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ZIKA VIRUSONDERZOEK



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Doel



- Overzicht belangrijkste **onderzoeksvragen** over Zika virus in Zuid en Midden Amerika, vastgesteld door internationaal consortium en WHO
- Overzicht **internationale activiteiten** en te verwachten doorlooptijden (wanneer weten we meer)
- Inzicht in (mogelijke) **bijdragen van onderzoeksgroepen in Nederland** in deze activiteiten

Inventarisatie van mogelijk onderzoek in (Inter)nationale consortia met expertise



International Severe Acute Respiratory and Emerging Infection Consortium



anticipating the global onset of novel epidemics



Platform for European Preparedness Against (Re-)emerging Epidemics



European Virus Archive goes global



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European Network for Diagnostics of "Imported" Viral Diseases



Collaborative Management Platform for detection and Analyses of (Re-) emerging and foodborne outbreaks in Europe

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1. Is Zika de oorzaak van microcephalie?



- Case control studies, kinderen met en zonder microcephalie en hun moeders (internationaal consortium ISARIC, Dr. Gail Carson et al.)
- Multicentre
- Gestandaardiseerde protocollen voor follow-up
- Knelpunten:
 - ontwikkeling testen voor aantonen Zika virus infectie tijdens zwangerschap (onderscheid met dengue)
 - Definities microcephalie
- Te verwachten doorlooptijd: weken tot maanden



Probleem van gebruik van verschillende definities microcephalie



	Cutoffs	Specificity*	Sensitivity†	Estimated annual number of suspected cases (thousands)‡	
				Northeast Brazil	Brazil
Brazil's Ministry of Health ⁶ (up to Dec 8, 2015)	≤33 cm for term newborn babies of both sexes; <-2 SD of Fenton reference ⁷ by gestational age and sex for preterm babies	79.3%	92%	158	602
Brazil's Ministry of Health ⁹ (after Dec 8, 2015)	≤32 cm for term newborn babies of both sexes; <-2 SD of Fenton reference by gestational age and sex for preterm babies	93.8%	86%	46	178
Pan American Health Organization ⁹	<3rd percentile (WHO child growth standards ¹⁰) for term newborn babies (<31.6 cm for girls and 32.0 cm for boys) and of the Fenton or InterGrowth reference for preterm babies	96.1%	80%	29	114
Below -2 SD, InterGrowth standards ¹¹	<-2 SD (InterGrowth standards) for gestational age and sex, all newborns	97.8%	85%	18	63
Below -3 SD, InterGrowth standards ¹¹	<-3 SD (InterGrowth standards) for gestational age and sex, all newborns	99.9%	57%	0.8	3

*Based on applying the InterGrowth standards to the distribution of livebirths by gestational age in Brazil. †Preliminary results based on a case series of 31 newborn babies with radiological evidence of brain abnormalities. ‡Calculated on the basis of sensitivity and the gestational age distribution of Brazilian newborn babies.

Table: Preliminary estimates of the specificity, sensitivity, and number of suspected cases of microcephaly in Brazil according to different screening criteria

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Cesar Gomes Victora et al., *Lancet*, 2016

2. Veroorzaakt Zika Guillain-Barré like syndroom of andere neurologische klachten?



International GBS Outcome Study

Coordinator: Prof. Bart Jacobs, Erasmus MC

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[Organisation](#)

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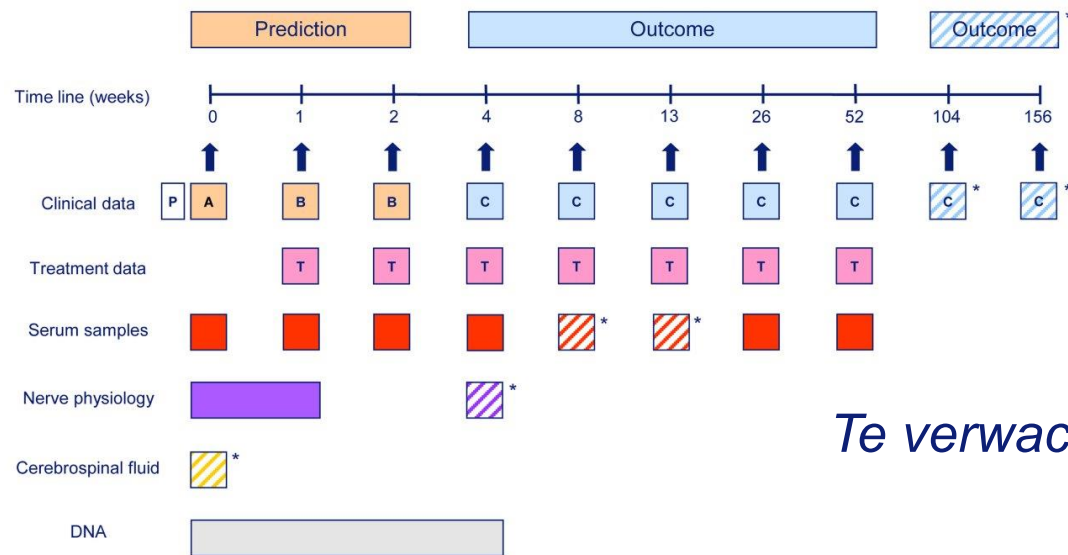
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"A world-wide prospective study of INC on prognosis and biomarkers in GBS"



Te verwachten doorlooptijd maanden

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* These modules are optional

Suriname studies

Prof. Eric van Gorp et al.



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Universitair Medisch Centrum Rotterdam
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- Onderzoek naar **complicaties** van Zika:
 - De Suriname Meningo-encephalitis en Guillain-Barré Studie (SMS)
 - Zika Cohort bij zwangere vrouwen in Suriname. EMC-AZP-St. Vincentius
- Onderzoek naar voorkomen en effect bestrijding **muggen**.
BOG Suriname en WUR / EMC
- Opzetten van **testen** om doorgemaakte Zika virus infectie aan te tonen voor gebruik in cohort studies
- Vergelijkbare **cohorten** in Brazilië en Franse Cariben

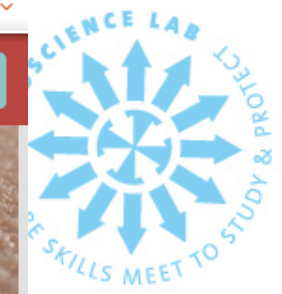
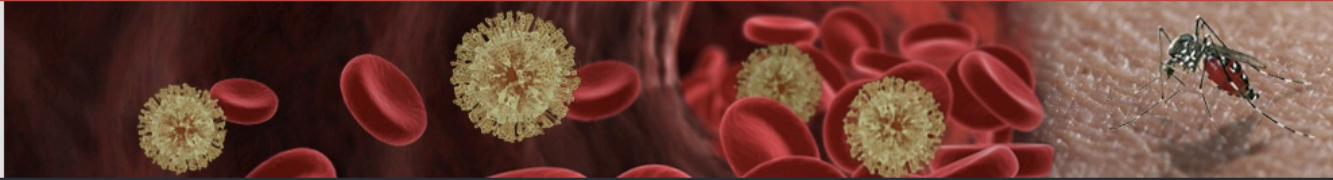
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Zika Infection

What are you looking for?

SEARCH



Research Tools and Resources

(This page is currently being translated into Portuguese and Spanish)

The following research tools have been developed by an international collaborative effort led by ISARIC (<https://isaric.tghn.org/>) which is a collaboration that aims to support research in new disease outbreak.



The key documents required initially are a protocol, case record form to capture the data and a consent form. The following documents are presented as high quality tools developed through the consensus and consideration of experts and made available for colleagues to download and adapt for their own purposes and local regulatory approval.

ISARIC ZIKA VIRUS CASE REPORT FORM – NEONATE BASELINE AND OUTCOME

Neonate identification code: _____ Birth mother's identification code: _____

Test	Result	If abnormal, please describe abnormality:	
Fundoscopy	Normal Abnormal Not Done		
Red reflex or chorioretinitis	Present Absent Not Done		
Cataract	Normal Abnormal Not Done		
Hearing test, please specify test used:	Normal Abnormal Not Done		
Congenital heart defects	Yes No Unknown	If yes, please specify:	
Newborn blood screening	Hypothyroidism Negative Positive Not Done	Phenylketonuria Negative Positive Not Done	Other (specify): Negative Positive
Any other significant findings	Yes No Unknown	If yes, please specify:	

3. Wat zijn mogelijkheden voor diagnostiek?

Dr. Chantal Reusken (EMC) et al.



Aantonen van actuele infectie (virus)

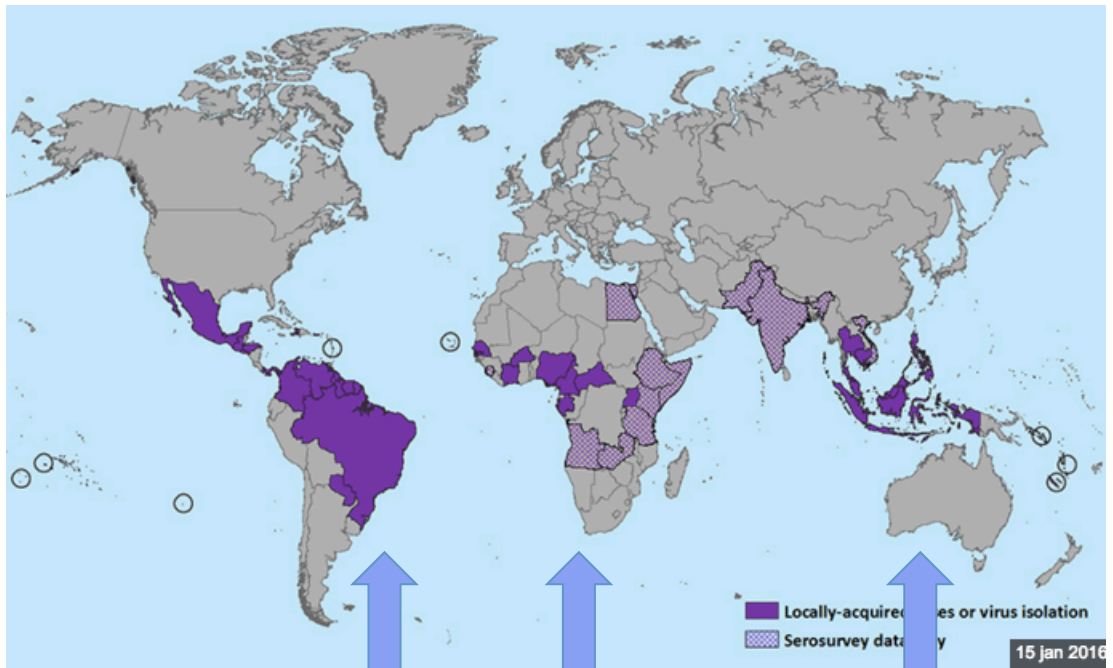
- **Inventarisatie** diagnostiek lidstaten in opdracht van EU/ECDC (EMC)
- Uitgezonden via
 - European network Imported viral diseases (EMC)
 - PREPARE klinisch research netwerk emerging diseases (UA, EMC, AMC)
 - EMERGE (referentielabs emerging infections Chafea)
 - National microbiology focal points
- Inventarisatie mogelijkheden voor **bijstand** aan WHO collaborating centres (EMC)

Aantonen van eerdere infectie (antistoffen)

- **Ontwikkeling** diagnostiek in EU research netwerk PREPARE en ANTIGONE
 - **Uittesten** nieuwe methoden in ISARIC-PREPARE-WHO consortium
-

4. Is er iets veranderd aan het virus?

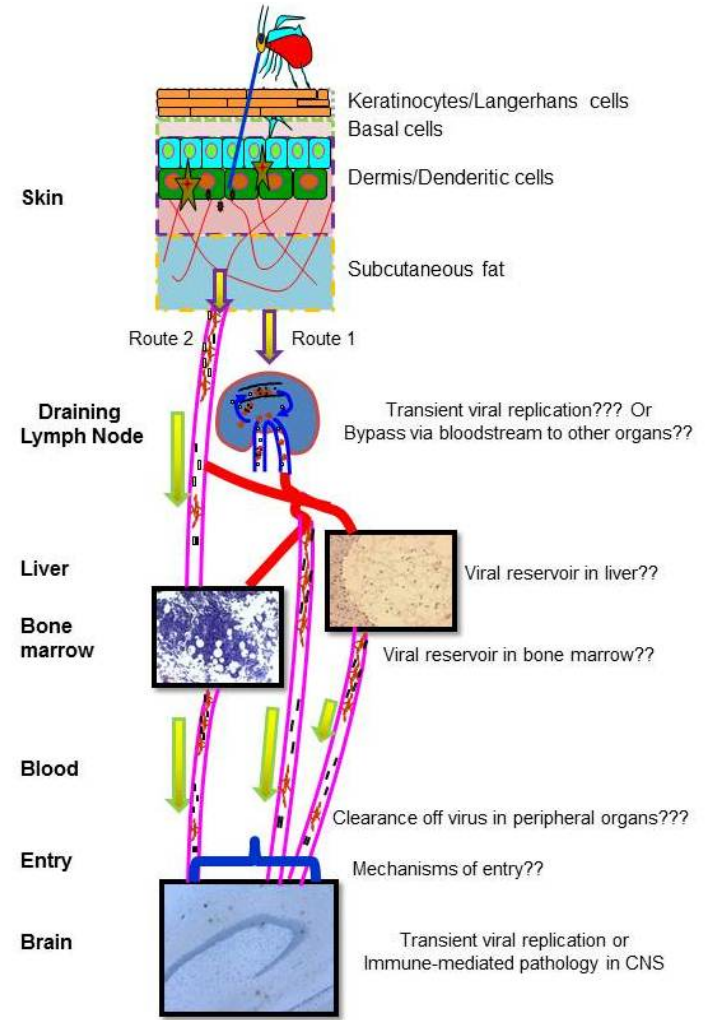
Dr. Byron Martina, EMC



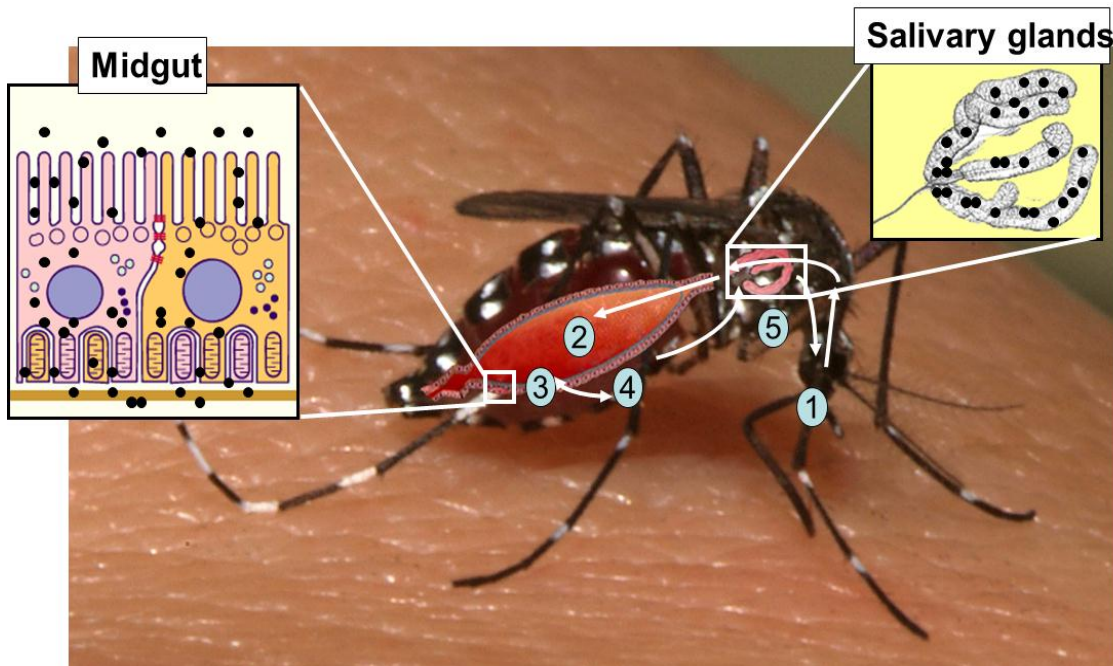
2014

< 2006

Vanaf 2007



5. Hoe verloopt de cyclus van Zika in muggen? Wat doet Zika in Europese muggen?



*Laboratorium
onderzoek en
veldstudies in
Suriname*



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Sander Koenraadt, Gorben Pijlman, WUR; Chantal Reusken, Byron Martina, EMC

6. Als Zika neurologische problemen veroorzaakt Ontwikkeling antivirale middelen en vaccins



The SILVER (Small-molecule Inhibitor Leads Versus Emerging and neglected RNA viruses) project is a drug design program to face emerging diseases caused by RNA viruses.

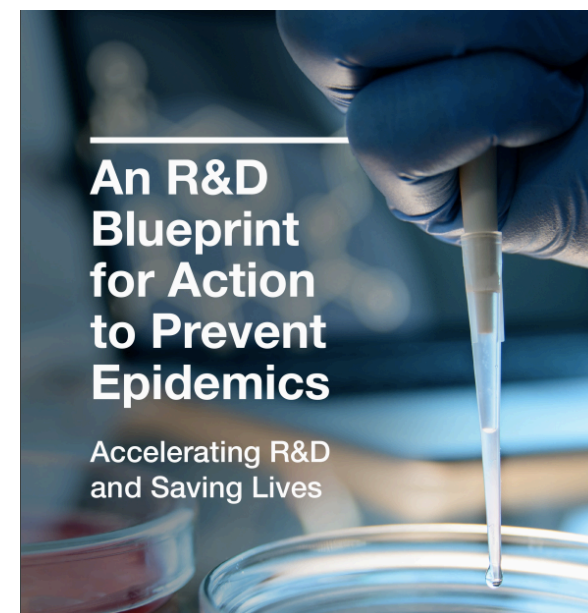


Prof. Eric Snijder, LUMC et al.



Minimaal 12 groepen
met vaccinkandidaten

WHO R&D blueprint



Stand van zaken



- Aanvragen voor financiering EU (Mei)
 - Klinisch onderzoek, onderzoek vectoren, antivirale middelen, virus
- Aanvragen voor financiering snelle diagnostiekontwikkeling MRC (februari)
 - Case control, diagnostiek
- Aanvragen voor financiering vaccins en antivirale middelen : WHO R&D Blueprint (Mei?)