

**CONTRIBUTION OF IBERO AMERICAN
BLOOD SERVICES TO THE SAFETY OF
THE GLOBAL BLOOD SUPPLY**

JOSE RAMIRO CRUZ, DSC



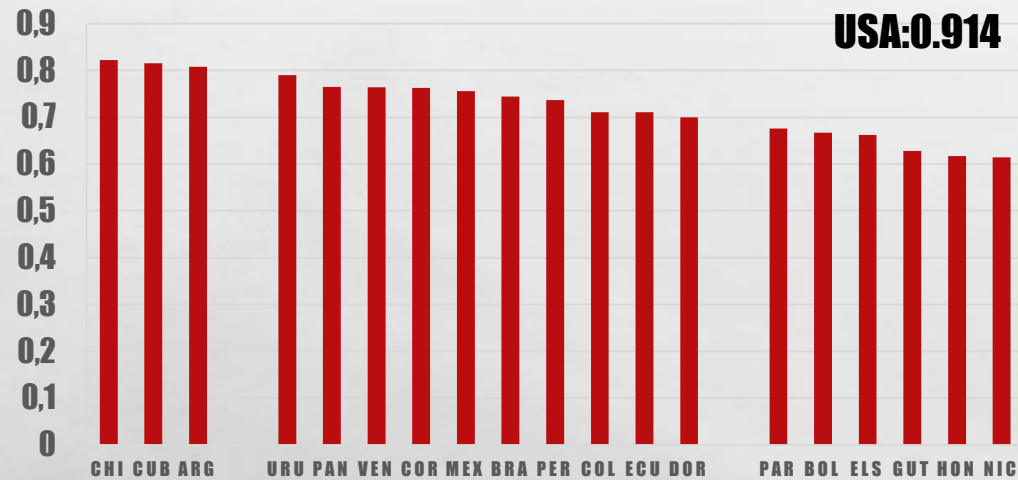
GCIAMT

Grupo Cooperativo Iberoamericano de Medicina Transfusional



19 IBERO AMERICAN COUNTRIES

HDI 2013



POPULATION, MILLIONS 2014



UNDP, 2014

PAHO. Basic Health Indicators 2013.

GCIAMT

Grupo Cooperativo Iberoamericano de Medicina Transfusional



CREATED IN 1994

476 INDIVIDUAL MEMBERS IN IBERO AMERICA

41 INDIVIDUAL MEMBERS IN SPAIN, PORTUGAL, UK, USA, CURACAO

13 INSTITUTIONAL MEMBERS – PROFESSIONAL ASSOCIATIONS AND PAHO

<http://gciamt.org/home.html>

Aplicaciones y Práctica de la Medicina Transfusional

Primera edición
Tomo I

ARMANDO CORTÉS
GRACIELA LEÓN
MANUEL MUÑOZ
SERGIO JARAMILLO

GCIAMT

Grupo Cooperativo Iberoamericano de Medicina Transfusional



Gerencia y Dirección

de Servicios de Sangre y Unidades de Medicina Transfusional

1^{ra} EDICIÓN

Armando Cortés Buelvas
Roberto J. Roig Oltra
Ana Emilia del Pozo

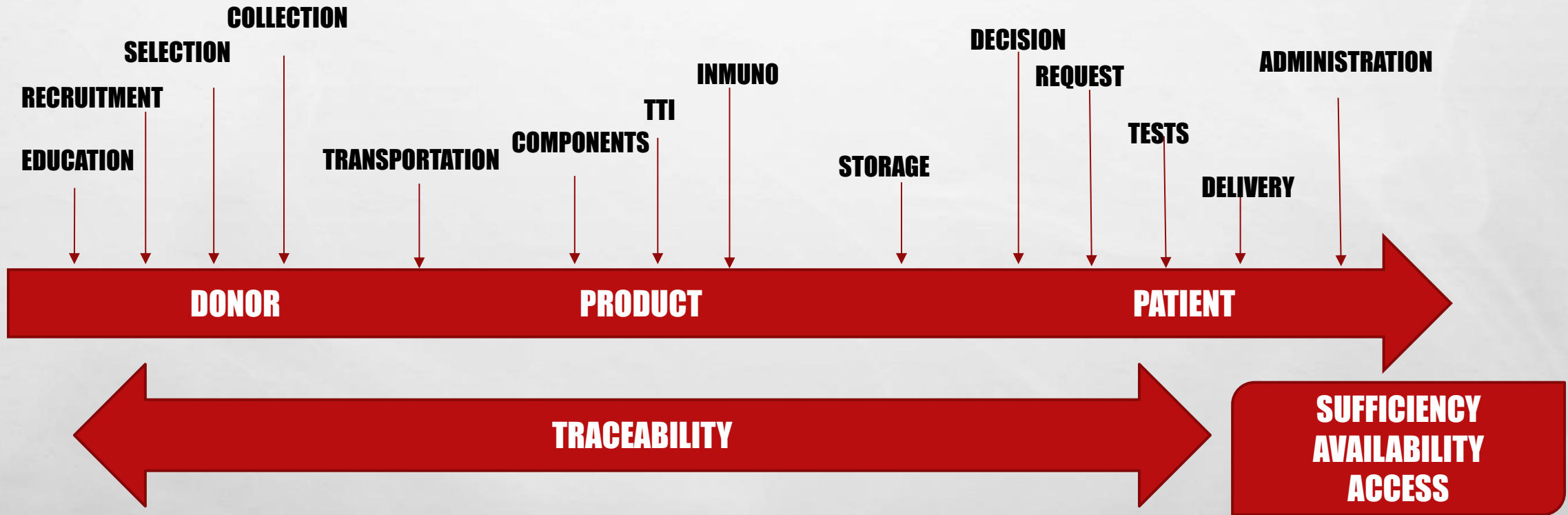


GCIAMT CONGRESSES

- **I. CARTAGENA, COLOMBIA, 1999**
- **II. MERIDA, MEXICO, 2001**
- **III. BOGOTA, COLOMBIA, 2003**
- **IV BUENOS AIRES, ARGENTINA, 2005**
- **V. SAN JOSE, COSTA RICA, 2007**
- **VI. LIMA, PERU, 2009**
- **VII. BUENOS AIRES, ARGENTINA, 2011**
- **VIII. LA ANTIGUA, GUATEMALA, 2013**
- **IX. BELO HORIZONTE, BRAZIL, 2015**



TRANSFUSION SAFETY



BLOOD COLLECTION, 2011

	IBERO AMERICAN COUNTRIES	UNITED STATES OF AMERICA
POPULATION x 1,000	574,165	313,085
ANNUAL BLOOD COLLECTION	9,138,105	15,721,000
BLOOD COLLECTION RATE	159/10,000	502/10,000
N PROCESSING CENTERS	2,321	3,311

PAHO. Washington DC, 2013

**US DHHS. The 2011 National Blood
Collection and Utilization Survey Report.**

MAJOR INDICATORS

INDICATOR	2009	2010	2011	2012
INTERVIEWED	11.548.615	11.312.631	11.652.249	11.115.906
DEFERRED	2.471.403 (21.4%)	2.479.292 (21.9%)	2.514.144 (21.6%)	2.050.398 (18.4%)
ANNUAL COLLECTION	9.077.212	8.833.339	9.138.105	9.065.508
VNRBD	3.570.181 (39.3%)	3.667.866 (41.3%)	3.758.197 (41.8%)	3.751.988 (41.9%)*
TTI MARKERS	292.248 (3.22%)	339.652 (3.82%)	363.165 (3.97%)	339.610 (3.75%)

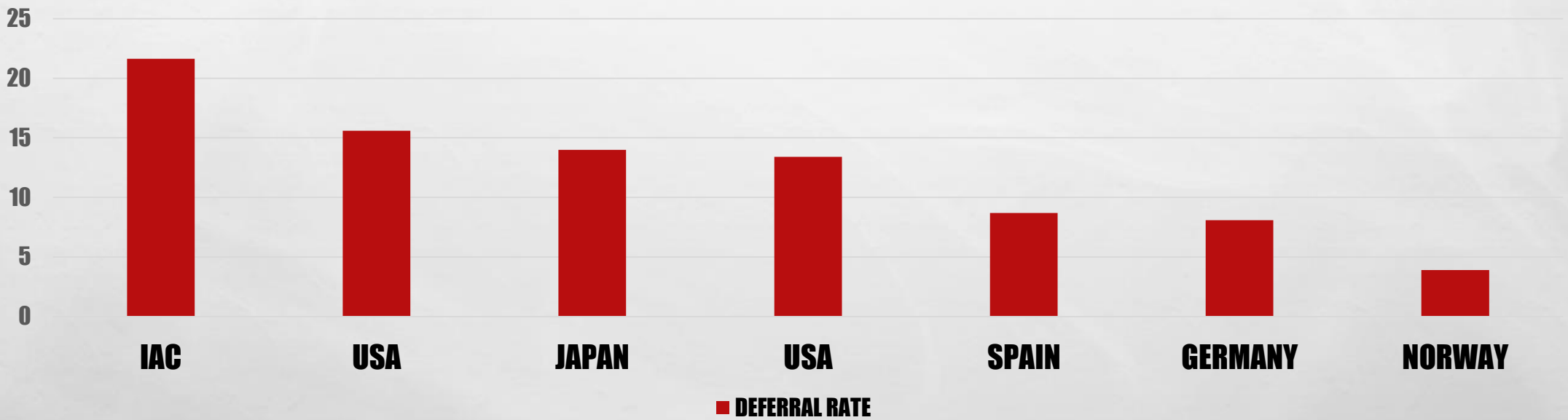
http://www.paho.org/hq/index.php?option=com_content&view=category&layout=blog&id=1163&Itemid=2163&lang=en

PAHO. Washington DC, 2011, 2013, 2015

*18/19 COUNTRIES,

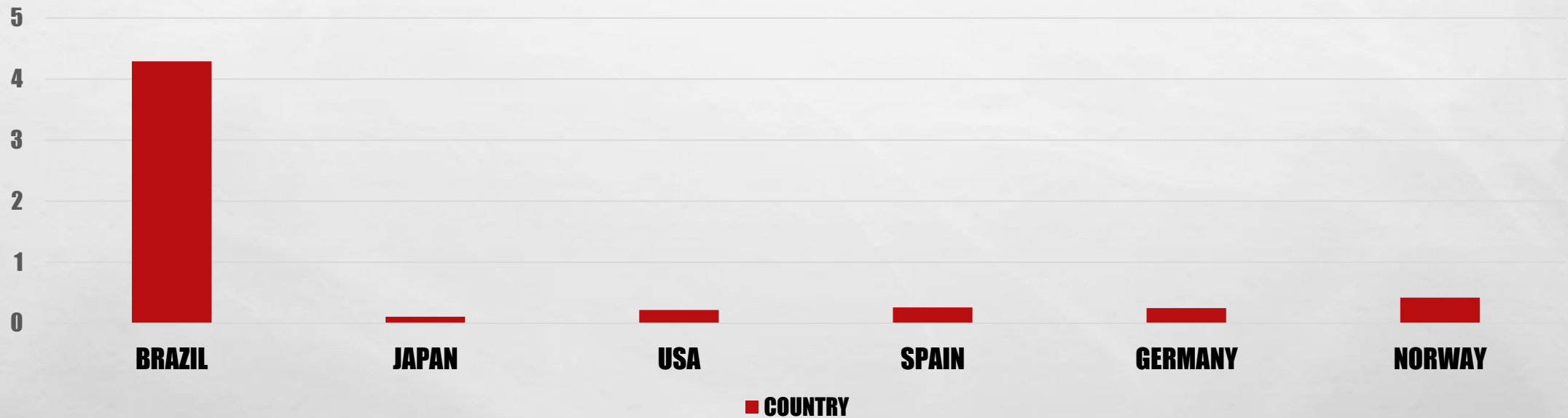
DEFERRAL RATES

DEFERRAL RATE (%)

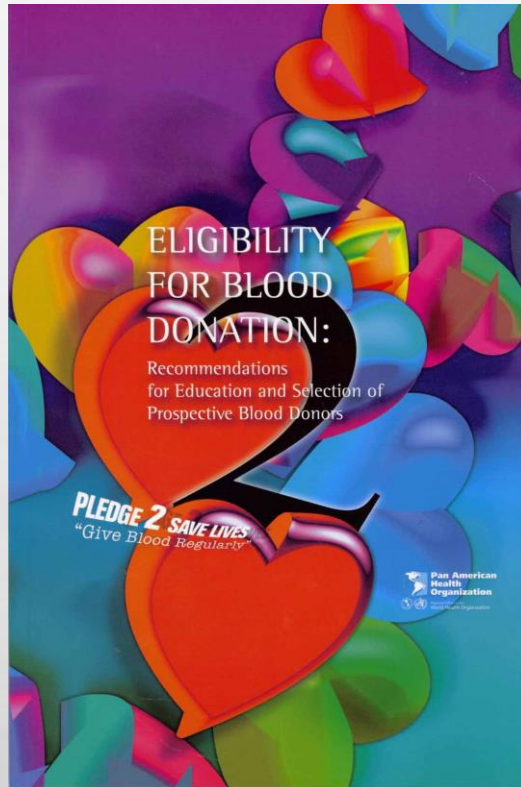


HIGH-RISK SEXUAL BEHAVIOURS

% PROSPECTIVE DONORS



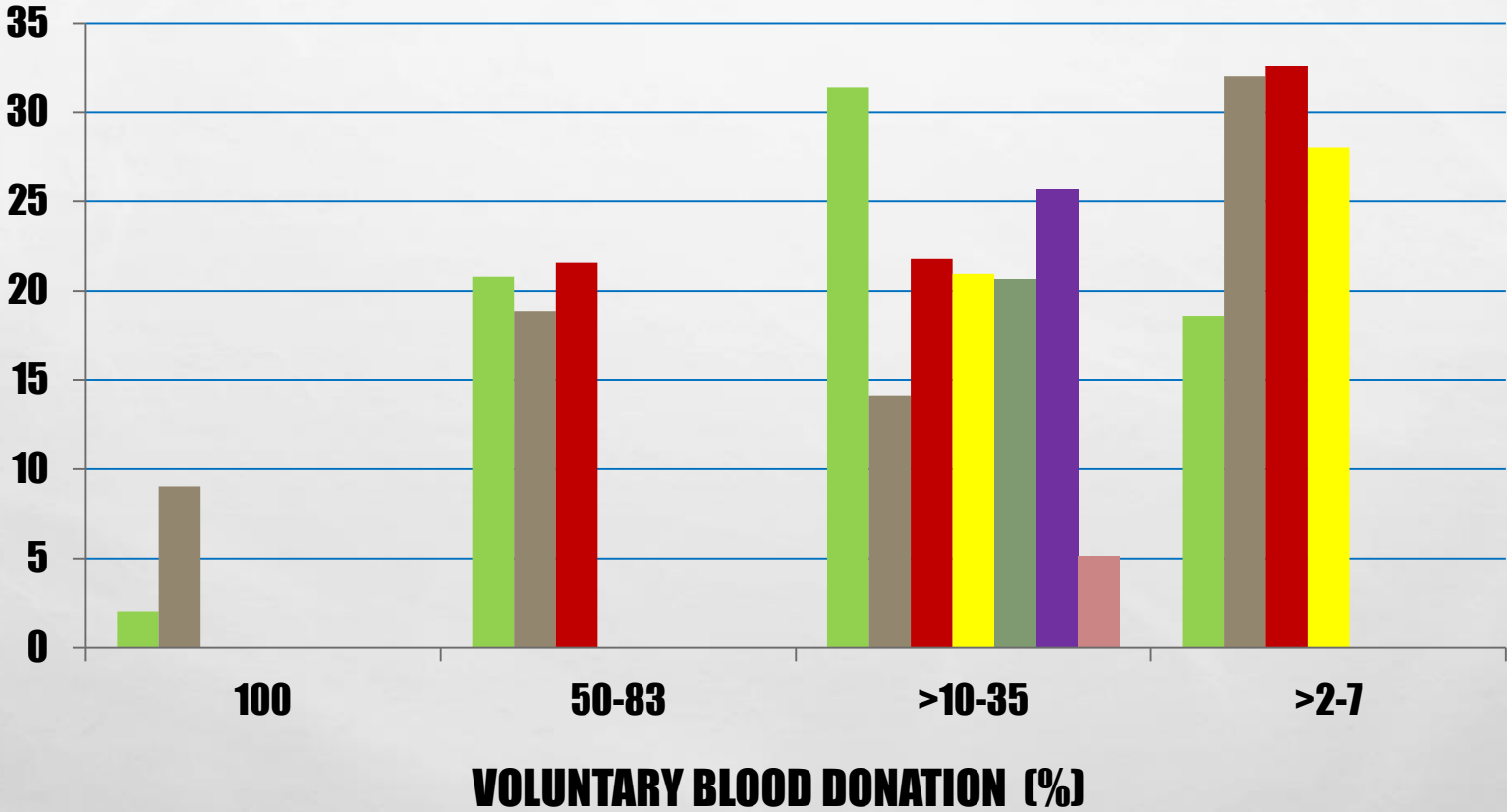
REFERRAL OF DONORS WITH RISKY SEXUAL BEHAVIOURS*



- **“PAHO RECOMMENDATION: PERSONS WHO ENGAGE IN RISKY BEHAVIOURS SHOULD BE DEFERRED FROM DONATING BLOOD FOR 12 MONTHS AFTER THE LAST OCCURRENCE... ..POTENTIAL BLOOD DONORS SHOULD BE ENCOURAGE TO PROTECT THEMSELVES AND THEIR PARTNERS BY PRACTICING SAFE SEX”**

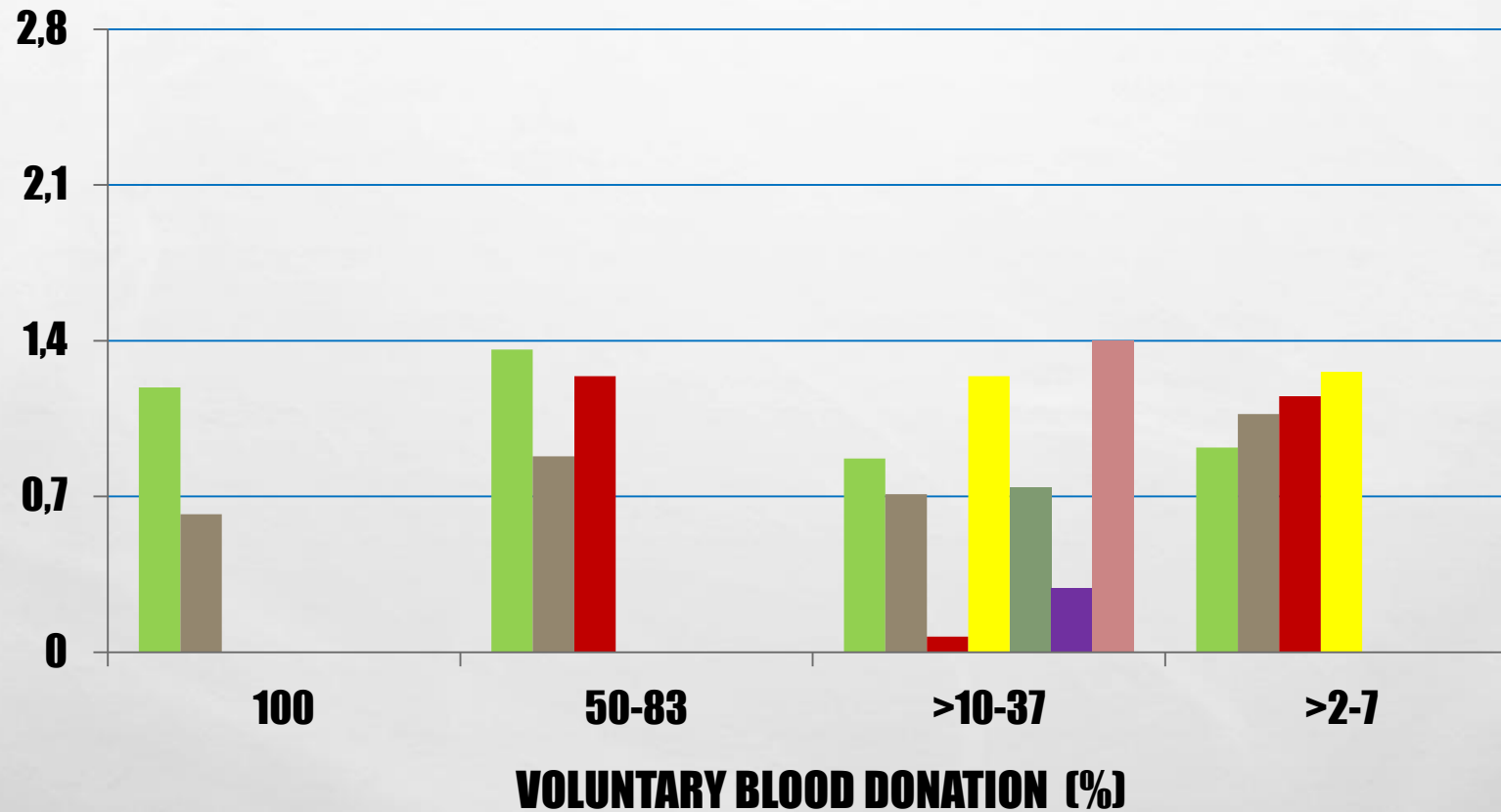
***ELEGIBILITY FOR BLOD DONATION. PAHO, WASHINGTON DC, 2009**

DEFERRED DONORS, 2012



PAHO. Washington, DC. 2015

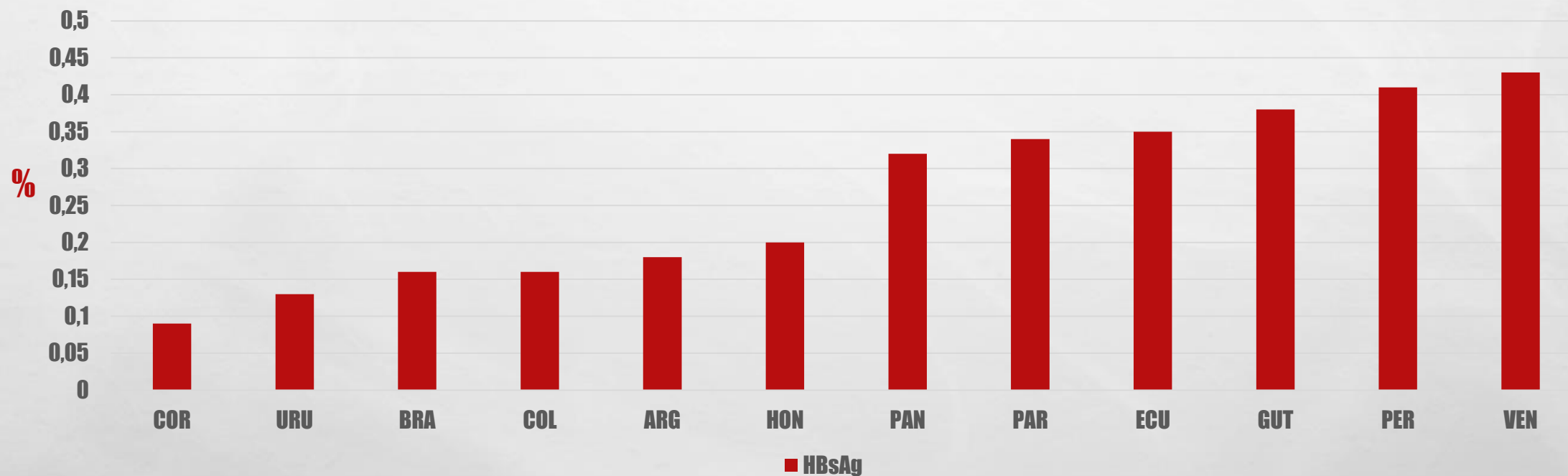
PREVALENCE OF VIRAL* MARKERS, 2012



*TTI: HIV,
HBsAg, HCV

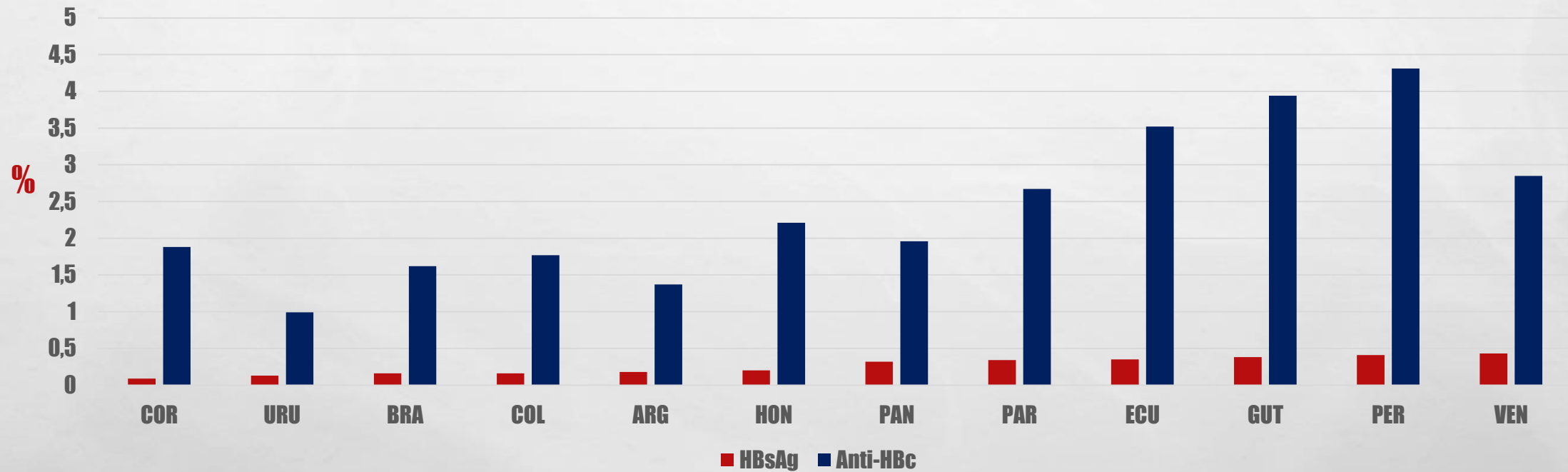
HBsAg AMONG DONORS

12 IBERO AMERICAN COUNTRIES, 2012

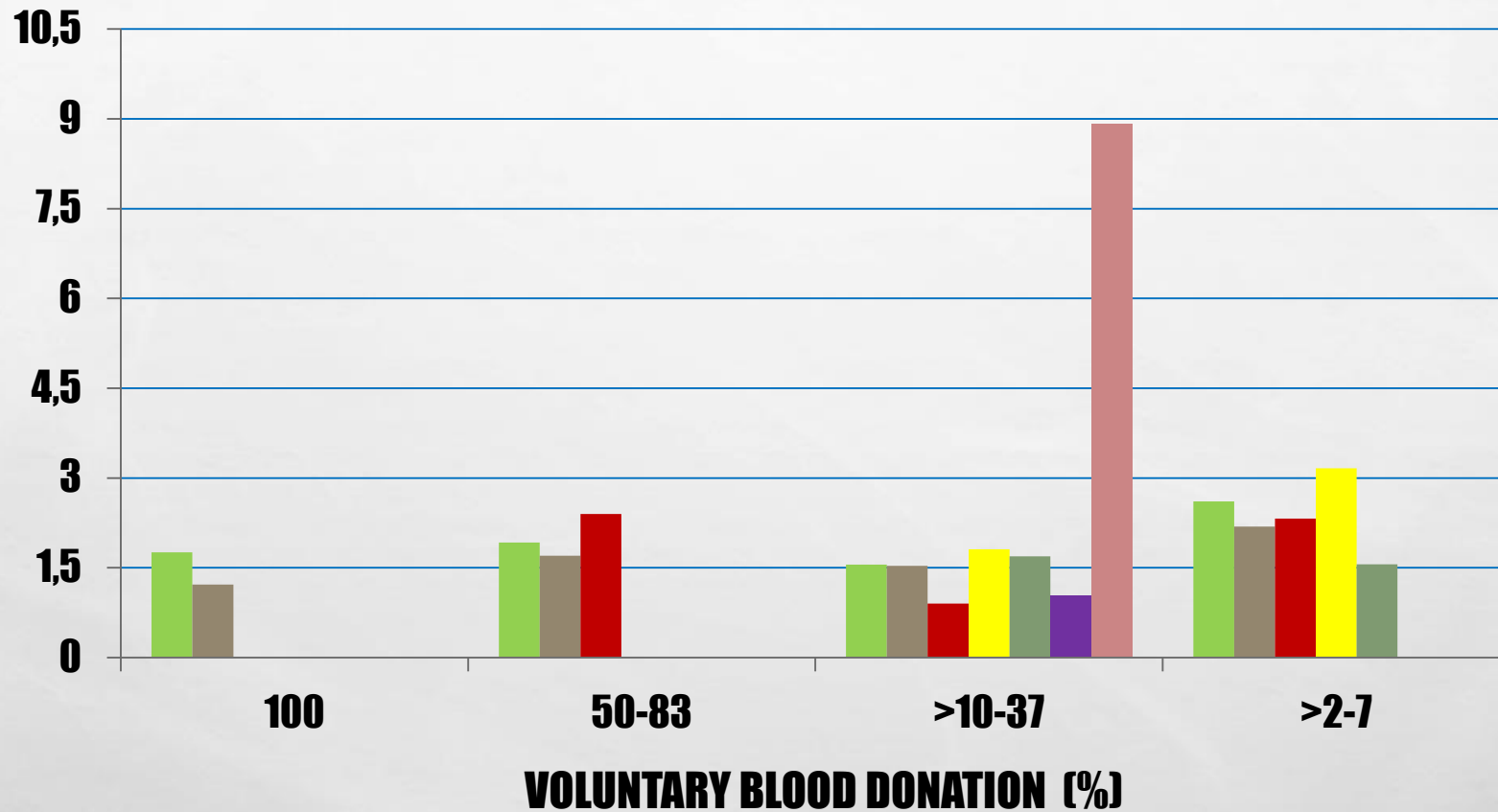


HBsAg AND ANTI-HBc AMONG DONORS

12 IBERO AMERICAN COUNTRIES, 2012

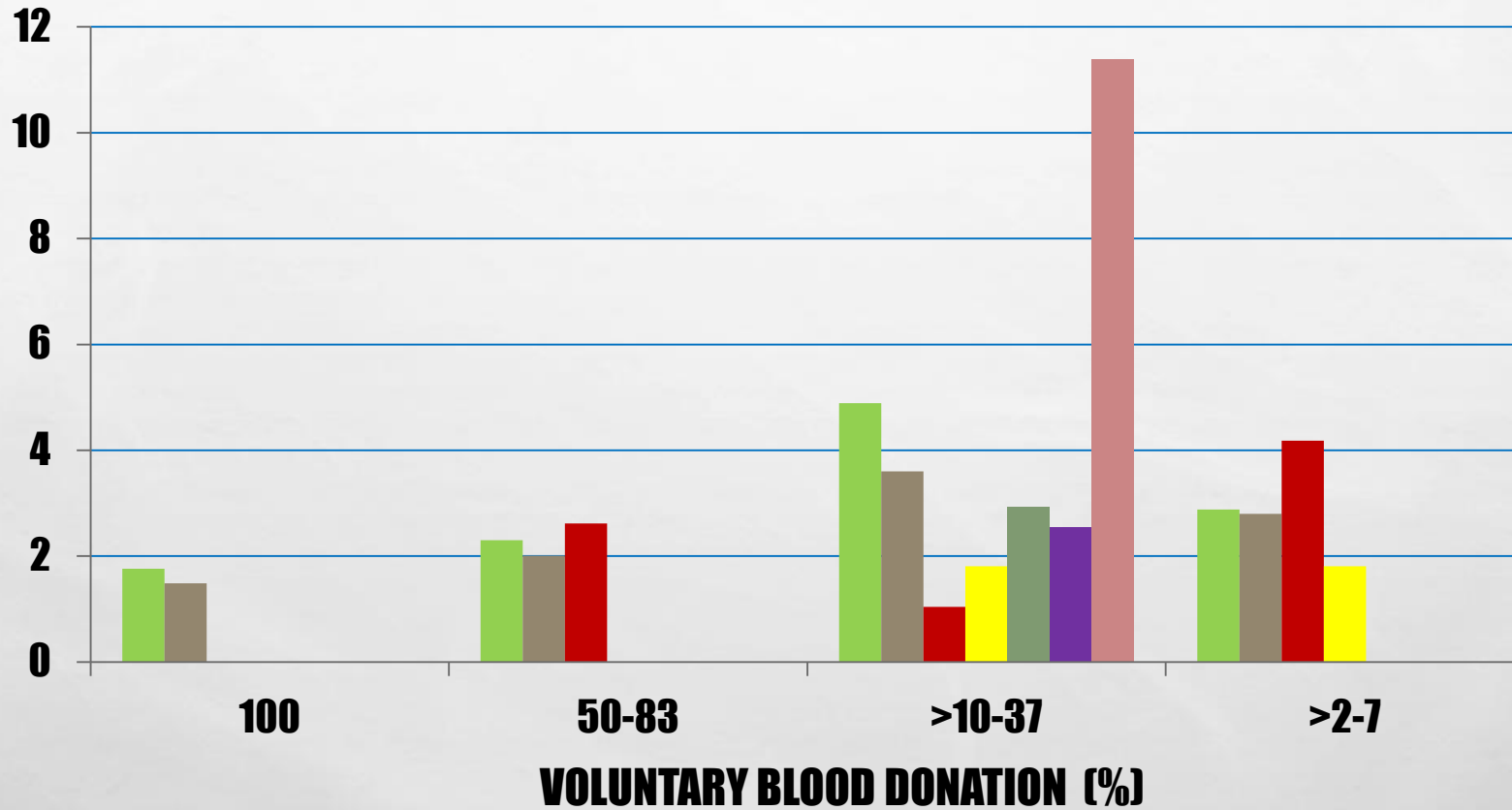


PREVALENCE OF TTI* MARKERS, 2012



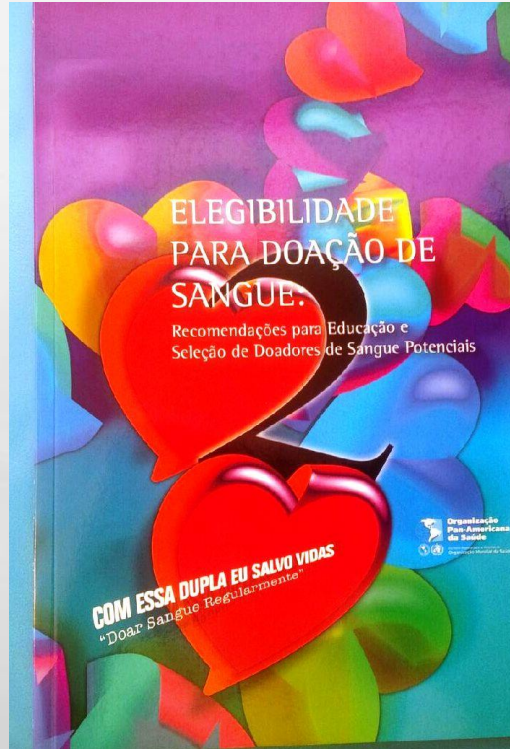
***TTI : HIV,
HBV, HCV
SYPHILIS**

PREVALENCE OF TTI* MARKERS, 2012



***TTI : HIV,
HBV, HCV
SYPHILIS,
T. cruzi**

REFERRAL OF DONORS WITH RISKS*

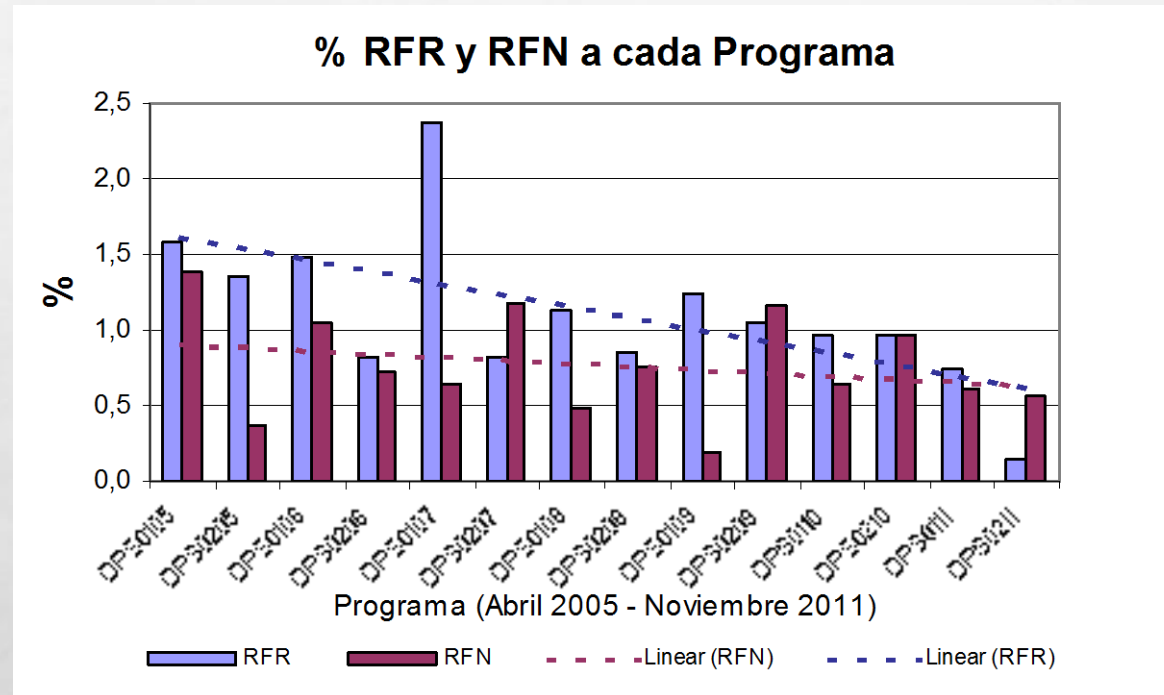


- **“PAHO RECOMMENDS THAT ANY CLINICAL SIGNIFICANT FINDINGS DETECTED DURING THE PRE-DONATION EVALUATION OR DURING THE BLOOD TESTING SHOULD BE RELEASED. BLOOD SERVICES SHOULD REFER FOR APPROPRIATE FOLLOW-UP DONORS WHO HAVE INDICATIONS OF CLINICALLY SIGNIFICANT CONDITIONS, INCLUDING REACTIVE INFECTIOUS MARKERS”**

***ELEGIBILITY FOR BLOOD DONATION. PAHO, WASHINGTON DC, 2009**

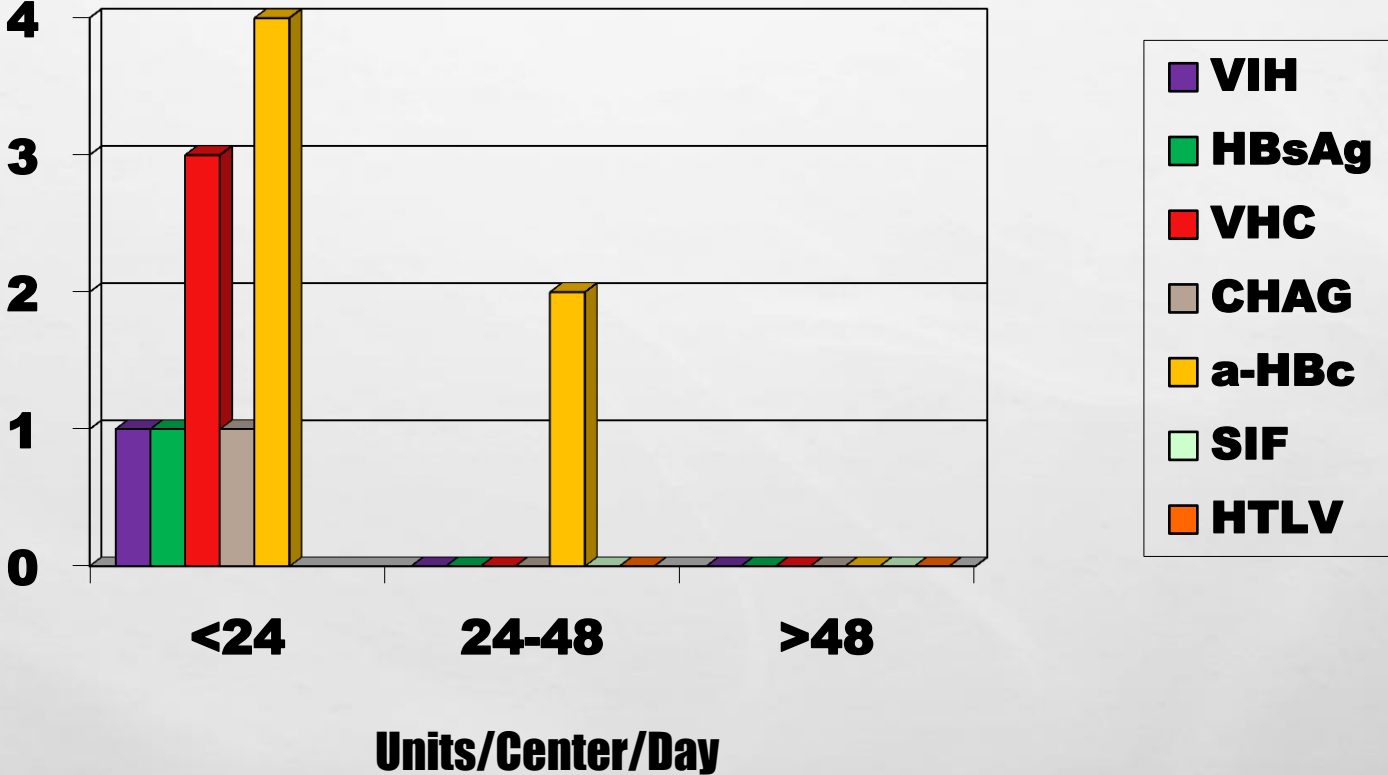
FALSE REACTIVE AND FALSE NON-REACTIVE TESTS

PAHO EQAP, 2005-2011



FALSE NEGATIVE, EEP

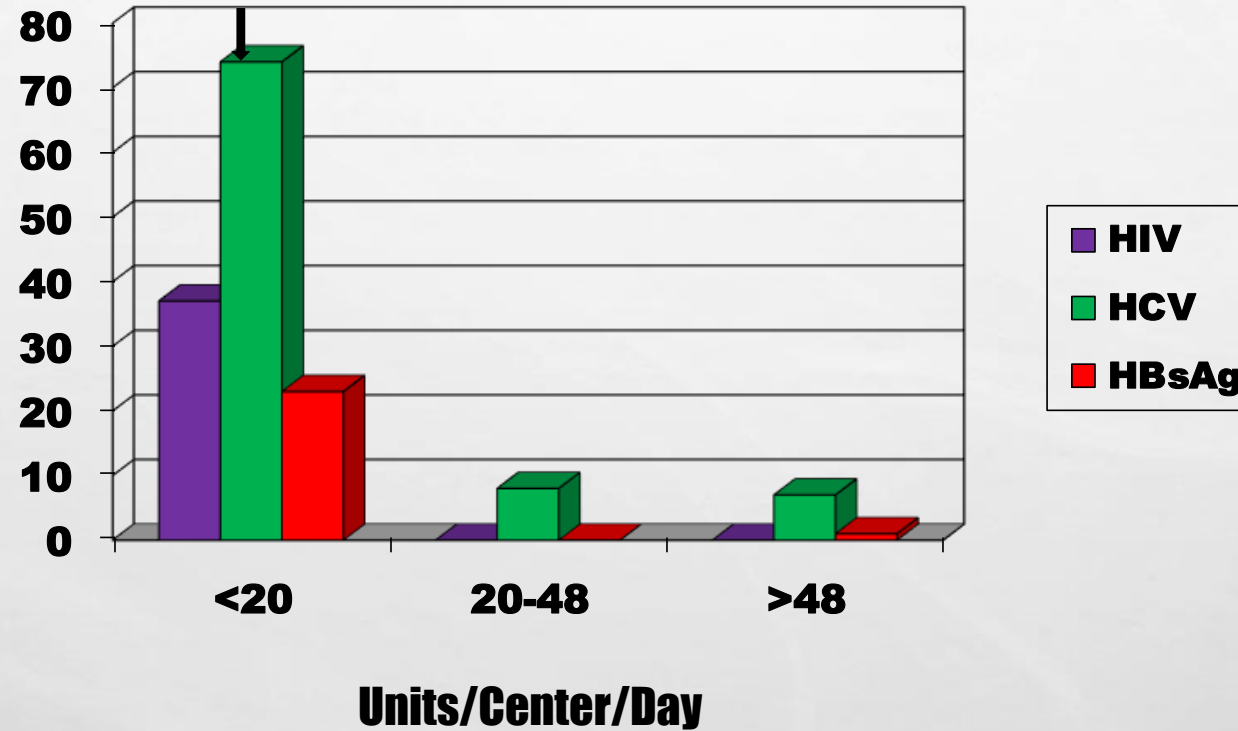
BELTRAN & AYALA, PAJPH, 2003. 13:138



FALSE NEGATIVE RESULTS

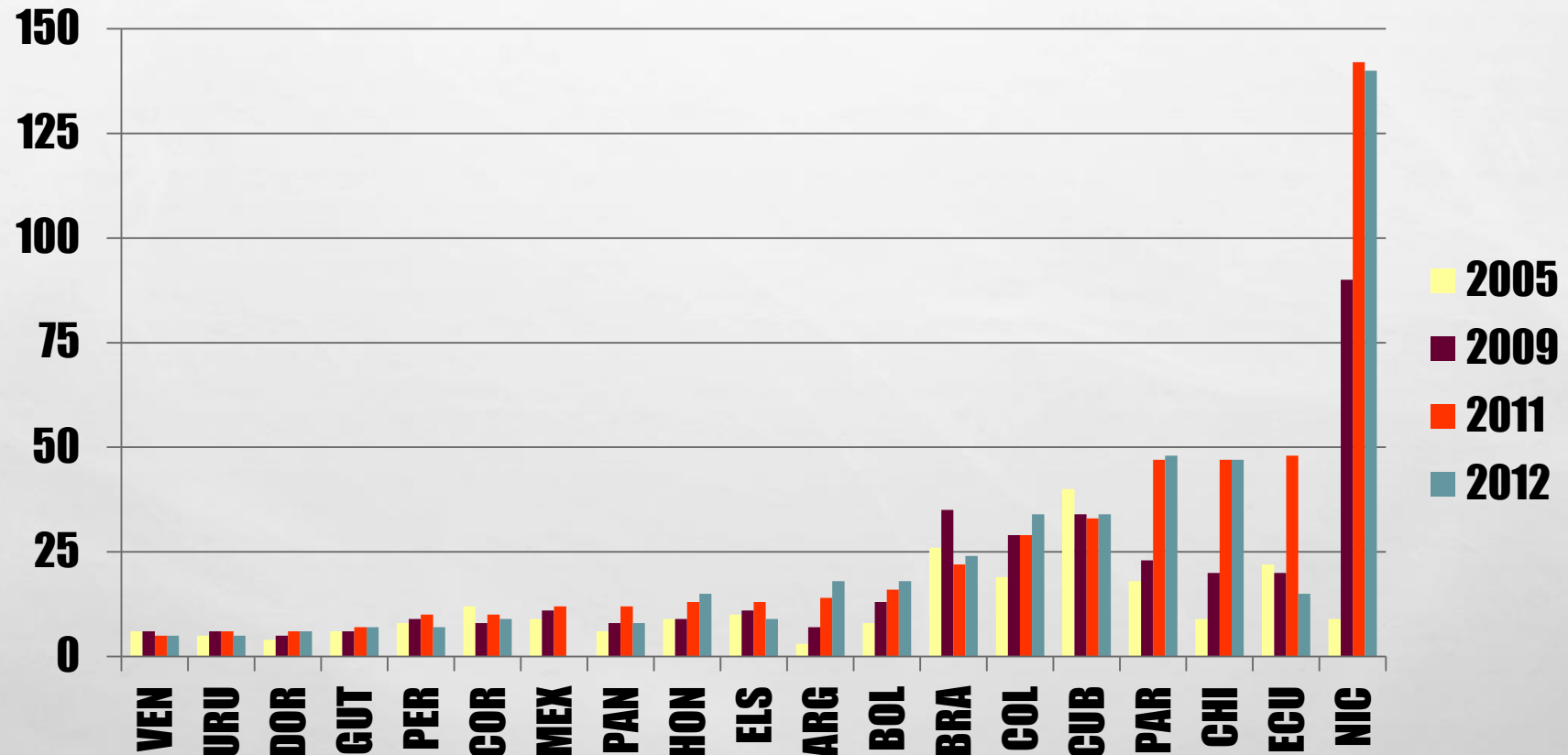
ECUADOR, 2003-2004

(GRIJALVA ET AL; JCV, 2005; 34:S47)



UNITS/CENTER/DAY

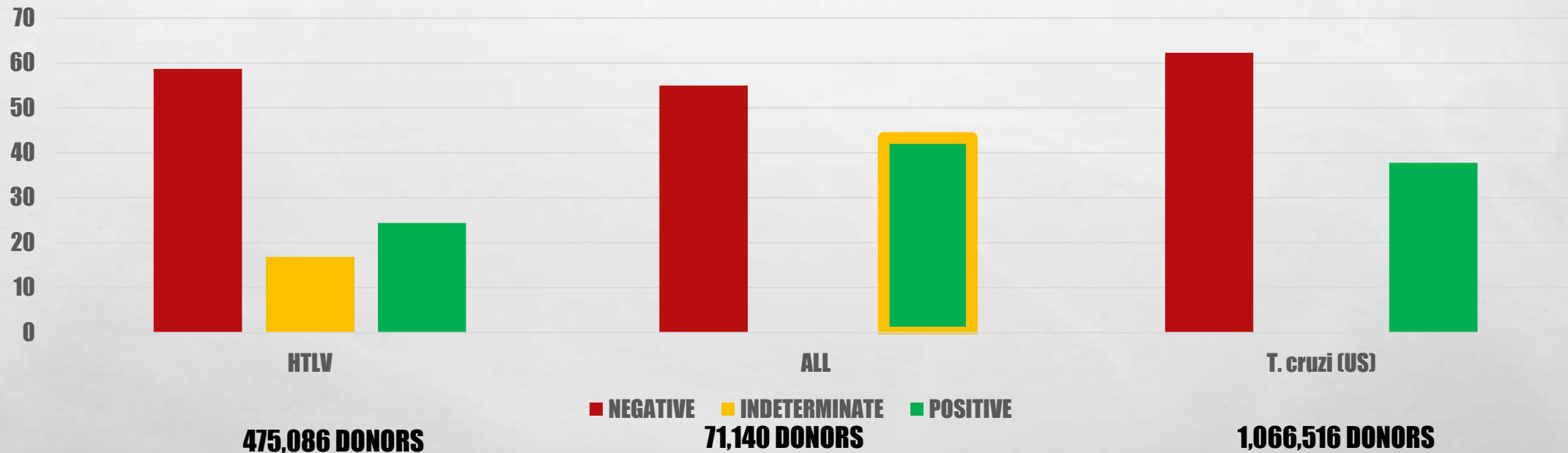
2005,2009,2011, 2012



PAHO. Washington DC, 2007, 2011, 2013, 2015.

CONFIRMATORY TESTING

RESULTS



Punzi ML et al. IX GCIAMT Congress, 2015

Leon de Gonzalez, op cit

Kessler DA. Transfusion, 2013

ESTIMATING RISK OF TTI

T. CRUZI INFECTIONS

TESTING	N POSITIVE	N NEGATIVE	% POSITIVE
BEFORE	3	227	1.30
AFTER	0	121	0.00
TOTAL	3	348	0.86

HCV INFECTIONS

TESTING	N POSITIVE	N NEGATIVE	% POSITIVE
BEFORE	83	97	46.11
AFTER	4	169	2.31
TOTAL	87	266	24.64

De Paula EV et al. BMC Inf Dis 2008; 8:5

De Paula EV et al. J Clin Virol 2015; 34:S27

ODDS RATIO IN RELATION TO IMPLEMENTATION OF HCV SCREENING EPIBLOOD

COUNTRY	YEAR	OR
BRASIL	1999	95.0
ARGENTINA	1993	78.8
MEXICO	1993	22.8
COLOMBIA	1995	10.1
PERU	1996	5.6

Cruz, JR. Bol GCIAMT 2006; 20:5-8

ASSESSING IMPACT ON PATIENTS

71,140 DONORS → 2,561 RR → 1,992 CONFIRMATORY TESTING → 1,103 SECOND SAMPLE

↓
896 (45%) POS/IND

↓
478 (43%) POS/IND

↓
287 (60%) WITH PREVIOUS DONATION

←
52 IN MC

←
235 IN OTHER CENTERS

**PLATELET RECIPIENT WAS HCV PATIENT
RBC RECIPIENT NEW HCV INFECTION**

↓
8 PREVIOUSLY NON REACTIVE

44 PREVIOUSLY REACTIVE

NAT TESTING, HEMOCENTRO BOGOTÁ

JUL 2006-FEB 2015

AGENT	N SAMPLES	N NAT POSITVE
HIV	304,836	0
HBV	304,836	5*
HCV	304,836	0

***2 NAT POSITIVE/HBsAg NEGATIVE**


3 NAT POSITIVE/HBsAg NEGATIVE, anti-HBc POSITIVE.

N UNITS NOT SCREENED*, 2012

H I V	H B s A g	H C V	SYPHILIS	T . cruzi
57,134	59,134	57,146	61,979	194,895

PAHO, 2015. *Mexico, Paraguay, Venezuela

MEDICAL TOURISTS, 2013

COUNTRY	NUMBER	MEDICAL CONDITIONS	
1. THAILAND	1,200,000		
2. <i>MEXICO</i>	<i>1,050,000</i>		1. CORRECTIVE SURGERY
3. USA	800,000		2. DENTISTRY
4. SINGAPORE	610,000		3. CARDIOVASCULAR
5. INDIA	400,000		4. ORTHOPEDICS
6. MALASIA	250,000		5. CANCER
7. <i>BRAZIL</i>	<i>180,000</i>		6. REPRODUCTIVE
8. TURKEY	110,000		7. WEIGHT LOSS
9. TAIWAN	90,000		8. TESTING
10. <i>COSTA RICA</i>	<i>50,000</i>		

Patients Beyond Borders

WORLD TOURISM

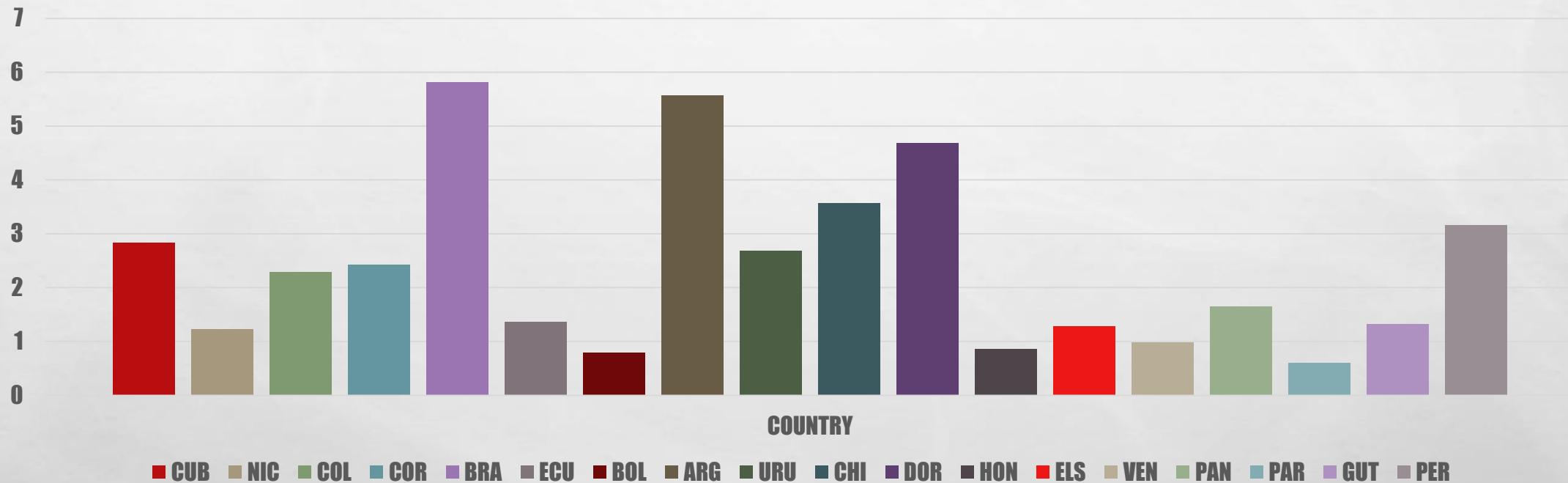
REGION	NUMBER (MILION)	INCREMENT FROM 2013
EUROPE	584	4%
ASIA PACIFIC	263	5%
AMERICAS	182	7%
AFRICA	56	2%
MIDDLE EAST	50	4%

UN World Tourism Organization

NUMBER OF TOURISTS

COUNTRY/SUBREGION	NUMBER (MILLION)
USA	69,768
IBERO AMERICAN COUNTRES	69,642
CARIBBEAN	25,700
CANADA	16,590
TOTAL	181,700

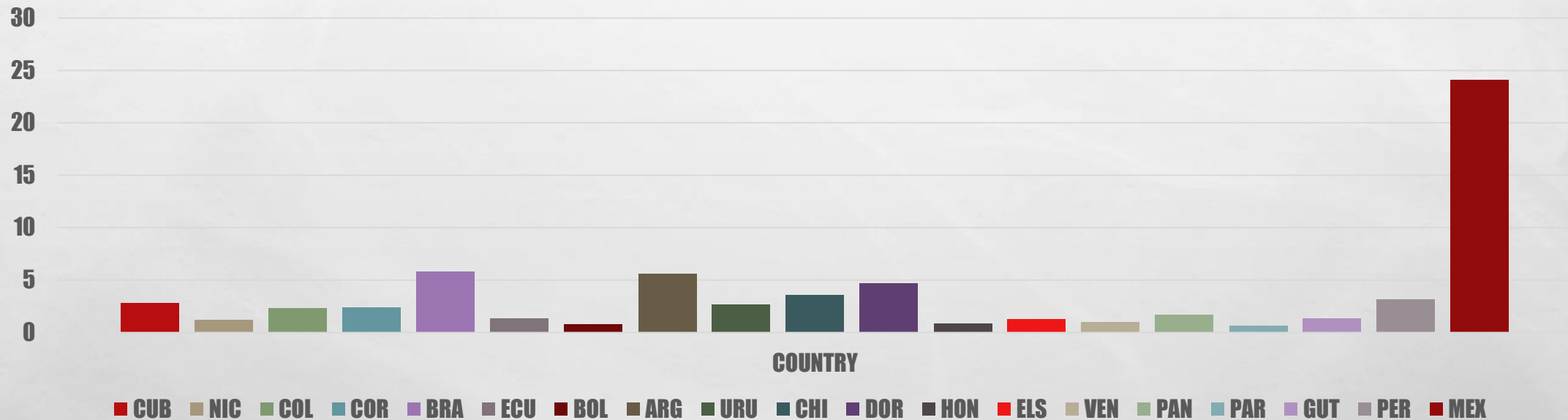
ARRIVALS (MILLION), 2013



18 countries, 44.7 M

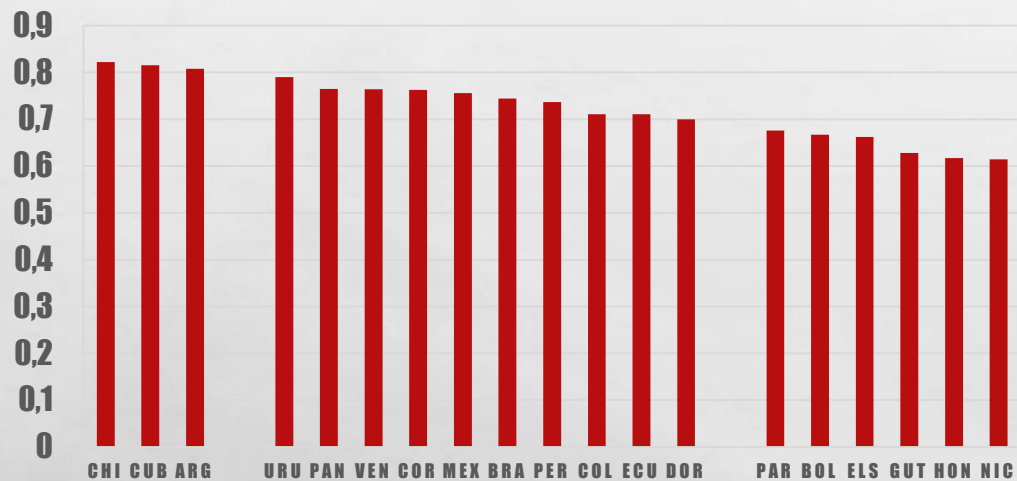
ARRIVALS (MILLION), 2013

69.6 MILLION

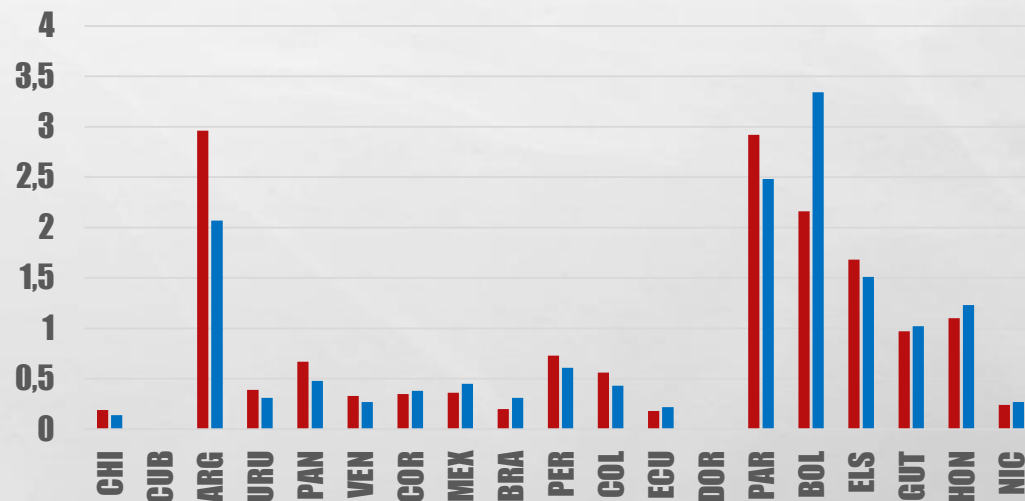


19 IBERO AMERICAN COUNTRIES

HDI 2013



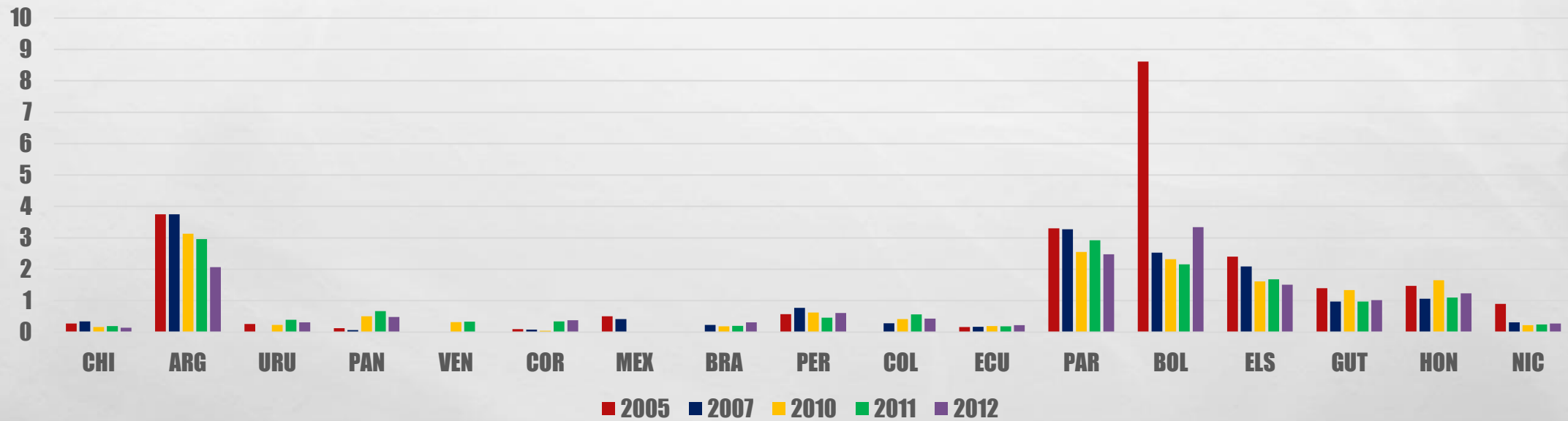
PREVALENCE OF T CRUZI IN DONORS 2011, 12



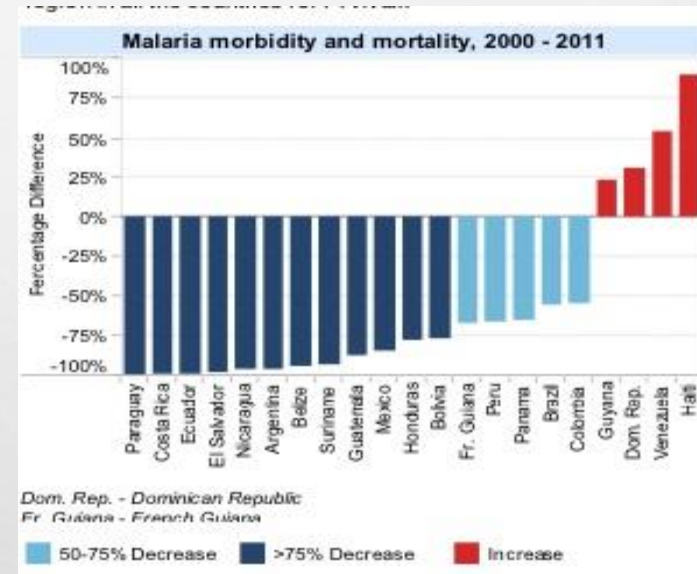
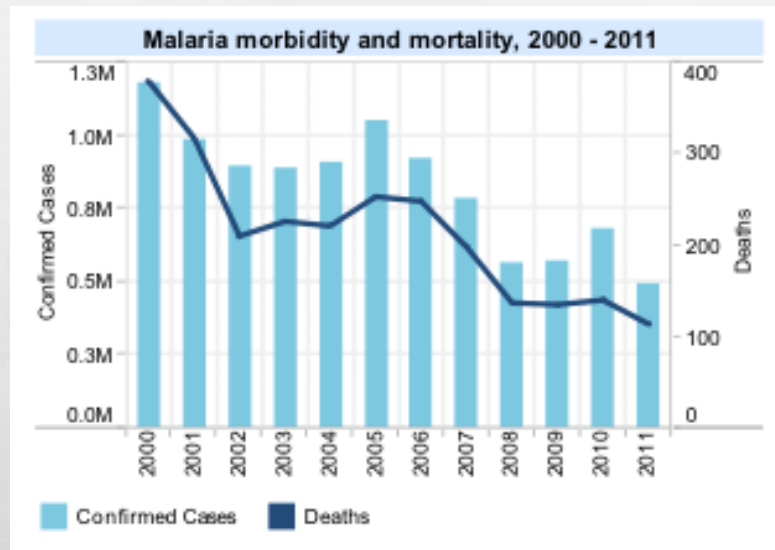
ANTI- T. CRUZI ANTIBODIES AMONG DONORS

2005-2012

PREVALENCE



MALARIA, 2000-2011



TRANSFUSION-TRANSMITTED MALARIA

SAO PAULO, BRAZIL. 2011

P. MALARIAE

- **DONOR TRAVELED TO JUQUIA CITY, SAO PAULO**
- **8 MONTHS BEFORE DONATION**
- **PATIENT IN SAO PAULO CITY**

Scuracchio P et al, 2011

CALI, COLOMBIA. 2012

P. VIVAX

- **DONOR TRAVELED TO DAGUA, VALLE DEL CAUCA**
- **9 MONTHS BEFORE DONATION**
- **PATIENT IN CALI, VALLE DEL CAUCA**

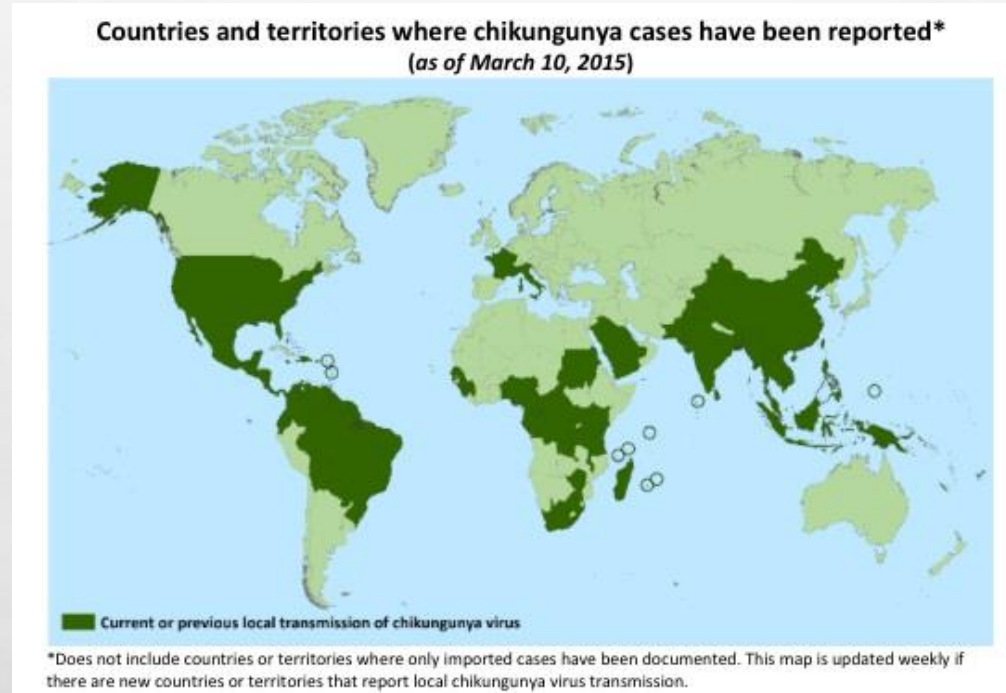
Echeverri D et al, 2012.

DENV IN COSTA RICAN DONORS

**DENV AG POSITIVE DONATION AND
SEROCONVERSION BY DONOR DID NOT RESULT IN
TRANSMISSION TO RBC RECIPIENT**

**0.28% OF BLOOD DONORS POSITIVE FOR DENV
ANTIGEN**

GEOGRAPHIC DISTRIBUTION OF CHIKUNGUNYA VIRUS



www.cdc.gov/chikungunya/geo/

CASES OF CHIKV FEVER 2013-2015

IBERO AMERICAN COUNTRIES

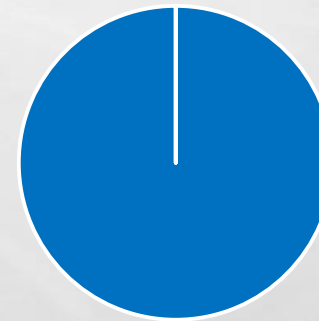
1,387,998 CASES



■ LOCAL ■ IMPORTED

CANADA AND USA

3,406 CASES

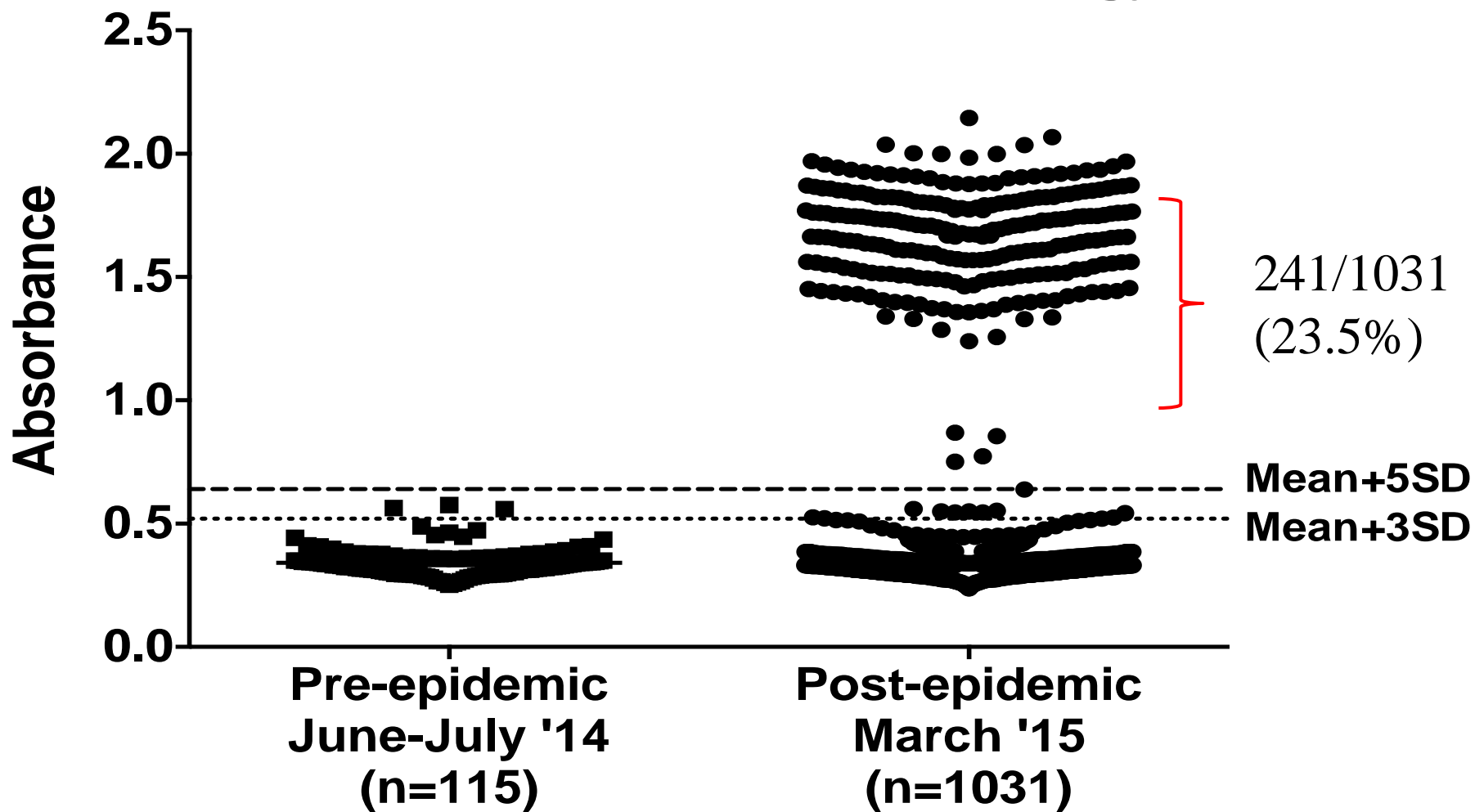


■ LOCAL ■ IMPORTED

Number of reported cases of CHIK fever in the Americas, 2013-2014. PAHO. Washington DC, 2015

Puerto Rico 2014 CHIKV Serology

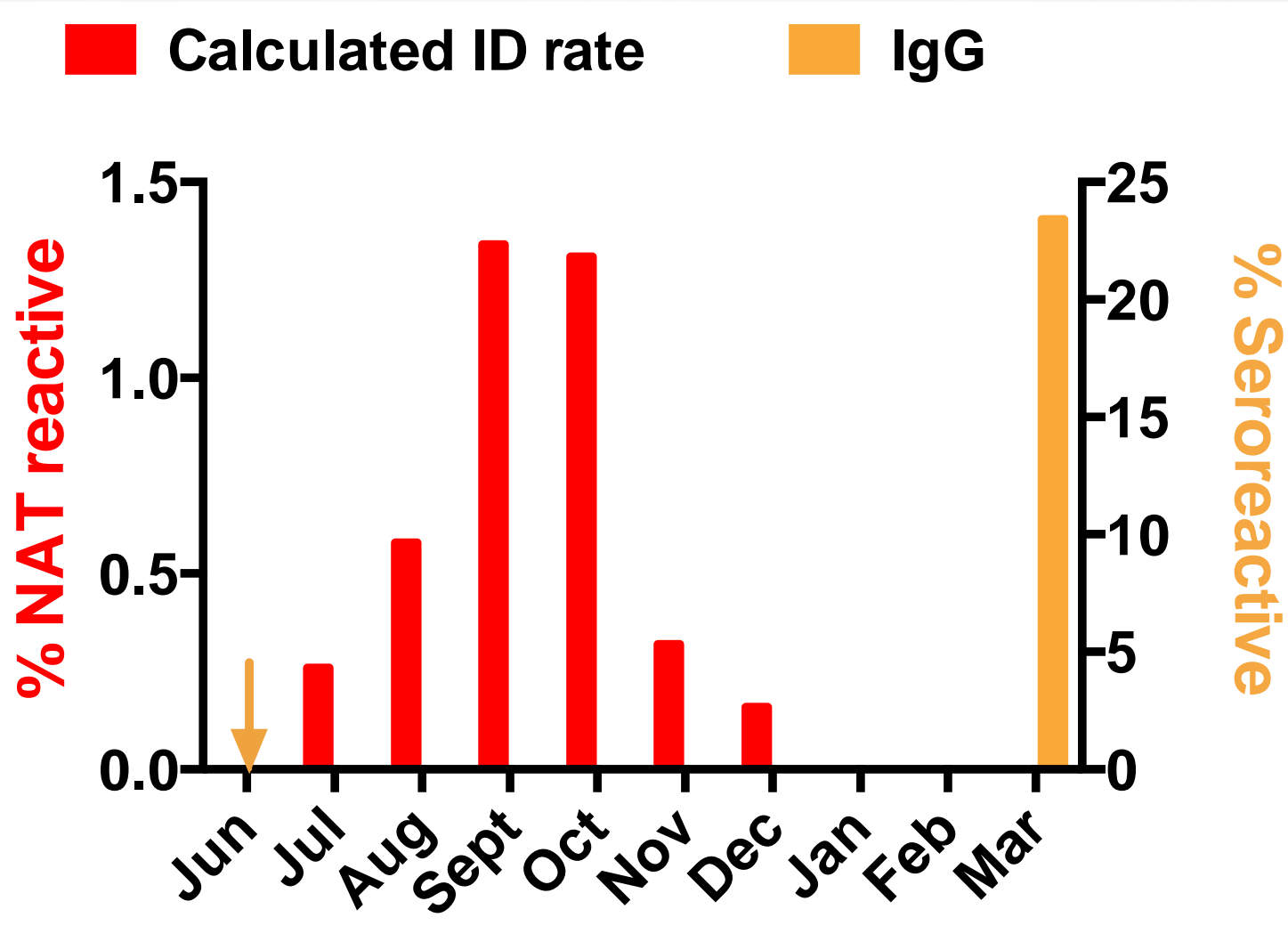
Busch M



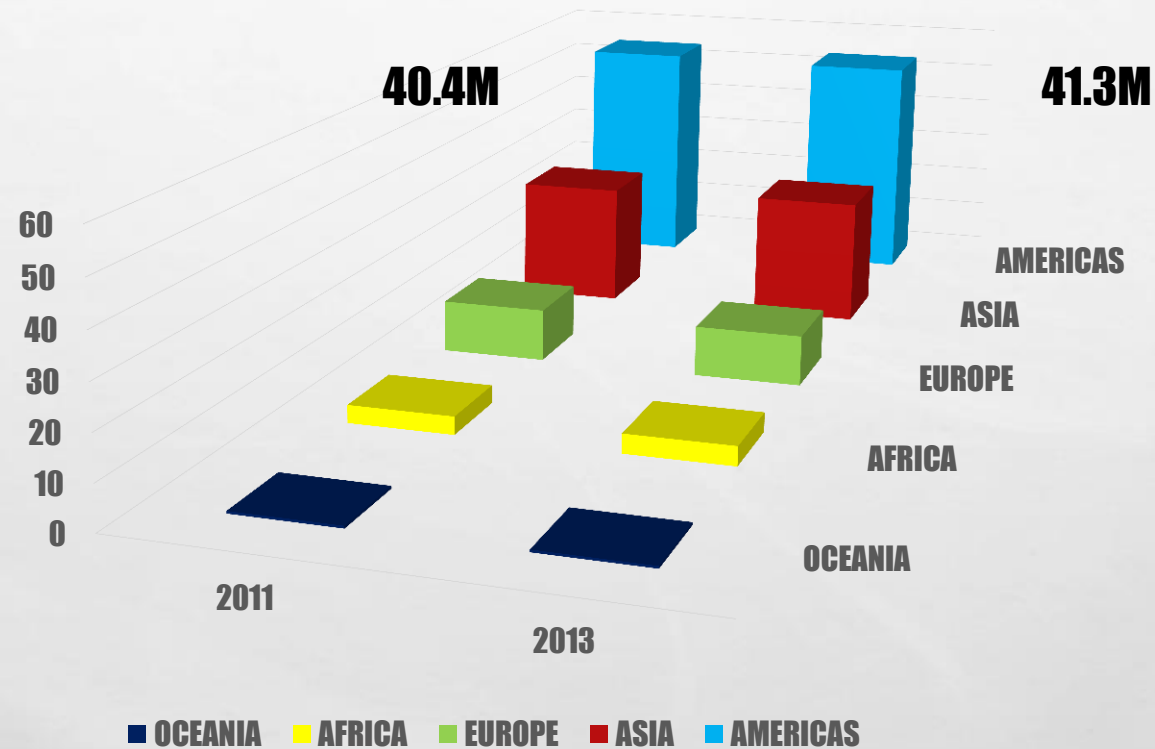
3.6 M residents of PR x 23.5% infection rate => 846 K infections in 2014
35 K suspected/confirmed cases reported in PR => 4.1% infections reported

Imputed rates of RNA+ IDs using assay with sensitivity of MP NAT

Busch M



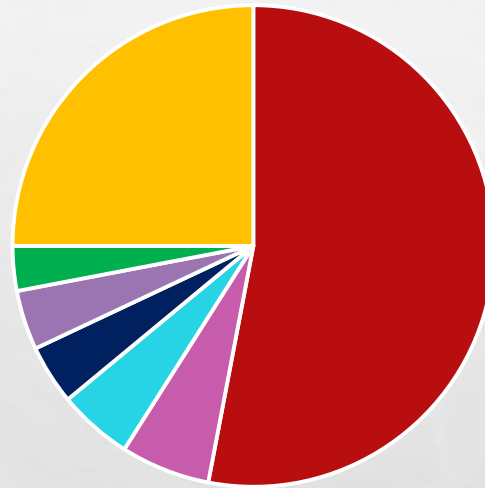
IMMIGRANTS TO US. 2011, 2013



IBERO AMERICAN IMMIGRANTS TO US

[HTTP://WWW.MIGRATIONPOLICY.ORG/PROGRAMS/DATA-HUB/CHARTS/TOP-IMMIGRANT-POPULATIONS-US-STATE](http://www.migrationpolicy.org/programs/data-hub/charts/top-immigrant-populations-us-state)

COUNTRY OF ORIGIN



19.1M (2011)

■ MEXICO ■ ELS ■ CUB ■ DOR ■ GUT ■ COL ■ OTHER

16-64 YEAR-OLD IMMIGRANTS TO USA

COUNTRY	NUMBER	T cruzi (0.60%)*	HCV (0.61%)*
MEXICO	10,505,357	45,173	65,133
EL SALVADOR	1,328,269	23,335	2,163
CUBA	919,641	0	9,012
DOMINICAN REPUBLIC	807,537	0	5,330
GUATEMALA	765,794	10,032	6,356
COLOMBIA	553,280	2,334	2,988
HONDURAS	441,572	6,182	2,517
OTHER	1,697,090	14,407	10,957
TOTAL	17,018,540	101,463	104,456

***ESTIMATES BASED ON HISTORIC
NATIONAL PREVALENCE RATES AMONG DONORS**

CHAGAS IN TEXAS*

COUNTY	LOCALLY ACQUIRED CASES	IMPORTED CASES
HARRIS	2 (22%)	9
FORD BEND	3 (60%)	2
FAYETTE	1 (100%)	0
TOTAL	6 (35%)	11

*Garcia MN et al. Am J Cardiol 2015; 115:113

AABB-DERIVED PAHO STANDARDS, 1999



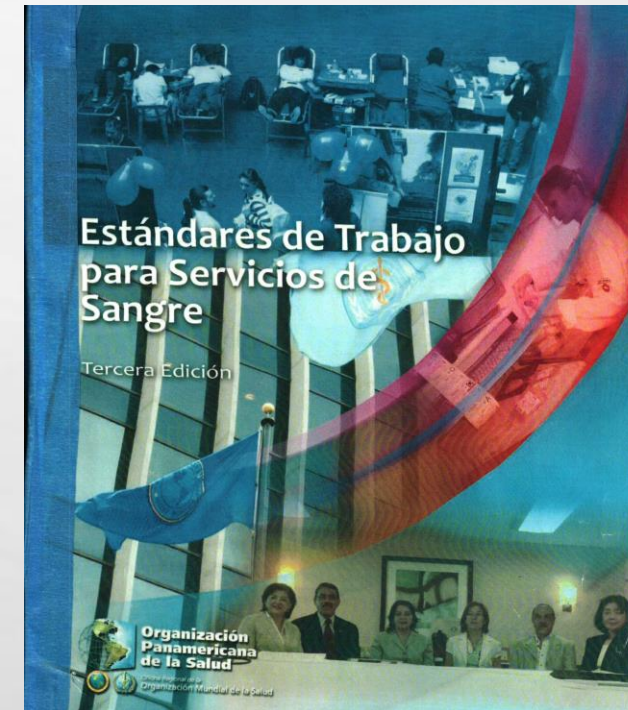
PAHO STANDARDS



1999



2005



2011

GCIAMT STANDARDS, SEPTEMBER 2013

GCIAMT

Grupo Cooperativo Iberoamericano de Medicina Transfusional



ESTÁNDARES DE TRABAJO PARA SERVICIOS DE
SANGRE

GRUPO COOPERATIVO IBEROAMERICANO
DE MEDICINA TRANSFUSIONAL

Primera Edición
Septiembre de 2013

Comisión Directiva (2013-2015), Dres. Graciela León, Paula Castellanos, Nelly Vásquez y María Dolores Pérez-Rosales, así como por Coordinadores de Comités, Dres. Ana del Pozo, José Magariños y Jùnia Morao, hizo una revisión de la adaptación de los Estándares de Trabajo de OPS 2011 propuesta por el Grupo de Trabajo, con el fin de adoptarlos como los Estándares del GCIAMT. Estos servirán como herramienta guía en proyectos de garantía calidad como la formación de auditores y la creación de un Sistema de Acreditación del Grupo, siempre respetando las regulaciones, normativas y estándares nacionales de cada país, los cuales podrían superar a lo dispuesto en ellos. Esta iniciativa será, sin duda, un estímulo para los países en lograr la acreditación de sus servicios de sangre en corto plazo y en definitiva para mejorar su desempeño en cuanto a la seguridad transfusional.

Por la Comisión Directiva del GCIAMT 2013/2015

Graciela León (Presidente)
Paula Castellanos (Vicepresidente)
Nelly Vásquez (Secretaria)
María Dolores Pérez-Rosales (Representante de OMS/OPS)

DONORS

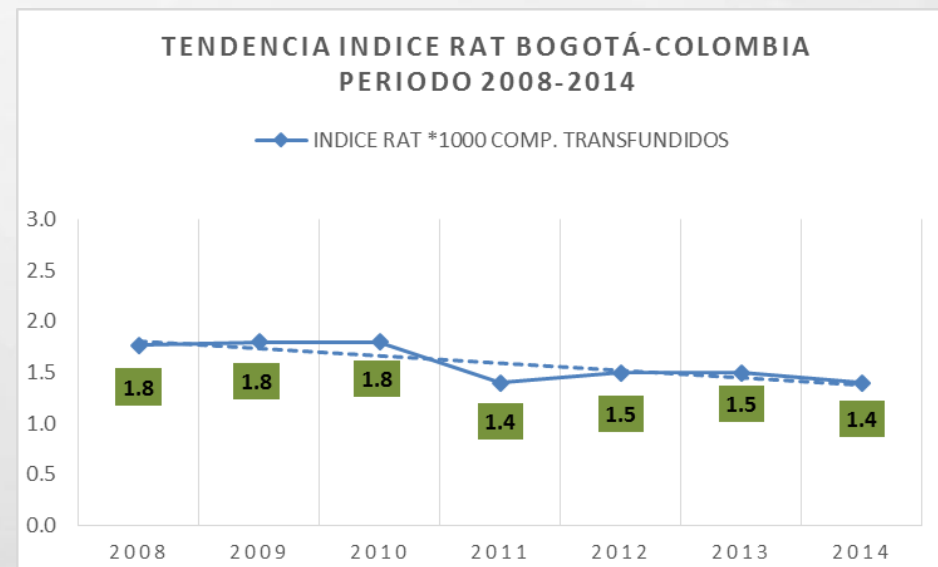
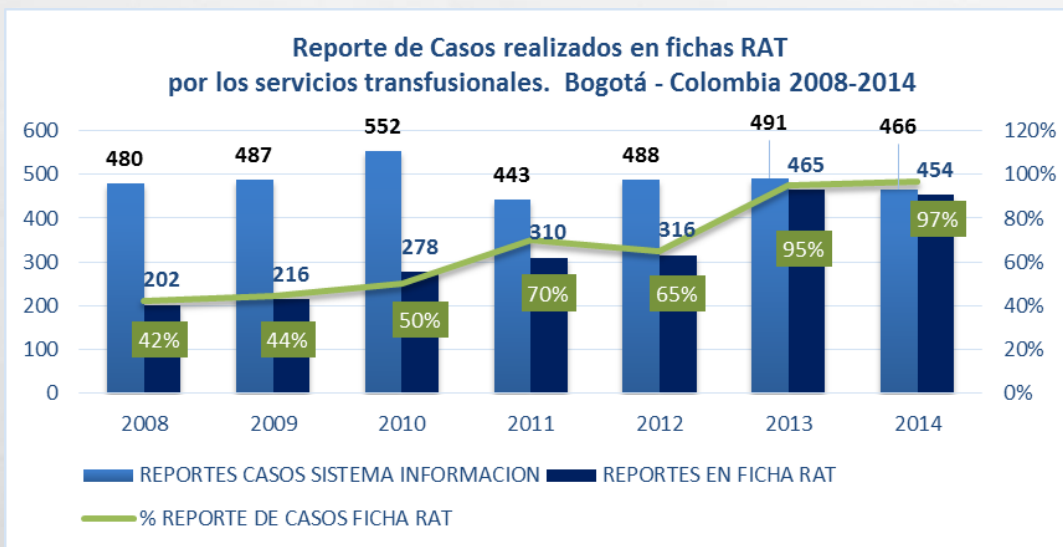
TTI TESTING

QC, EEP

ADVERSE REACTIONS

TRACEABILITY

HEMOVIGILANCE IN BOGOTÁ



**THANK YOU VERY MUCH FOR YOUR
ATTENTION!!!!**

JCRUZ62004@AOL.COM

