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19º CONGRESO IBEROAMERICANO DE BANCOS DE SANGRE, MEDICINA TRANSFUSIONAL Y TERAPIA CELULAR

CONECTADOS CON EL PACIENTE

Octubre 31 a Noviembre 3 del 2024
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INFECCIONES EMERGENTES

JOSÉ EDUARDO LEVI

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JOSÉ EDUARDO LEVI

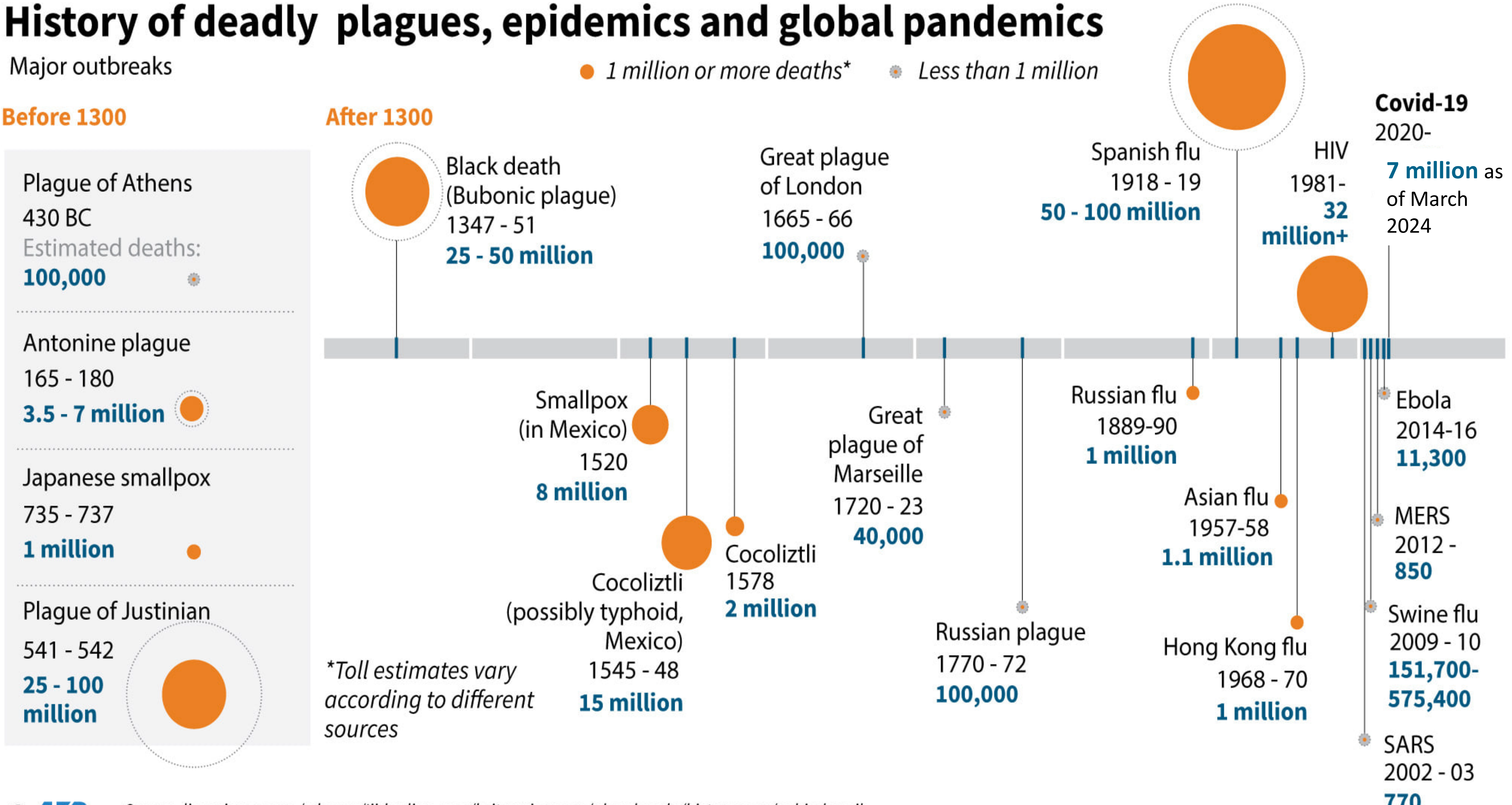
- **Biólogo**
- **Doctor en Virología**
- **Investigador del Instituto de Medicina Tropical Universidad de São Paulo, Brasil**
- **Director Regional América Latina, Sociedad Internacional de Transfusión Sanguínea (ISBT), 2022-2026**
- **Coordinador del Comité de Enfermedades Transmissibles por la Sangre de la Asociación Brasileña de Hematología y Hemoterapia (ABHH)**
- **Coordinador del Comité de Diagnóstico Molecular de la Sociedad Brasileña de Patologia Clínica (SBPC)**
- **Superintendente de Investigación y Desarrollo dela red Dasa, Brasil**

JOSÉ EDUARDO LEVI

Potential conflicto de interese: Recibí honorarios relativos a ponencias científicas das empresas Grifols y Roche nos últimos dos años.

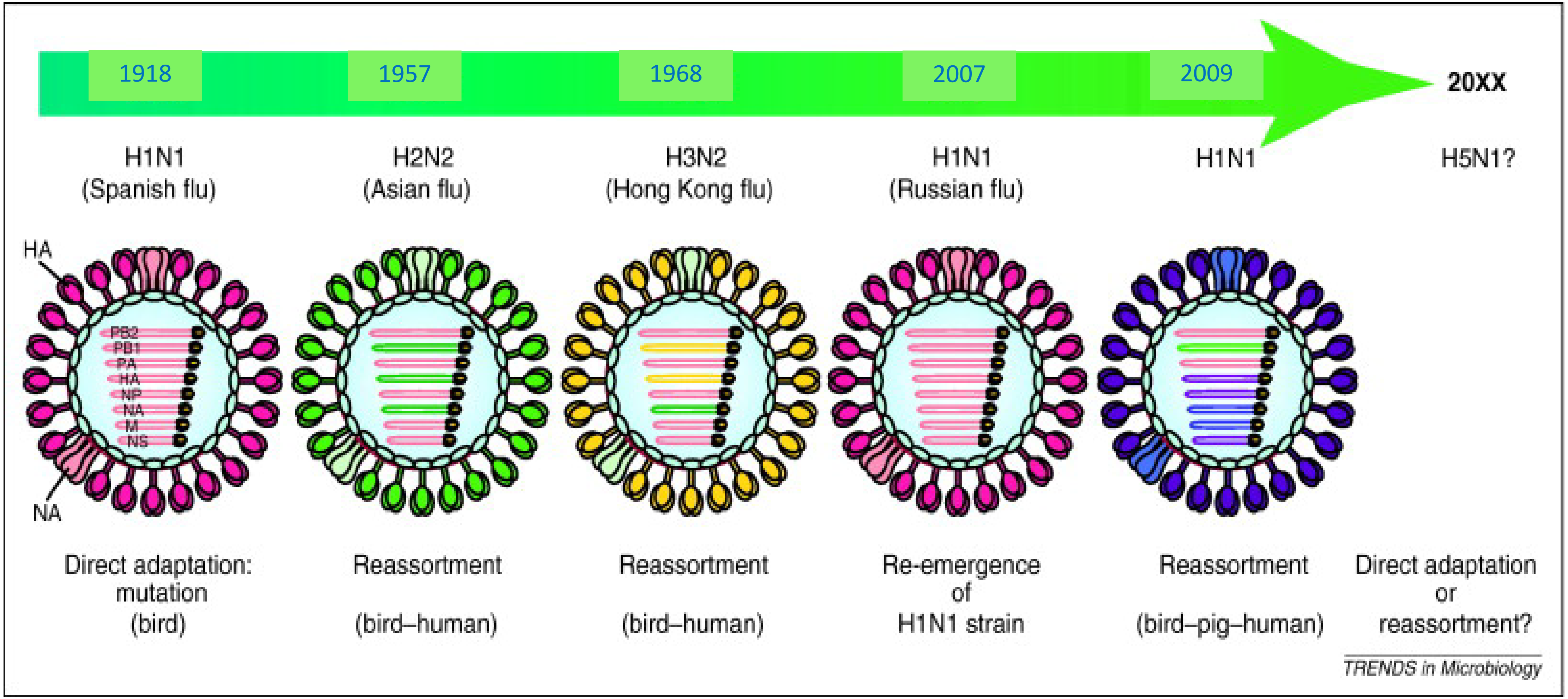
History of deadly plagues, epidemics and global pandemics

Major outbreaks



Source: livescience.com/cdc.gov/ljidonline.com/britannica.com/ph.ucla.edu/history.com/ncbi.nlm.nih

Pandemias de Influenza



Influenza A H5N1

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Highly pathogenic avian influenza A (H5N1) in marine mammals and seabirds in Peru

Leguia M, et al.Nat Commun 2023;14(1):5489.

Outbreak of highly pathogenic avian influenza A(H5N1) clade 2.3.4.4b virus in cats, Poland, June to July 2023

Katarzyna Domańska-Blicharz, et al. Euro Surveill 2023;28(31):2300366

Highly Pathogenic Avian Influenza Virus A(H5N1) Clade 2.3.4.4b Infection in Free-Ranging Polar Bear, Alaska, USA

Stimmelmayr R, et al. Emerg Infect Dis 2024;30(8):1660-1663

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Influenza A H5N1

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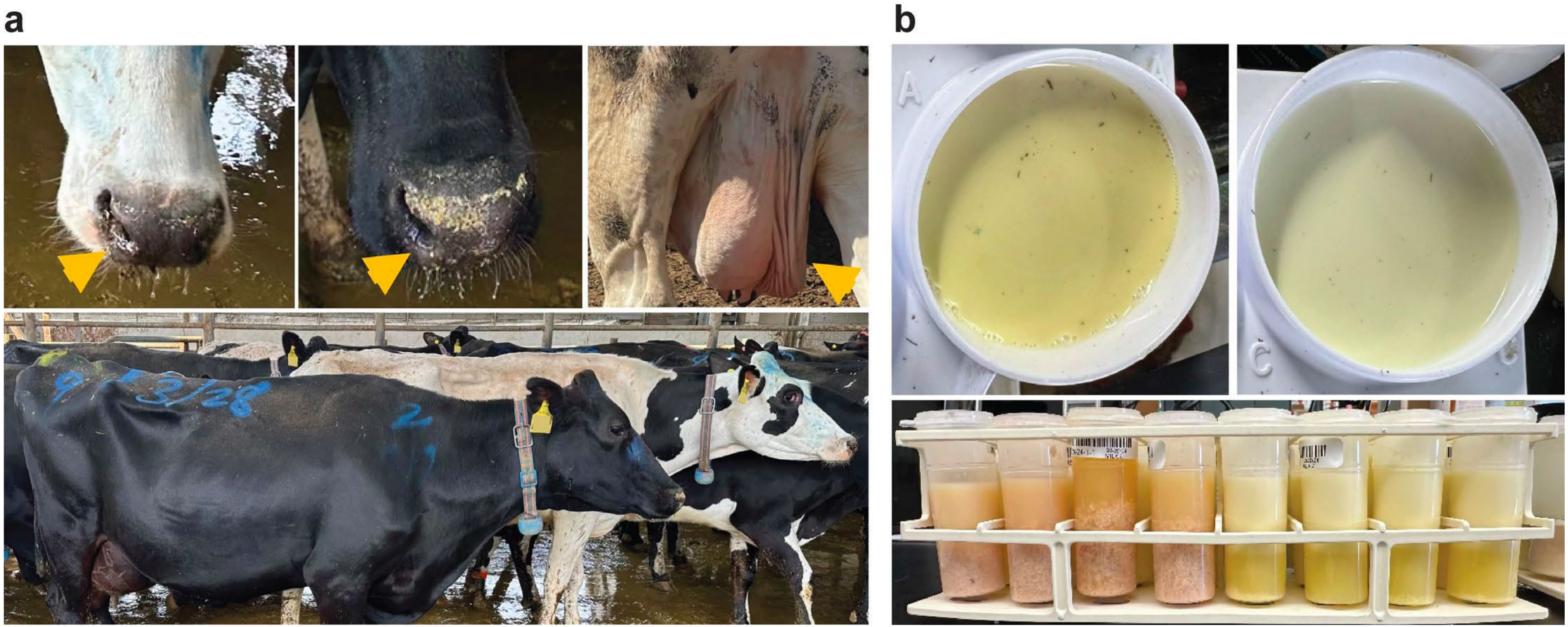

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Caserta, L. C. et al. Spillover of highly pathogenic avian influenza H5N1 virus to dairy cattle. Nature 2024, Jul 25.

Sensitive Detection Assays for Influenza RNA Do Not Reveal Viremia in US Blood Donors

The Journal of Infectious Diseases 2012;205:886–94

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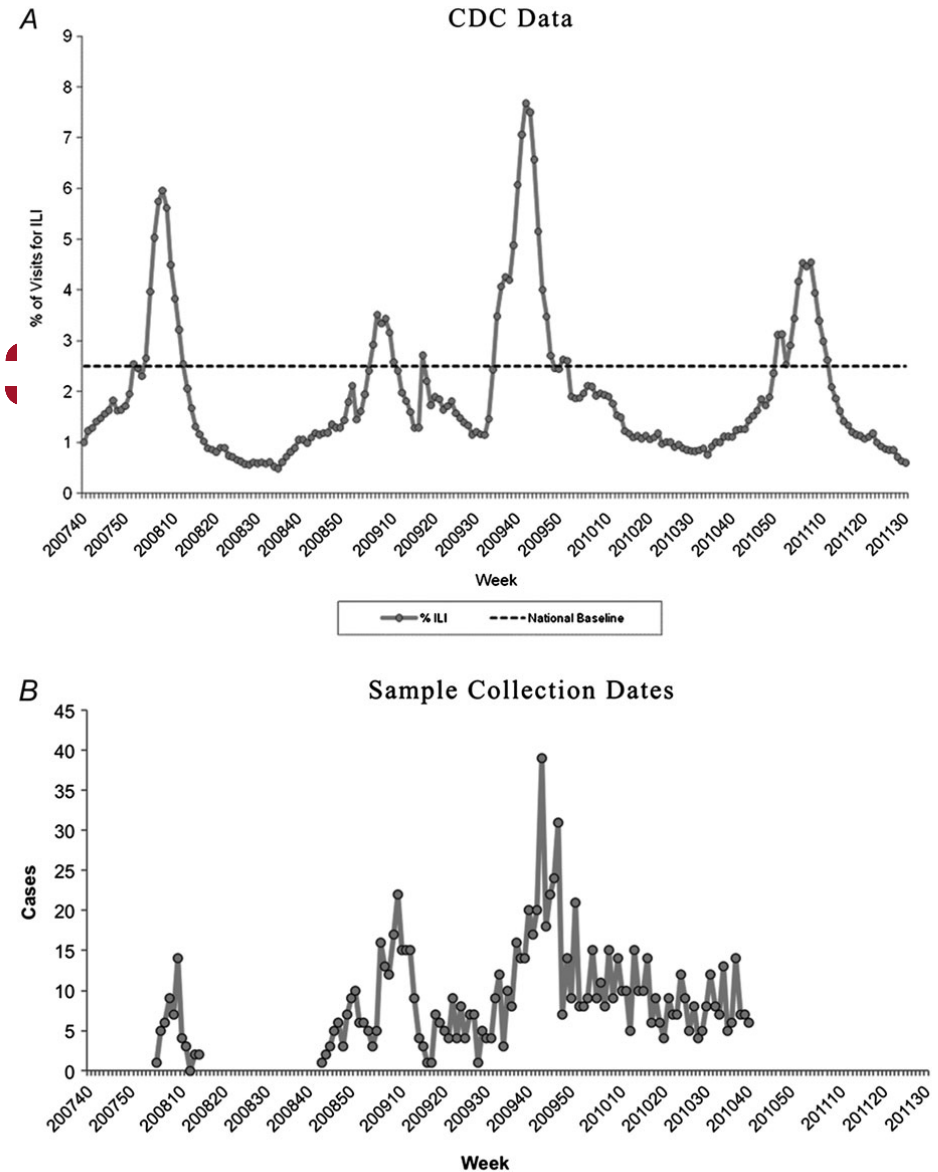
478 random donors (2000–200
1004 PDI April 2009–2010



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Risk for Transmission of Pandemic (H1N1) 2009 Virus by Blood Transfusion. Emerging Infectious Diseases 2010;16:722-3.

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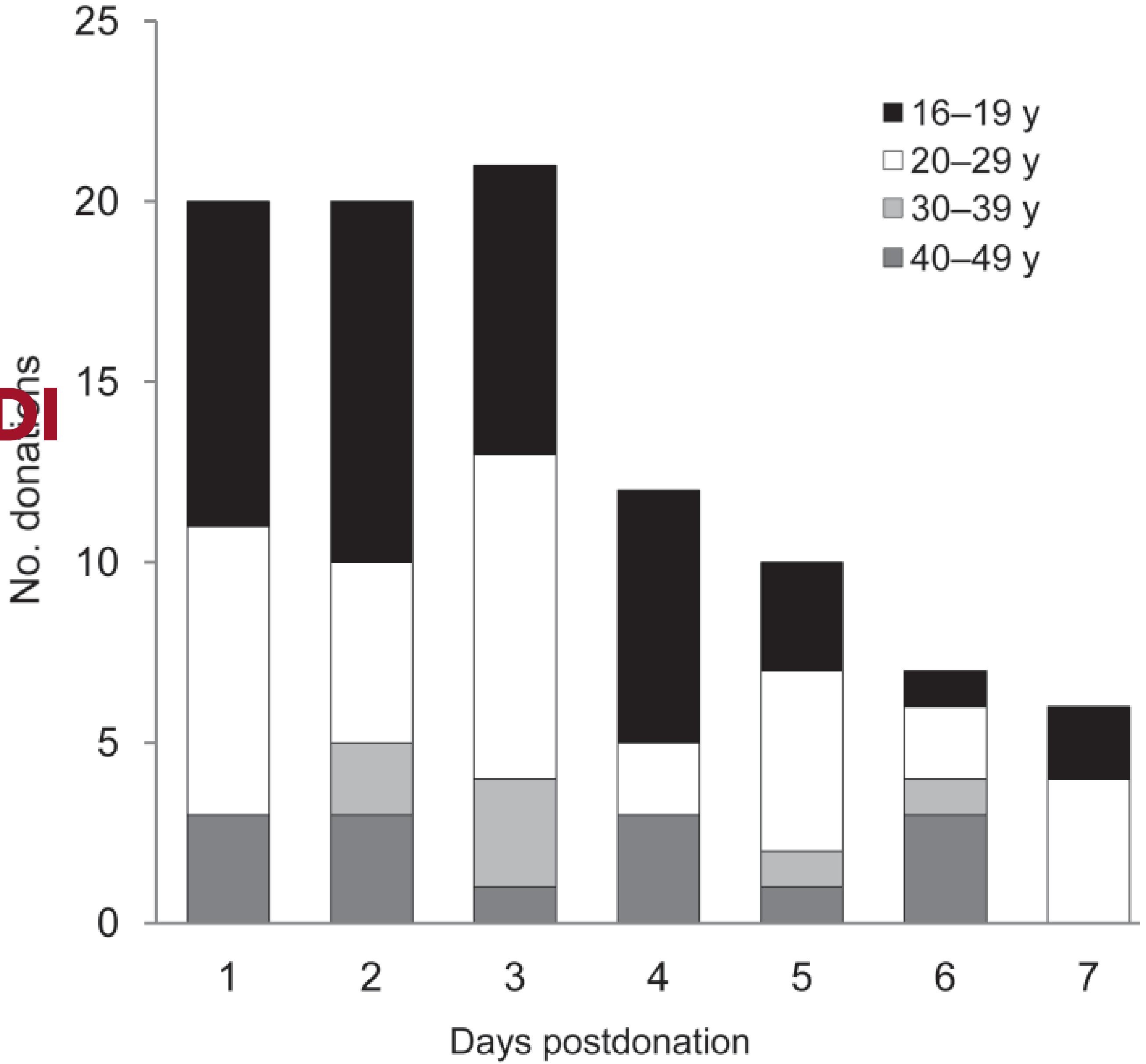
96 donantes, PDI
Jun – Nov 2009



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No evidence of SARS-CoV-2 transfusion transmission despite RNA detection in blood donors showing symptoms after donation

blood® 2020;136:1888-91.

268 PDIs, 3 SARS-CoV-2 RNA+ (1.1%)

Table 1. Results of virologic investigations of the 3 SARS-CoV-2–positive blood donations

	Detection by rtPCR on neat plasma, n positive/n tested (Ct)					Detection by rtPCR after UC, n positive/n tested (Ct)						
	R-GENE PCR1*		R-GENE PCR2*	NRC rtPCR†		R-GENE PCR1		R-GENE PCR2	RT-PCR‡/ sequencing		Virus culture	
No. of donation	NC	RdPd	E	RdPd target 1	RdPd target 2	NC	RdPd	E	Plasma	After UC	Plasma	After i-UC
1	POS 1/1 (37.9)	NEG 0/1	NEG 0/1	NEG 0/4	Pos 2/4 (37.0; 37.1)	POS 1/1 (35.3)	POS 1/1 (41.6)	NEG O/1	NEG	POS 1/1	NEG	NEG
2	POS 1/1 (37.5)	NEG 0/1	NEG 0/1	POS 1/3 (39.3)	POS 1/3 (37.4)	POS 1/2 (37.0)	NEG 0/2	NEG 0/1	NEG	POS 1/2	NEG	NEG
3	POS 1/1 (38.0)	NEG 0/1	POS 1/1 (38.4)	NEG 0/2	NEG 0/2	POS 1/2 (38.3)	NEG 0/2	POS 1/1 (42.2)	NEG	NEG 0/2	NEG	NEG

E, envelope protein; Ct, cycle threshold; i-UC, ultracentrifugation on iodixanol pad (10.5 mL plasma); NEG, negative; NC, nucleocapsid gene; POS, positive; RdPd, polymerase gene; UC, ultracentrifugation (12 mL plasma).

+ 43 trace-backs al negative for SARS-CoV-2 RNA

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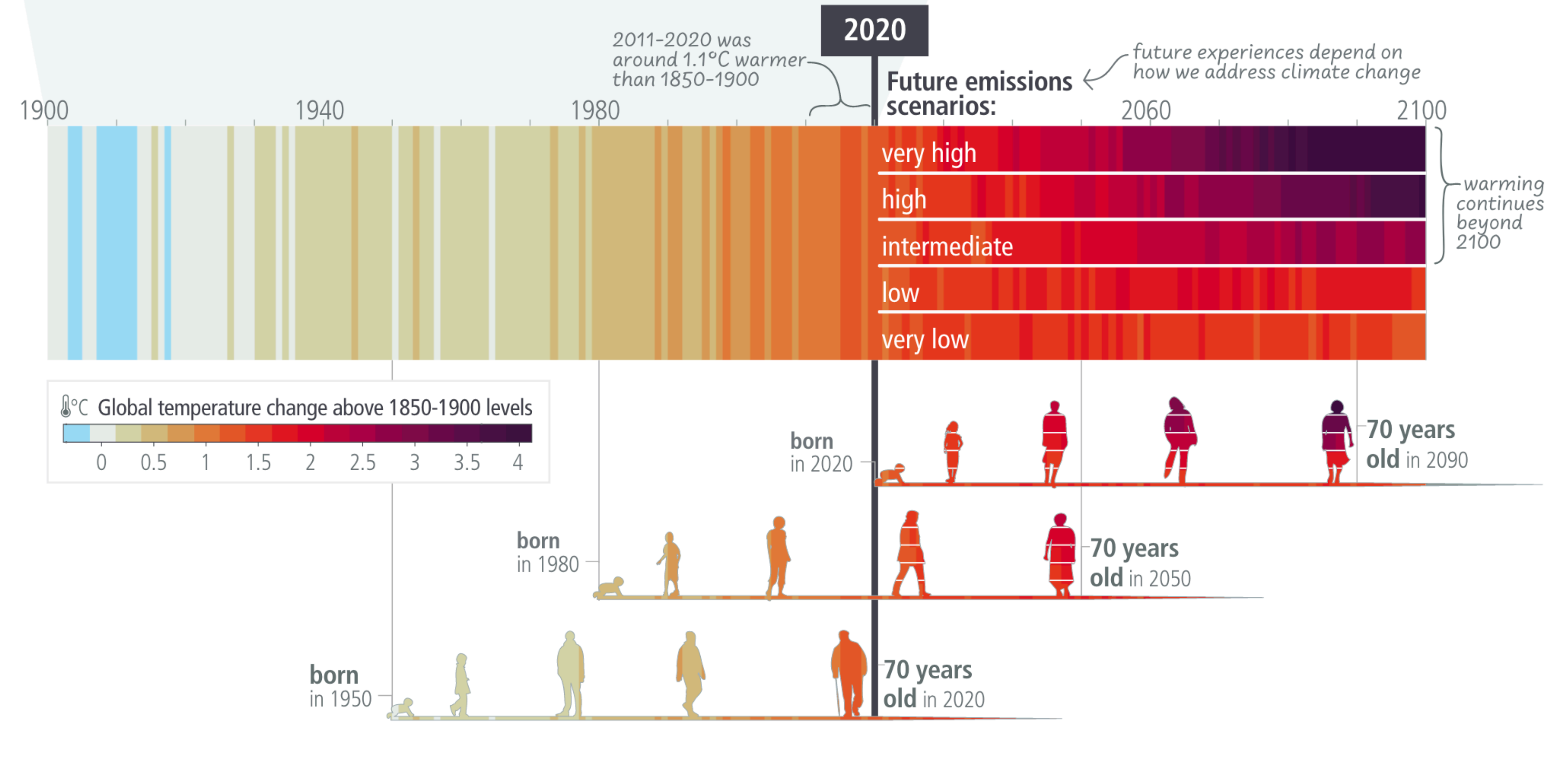
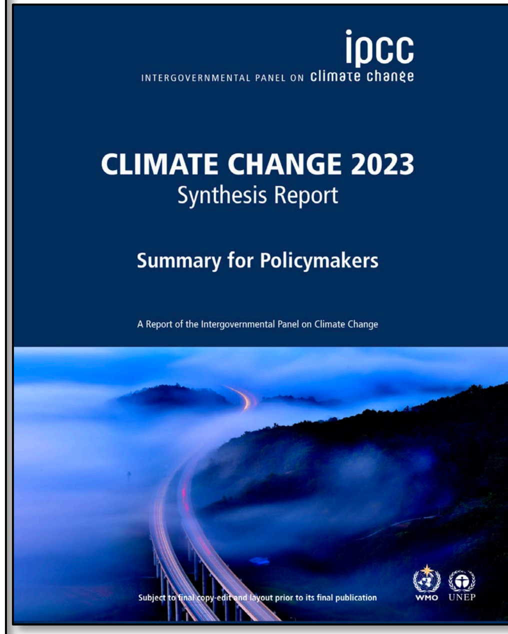
c) The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term





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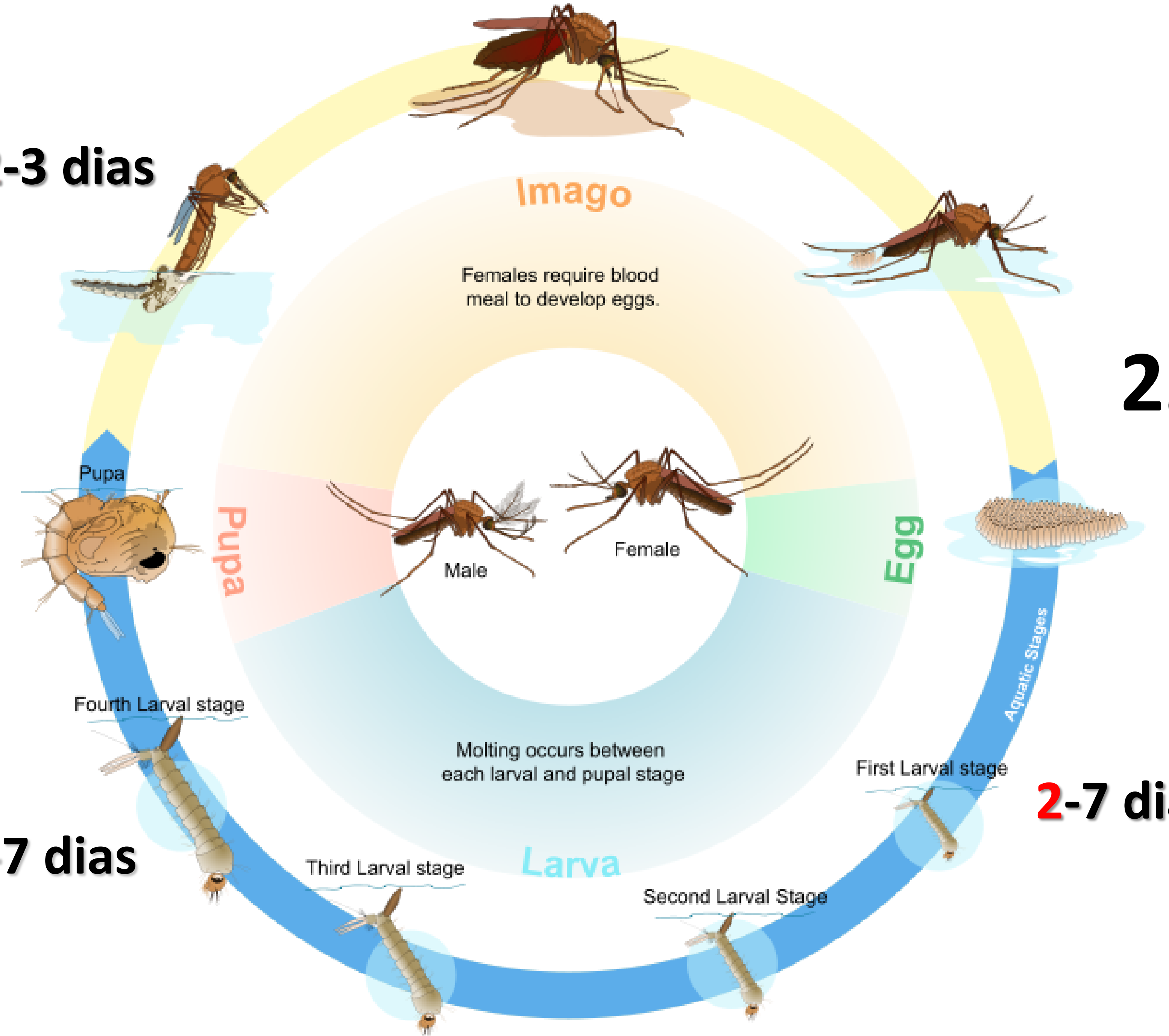

2-3 dias

22ºC-32ºC

2-7 dias

4-7 dias

ARTHROPOD BORNE VIRUSES

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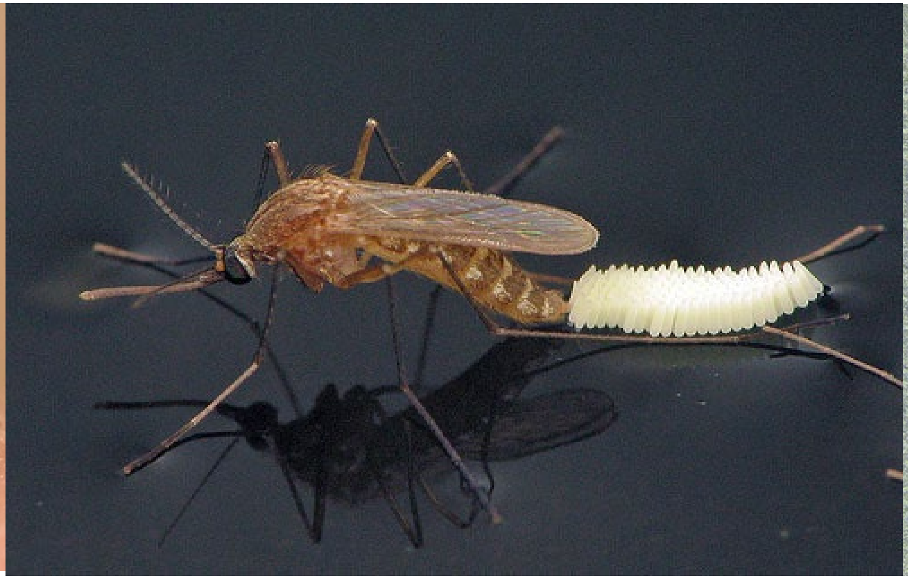
Aedes aegypti

Culex quinquefasciatus



Ixodes sp

Phlebotomous = "Sandfly"

Culicoides = Biting Midges

Sabethes sp

CDC | CDC Home | Search | Health Topics A-Z

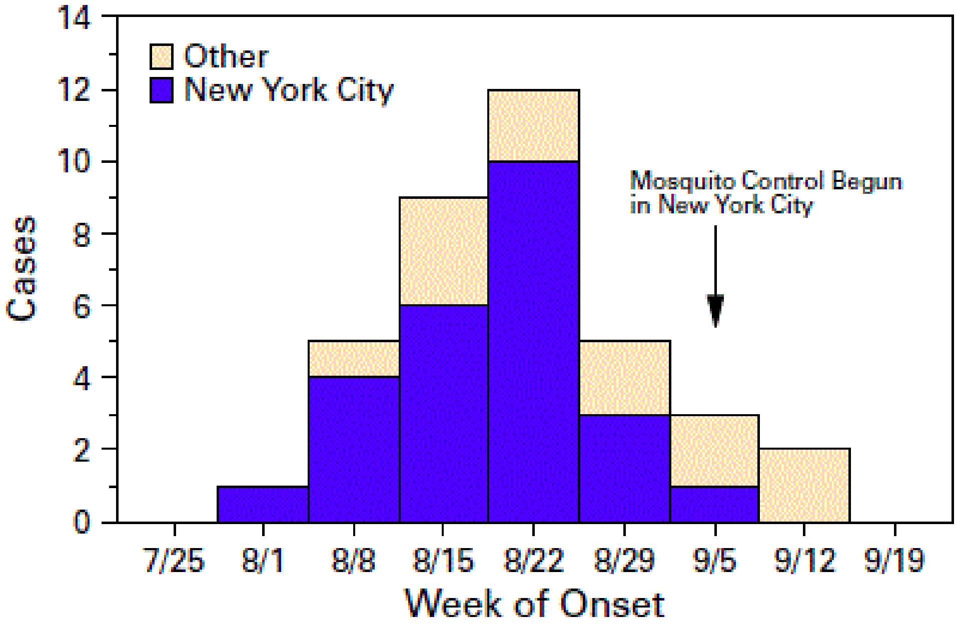
MMWR

Weekly

October 01, 1999 / 48(38);845-9

Outbreak of West Nile-Like Viral Encephalitis -- New York, 1999

FIGURE 1. Seropositive cases of West Nile-like virus, by week of onset — New York, 1999



The New England Journal of Medicine

VOLUME 344 JUNE 14, 2001 NUMBER 24

THE OUTBREAK OF WEST NILE VIRUS INFECTION IN THE NEW YORK CITY AREA IN 1999

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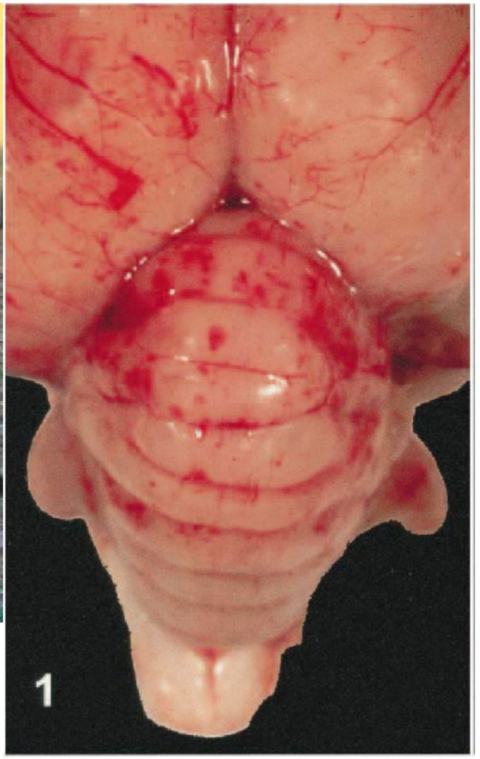

Vet Pathol 37:208–224 (2000)

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Transmission of West Nile Virus from an Organ Donor to Four Transplant Recipients

N Engl J Med 2003;348:2196-203.

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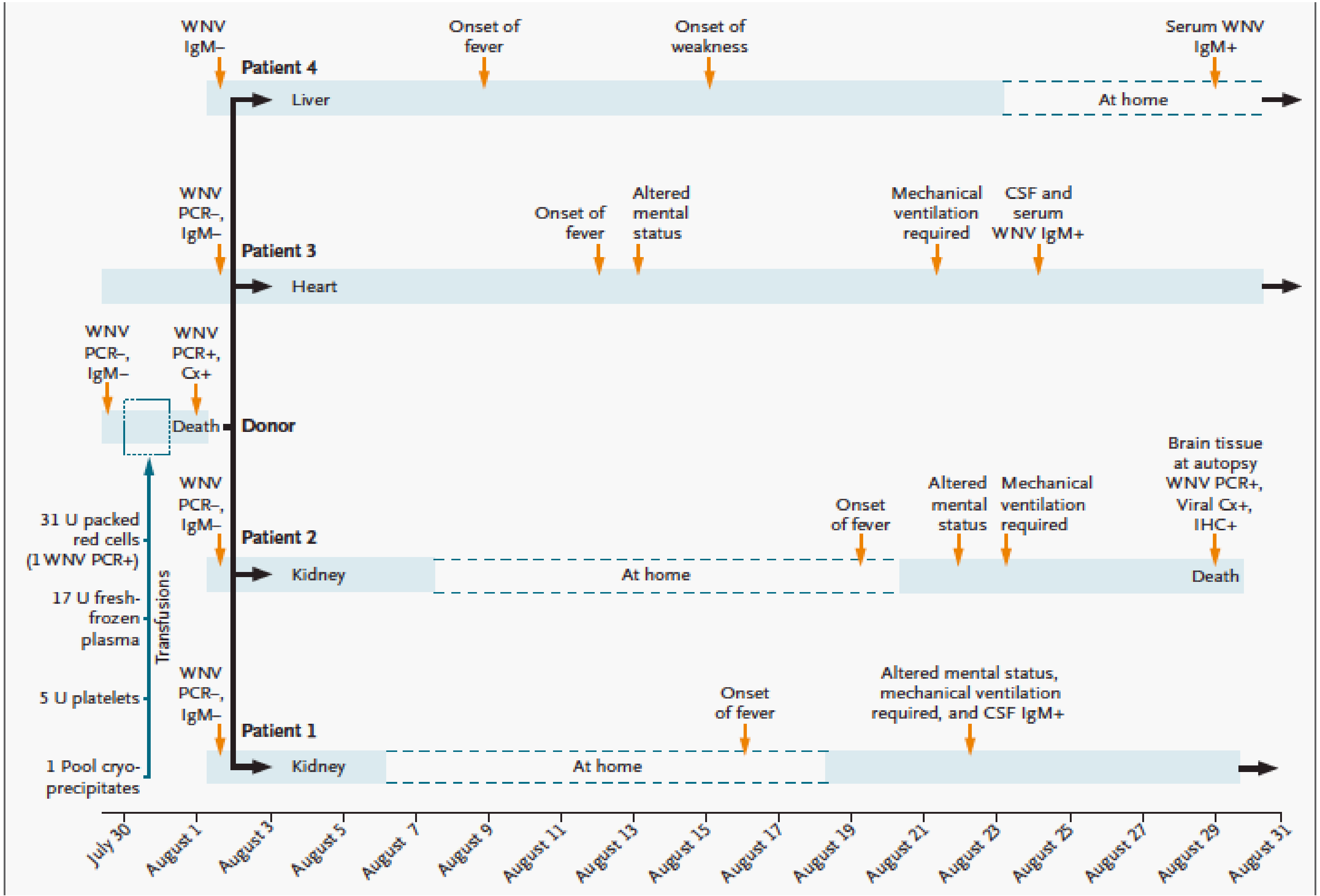

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Transmission of West Nile Virus through Blood Transfusion in the United States in 2002

N Engl J Med 2003;349:1236-45.

Table 2. Demographic, Clinical, Laboratory, and Transfusion Data for 23 Patients with Confirmed Cases of Transfusion-Transmitted West Nile Virus in the United States, 2002.*

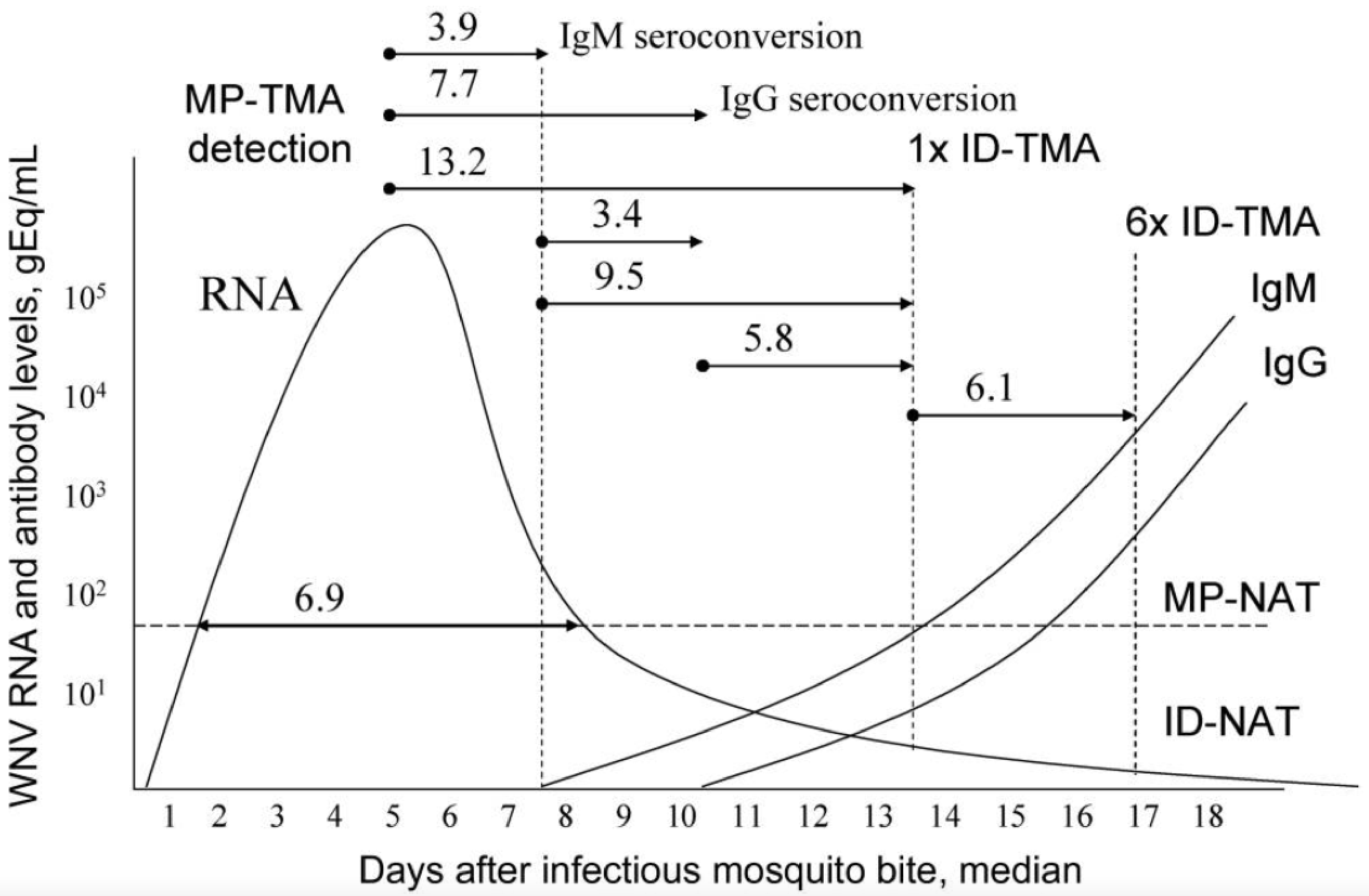
Recipient No.	Donor No.	Underlying Condition	Age (yr)/Sex	Date of Transfusion	Type of Component	Days from Transfusion to Onset of Illness	Type of Illness	Vital Status of Recipient	Date Specimen Collected	Specimen Tested	Test Result†
1‡	1	Post partum	24/F	July 27	RBC	2	ME	Alive	Aug. 23	CSF	IgM+
2	2	Liver transplantation	47/M	Aug. 20	PLT	13	ME	Alive	Sept. 4 Sept. 5	Serum CSF	IgM+, PCR± IgM+, PCR–
3‡	2	Post partum	40/F	Sept. 3	RBC	10	ME	Alive	Sept. 27	Serum	IgM+, PCR–
4§	3 4	AML —	12/F —/—	Sept. 1 Sept. 8	PLT PLT	11 4	ME —	Alive —	Sept. 25	CSF	IgM+
5‡	5	Lung cancer	60/M	Sept. 18	RBC	12	ME	Dead	Sept. 25 Sept. 30 Oct. 2¶	Serum Serum CSF	IgM–, PCR± IgM+, PCR– IgM+
6	5	Breast cancer	40/F	Oct. 6	FFP	3	ME	Alive	Oct. 15¶ Oct. 21	Serum Serum	PCR+, culture+ IgM+, PCR+
7	6	AML, bone marrow transplantation	59/M	Aug. 24	PLT	14	ME	Dead	Sept. 19 Sept. 24	CSF Serum	IgM–, PCR+, culture+ IgM–, PCR+, culture+

CONCLUSIONS

Transfused red cells, platelets, and fresh-frozen plasma can transmit West Nile virus. Screening of potential donors with the use of nucleic acid–based assays for West Nile virus may reduce this risk.

Virus and Antibody Dynamics in Acute West Nile Virus Infection

The Journal of Infectious Diseases 2008; 198:984–93



NAT-WNV X NAT-HCV/HIV

Results

Overall, 944 confirmed West Nile viremic donors (0.02%) were identified by NAT screening among 4,585,573 donations from July 1 to October 31, 2003, at

944/1 año, 4.6M donaciones

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 12, No. 3, March 2006

RESULTS: During the 10-year period approximately 66 million donations were screened with 32 HIV (1:2 million) and 244 HCV (1:270,000) NAT yield donations identified. HCV prevalence among FT donors

276/10 años, 66M donaci

TRANSFUSION 2010;50:1495-1504.

Contribution of climate change to the spatial expansion of West Nile virus in Europe

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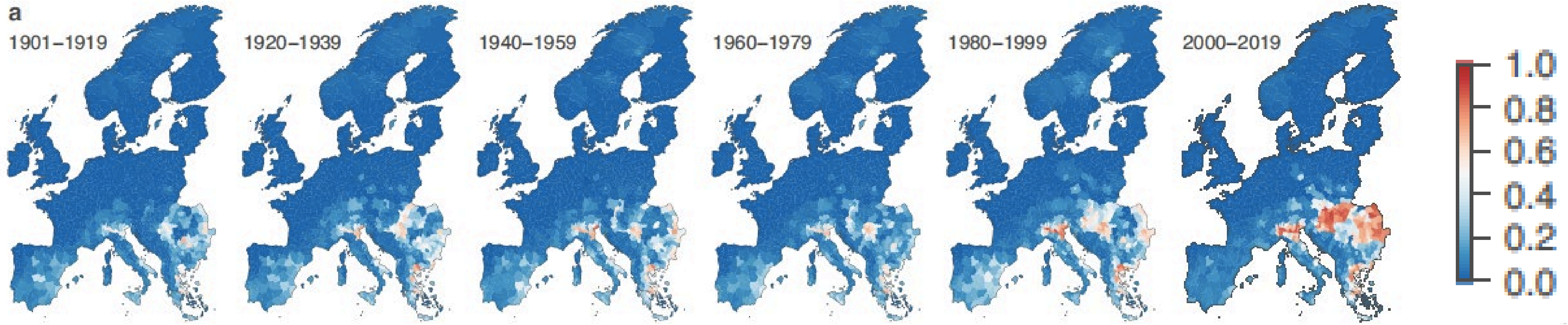
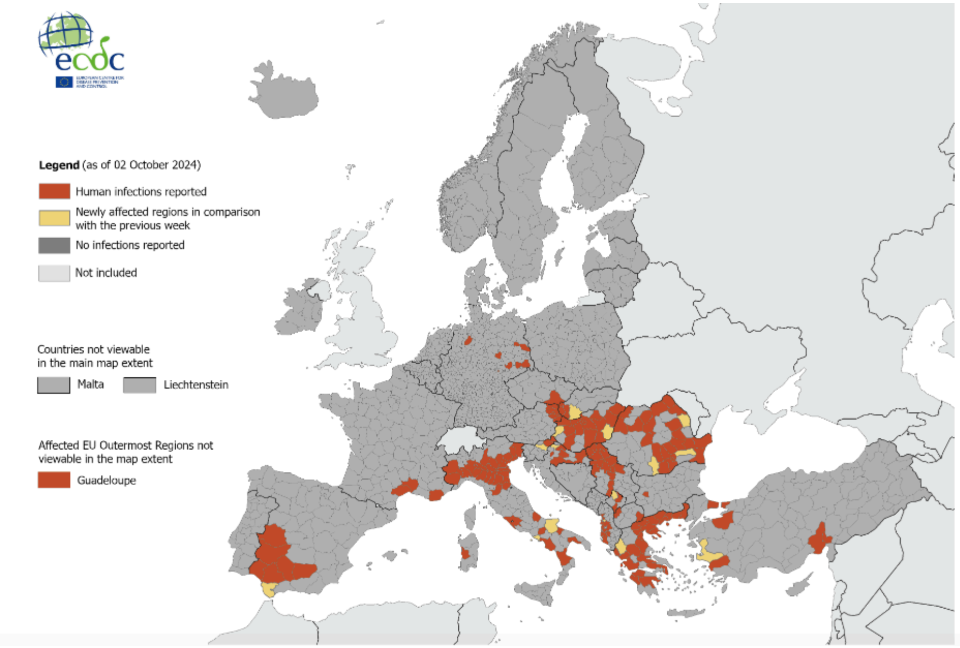
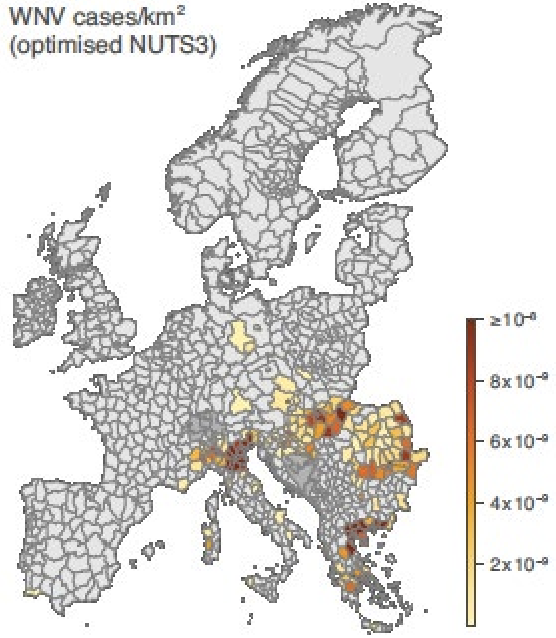
Diana Erazo et al. Nature Communications | (2024) 15:1196







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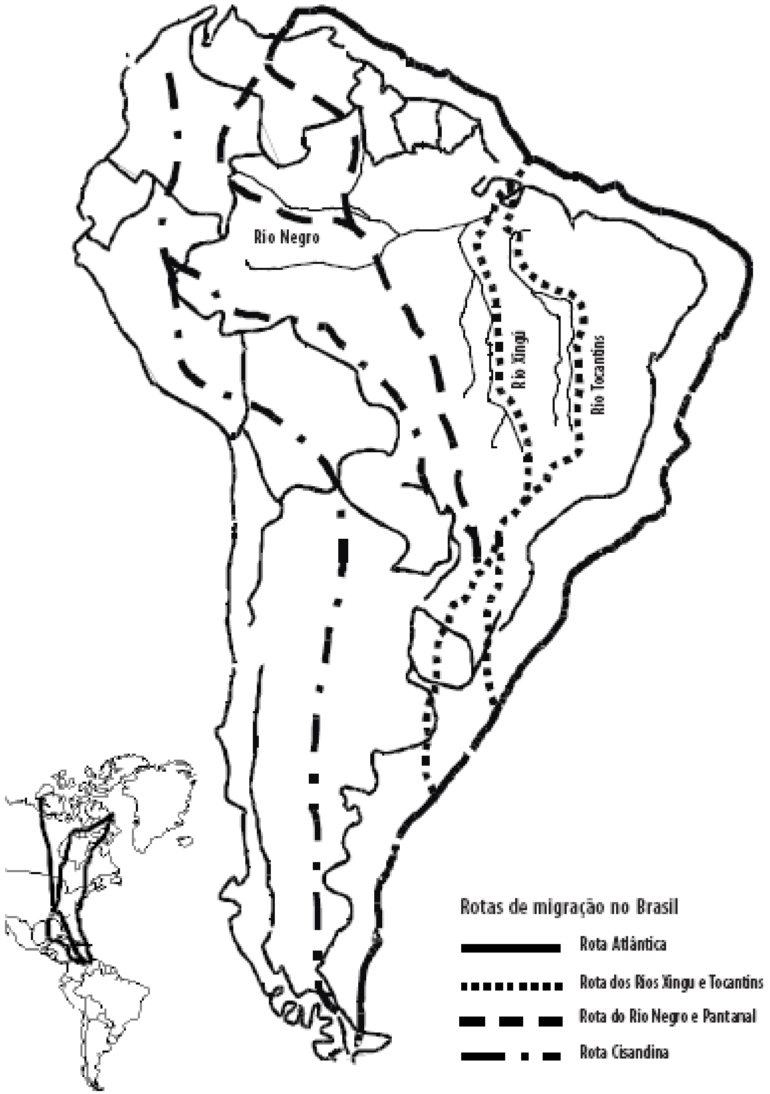
Why are there no human West Nile virus outbreaks in South America?

The Lancet Regional Health - Americas 2022;12: 100276

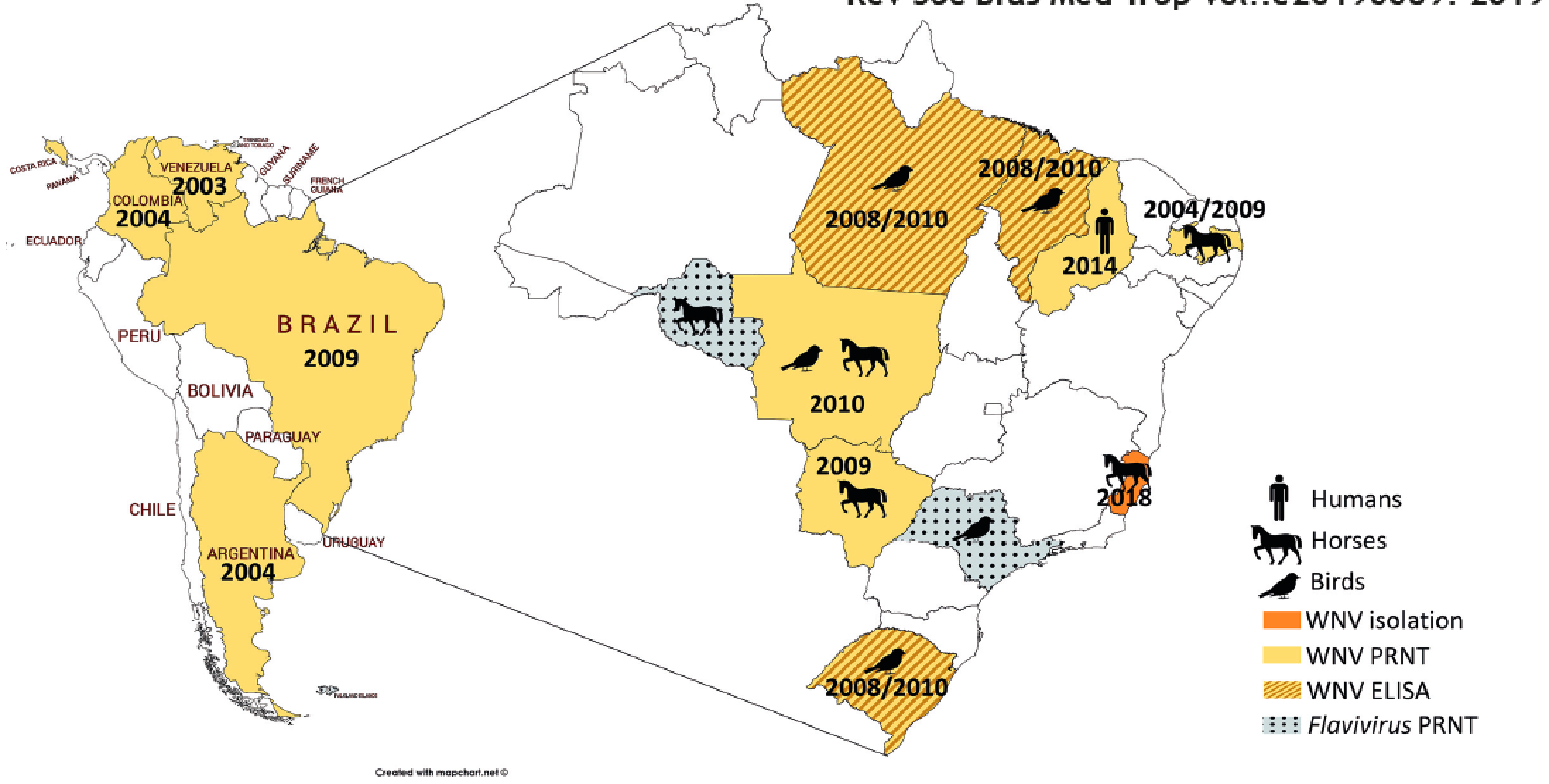
Camila Lorenz, and Francisco Chiaravalloti-Neto*

Department of Epidemiology, School of Public Health, University of São Paulo, São Paulo, Brazil

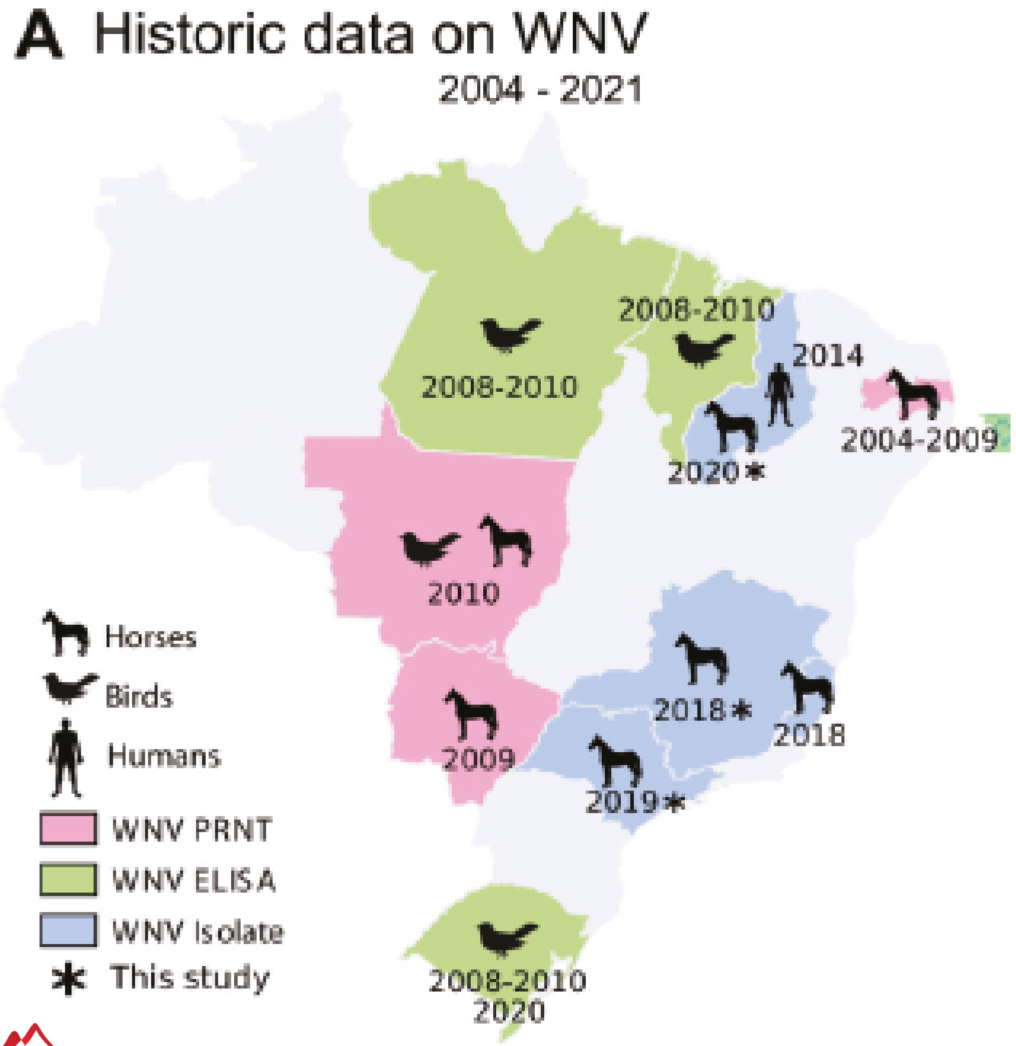


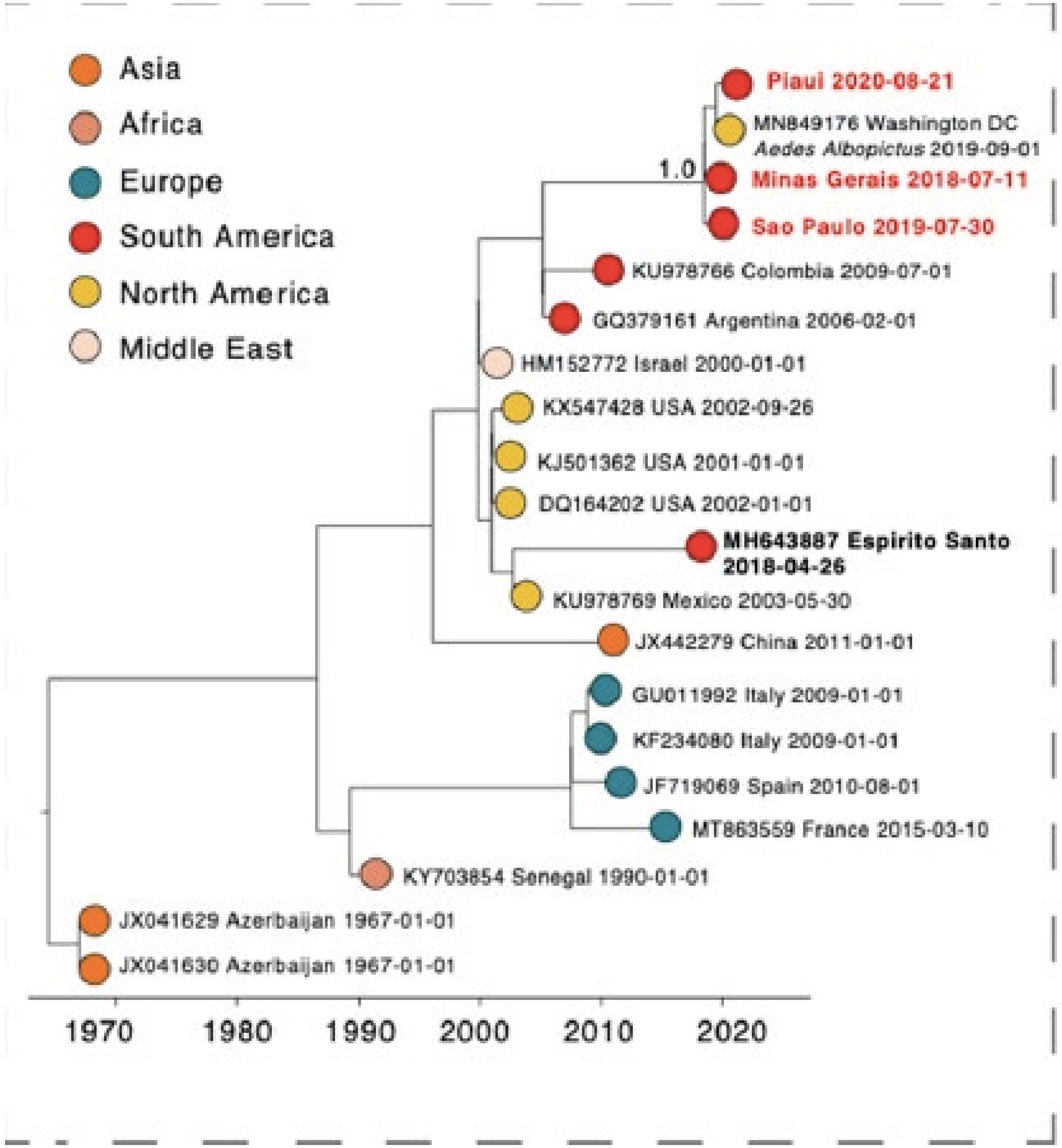
West Nile virus infections are here! Are we prepared to face another flavivirus epidemic?

Rev Soc Bras Med Trop Vol.:e20190089: 2019



Costa, ÉA, et al. West Nile Virus in Brazil. Pathogens 2021, 10, 896.





Zika Virus

N ENGL J MED 374;16 NEJM.ORG APRIL 21, 2016

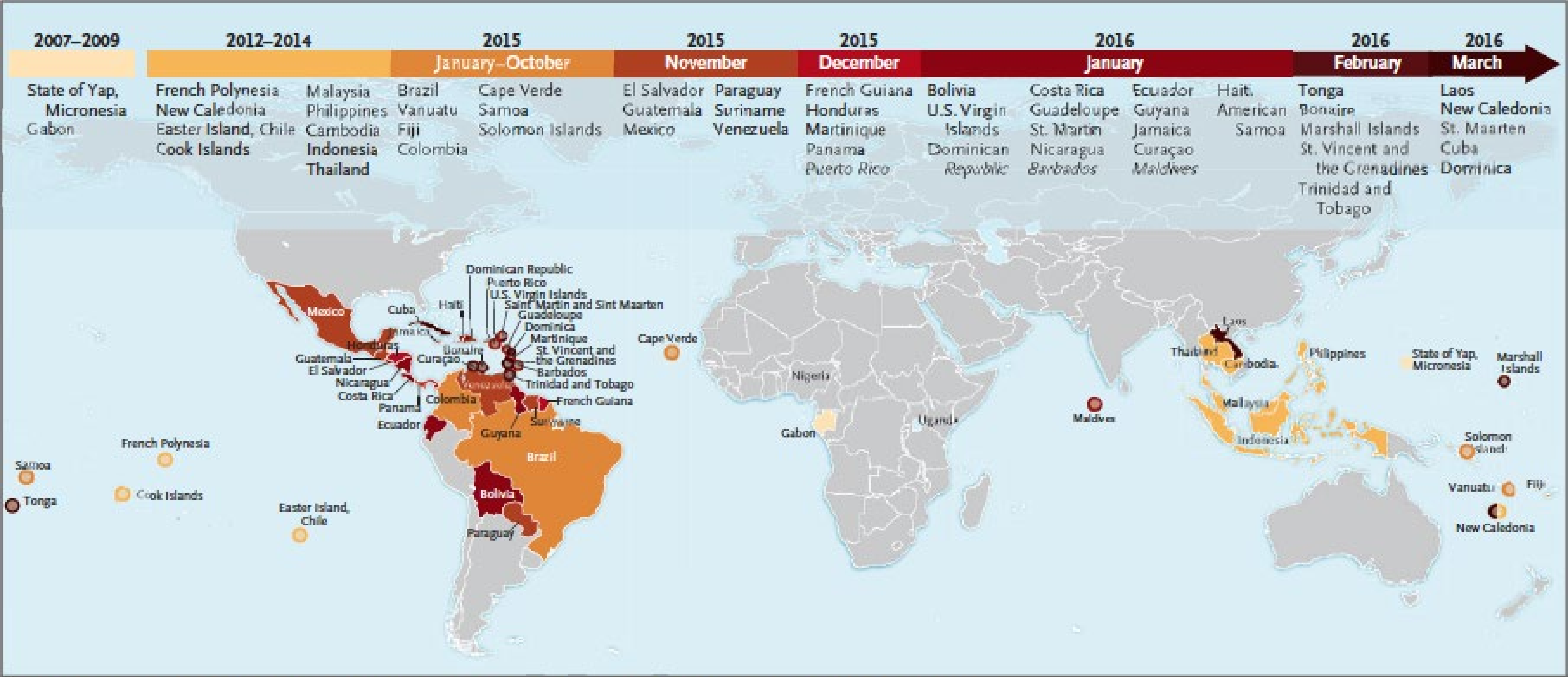


Figure 1. Areas in Which Zika Virus Infections in Humans Have Been Noted in the Past Decade (as of March 2016).
Only sporadic infections have occurred in Southeast Asia, the Philippines, and Indonesia.

Evidence for Transmission of Zika Virus by Platelet Transfusion

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Table 1. Results of Molecular and Serologic Testing of Samples Obtained from the Platelet Donor and the Two Recipients.*

Donor or Patient†	Molecular Testing				Serologic Testing						
	ZIKV (Ct)‡		CHIKV	DENV	PRNT§	IFA IgG¶		ZIKV POC‖		DENV-Capture ELISA**	
	Plasma	Urine	Plasma	Plasma	ZIKV	ZIKV	DENV	IgM	IgG	IgM	IgG
Donor											
Day −3	Pos (23)		Neg	Neg							
Day 11	Neg	Pos (33)	Neg	Neg	1:1280	++	+/−	Pos (143)	Pos (239)	Pos (1.4)	Neg (0.5)
Patient 1											
Day −4	Neg		Neg	Neg		−	+++	Neg (7)	Pos (57)	Neg (0.6)	Pos (5.0)
Day 6	Pos (33)		Neg	Neg		+	++++	Neg (9)	Sus (32)	Neg (0.7)	Pos (4.9)
Day 31	Neg				1:2560	++++	++++	Sus (33)	Pos (335)	Pos (2.3)	Pos (5.4)
Patient 2											
Day −1	Neg		Neg	Neg							
Day 1	Neg		Neg	Neg							
Day 23	Pos (36)	Neg	Neg	Neg	1:40	−	−	Neg (7)	Sus (20)	Neg (0.1)	Neg (0.3)
Day 51	Neg/Pos††				1:20	++	+/−	Neg (4)	Neg (17)	Neg (0.2)	Neg (0.3)
Day 71	Neg							Neg (12)	Neg (5)		

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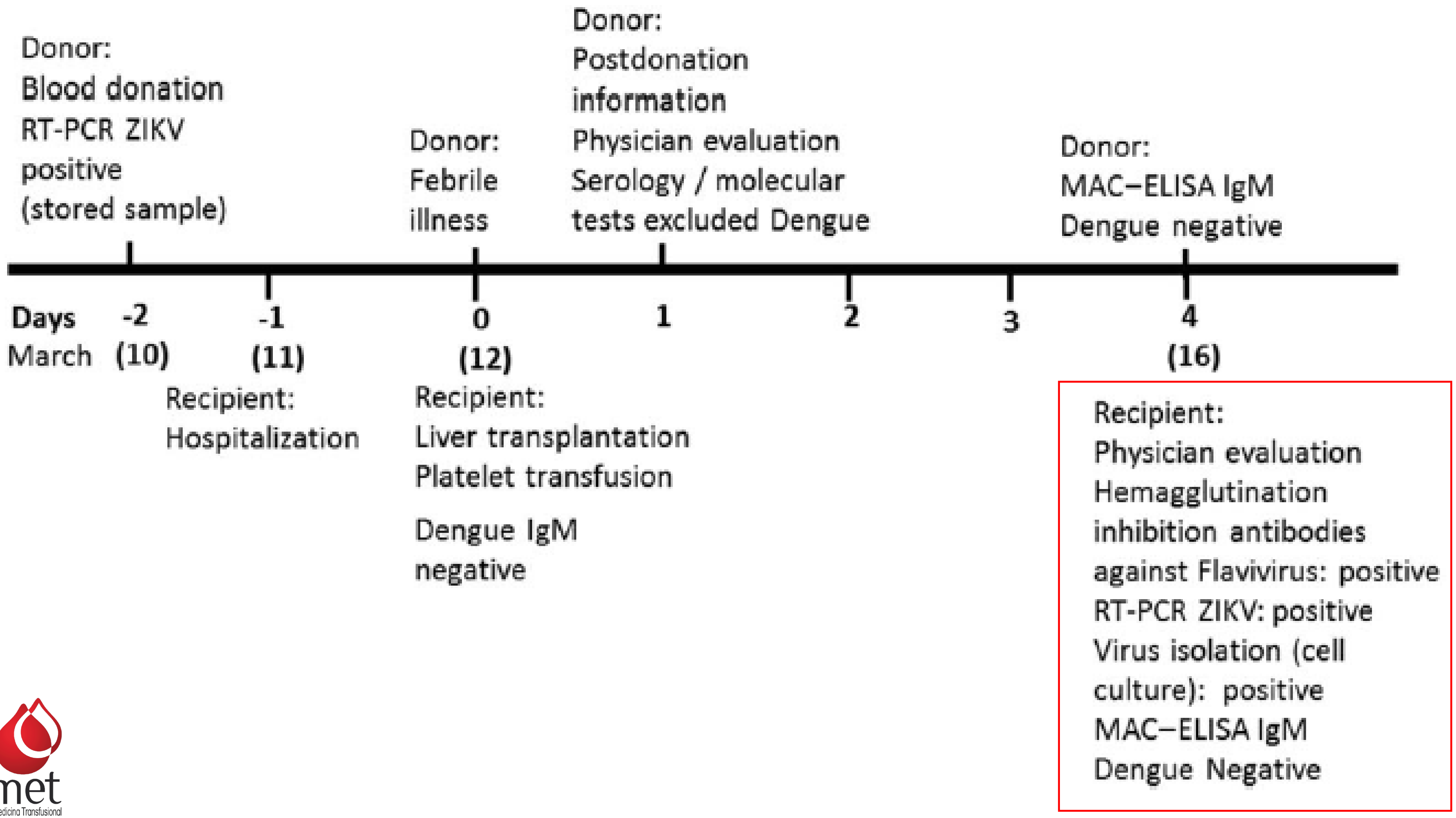
N Engl J Med. 2016 Sep 15;375(11):1101-3.

Probable transfusion-transmitted Zika virus in Brazil

TRANSFUSION 2016;56;1684–1688



Zika virus and blood transfusion: the experience of French Polynesia

Transfusion. 2017;57:729-733

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TABLE 1. Hemovigilance results for 12 patients who received ZIKV-reactive blood products

Patients	Received RBCs from ZIKV-reactive blood donors	Received inactivated PLTs from ZIKV-reactive blood donors	Number of weeks between transfusion and ZIKV antibody testing	Pretransfusion ZIKV IgG	Posttransfusion ZIKV IgG	Posttransfusion symptoms of ZIKV infection
1	Yes	No	15	Negative	Negative	No
2	Yes	No	35	NA	Negative	No
3	Yes	Yes	10	NA	Negative	No
4	Yes	No	19	NA	Negative	No
5	Yes	No	13	NA	Negative	No
6	Yes	No	19	Positive	Positive	No
7	Yes	No	22	NA	Positive	No
8	Yes	No	14	NA	Negative	No
9	Yes	No	15	NA	Positive	No
10	Yes	No	14	NA	Negative	No
11	Yes	No	17	NA	Negative	No
12	Yes	Yes	34	NA	Negative	No

NA = not available.

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Maintaining a safe and adequate blood supply during Zika virus outbreaks

Interim guidance

February 2016

WHO/ZIKV/HS/16.1

World Health Organization

PRÓ SANGUE

HEMOCENTRO DE SÃO PAULO

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b. Testing of blood donations

Blood donations may be tested for the presence of Zika virus by appropriate tests.

Viral RNA is the first detectable marker in Zika virus infection. NAT-based tests are therefore the most appropriate for donor screening. However, there are currently no commercially available NAT assays for Zika virus RNA detection designed to screen blood donors. Sensitive NAT tests designed for diagnostic purposes may be used for small-scale screening of blood donors after respective validation. In-house developed NAT tests may also be suitable, but should be properly validated for donor screening.

2.4. Potential high-risk blood recipient groups

According to current evidence, Zika virus infection in pregnant women may be potentially associated to severe complications for the pregnancy and fetus. Until more is known and based on precautionary principles, risk-reduction strategies should be applied to pregnant women and other groups who may be at higher risk of severe complications following Zika virus infection.

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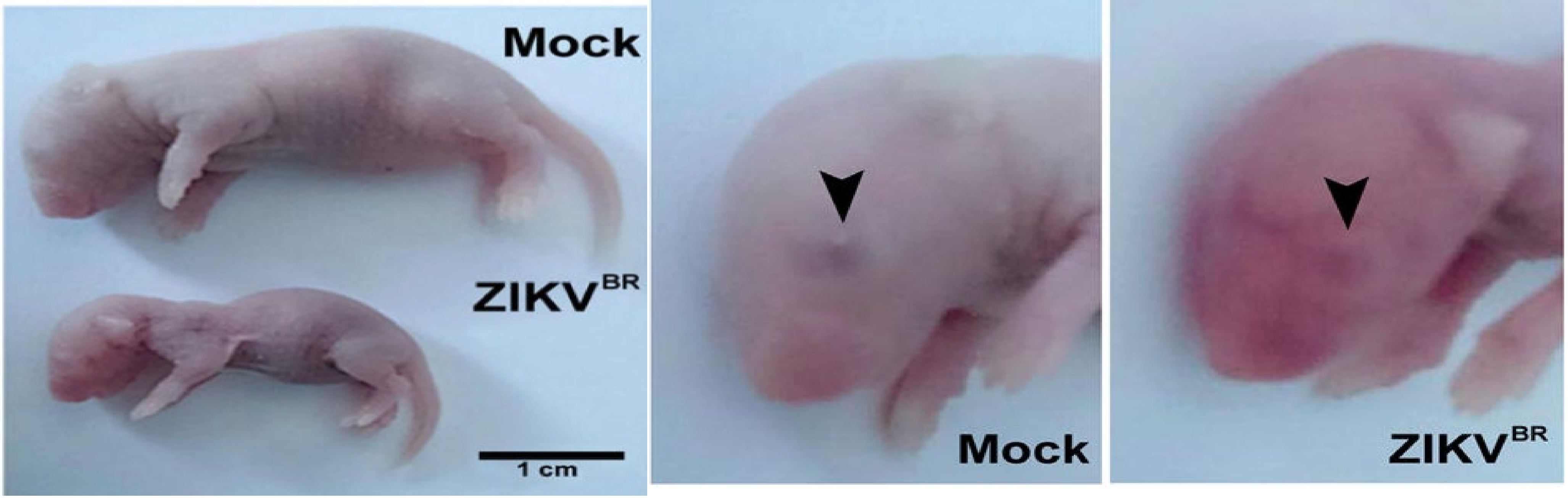

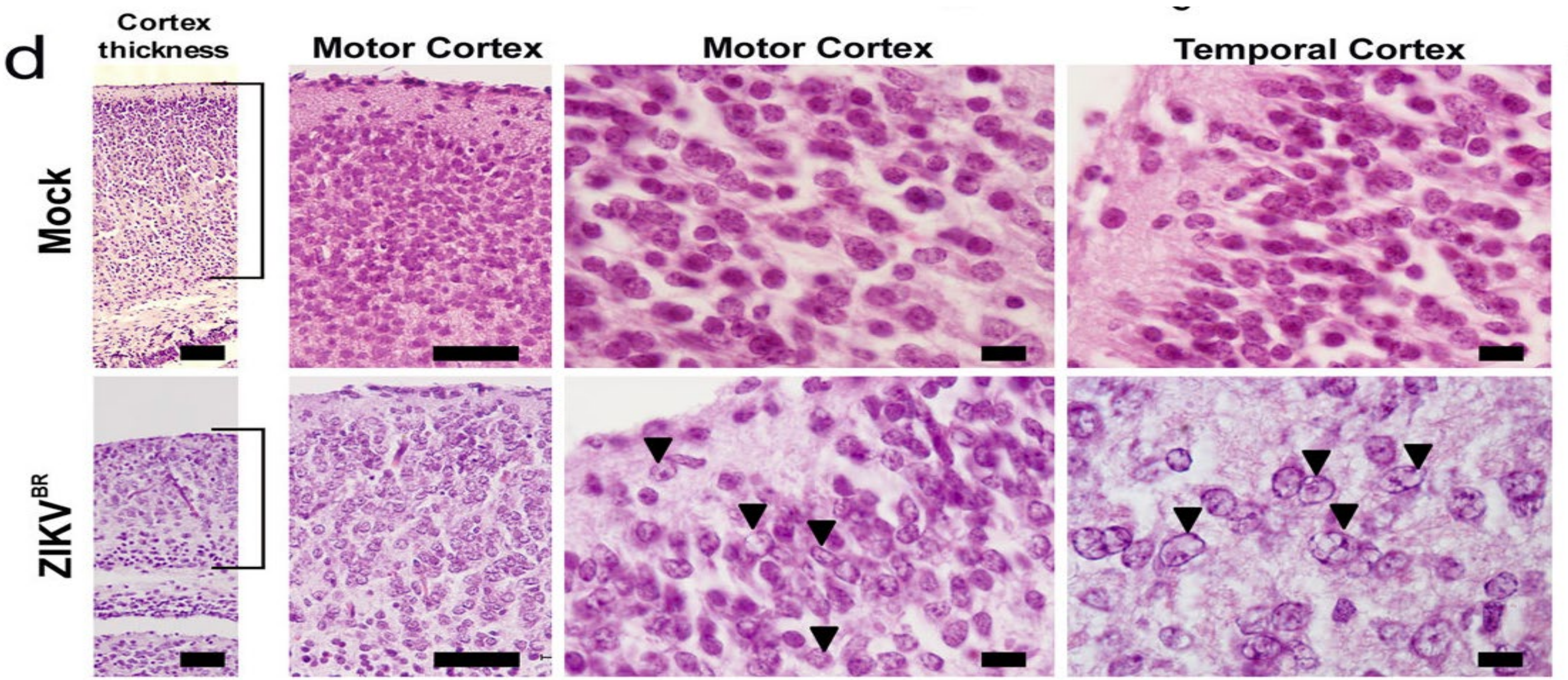

The Brazilian Zika virus strain causes birth defects in experimental models
Nature 2016; 534(7606): 267–271
Cugola FR et al.

DONACIONES NAT ZKV+ EE.UU

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2016 – 1.2% (JUNIO, PUERTO RICO)

ABRIL 2016 – DICIEMBRE 2017 = 400

2017 =17 DONACIONES +

2018 = 2 DONACIONES +

MARZO 2018 – ABRIL 2021 = 0

Information for Blood Establishments Regarding FDA's Determination that Zika Virus is no Longer a Relevant Transfusion-Transmitted Infection, and Withdrawal of Guidance titled "Revised Recommendations for Reducing the Risk of Zika Virus Transmission by Blood and Blood Components"

12 MAYO 2021

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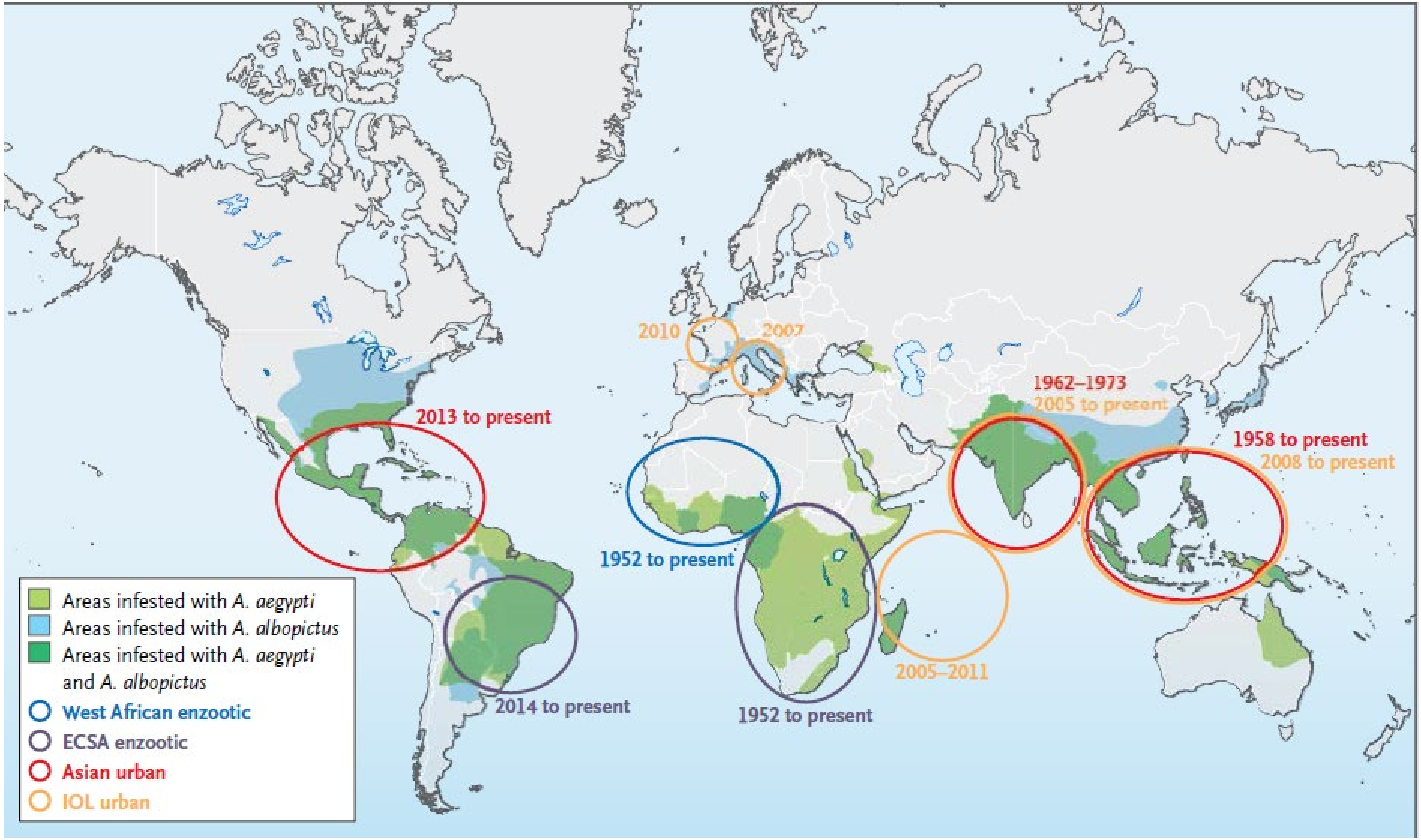
ESTUDIOS DE PREVALENCIA DEL RNA VIRUS ZIKA EN DONANTES DE SANGRE

PAÍS	PERÍODO	TASA	PICO	MÉTODO	REFERENCIA
EE.UU - PUERTO RICO	April - August, 2016	190/21,468= 0.89%	1.2% (June 2016)	cobas Zika ID-NAT	Chevalier MS et al. Emerging Infectious Diseases 2017, 23(5):790-5
EE.UU (CONTINENTAL)	May - October, 2016	14/358,786= 0.004%		cobas Zika ID-NAT	Galel SA et al. Transfusion. 2017;57:762-769..
EE.UU (CONTINENTAL)	September - November, 2016	5/466,834= 0.001%		Procleix (TMA) ID-NAT	Williamson PC et al. Transfusion. 2017;57:770-778.
POLINESIA FRANCESA	November 2013 - February 2014	42/1,505 = **2.8%**		lab-developed PCR	Bierlaire D et al. Transfusion. 2017;57:729-733.
ANTILLAS FRANCESAS	January – June 2016	76/4,129= **1.8%**	**3% (April 2016)**	lab-developed PCR	Galian P et al. Blood 129(2):263-266
BRASIL	October 2015 - May 2016	37/1,393= **2.7%**	**7% (April 2016)**	lab-developed PCR	Slavov S et al Transfusion 2017 57:2897-2901.



N ENGL J MED 372;13 NEJM.ORG MARCH 26, 2015

A Single Mutation in Chikungunya Virus Affects Vector Specificity and Epidemic Potential

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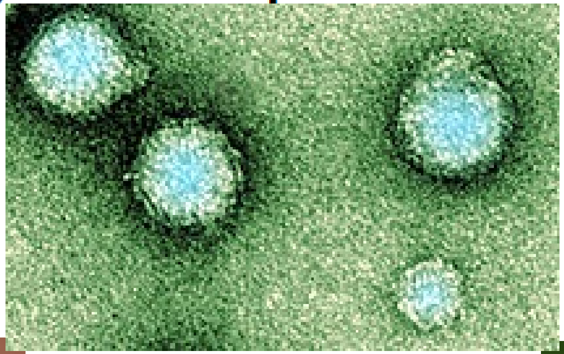
PLoS Pathogens 2007;3:1895-1906



A. albopictus

A. aegypti

E1-A226V

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Transfusion of platelet components prepared with photochemical pathogen inactivation treatment during a Chikungunya virus epidemic in Ile de La Réunion

TRANSFUSION 2009;49:1083-1091.

ARBOVIROSES EN BRASIL 2016-2024

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	ZIKA								
	2016	2017	2018	2019	2020	2021	2022	2023	2024
# CASES	212,729	17,593	7,440	10,768	7,387	6,143	9,204	7.294	6.348
DEATHS	8	1	1	3	#REF!	0	1	1	0
CASES/DEATH	26,6	17,6	7,4	3,6	0,0	0,0	9,2	7294,0	0,0

	CHIKV								
	2016	2017	2018	2019	2020	2021	2022	2023	2024
# CASES	267,909	185,593	78,978	132,205	82,419	95,852	174,517	154.800	261.287
DEATHS	209	189	29	92	#REF!	14	94	106	189
CASES/DEATH	1,3	1,0	2,7	1,4	0,0	6,8	1,9	1460,4	1382,5

	DENGUE								
	2016	2017	2018	2019	2020	2021	2022	2023	2024
# CASES	1.453.764	239.389	215.585	1.544.987	987.173	534.743	1.450.270	1.658.816	6.550.534
DEATHS	688	165	128	782	554	241	1016	1094	5719
CASES/DEATH	2113,0	1450,8	1684,3	1975,7	1781,9	2218,9	1427,4	1516,3	1145,4

ORIGINAL ARTICLE

Review of dengue fever cases in Hong Kong during 1998 to 2005

CME

Vivien WM Chuang 莊慧敏
TY Wong 黃天佑
YH Leung 梁耀康
Edmond SK Ma 馬紹強
YL Law 羅育龍
Owen TY Tsang 曾德賢
KM Chan 陳啟明
Iris HL Tsang 曾愷玲
TL Que 郭德麟
Raymond WH Yung 翁維雄
SH Liu 劉少懷

Objective To describe the epidemiology, clinical and laboratory findings, and outcomes of patients presenting locally with dengue.

Design Retrospective review of case records.

Setting Public hospitals, Hong Kong.

Patients Medical records of all laboratory-confirmed dengue patients admitted to public hospitals during 1998 to 2005 were reviewed retrospectively.

Results A total of 126 cases were identified, 123 (98%) being dengue fever and three (2%) dengue haemorrhagic fever. One patient who had blood transfusion–acquired dengue fever was highlighted. A total

Contents lists available at ScienceDirect

Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

ELSEVIER

Transfusion transmitted dengue: One donor infects two patients

Farheen Karim*, Nadia Nasir, Bushra Moiz

Section of Hematology and Transfusion Medicine, Department of Pathology and Laboratory Medicine, The Aga Khan University Hospital, Karachi, Pakistan

Dengue Hemorrhagic Fever Transmitted by Blood Transfusion

TO THE EDITOR: Dengue, the most common vectorborne viral infection worldwide,[1] is predominantly transmitted by the *Aedes aegypti* mosquito. We describe a well-documented cluster of blood transfusion–associated dengue infections in Singapore, a country in which the disease is endemic.

A 52-year-old, asymptomatic, repeat blood donor gave blood on July 15, 2007. An investigation of all recipients of his blood products was initiated after he informed the blood bank that he had had a fever the day after donation. The stored serum sample was positive for dengue virus type 2, as ascertained by means of a polymerase-chain-reaction (PCR) assay.[2]

The recipient of the donor's red cells had fever and myalgia 2 days after transfusion. The recip-

Bitten by a bug or a bag? Transfusion-transmitted dengue: a rare complication in the bleeding surgical patient

Han Boon Oh,[1] Vaishnavi Muthu,[1] Zubin J. Daruwalla,[2] Shir Ying Lee,[3] Evelyn S. Koay,[4] and Paul A. Tambyah[5]

Dengue viremia in blood donors identified by RNA and detection of dengue transfusion transmission during the 2007 dengue outbreak in Puerto Rico

Susan L. Stramer, Jeffrey M. Linnen, James M. Carrick, Gregory A. Foster, David E. Krysztof, Shimian Zou, Roger Y. Dodd, Lourdes M. Tirado-Marrero, Elizabeth Hunsperger, Gilberto A. Santiago, Jorge L. Muñoz-Jordan, and Kay M. Tomashek

Probable and possible transfusion-transmitted dengue associated with NS1 antigen–negative but RNA confirmed-positive red blood cells

Desiree Matos,[1] Kay M. Tomashek,[2] Janice Perez-Padilla,[2] Jorge Muñoz-Jordán,[2] Elizabeth Hunsperger,[2] Kalanthe Horiuchi,[3] David Noyd,[2] Colleen Winton,[4] Gregory Foster,[4] Marion Lanteri,[5] Jeffrey M. Linnen,[6] and Susan L. Stramer[4]

Surveillance for Zika, chikungunya and dengue virus incidence and RNAemia in blood donors at four Brazilian blood centers during 2016–2019. Custer B, et al. J Infect Dis 2023; 227(5): 696–707.

Table 2. Estimated Number of RNAemic Donations and Blood Components Released, by Seasonal Arbovirus Outbreak Period in 4 Blood Centers, Brazil

	Fundação Pró-Sangue, São Paulo			Hemominas, Belo Horizonte			Hemope, Recife			Hemorio, Rio de Janeiro		
Period	ZIKV	CHIKV	DENV	ZIKV	CHIKV	DENV	ZIKV	CHIKV	DENV	ZIKV	CHIKV	DENV
Apr 2016–Oct 2016	0 (0)	6 (12)	14 (31)	37 (81)	0 (0)	29 (65)	0 (0)	56 (122)	0 (0)	31 (67)	18 (40)	4 (8)
Nov 2016–Jun 2017	0 (0)	0 (0)	0 (0)	4 (8)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	47 (105)	4 (9)	0 (0)
Nov 2017–Jun 2018[a]	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (15)	0 (0)	11 (25)	20 (45)	34 (76)[a]	27 (58)[a]	0 (0)[a]
Nov 2018–Jun 2019	0 (0)	0 (0)	39 (86)	0 (0)	0 (0)	160 (353)	0 (0)	0 (0)	20 (44)	0 (0)	27 (59)	14 (28)
Total	0 (0)	6 (12)	53 (117)	41 (89)	0 (0)	196 (433)	0 (0)	67 (147)	40 (89)	115 (254)	76 (166)	18 (36)

Data are presented as No. of donations (No. of blood components).

325 CHKV
343 ZIKV
675 DENV

Real-time symptomatic case of transfusion-transmitted dengue

TRANSFUSION 2015;55:961–964

José Eduardo Levi,[1,2] Anna Nishiya,[1] Alvina Clara Félix,[2] Nanci Alves Salles,[1] Luciana Ribeiro Sampaio,[1] Fátima Hangai,[1] Ester Cerdeira Sabino,[3] and Alfredo Mendrone Jr[1]

TABLE 1. Laboratory results of donor and recipients

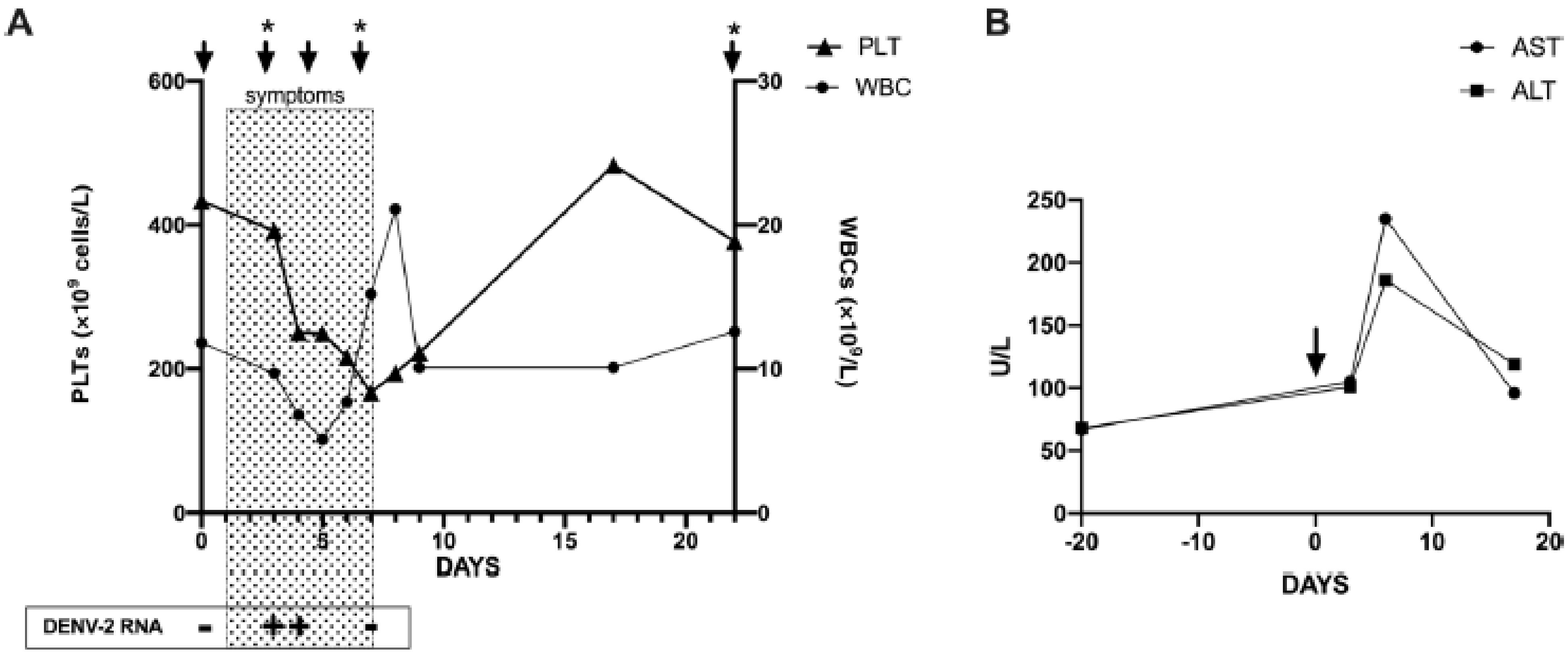
	Date	IgG	IgM	RNA*
Donor				
Index donation	April14, 2014	Negative	Negative	Undetectable
	May 5, 2014	Positive	Positive	Undetectable
Recipient 1				
Pretransfusion	April 18, 2014	Negative	Negative	Undetectable
	April 23, 2014	Negative	Negative	Positive (VL, 872,100 copies/mL)
	April 30, 2014	Negative	Positive	Positive (VL, 6,192 copies/mL)
Recipient 2				
Posttransfusion	April 24, 2014	Negative	Negative	Undetectable
	May 8, 2014	Negative	Negative	Undetectable

* In-house quantitative PCR; limit of detection, 350 copies/mL.
VL = viral load.

Vaso-occlusive crisis in a sickle cell patient after transfusion-transmitted dengue infection

Transfusion. 2020;60:2139–2143.

Flávia L. S. Santos[1] | Svetoslav N. Slavov[1] | Rafael S. Bezerra[1] | Elaine V. Santos[1] | Ana C. Silva-Pinto[1] | Ana L. L. Morais[1] | Mariana B. Sá[2] | Eugênia M. A. Ubiali[1] | Gil C. De Santis[1] | Dimas T. Covas[1,3] | Simone Kashima[1]



CIUDAD DE SÃO PAULO = 11.5M habitantes

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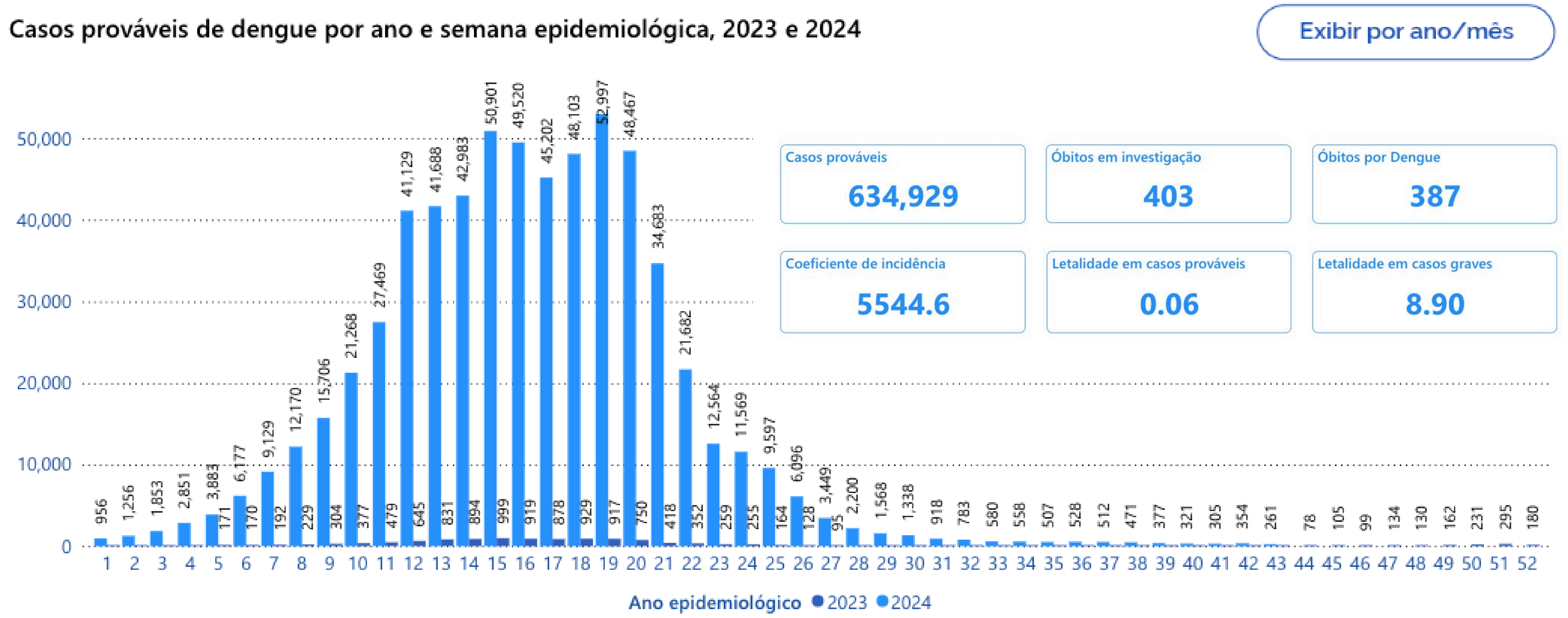

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https://www.gov.br/saude/pt-br/assuntos/saude-de-a-a-z/a/aedes-aegypti/monitoramento-das-arboviroses

Surveillance for Zika, chikungunya and dengue virus incidence and RNAemia in blood donors at four Brazilian blood centers during 2016–2019. Custer B, et al. J Infect Dis 2023; 227(5): 696–707.

Table 1. Prevalence of RNAemic Donations by Seasonal Arbovirus Outbreak Period in 4 Blood Centers, Brazil **Data are presented as RNAemic donations per 100 000**

	Fundação Pró-Sangue, São Paulo			Hemominas, Belo Horizonte			Hemope, Recife			Hemorio, Rio de Janeiro		
Period	ZIKV	CHIKV	DENV	ZIKV	CHIKV	DENV	ZIKV	CHIKV	DENV	ZIKV	CHIKV	DENV
Apr 2016–Oct 2016[a]	0.0 (.0–26.8)	7.0 (1.2–39.5)	28.0 (10.9–71.9)	88.3 (47.9–162.4)	0.0 (.0–33.7)	70.4 (35.7–138.9)	0.0 (.0–31.8)	83.0 (45.1–152.8)	0.0 (.0–31.8)	202.6 (139.1–294.9)	111.9 (67.7–184.7)	14.8 (4.1–53.9)
Nov 2016–Jun 2017[a]	0.0 (.0–27.7)	0.0 (.0–27.7)	0.0 (.0–27.7)	8.2 (1.4–46.2)	0.0 (.0–31.3)	0.0 (.0–31.3)	0.0 (.0–29.5)	0.0 (.0–29.5)	0.0 (.0–29.5)	94.9 (54.3–165.8)	7.9 (1.4–44.7)	0.0 (.0–30.3)
Nov 2017–Jun 2018	0.0 (.0–27.9)	0.0 (.0–27.9)	0.0 (.0–27.9)	0.0 (.0–31.3)	0.0 (.0–31.3)	8.2 (1.4–46.2)	0.0 (.0–27.5)	14.4 (3.9–52.3)	28.8 (11.2–73.9)	65.3 (33.1–128.7)	49.1 (22.5–107.0)	0.0 (.0–31.2)
Nov 2018–Jun 2019	0.0 (.0–27.2)	0.0 (.0–27.2)	49.9 (24.2–102.9)	0.0 (.0–28.3)	0.0 (.0–28.3)	358.2 (269.3–475.6)	0.0 (.0–28.5)	0.0 (.0–28.5)	29.8 (11.6–76.6)	0.0 (.0–28.6)	45.0 (20.6–98.1)	22.5 (7.6–65.9)

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High prevalence of dengue, Zika, and chikungunya viruses in blood donors during a dengue outbreak and an endemic period in Colombia

Brian Alejandro Cáceres Munar[1], Adriana Urbina[2], Tati Ayda Rodríguez[3], Olga Lucía Fernández[4], Luisa Fernanda Ospina[5], Iris Flórez[6], Dora Uribe[7], Celia Alvarado[8], Eliana Patricia Calvo[1], Félix Giovanni and Jaime Eduardo Castellanos[1]

Front. Med. **11:1380129**

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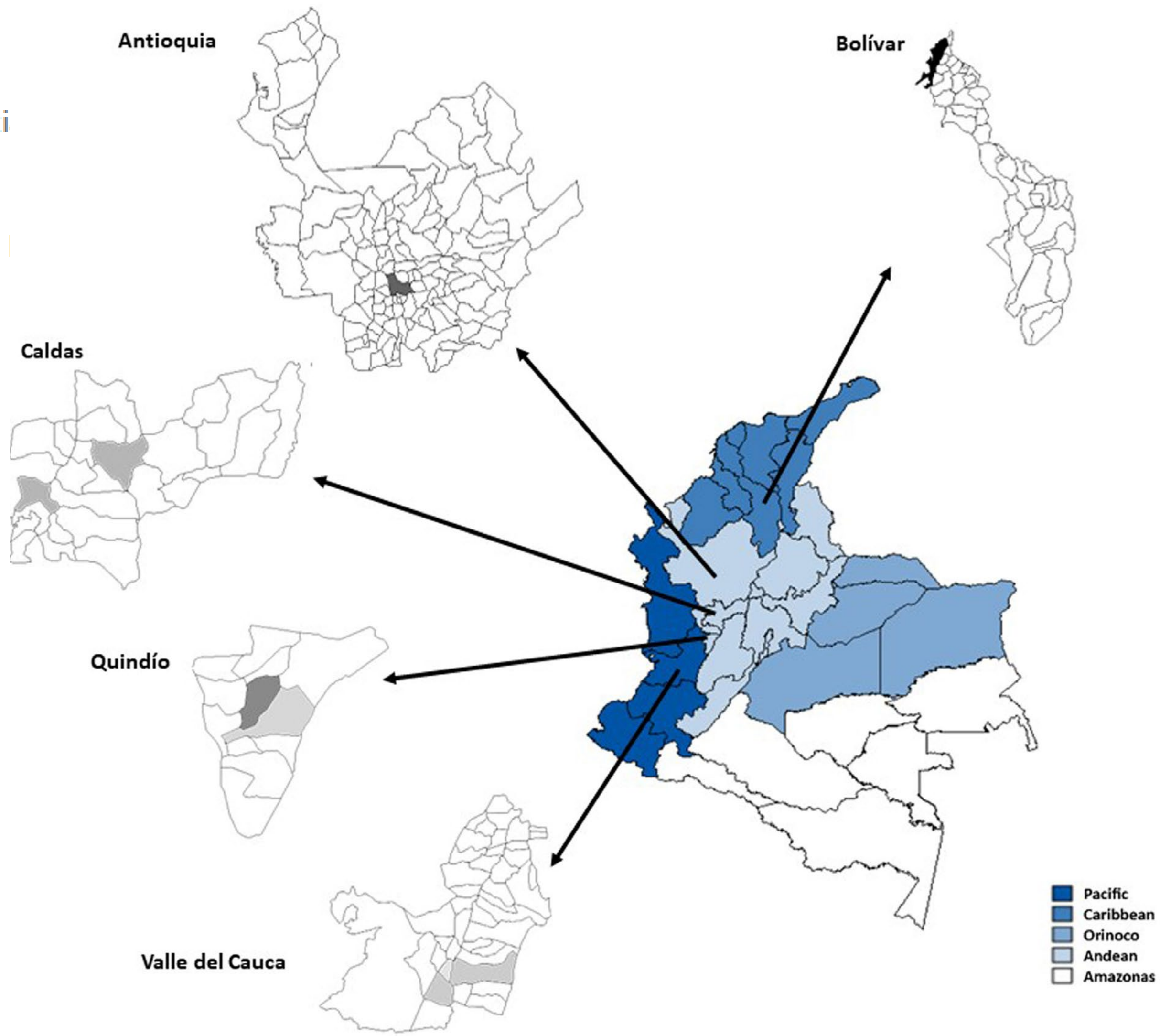

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Endemic areas (Armenia, Cali, Medellín, and Cartagena) (Altitude below 1,984 m.a.s.l.)							
Variable	Dengue outbreak 2019–2020			Dengue endemic phase 2021–2022			p-value
	n = 297			n = 695			
	No. positive samples	Prevalence (%)	95% CI	No. positive samples	Prevalence (%)	95% CI	
Total arbovirus	90	30.3	25.3–35.8	38	5.5	4.0–7.4	0.0001[a]
DENV	50	16.8	13.0–21.5	14	2.0	1.2–3.4	0.0001[a]
DENV-1	24	8.1	5.5–11.8	4	0.6	0.2–1.5	0.0001[a]
DENV-2	24	8.1	5.5–11.8	11	1.6	0.9–2.8	0.0001[a]
DENV-3	4	1.3	0.5–3.5	0	0.0	0.0	0.0090[b]
DENV-4	1	0.3	0.0–2.4	0	0.0	0.0	n.s.[b]
ZIKV	28	9.4	6.6–13.3	1	0.1	0–1	0.0001[a]
CHIKV	36	12.1	8.9–16.4	24	3.5	2.3–5.1	0.0001[a]
Co-infections	20	6.7	4.4–10.2	2	0.3	0.1–1.1	0.0001[a]

Nonendemic areas (Bogotá, Manizales) (Altitude above 1,984m.a.s.l.)							
Variable	Dengue outbreak 2019–2020			Dengue endemic phase 2021–2022			p-value
	n=165			n=424			
	No. positive samples	Prevalence (%)	95% CI	No. positive samples	Prevalence (%)	95% CI	
Total arbovirus	26	15.8*	11.0–22.1	21	5.0	3.3–7.5	0.0001[a]
DENV	17	10.3†	6.5–16.0	7	1.7	0.8–3.4	0.0001[a]
DENV-1	4	2.4*	0.9–6.3	2	0.5	0.1–1.9	n.s.[a]
DENV-2	9	5.5	2.9–10.2	5	1.2	0.5–2.8	0.0400[a]
DENV-3	2	1.2	0.3–4.7	0	0.0	0.0	n.s.[b]
DENV-4	2	1.2	0.3–4.7	0	0.0	0.0	0.0140[b]
ZIKV	8	4.8†	2.4–9.4	2	0.5	0.1–1.9	0.0100[a]
CHIKV	1	0.6*	0.1–4.2	13	3.1	1.8–5.2	n.s.[a]
Co-infections	0	0.0*	0.0	1	0.2	0.0–1.7	n.s.[b]

Front. Med. **11:1380129**

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Surveillance for Zika, chikungunya and dengue virus incidence and RNAemia in blood donors at four Brazilian blood centers during 2016–2019. Custer B, et al. The Journal of Infectious Diseases 2023; 227(5): 696–707.

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Data are presented as RNAemic donations per 100 000

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Nov 2017–Jun 2018	0.0 (.0–27.9)	0.0 (.0–27.9)	0.0 (.0–27.9)	0.0 (.0–31.3)	0.0 (.0–31.3)	8.2 (1.4–46.2)	0.0 (.0–27.5)	14.4 (3.9–52.3)	28.8 (11.2–73.9)	65.3 (33.1–128.7)	49.1 (22.5–107.0)	0.0 (.0–31.2)
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=358/100.000 = 0.36%

Transfusion-Transmitted Dengue and Associated Clinical Symptoms During the 2012 Epidemic in Brazil

The Journal of Infectious Diseases 2016;213:694–702

Rio de Janeiro and Recife were successfully tested. Rates of confirmed infection with DENV, all of which typed as DENV-4, were 0.51% in Rio de Janeiro and 0.80% in Recife. The peak of the epidemic occurred in week 19 (early May) of 2012 in Rio de Janeiro and week 14 (early April) in Recife, with rates of confirmed DENV RNA detection of >1% and >2%, respectively.

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TASA DE TRANSMISSÃO = 37.5%

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MUCHAS GRACIAS!

dudilevi@usp.br

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Tracing the History of Hepatitis E Virus Infection in Mexico: From the Enigmatic Genotype 2 to the Current Disease Situation. Oliver Viera-Segura,, Arturo Calderón-Flores, Julio A. Batún-Alfaro and Nora A. Fierro. Viruses 2023, 15, 1911.

HEV

Hepatitis E virus: an underestimated opportunistic pathogen in recipients of allogeneic hematopoietic stem cell transplantation

blood

2013 122: 1079-1086
Prepublished online June 21, 2013;
doi:10.1182/blood-2013-03-492363

Table 2. Patient characteristics of hepatitis E–confirmed patients (n = 8)

Patient	Sex	Age at alloHSCT, years	Diagnosis	Stem cell source	Alive at EOF	GVHD	Initial diagnosis	At time of alloHSCT HEV RNA	At time of alloHSCT IgG status	HEV gt	Time from alloHSCT to infection, months	Duration of infection, months	Median (range) ALT levels during infection, U/L*	Immunosuppression at time of infection	Hepatic fibrosis in liver histology	No. of blood products received within 3 months of infection
A	M	44	AML	UCB	No	Acute grades II-IV Chronic extensive	GVHD	−	−	3	2.7	12.5†	73 (24-577)	Cciclosporin, prednisone, mycophenolate	N/A	21
B	F	54	NHL	MUD	Yes	Acute grades II-IV Chronic limited	GVHD	−	−	3	8.4	42.4	207 (31-1507)	Ciclosporin	F3	0
C	F	59	MDS	MUD	Yes	Acute grades II-IV Chronic extensive	GVHD	−	−	3	3.4	6.3	72 (36-215)	Ciclosporin, mycophenolate	N/A	48
D	M	43	CLL	MUD	No	None	DILI	−	+	3	14.0	1.6†	66 (15-309)	Alemtuzumab	N/A	3
E	M	66	AML	MUD	No	Acute grades II-IV	DILI	−	+	3	5.8	1.7†	39 (19-268)	Ciclosporin, prednisone, mycophenolate	N/A	35
F	M	58	NHL	MUD	Yes	Acute grades II-IV Chronic extensive	GVHD	−	+	3	18.3	11.3	208 (25-1130)	Sirolimus, prednisone	F1	0
G	F	39	SAA	UCB	No	Acute grades II-IV	DILI	+	−	3	0	6.5†	70 (12-213)	Ciclosporin, mycophenol acid	F0	21
H	M	59	AML	UCB	Yes	None	GVHD	+	−	3	−2.0	2.1 and 4.9	27 (10-550)	None	N/A	50

+, positive; −, negative; AML, acute myeloid leukemia; CLL, chronic lymphocytic leukemia; DILI, drug-induced liver injury; EOF, end of follow-up; F, female; gt, genotype; GVHD, graft versus host disease; M, male; MDS, myelodysplastic syndrome; MUD, matched unrelated donor; N/A, not available; NHL, non-Hodgkin's lymphoma; SAA, severe aplastic anemia; UCB, umbilical cord blood.

*ALT upper limited of normal, male = 44 U/L or female = 33 U/L.

†Patient died having an HEV viremia.

Hepatitis E virus in blood components: a prevalence and transmission study in southeast England

Lancet 2014; 384: 1766–73

- **225 mil doações testadas para HEV-RNA**
- **79+ HEV-RNA = 1: 2848 (0.04%)**
- **129 componentes gerados e**

62 transfundidos em 60 pacientes.

- **Destes 60, 43 foram investigados**

	Recipients of blood components	Infected recipients	Uninfected recipients
Red blood cells	16	4 (25%)	12 (75%)
Pooled platelets	10	4 (40%)	6 (60%)
Apheresis platelets	14	7 (50%)	7 (50%)
Fresh frozen plasma	2	2 (100%)	0
Pooled granulocytes	1	1 (100%)	0
Total	43	18 (42%)	25 (58%)

Data are number or number (%).

Table 2: Association between transfused blood components and transmission of hepatitis E virus in 43 of 60 exposed patients in whom follow-up was possible

Hepatitis E Virus in the United States and Canada: Is It Time to Consider Blood Donation Screening?

M. Bienz, C. Renaud, J.R. Liu et al. / Transfusion Medicine Reviews 38 (2024) 150835

Table 1
Screening programs in European countries [2]

Country	Screening program	Screening method	HEV RNA Assay[a]
Ireland	Universal screening	Individual donation screen	Procleix HEV assay
Switzerland	Universal screening	Mini-pool of 24	Cobas HEV assay
Spain	Universal screening, region-specific (Asturia and Catalonia)	Mini-pool of 16	Procleix HEV assay
United Kingdom	Universal screening	Mini-pool of 16-24	Cobas HEV assay Procleix HEV assay
Netherlands	Universal screening	Mini-pool of 24	Cobas HEV assay
Austria	Selective screening	Mini-pool of 96	RealStar HEV-RT PCR Kit ®
Luxembourg	Selective screening	Mini-pool of 96	Not available
France	Selective screening	Mini-pool of 6	Procleix HEV assay
Germany	Universal screening, region-specific (North Rhine-Westphalia, and Hamburg)	Mini-pool of 96	Not available

[a] Procleix HEV assay 95% limit of detection (LoD) 7.89 IU/mL, Cobas HEV assay 95% LoD 18.6 IU/mL, RealStar HEV RT-PCR kit ® 95% LoD 4.7 IU/mL.

+ JAPÃO | Universal | ID-NAT | Procleix UltrioPlex E (+HBV, HCV, HIV= 5plex)