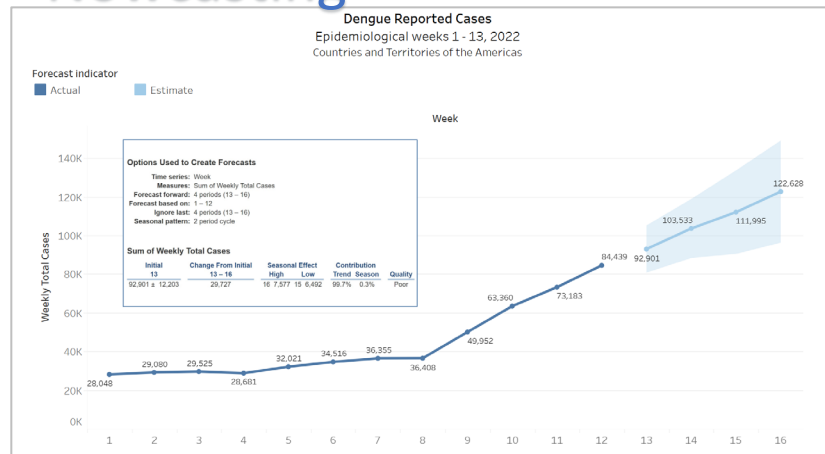
CFR



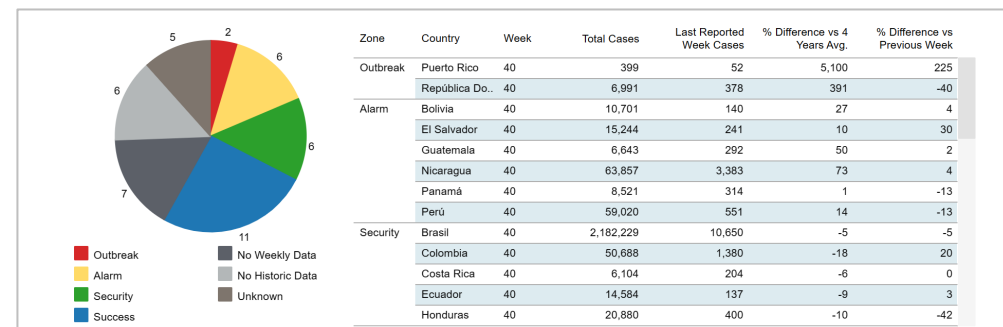
Seasonality



Nowcasting



Situation Rooms

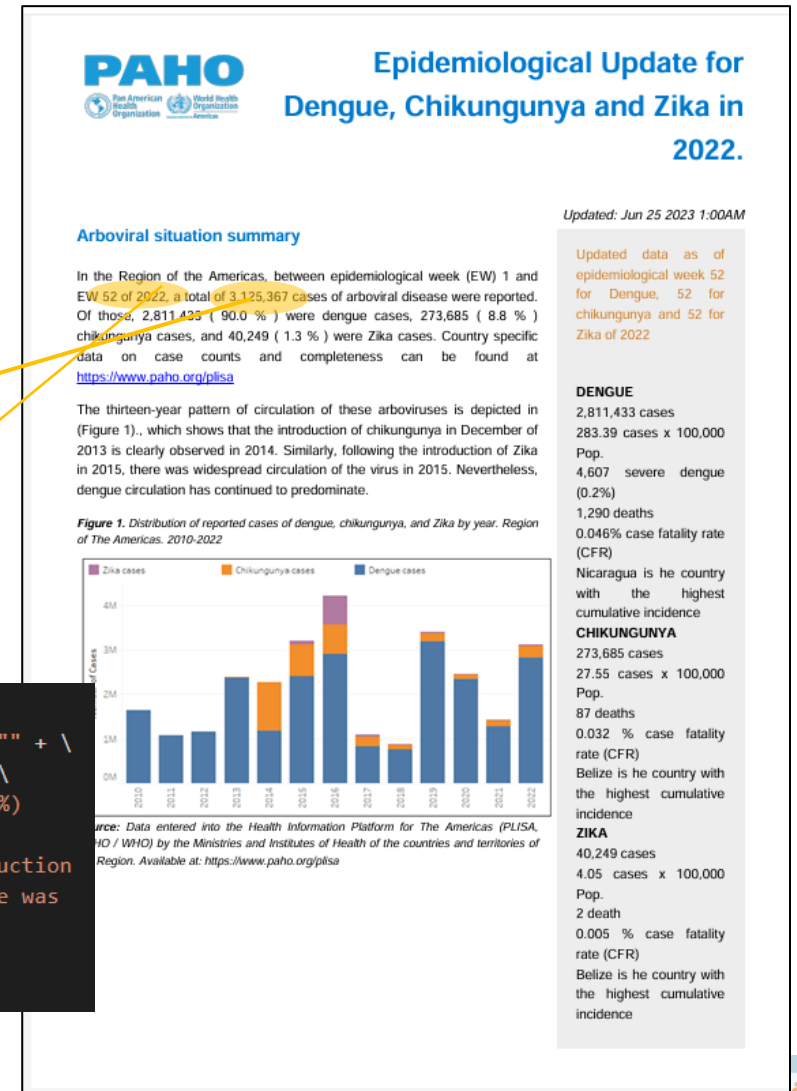


The **Automated Epidemiological Bulletin** contains surveillance data on dengue, chikungunya and Zika in the Americas and is the most visited publication within the ARBO portal

The text, figures and images are generated completely automatically and in real time

```
<h2 style="color:#007acc">Situation summary</h2>
<p>In the Region of the Americas, between epidemiological week (EW) 1 and EW 53 of "" + df.values[3][2] + "", a total of "" + \
f'{int(df.values[4][2]):,}' + "" cases of arboviral disease were reported. Of those, "" + f'{int(df.values[6][2]):,}' + \
"" (" + df.values[68][2] + "%) were dengue cases, "" + f'{int(df.values[35][2]):,}' + "" (" + df.values[69][2] + "%)
chikungunya cases, and "" + f'{int(df.values[51][2]):,}' + "" (" + df.values[70][2] + "%) were Zika cases.
</p><p>The thirteen-year pattern of circulation of these arboviruses is depicted in (Figure 1), which shows that the introduction
of chikungunya in December of 2013 is clearly observed in 2014. Similarly, following the introduction of Zika in 2015, there was
widespread circulation of the virus in 2015. Nevertheless, dengue circulation has continued to predominate.</p>
<div id="images">
<a href="https://ais.paho.org/ha_viz/Arbo/Arbo_Bulletin_Viz.asp" target="_blank">
```

HTML code



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World Health
Organization
Regional Office for the Americas

<https://www.paho.org/data/index.php/es/temas/indicadores-dengue/boletin-anual-arbovirosis-2022.html>



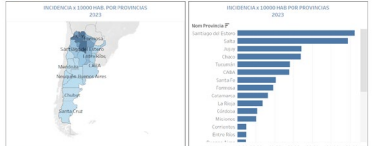
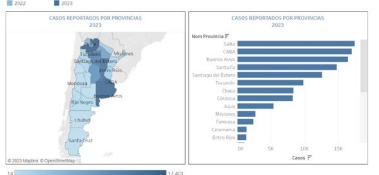
Argentina

ARGENTINA - Resumen ejecutivo de la situación de las arbovirosis

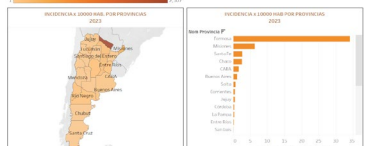
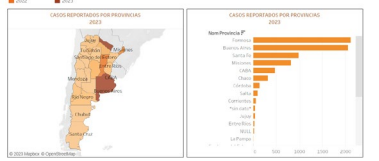


Ver mapa de Argentina

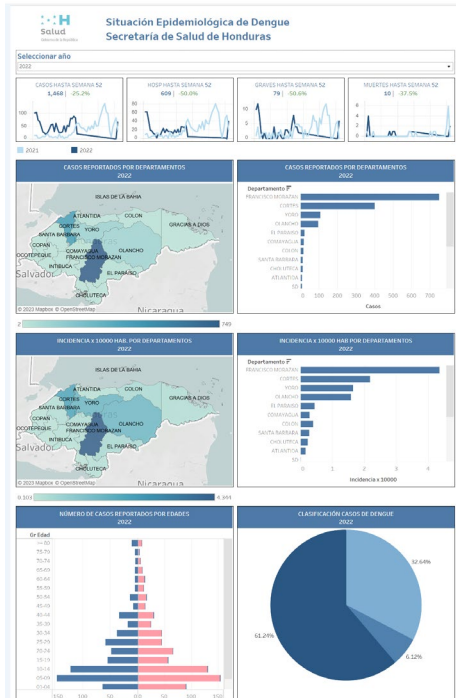
ANÁLISIS NACIONAL DE DENGUE POR AÑO REPUBLICA DE ARGENTINA



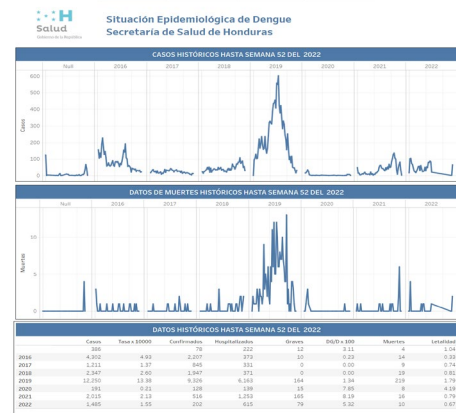
ANÁLISIS NACIONAL DE CHIKUNGUNIA POR AÑO REPUBLICA DE ARGENTINA



Honduras



Resumen Histórico | Análisis Geográfico | Casos por Departamento | Curvas Epi



DATOS HISTÓRICOS HASTA SEMANA 52 DEL 2022

Año	Casos	Tasa x 100,000	Cumulativo	Porcentaje	Reportado	Porcentaje	Reportado	Porcentaje	Reportado
2016	380	4.93	2,207	0	222	12	3.11	4	1.04
2017	1,212	1.37	945	351	20	1.23	14	0.74	0.74
2018	2,247	2.40	1,247	371	20	1.00	19	0.82	0.82
2019	12,210	13.38	9,326	6,583	184	1.34	219	1.79	1.79
2020	181	0.21	181	181	15	1.85	8	4.49	4.49
2021	2,113	2.13	1,113	143	9	1.19	10	0.79	0.79
2022	1,485	1.55	202	641	76	1.32	11	0.87	0.87

Guatemala

Análisis de la circulación de serotipos de dengue

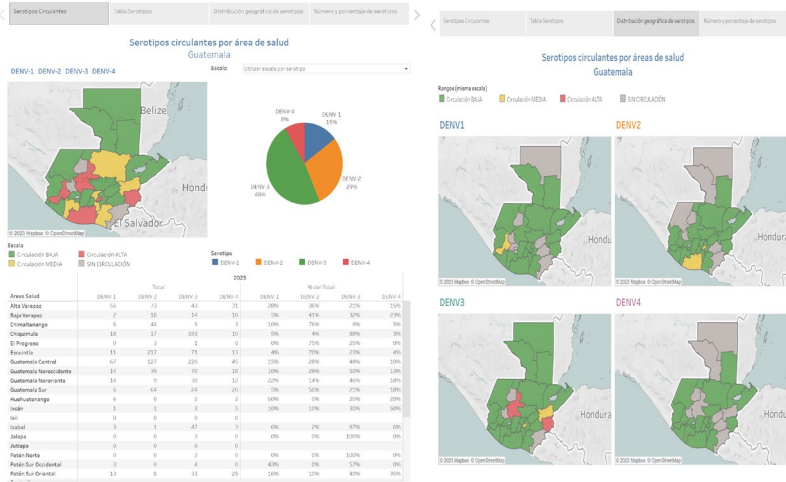
Datos de **serotipos circulantes de dengue** actualizados a la semana epidemiológica 35 del 2023

En el presente análisis estadístico descriptivo, se evaluó la circulación de los serotipos de dengue en las áreas de salud de Guatemala. Se utilizaron los datos proporcionados, los cuales indican el número de muestras positivas y el número de áreas con circulación de cada serotipo, así como el número total de áreas de salud.

De acuerdo a los resultados obtenidos, se identificaron cuatro serotipos de dengue en las áreas de salud evaluadas. El serotipo DENV-3 fue el que presentó la mayor prevalencia, con un total de 1528 muestras positivas y una presencia en 26 áreas de salud. Le siguió el serotipo DENV-2, con 922 muestras positivas y una circulación en 22 áreas de salud. El serotipo DENV-1 también mostró una presencia significativa, con 469 muestras positivas y una circulación en 22 áreas de salud. Por último, el serotipo DENV-4 presentó la menor prevalencia, con 267 muestras positivas y una circulación en 20 áreas de salud.

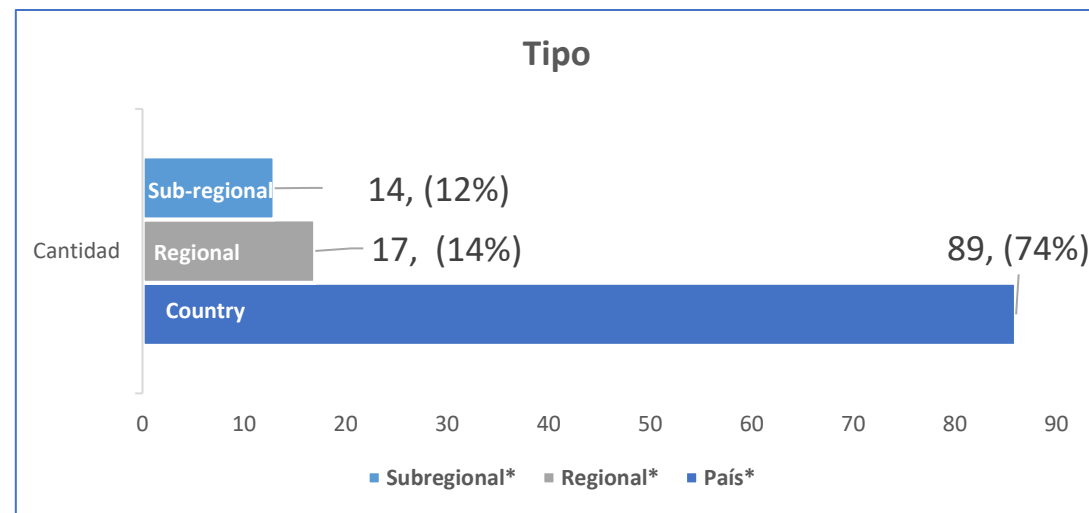
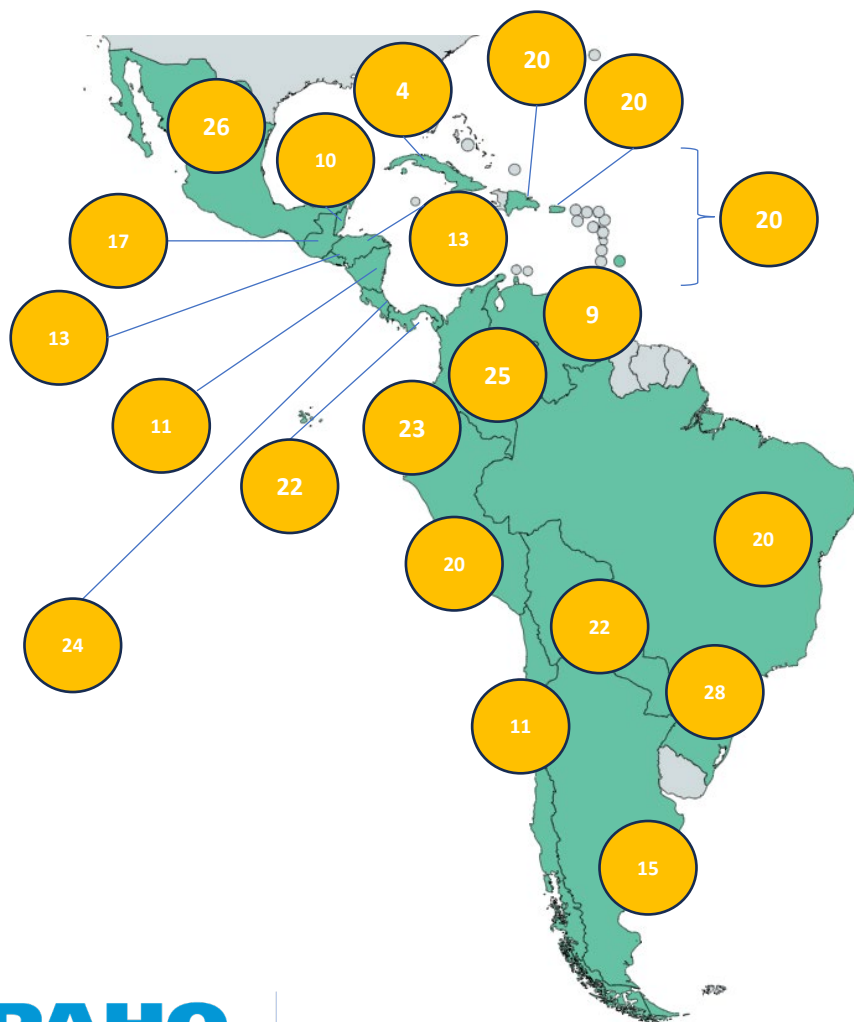
Al analizar los porcentajes de áreas de salud para cada serotipo con respecto al total de áreas de salud evaluadas, se observa que el serotipo DENV-3 está presente en aproximadamente el 50% de las áreas de salud, seguido por el serotipo DENV-2 y DENV-1, ambos presentes en alrededor del 79% de las áreas de salud. Por otro lado, el serotipo DENV-4 se encuentra en aproximadamente el 69% de las áreas de salud.

En conclusión, los hallazgos epidemiológicos indican que el serotipo de dengue con mayor prevalencia en las áreas de salud de Guatemala es el DENV-3, seguido por el DENV-2, DENV-1 y DENV-4. Estos resultados son de gran importancia para la toma de decisiones en salud pública, ya que permiten identificar los serotipos de dengue más frecuentes y enfocar los esfuerzos de prevención y control en las áreas de mayor circulación.



Technical cooperation activities 2023 in Arboviral diseases

Number of technical cooperation activities by country



Country*: Individual activities with country Ministries of Health.

Regional*: Activities that involve all countries in the Region and Ministries of Health.

Sub-regional*: Activities with CARPHA, SE-COMISCA, Merco-Sur, ORAS-CONHU.

Lessons Learned from Implementation



Culture of trust



All should benefit



Integrated Analysis Catalyzes Functional Integration



"Come as you are"



Successful as long as it's useful



Sustainability through transversality



Automation Promotes Standardization



Start in places with the highest likelihood of success

PAHO

The Opportunity

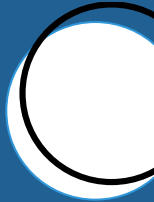
- **Modernize and automate** surveillance processes that are currently are still manual and obsolete.
- Use **all available collected surveillance data (epi, Clinical, lab, entomological)** to better understand transmission dynamics and apply prevention and control measures most effectively
- Strengthen capacities **to improve data quality, analysis, integration, and decision-making** in prevention and control within national and subnational technical teams
- Give continuity and sustainability to **new modalities of technical cooperation**





Thank you
Gracias
Obrigada
Merci

dossantt@paho.org



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