# Què cal saber de les noves vacunes: actualització per a l'Atenció Primària

*Ángela Martinez i Inés Oliveira*


**III Simposi de Salut Internacional a l'Atenció Primària**

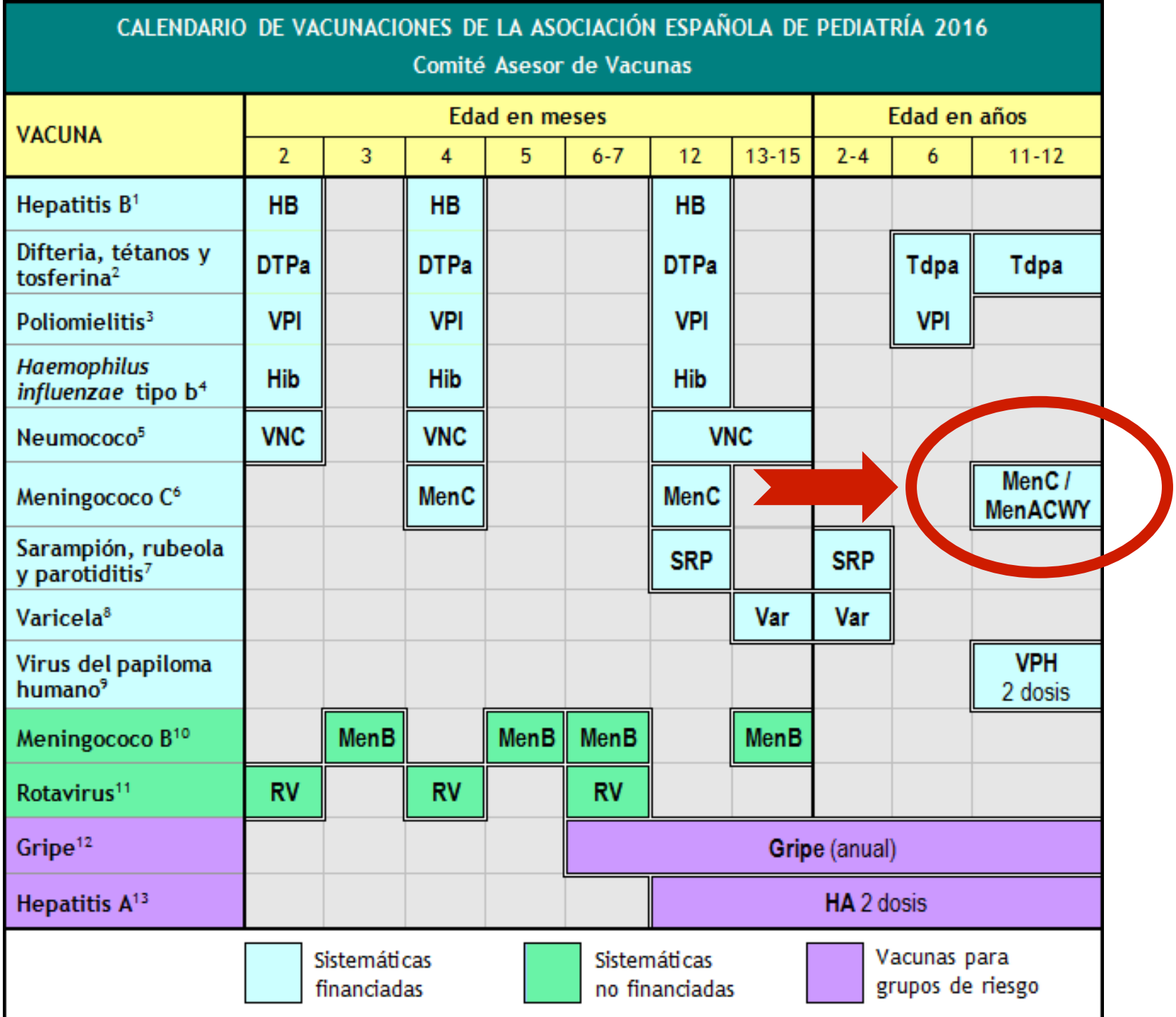
# Què cal saber de les noves vacunes: actualització per a l'Atenció Primària

- Meningitis
- Encefalitis japonesa
- Chikungunya
- Zika
- Fiebre amarilla
- Dengue
- Ebola
- Fiebre tifoidea
- Encefalitis centroeuropea

# Meningitis


Nimenrix®
Powder and solvent for solution for injection in pre-filled syringe
Meningococcal group A, C, W-135 and Y conjugate vaccine
1 dose (0.5 ml)
1 pre-filled syringe: solvent
1 vial: powder
2 needles
After reconstitution, use immediately
Shake well before use
Intramuscular use

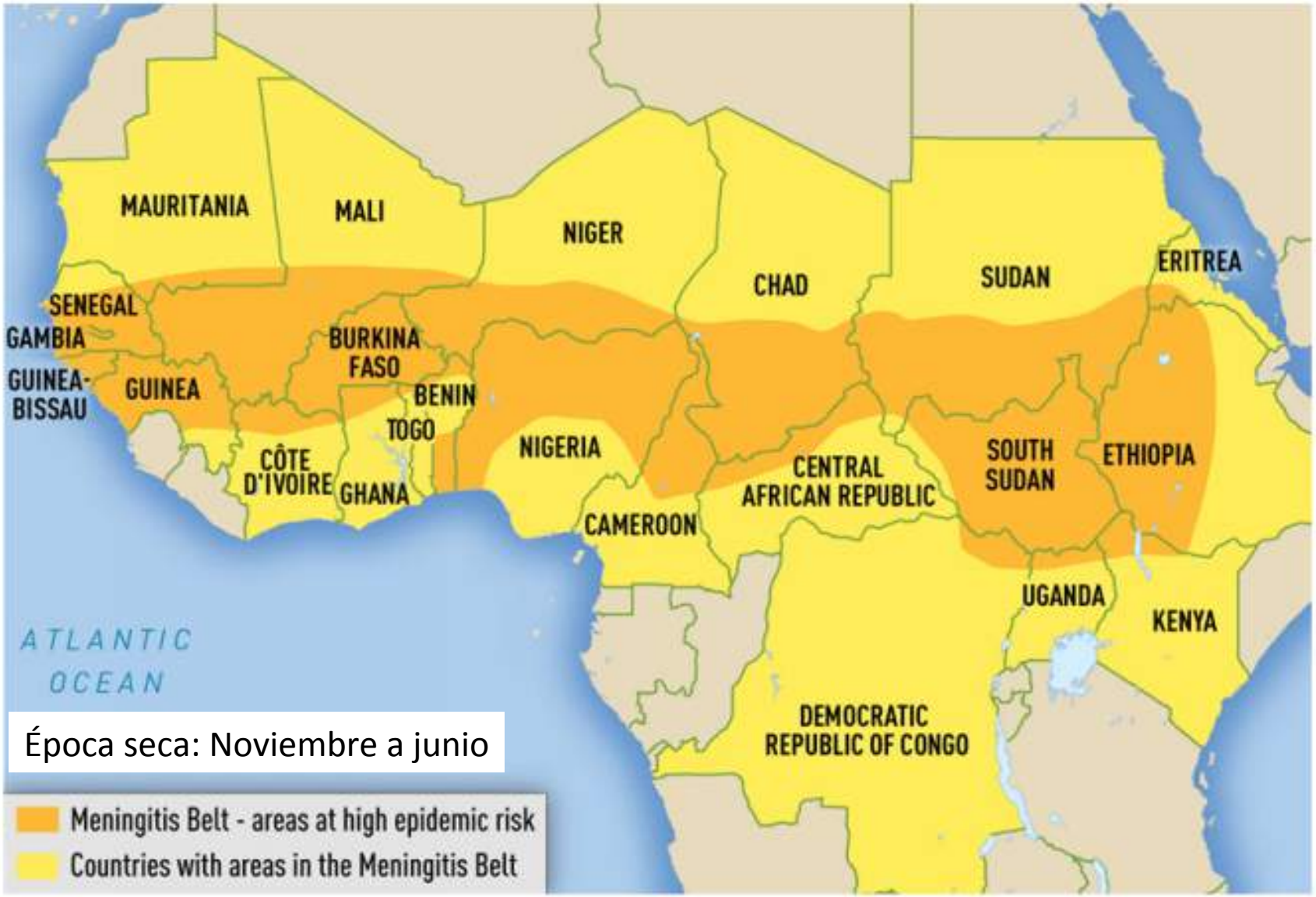

MENVEO®
NOVARTIS


CALENDARIO DE VACUNACIONES DE LA ASOCIACIÓN ESPAÑOLA DE PEDIATRÍA 2016
Comité Asesor de Vacunas
VACUNA
Edad en meses
Edad en años
2
3
4
5
6-7
12
13-15
2-4
6
11-12
Hepatitis B[1]
HB
HB
HB
Difteria, tétanos y tosferina[2]
DTPa
DTPa
DTPa
Tdpa
Tdpa
Poliomielitis[3]
VPI
VPI
VPI
VPI
Haemophilus influenzae tipo b[4]
Hib
Hib
Hib
Neumococo[5]
VNC
VNC
VNC
Meningococo C[6]
MenC
MenC
MenC / MenACWY
Sarampión, rubeola y parotiditis[7]
SRP
SRP
Varicela[8]
Var
Var
Virus del papiloma humano[9]
VPH 2 dosis
Meningococo B[10]
MenB
MenB
MenB
MenB
Rotavirus[11]
RV
RV
RV
Gripe[12]
Gripe (anual)
Hepatitis A[13]
HA 2 dosis
Sistemáticas financiadas
Sistemáticas no financiadas
Vacunas para grupos de riesgo

| Nombre comercial (Laboratorio) | Serogrupos frente a los que actúa | Principio activo | Proteína transportadora | Adyuvante |
|---|---|---|---|---|
| **Menveo®** (Novartis)  | A, C, W135, Y | 10 µg oligosacárido capsular del grupo A y 5 µg oligosacárido capsular de los grupos C, W135 e Y | 16,7-33 µg $CRM_{197}$ (A)<br>7,1-12,5 µg $CRM_{197}$ (C)<br>3,3-8,3 µg $CRM_{197}$ (W135)<br>5,6-10 µg $CRM_{197}$ (Y) | - |
| **Nimenrix®** (GSK)   | A, C, W135, Y | 5 µg polisacárido capsular de los grupos A, C, W135 e Y | 44 µg toxoide tetánico | - |

http://vacunasaep.org/documentos/manual/cap-30#4

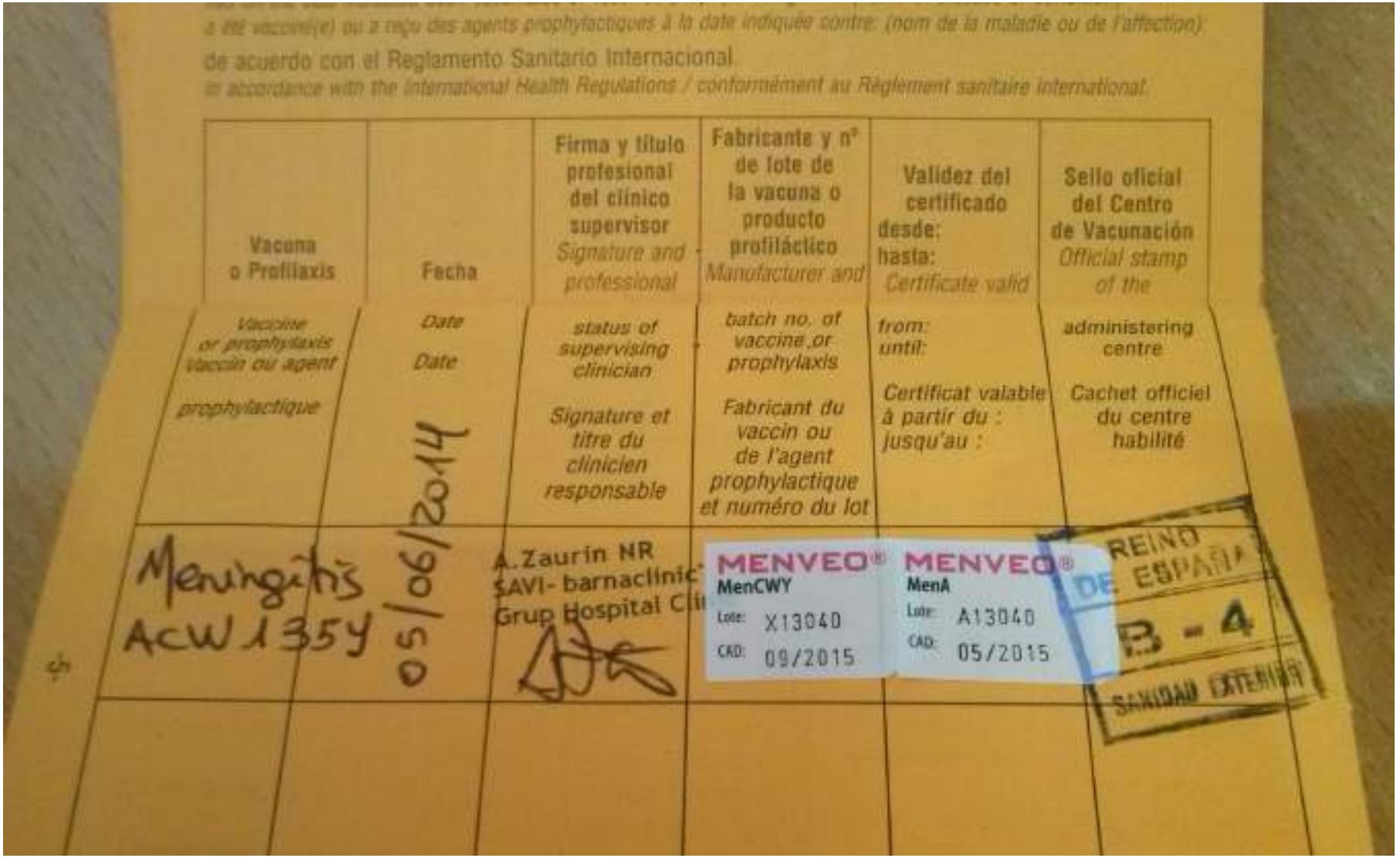
# AREAS CON FRECUENTES EPIDEMIAS DE MENINGITS MENINGOCÓCICA




http://wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/meningococcal-disease#4670

# Hajj y Umrah en Arabia Saudi:

- Meningitis ACW135Y
- Polio
- Tétanos
- Tifoidea
- Hepatitis A
- Gripe
- Fiebre amarilla




Necesaria para el VISADO: 3 años de vigencia

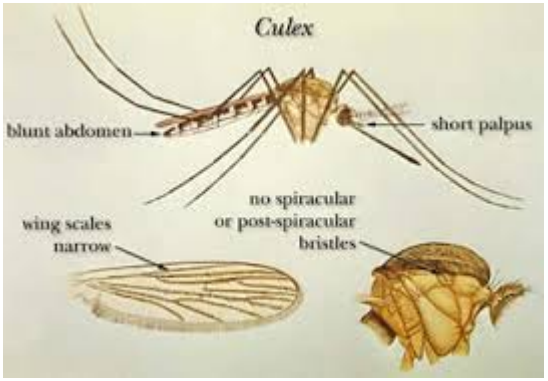
# Encefalitis japonesa

# Japanese Encephalitis

Japanese encephalitis (JE) is a flavivirus (RNA) found in Asia, transmitted to humans by *Culex* mosquitoes.

The virus is closely related to:

- West Nile virus
- dengue
- yellow fever
- Saint Louis encephalitis viruses



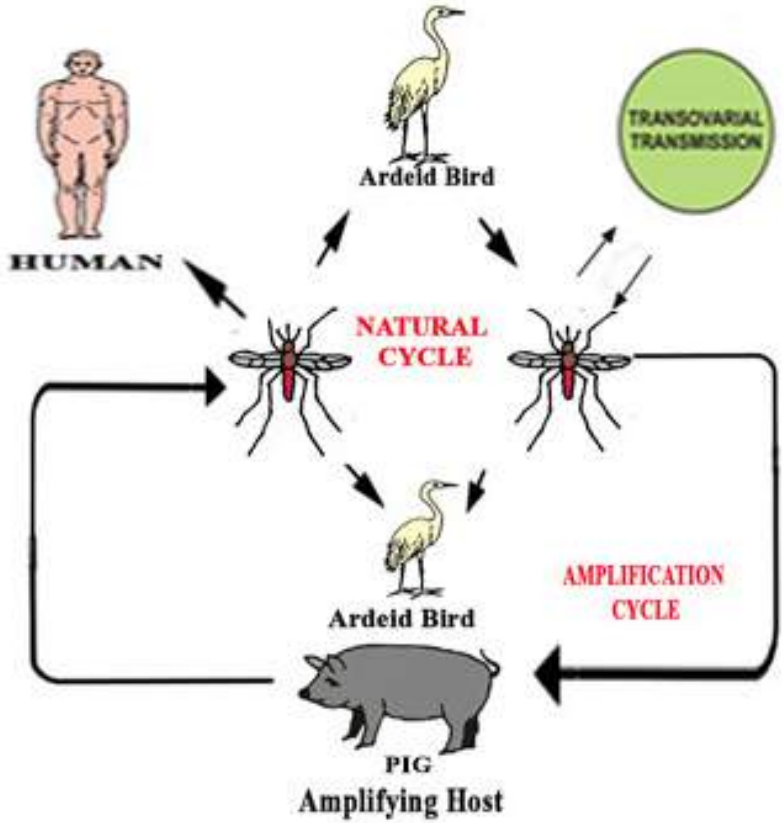


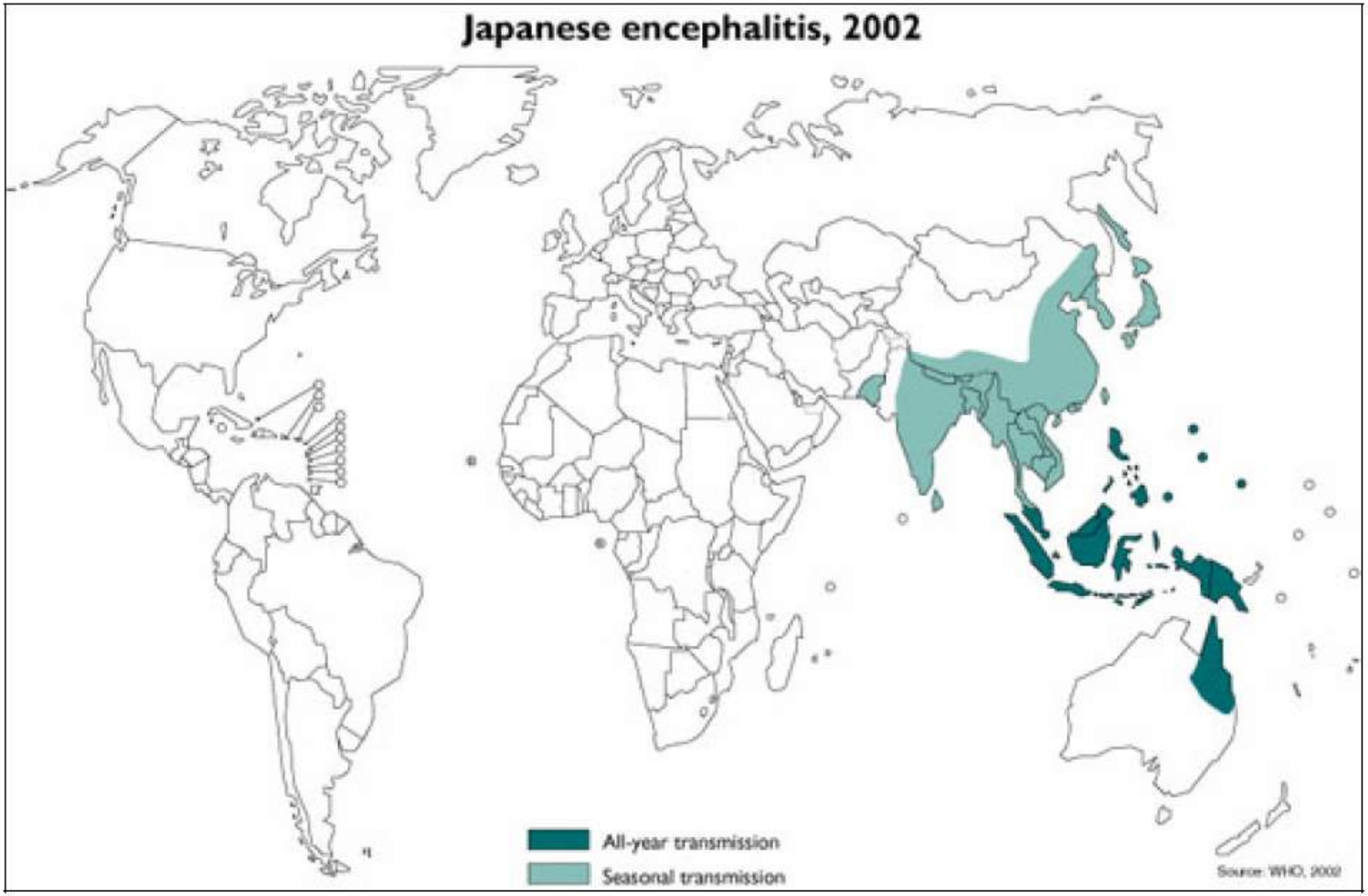

**Fig : Natural Cycle and Transmission of JEV**

- Leading cause of viral encephalitis South East Asia :30,000 to 50,000 cases are reported each year.
- The disease primarily affects children under 15 years of age.

# Geographic distribution of Japanese encephalitis


http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-3-infectious-diseases-related-to-travel/japanese-encephalitis#3874

# Global distribution



# Japanese Encephalitis Vaccine Information

**Indications for use of vaccine**

Japanese encephalitis (JE) vaccine should be considered for:

- Travellers spending a month or longer in rural epidemic or endemic areas during the transmission season.

- Travellers spending less than a month in epidemic or endemic areas whose planned activities place them at particularly high risk.

## Table 3-06. Vaccine to prevent Japanese encephalitis (JE)

| VACCINE | TRADE NAME (MANU-FACTURER) | AGE | DOSE | ROUTE | SCHEDULE | BOOSTER[1] |
|---|---|---|---|---|---|---|
| JE vaccine, inactivated | Ixiaro (Valneva) | ≥17 y | 0.5 mL | IM | 0, 28 d | ≥1 y after primary series |
| | | 3–16 y | 0.5 mL | IM | 0, 28 d | Data not available |
| | | 2 mo–2 y | 0.25 mL | IM | 0, 28 d | Data not available |

Abbreviation: IM, intramuscular.

[1] If potential for JE virus exposure continues.

## 3. How to use IXIARO

The recommended dosage for adults, adolescents and children aged 3 years of age and older is a total of 2 injections of 0.5 ml each:

- the first injection on Day 0
- the second injection 28 days after the first injection (Day 28).

Adults aged 18 to 65 years can also be vaccinated as follows:
- the first injection on Day 0
- the second injection 7 days after the first injection (Day 7).

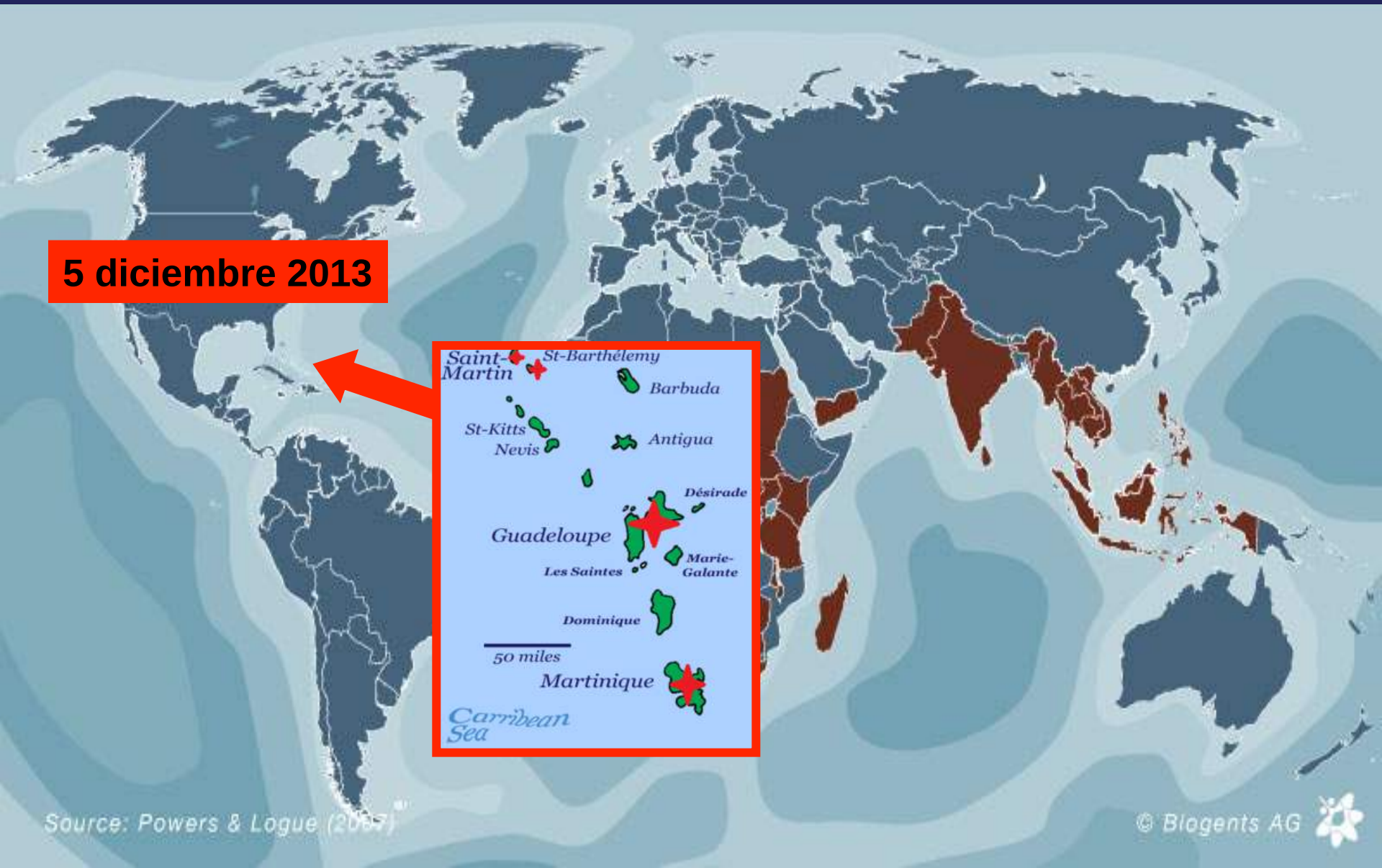
Babies and children aged 2 months to < 3 years of age
The recommended dosage for babies and children aged 2 months to < 3 years is a total of 2 injections of 0.25 ml each
- the first injection on Day 0
- the second injection 28 days after the first injection (Day 28).

For instruction on the preparation of the 0.25 ml dose, please refer to the end of this package leaflet.

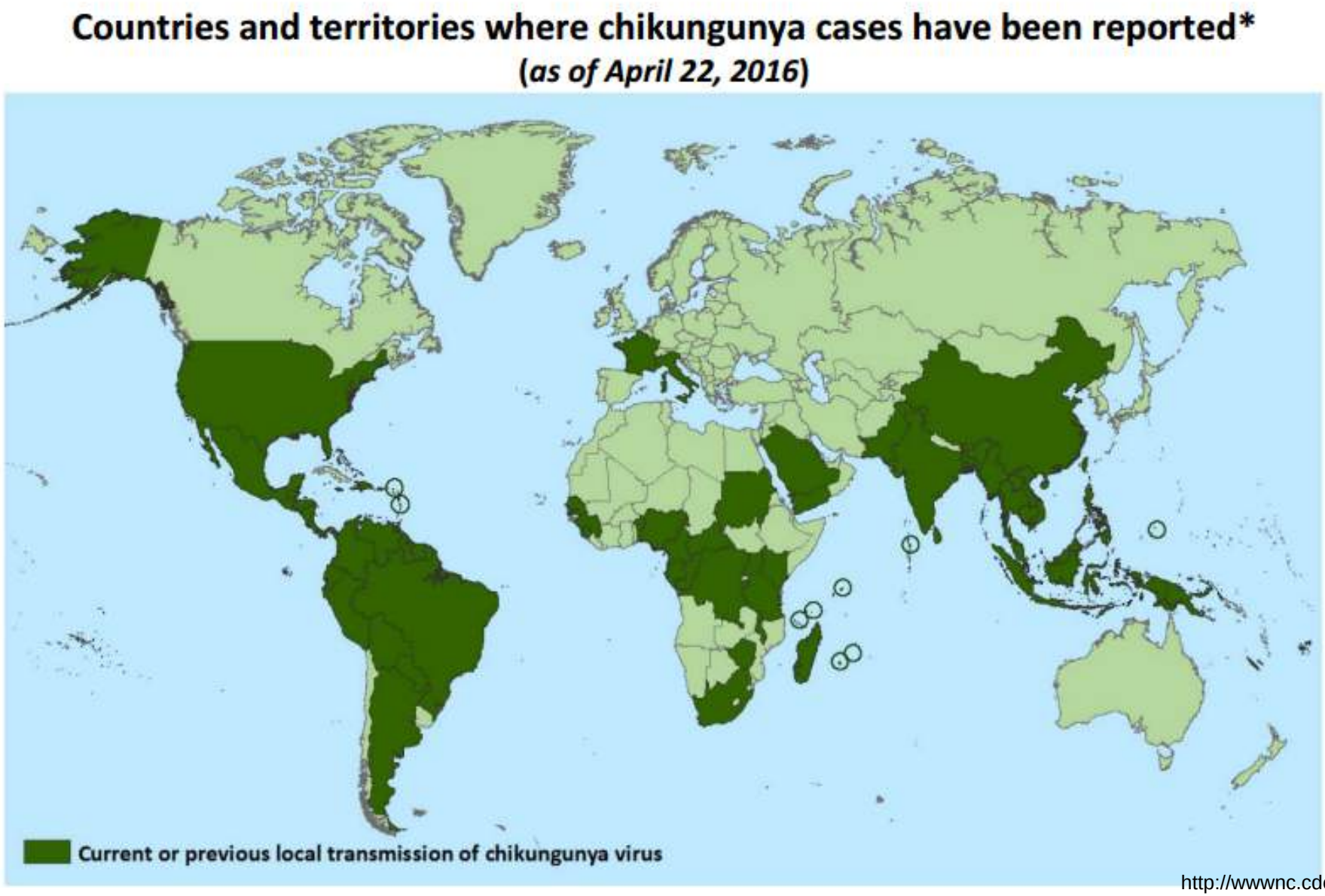
Make sure you and/or your child finish the complete vaccination course of 2 injections. The second injection should be given at least 1 week before you and/or your child will be at risk of exposure to JE virus. If not, you and/or your child may not be fully protected against the disease.

# Chikungunya

# Distribución Chikungunya



# Distribución Chikungunya




http://wwwnc.cdc.gov

# New insights

- Chikungunya is a self-limiting febrile viral disease characterized by arthralgia or arthritis. Symptoms may last for several months, but recovery was, until 2009, considered universal.

- "CHIKV can cause acute, **subacute, and chronic disease**".

- The **chronic stage**, mainly characterized by peripheral joint disorders, which it is estimated can persist up to five years".

- **"Post-CHIKV rheumatic disorders".**

- Chikungunya virus is likely **to exacerbate or increase susceptibility to underlying joint diseases**.

# Subcute and chronic phase of CHIK

Clinical presentation. **Subacute and chronic disease.**

I. End of the acute stage. Swollen hands and fine desquamation

J. Hyperpigmentation

K. Tenosynovitis in hands

L. Tenosynovitis in ankle

# Chronic phase of CHIK

**Figure.** Swollen and stiff hands of a 70-year-old woman with post-chikungunya rheumatoid arthritis 10 months after acute infection with chikungunya virus, Saint Martin.

## Post-Chikungunya Rheumatoid Arthritis, Saint Martin

**Maud Foissac, Emilie Javelle, Simon Ray, Bruno Guérin, Fabrice Simon**

Author affiliations: Hospital Jacques Puel, Rodez, France (M. Foissac, S. Ray, B. Guérin); Laveran Military Teaching Hospital, Marseille, France (E. Javelle, F. Simon)

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Vaccine xxx (2016) xxx–xxx

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

# Status of research and development of vaccines for chikungunya

Claire Smalley[a,1], Jesse H. Erasmus[b,1], Charles B. Chesson[b,d,1], David W.C. Beasley[c,d,e,*]

[a] Experimental Pathology Graduate Program, University of Texas Medical Branch, Galveston, TX, USA
[b] Human Pathophysiology and Translational Medicine Graduate Program, University of Texas Medical Branch, Galveston, TX, USA
[c] Department of Microbiology and Immunology, University of Texas Medical Branch, Galveston, TX, USA
[d] Sealy Center for Vaccine Development, University of Texas Medical Branch, Galveston, TX, USA
[e] World Health Organization Collaborating Center for Vaccine Research, Evaluation and Training on Emerging Infectious Diseases, University of Texas Medical Branch, Galveston, TX, USA

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Polyarthralgia
Vaccine

ABSTRACT

Chikungunya virus (CHIKV) is an arthritogenic alphavirus that during the last decade has significantly expanded its geographical range and caused large outbreaks of human disease around the world. Although mortality rates associated with CHIKV outbreaks are low, acute and chronic illnesses caused by CHIKV represent a significant burden of disease largely affecting low and middle income countries. This report summarizes the current status of vaccine development for CHIKV.

# Vacunas Chikungunya

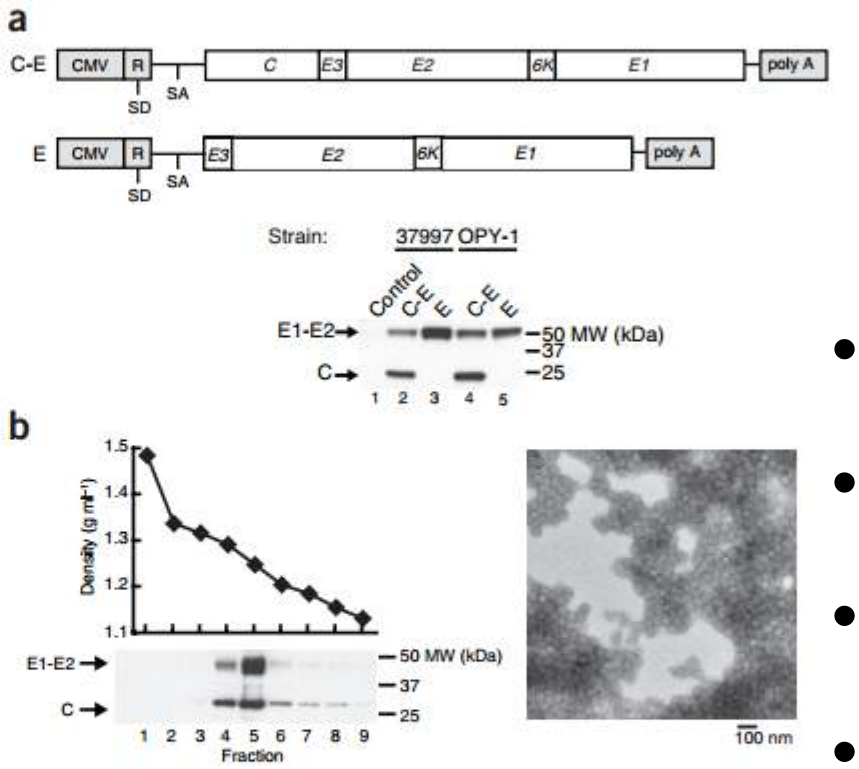
- There are no licensed vaccines for chikungunya.
- New chikungunya vaccine candidates has emerged in the last 5 years (60s).
- More than 15 vaccine candidates based on a range of platforms (inactiv-ated, live attenuated, live vectored, chimeric, virus-like particle[VLP], subunit protein, DNA) are currently in preclinical and clinical development.
- All CHIKV lineages appear to comprise a single serotype, so a single vaccine can be expected to protect against all CHIKV strains.

# Vacunas Chikungunya

Development status of current vaccine candidates (POC – proof of concept trial).

| Candidate name/identifier | Developer | Type/platform | Preclinical | Phase 1 | Phase 2 |
|---|---|---|---|---|---|
| TSI-GSD-218 (Thailand/1556) 2ΔE2 | USAMRIID/Salk Institute for Biological Studies | Live, attenuated | | | X |
| VRC-CHKVLP059-00-VP (37997) | National Institute of Allergy and Infectious Diseases (NIAID) | VLP | | | X |
| Formalin inactivated (Thailand/1556) | U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) | Inactivated, whole virus | | X | |
| MV-CHIK (Measles virus vector) | Themis Bioscience GmbH/Institut Pasteur | Live, vectored | | X | 2016 |
| Formalin inactivated, multiple Indian CHIKV isolates 2006–2010 | Bharat Biotech International | Inactivated, whole virus | X | 2016 | |
| Formalin inactivated CHIKV181/25 | Indian Immunologicals Ltd. (virus from US Army Medical Research and Material Command (USAMRMC)) | Inactivated, whole virus | X | 2016 | |

# Vacunas Chikungunya (VLP)




- CHIK Virus like particles (VLP)
- Estructura similar a CHIK
- No replica
- No es un virus “vivo”

# VACUNA CHIKUNGUNYA (VLP)

- A VLP vaccine for epidemic Chikungunya virus protects non-human primates against infection. Nature Medicine 2010

Diseño y modelo animal

- Chikungunya virus-like particle vaccine elicits neutralizing antibodies in healthy adults in a phase I dose escalation clinical trial. *The Lancet* 2014.

25 adultos desarrollan robusta respuesta inmune

- NIH-Sponsored Clinical Trial of Chikungunya Vaccine Opens

Fase 2: 400 adultos en el Caribe

# ZIKA

LA VANGUARDIA

Big Vang

EPIDEMIA

## Alerta global por un virus transmitido por mosquitos

- El zika parece causar daños neurológicos en algunos casos

ara.cat

societat

## Sanitat prepara un protocol per fer front al virus Zika

per aprovar un

# Detectado el primer caso de microcefalia por zika en un feto en España

EL OBSERVADOR GLOBAL ›

# *Zika, ISIS y Trump*

Los tres son la versión siglo XXI de antiguos fenómenos: las epidemias, el terrorismo y la demagogia

The New York Times

**Zika Virus Declared Public Health Emergency by World Health Organization**
**February 2, 2016**

EL PAÍS

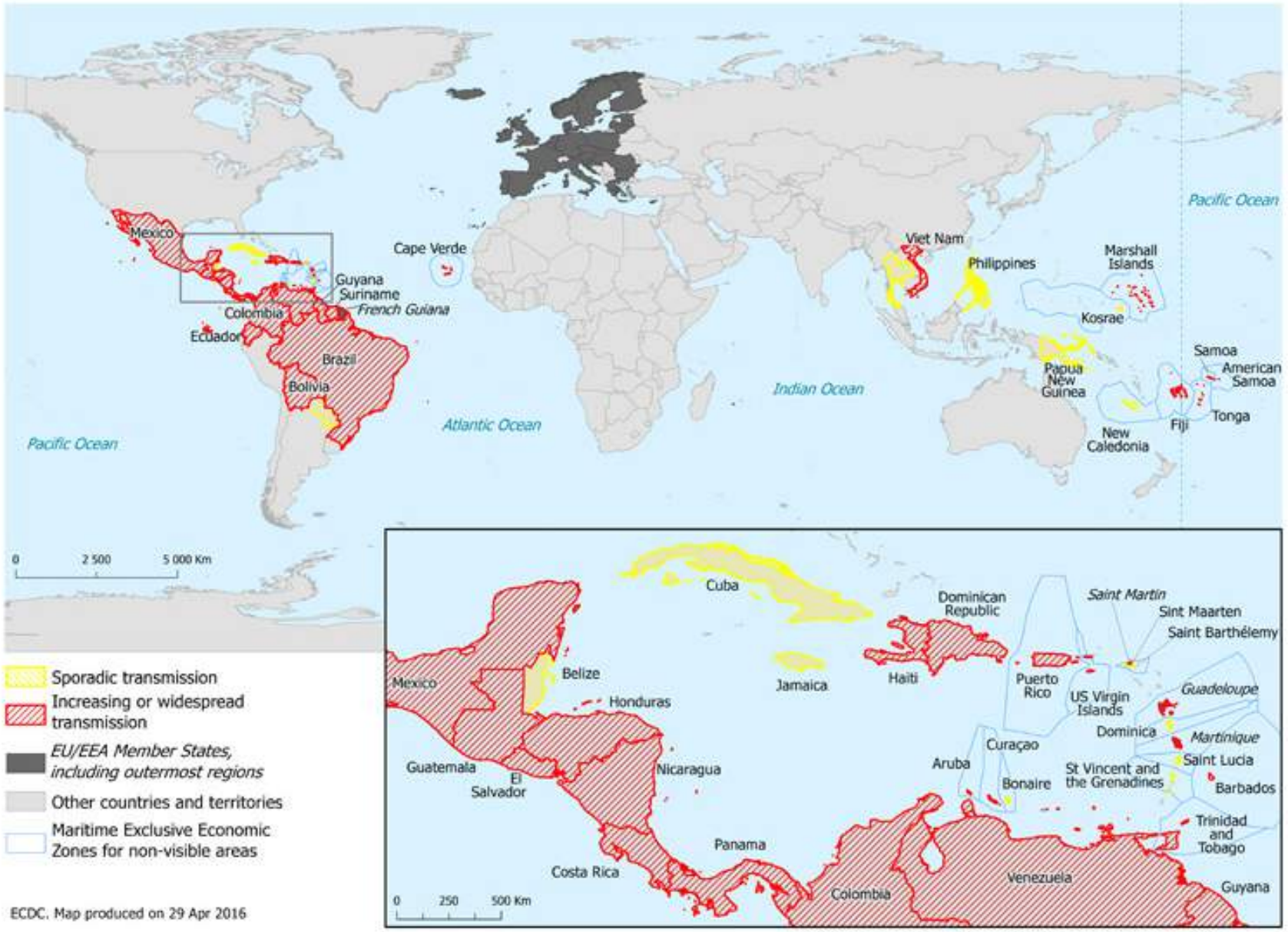
RNACIONAL

EUROPA EE UU MÉXICO AMÉR TITULARES »

## El zika se ensaña con las embarazadas de Brasil

Todo empieza con la picadura de un mosquito. El miedo y la incertidumbre llegan con cada ecografía. La microcefalia, una grave enfermedad cerebral, afecta ya a 3.893 bebés

**Figure 1. Countries or territories with reported confirmed autochthonous cases of Zika virus infection in the past three months, as of 29 April 2016**




http://ecdc.europa.eu/en/healthtopics/zika_virus_infection/zika-outbreak/Pages/epidemiological-situation.aspx

# VACUNAS ZIKA

| Institución/compañía | País | Modalidad terapéutica | Estado de desarrollo |
|---|---|---|---|
| National Institute of Allergy and Infectious Diseases | Estados Unidos | Dos candidatos:<br>-Vacuna de DNA, basado en un modelo de vacuna del virus West Nile<br>-Vacuna con el virus vivo atenuado, basado en un modelo de vacuna del virus del dengue | Preclínico (en animales) |
| Institut Butantán (Sao Paolo) | Brasil | Dos candidatos:<br>-Vacuna con el virus inactivado<br>-Vacuna con el virus vivo atenuado, en colaboración con el NIH de estados unidos | Cultivo de virus |
| Jenner Institute (Oxford) | Gran Bretaña | Adenovirus no-replicativo portador de proteínas de superficie del virus del zika | Preclínico |
| Bharat BioTech (Hyderabad) | India | Dos candidatos:<br>-Vacuna de virus inactivado<br>-Vacuna recombinante de proteínas de superficie | En estudios preclínicos |
| Inovio Pharmaceuticals (Pennsylvania)<br>GeneOne Life Science (Seoul) | Estados Unidos<br>Corea del Sur | Vacunas de DNA que codifican par proteínas capsulares y de superficie | -En estudios preclíncos desde 3T 2015<br>-Estudios clínicos de fase 1 en humanos planeados para 4T 2016 |
| Sanofi Pasteur (Lyon) | Francia | Vacuna con virus recombinante atenuado | Desarrollando el plan para estudios clínicos en humanos |
| Hawaii Biotech (Honolulu) | Estados Unidos | Vacunas no replicativas basadas en subunidades virales recombinantes | Preclínico |
| Protein Sciences Corporation (Connecticut) | Estados Unidos | Vacuna basada en proteina recombinante | Inicio de estudios clínicos planeados en humanos en los próximos meses |
| NewLinks Genetics (Iowa) | Estados Unidos | Vacuna con virus completo inactivado | Desconocido |
| PaxVax (California) | Estados Unidos | Vacuna basada en partículas similares al virus | Desarrollando plan para estudios preclínicos en animales |

# Zika vaccine possible 'within months'

By Tulip Mazumdar
Global health correspondent in Maryland

4 March 2016 | Health

# Zika vaccine possible 'within months'

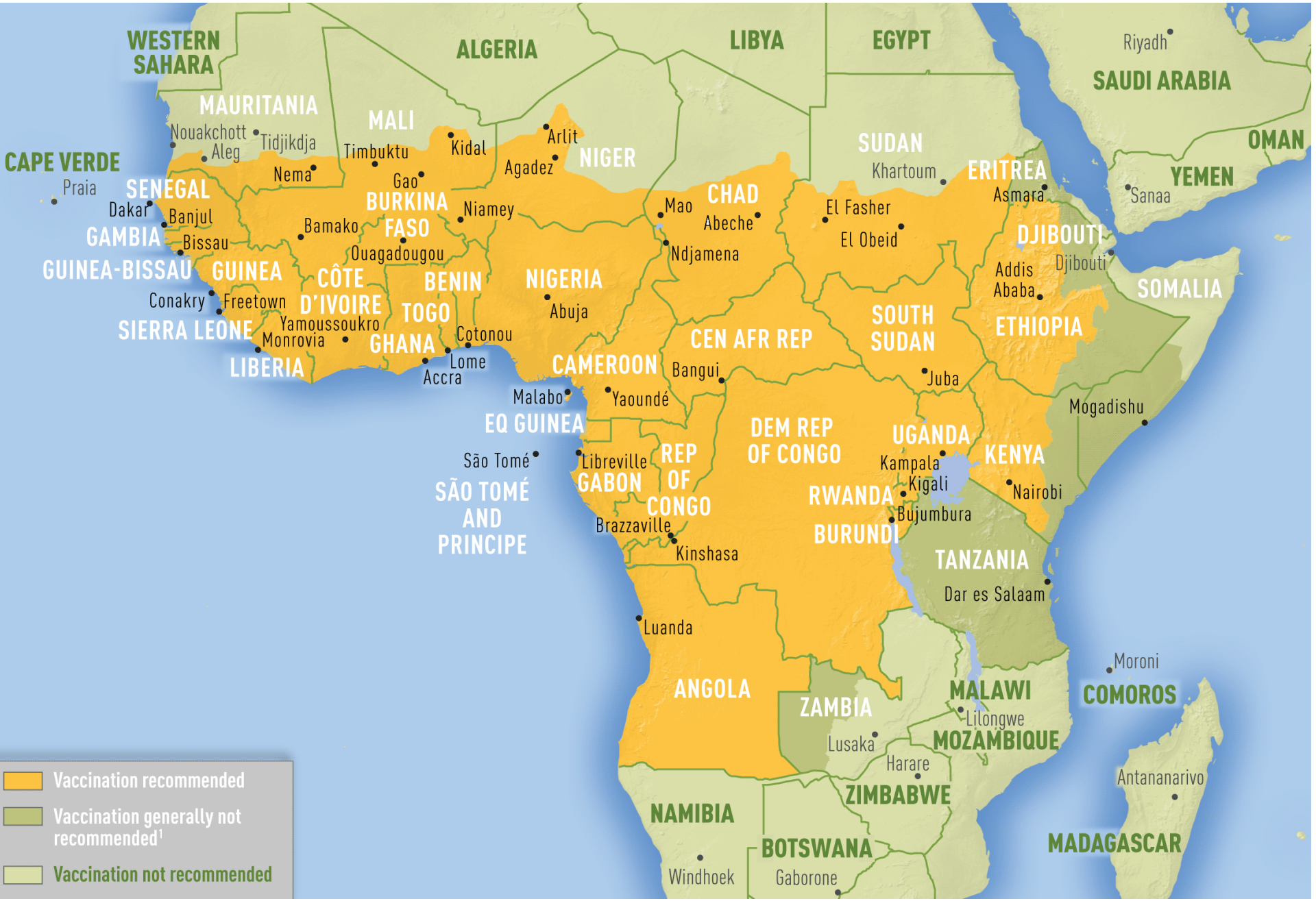
Dr Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, hopes to start testing a DNA vaccine by September.

“We will have a vaccine ready to go into humans to test - not to distribute - but to test for safety and whether it induces a response that you can predict will be protective”.

"That phase 1 trial I believe will likely start towards the end of this summer or early fall"

But phase 1 trials are only the start of a potentially lengthy process.

# Fiebre amarilla


WESTERN SAHARA
ALGERIA
LIBYA
EGYPT
Riyadh
SAUDI ARABIA
MAURITANIA
MALI
Nouakchott
Tidjikdja
Aleg
Timbuktu
Kidal
Arlit
NIGER
Agadez
SUDAN
Khartoum
OMAN
YEMEN
Sanaa
CAPE VERDE
Praia
SENEGAL
Dakar
Banjul
GAMBIA
Bissau
GUINEA-BISSAU
Nema
Gao
BURKINA FASO
Niamey
Bamako
Ouagadougou
Mao
CHAD
Abeche
Ndjamena
El Fasher
El Obeid
ERITREA
Asmara
DJIBOUTI
Djibouti
Addis Ababa
SOMALIA
GUINEA
CÔTE D'IVOIRE
BENIN
TOGO
GHANA
NIGERIA
Abuja
Conakry
Freetown
SIERRA LEONE
Yamoussoukro
Monrovia
LIBERIA
Cotonou
Lome
Accra
CEN AFR REP
Bangui
CAMEROON
Yaoundé
Malabo
EQ GUINEA
SOUTH SUDAN
Juba
ETHIOPIA
Mogadishu
São Tomé
SÃO TOMÉ AND PRINCIPE
Libreville
GABON
REP OF CONGO
Brazzaville
Kinshasa
DEM REP OF CONGO
UGANDA
Kampala
KENYA
Nairobi
RWANDA
Kigali
Bujumbura
BURUNDI
TANZANIA
Dar es Salaam
Luanda
ANGOLA
Moroni
COMOROS
MALAWI
Lilongwe
ZAMBIA
Lusaka
MOZAMBIQUE
Harare
ZIMBABWE
Antananarivo
MADAGASCAR
NAMIBIA
Windhoek
BOTSWANA
Gaborone
Vaccination recommended
Vaccination generally not recommended[1]
Vaccination not recommended


Kingston
JAMAICA
HAITI
GUADELOUPE
MARTINIQUE
BARBADOS
CURAÇAO
NICARAGUA
Santa Marta
Port-of-Spain
Cartagena
Caracas
Maturin
TRINIDAD
San Jose
Panama City
VENEZUELA
Georgetown
Paramaribo
PANAMA
Medellin
GUYANA
SURINAME
Cayenne
Bogotá
FRENCH GUIANA
COLOMBIA
Cali
Quito
ECUADOR
Riobamba
Puyo
Manaus
Iquitos
Fortaleza
PERU
Chachapoyas
BRAZIL
Recife
Huánuco
Aracaju
Lima
Salvador
Cuzco
BOLIVIA
La Paz
Brasilia
Sucre
Santa Cruz
Belo Horizonte
Tarija
Rio de Janeiro
CHILE
PARAGUAY
São Paulo
Salta
Asunción
Resistencia
Porto
Alegre
ARGENTINA
Santiago
URUGUAY
Montevideo
Buenos Aires

# Fiebre amarilla:

Yellow fever vaccination is carried out for two different purposes:

1. To protect individual travellers who may be exposed to yellow fever infection.

2. To prevent the international spread of the disease by protecting countries from the risk of importing or spreading the yellow fever virus. These are requirements established by the country.

# Angola grapples with worst yellow fever outbreak in 30 years

March 2016

**Angola is grappling with a yellow fever outbreak, which has infected more than 355 people and killed 159 – the first epidemic of the disease to hit the country in 30 years.**

WHO/K. Nishino


PRESCRIPTION ONLY MEDICINE
KEEP OUT OF REACH OF CHILDREN
STAMARIL®
YELLOW FEVER VACCINE (LIVE), STABILISED
1 single dose vial containing ≥ 1000 mouse $LD_{50}$ units yellow fever virus (17D) and 1 (0.5 mL) diluent syringe.
Subcutaneous or intramuscular route.
Aventis Pasteur
AUST R 58570
Aventis


INSTITUT PASTEUR
DE DAKAR
10 ampoules de 20 doses
à conserver au frais entre 2 et 8° C
Vaccin amaril stabilisé
Lot N° 2265
PEREMPTION JUNE 2017

World Health Organization

unicef

# Yellow Fever Initiative

## Providing an opportunity of a lifetime

ONE INJECTION, FULL PROTECTION

# Fiebre amarilla:


-SARS y otras amenazas transfronterizas nace el

**Reglamento Sanitario Internacional de 2005 (RSI)**

-Instrumento jurídico internacional de carácter vinculante

-Detectar, notificar y controlar los eventos de salud pública.

-La OMS cumple una función de coordinación del RSI y

a fin de limitar la propagación de riesgos para la salud pública

con la mínima interferencia en los viajes y el comercio.

-En **el Anexo 7** del RSI se establece que se podrá exigir a los viajeros, como condición para su entrada en un Estado Parte, prueba de vacunación o profilaxis contra las enfermedades expresamente designadas en dicho Reglamento.

ANNEX 1

# Countries[1] with risk of yellow fever transmission[2] and countries requiring yellow fever vaccination

| Countries | Countries with risk of yellow fever transmission | Countries requiring yellow fever vaccination for travellers arriving from countries with risk of yellow fever transmission | Countries requiring yellow fever vaccination for travellers from all countries |
|---|---|---|---|
| Afghanistan | | Yes | |
| Albania | | Yes | |
| Algeria | | Yes[3] | |
| Angola | Yes | | Yes |
| Anguilla | | Yes[3] | |
| Antigua and Barbuda | | Yes | |
| Argentina | Yes | | |
| Australia | | Yes[3] | |
| Bahamas | | Yes[3] | |
| Bahrain | | Yes[3] | |
| Bangladesh | | Yes | |
| Barbados | | Yes[3] | |

# Texto del anexo 7 actualizado del Reglamento Sanitario Internacional (2005)[1]

[A67/35 – 2 de mayo de 2014]

## REQUISITOS CONCERNIENTES A LA VACUNACIÓN O LA PROFILAXIS CONTRA ENFERMEDADES DETERMINADAS

1. Además de las recomendaciones de vacunación o profilaxis, se podrá exigir a los viajeros, como condición para su entrada en un Estado Parte, prueba de vacunación o profilaxis contra las enfermedades expresamente designadas en el presente Reglamento, que son las siguientes:

Fiebre amarilla.

2. Consideraciones y requisitos concernientes a la vacunación contra la fiebre amarilla:

*a*) A los efectos del presente anexo:

*i*) se fija en seis días el periodo de incubación de la fiebre amarilla;

*ii*) las vacunas contra la fiebre amarilla aprobadas por la OMS protegen de la infección a partir de los 10 días siguientes a su administración;

*iii*) la protección se prolonga durante toda la vida de la persona vacunada; y

ANNEX 1 – UPDATE – AS OF 4 FEBRUARY 2016

# Countries[1] with risk of yellow fever transmission[2] and countries requiring yellow fever vaccination

| Country | Country with risk of yellow fever transmission | Country requiring yellow fever vaccination for travellers[3] | | Country statement on period of validity for yellow fever vaccination certificate[3] |
|---|---|---|---|---|
| | | arriving from countries with risk of yellow fever transmission (age of traveller) | from all countries (age of traveller) | |
| **Afghanistan** | | Yes | | Not communicated |
| **Albania** | | Yes (> 1 year) | | Not communicated |
| **Algeria** | | Yes[4] (> 1 year) | | Life |
| **Angola** | Yes | | Yes (> 9 months) | Life |
| **Antigua and Barbuda** | | Yes (> 1 year) | | Not communicated |
| **Argentina** | Yes | | | Not applicable |
| **Australia** | | Yes[4] (> 1 year) | | 10 years |
| **Bahamas** | | Yes[4] (> 1 year) | | Life |
| **Bahrain** | | Yes[4] (> 9 months) | | Life |


WESTERN SAHARA
ALGERIA
LIBYA
EGYPT
Riyadh
SAUDI ARABIA
MAURITANIA
MALI
Nouakchott
Aleg
Tidjikdja
Timbuktu
Kidal
Arlit
NIGER
SUDAN
Khartoum
ERITREA
YEMEN
Sanaa
Asmara
CAPE VERDE
Praia
SENEGAL
Dakar
Banjul
GAMBIA
Bissau
Nema
Gao
Agadez
BURKINA FASO
Niamey
Bamako
Ouagadougou
Mao
CHAD
Abeche
Ndjamena
El Fasher
El Obeid
DJIBOUTI
Djibouti
Addis Ababa
SOMALIA
GUINEA-BISSAU
GUINEA
Conakry
Freetown
SIERRA LEONE
Monrovia
LIBERIA
CÔTE D'IVOIRE
Yamoussoukro
BENIN
TOGO
GHANA
Cotonou
Lome
Accra
NIGERIA
Abuja
CAMEROON
Malabo
EQ GUINEA
São Tomé
SÃO TOMÉ AND PRINCIPE
CEN AFR REP
Bangui
SOUTH SUDAN
Juba
ETHIOPIA
Mogadishu
Yaoundé
Libreville
GABON
REP OF CONGO
Brazzaville
Kinshasa
DEM REP OF CONGO
UGANDA
Kampala
KENYA
Nairobi
RWANDA
Kigali
Bujumbura
BURUNDI
TANZANIA
Dar es Salaam
Luanda
ANGOLA
Moroni
COMOROS
MALAWI
Lilongwe
ZAMBIA
Lusaka
MOZAMBIQUE
Harare
ZIMBABWE
Antananarivo
MADAGASCAR
NAMIBIA
Windhoek
BOTSWANA
Gaborone
Vaccination recommended
Vaccination generally not recommended
Vaccination not recommended