

# Damning Dengue

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*No related financial interests*

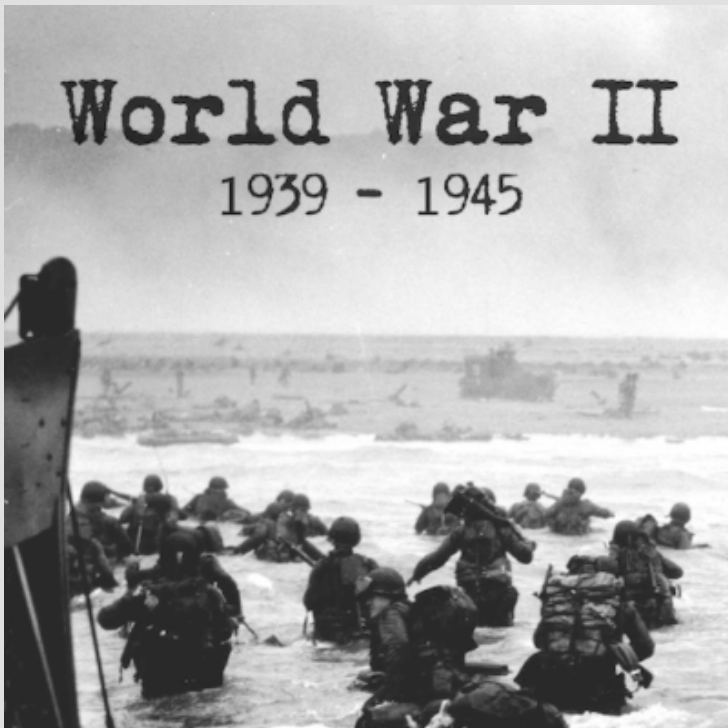
# Dengue fever:

caused by a *Flavivirus* and transmitted by a *mosquito*



**Fastest spreading tropical disease +++**

Virtually unknown before WW II

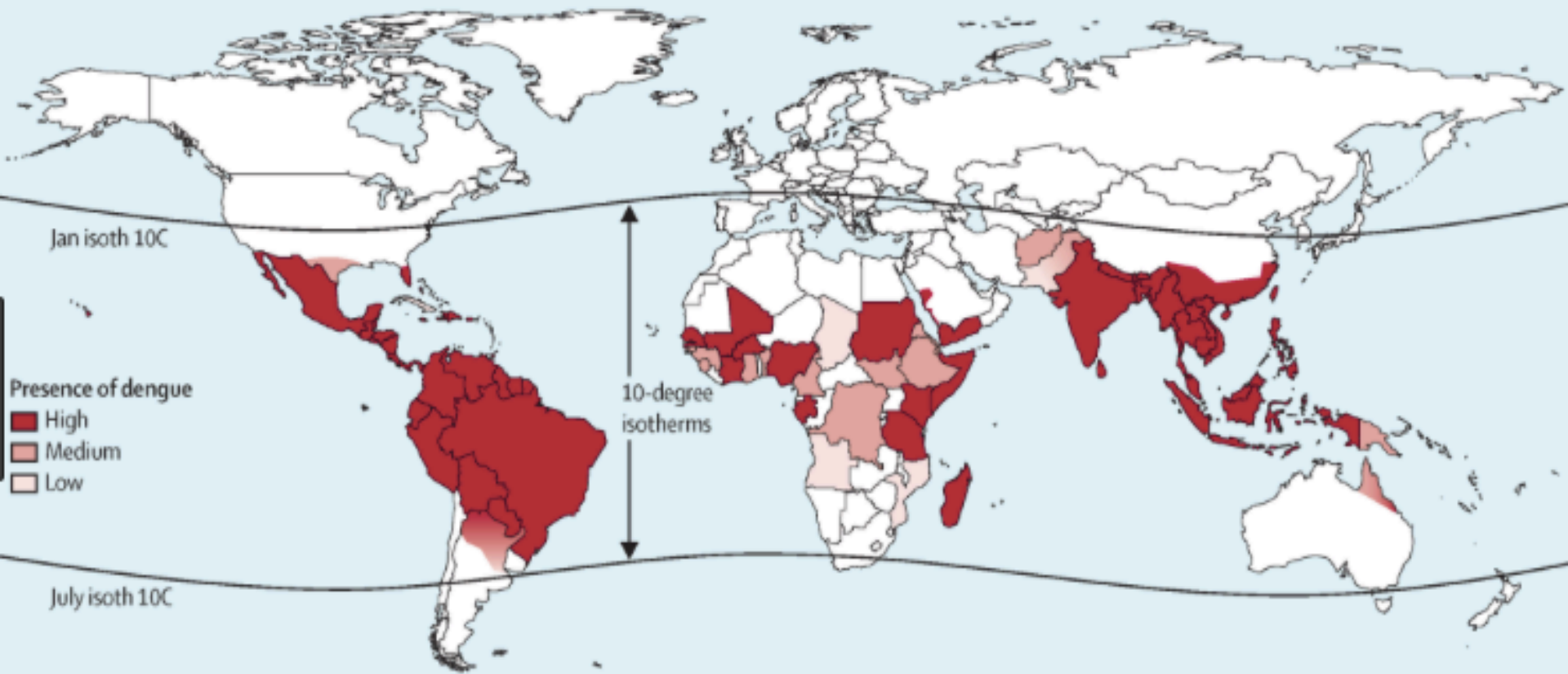


Today:



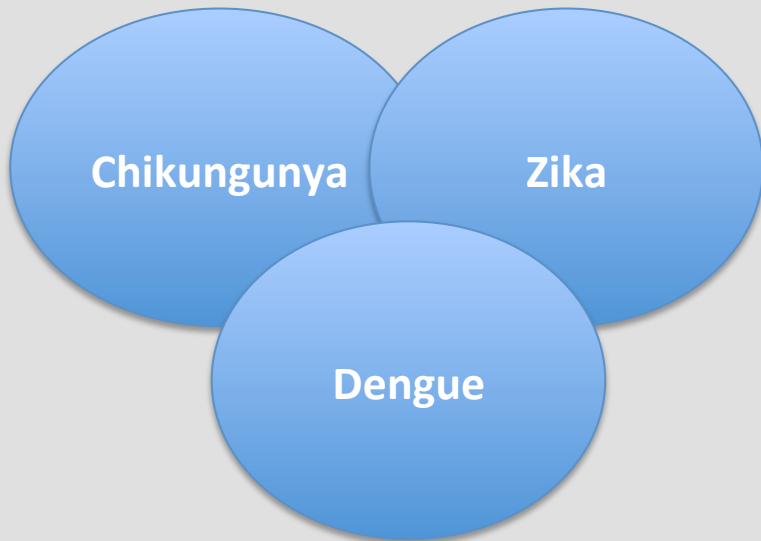
>120 countries

200 million infections/year - 22.000 deaths





***Aedes aegypti* :**  
**4 virus serotypes (DENV1-4)**  
**Co-infection is possible**



Primary infection:

- usually mild,
- often asymptomatic

Lifetime immunity for **that** serotype

**The problem – caused by re-infection**

- due to a different serotype
- can be severe, lifethreatening

# Who should be suspected?



Exposed patients (endemic area, travellers), **<14 days**

**Fever, Rash, Arthralgia, Nausea, Cephalalgia, Easy Bleeding (FRANCE)**

**Thrombocytopenia**



*Positive tourniquet's sign (Kandan, 2014)*

# Clinical manifestations



Asymptomatic in 50-70%

Dengue fever

Neurological manifestations (1-20%)  
= severe dengue (*WHO 2009*)

Dengue hemorrhagic fever

Dengue shock syndrome

# Confirmatory tests



Day 5 of fever

Viral antigen detection  
**NS1 antigen**

**IgM, IgG (ELISA)**

IgM/IgG <1.2  
means reinfection

For rapid diagnosis

Viral RNA detection (RT-PCR)

Viral culture



Kit for viral Ag and IgM – 10min, 20USD

# Treatment is non-specific

- Supportive, rehydration
- ICU/transfusion in critical cases
- Avoidance of NSAID, Aspirin, Anticoagulation
- Steroids in immune-mediated disease
- Prophylaxis, against mosquitos



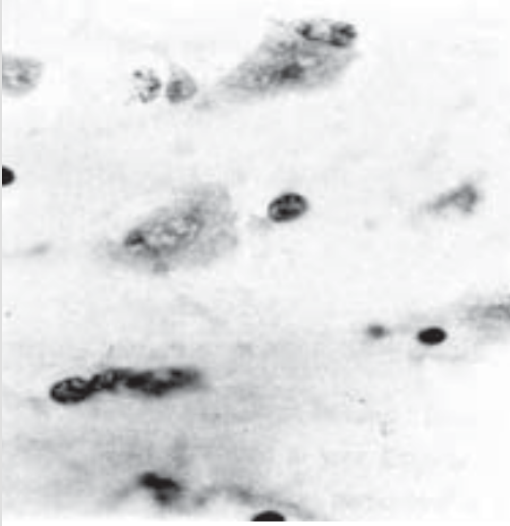


# Neurological manifestations in dengue fever (DENV1-2)



1/ Neurotropism?

**ENCEPHALITIS, (MENINGITIS)**



*Dengue Ag in the gray matter  
Nogueira et al, 2002*

2/ Metabolic changes: **ENCEPHALOPATHY**

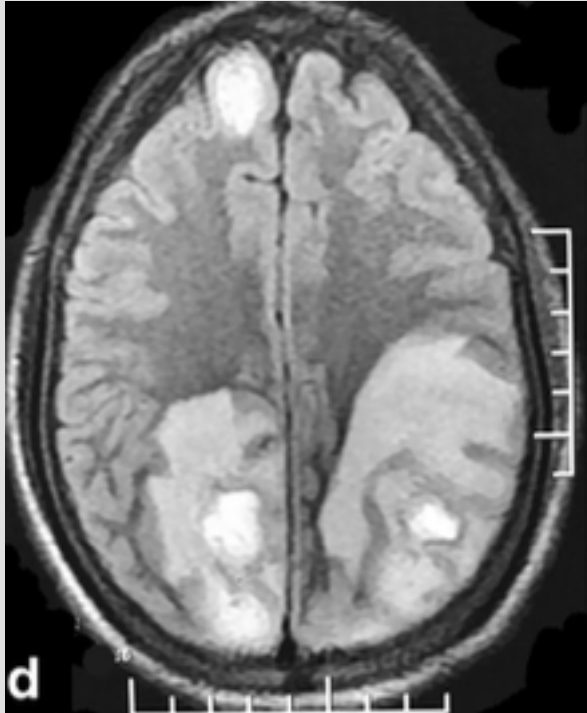
3/ Autoimmune reactions: **ON, TM, ADEM, NMOSD, GBS, Myositis**

4/ Cerebrovascular events: **STROKE, SINUS THROMBOSIS**

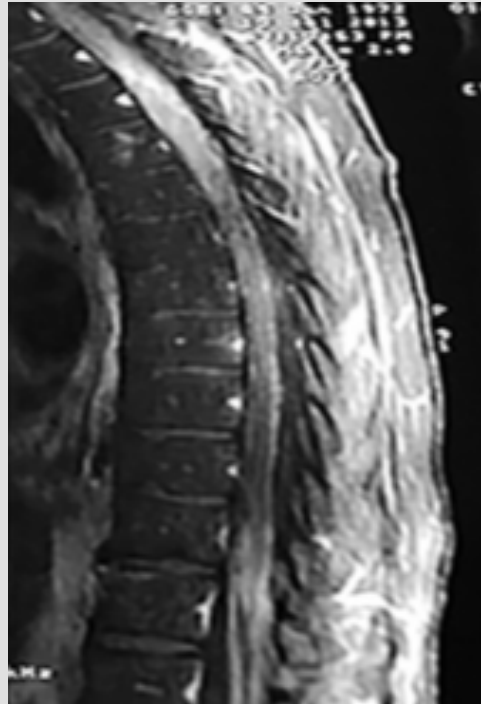
# Dengue encephalopathy:

- Most common neurological complication in Dengue
- More often in children
- Cognitive dysfunction, convulsions, behavioral disorders
- Often associated with metabolic, multi-organ (hepatic) dysfunction, cerebral edema, anoxia, prolonged shock
- CSF is often normal, but abnormal MRI
- 50% mortality

# Other neurological manifestations in Dengue



PRES syndrome  
*Garg et al, 2017*

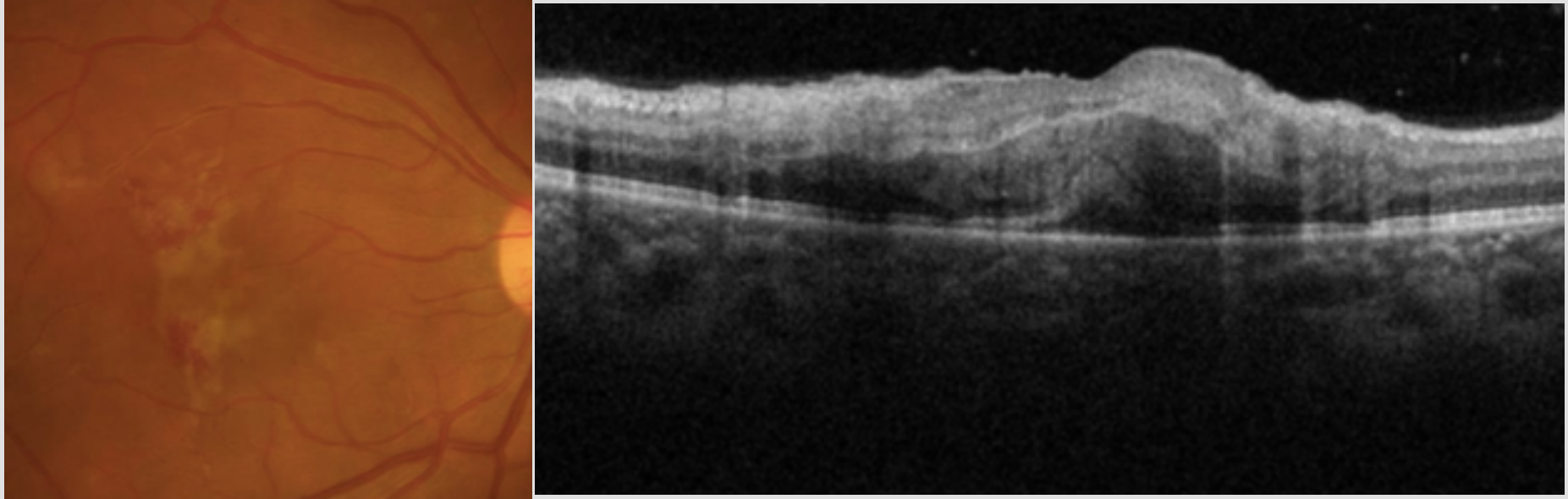


Myelitis  
*Lana-Peixotot et al, 2018*



NMOSD  
*Lana-Peixotot et al, 2018*

# The Ophthalmologist's point of view:



*Courtesy Dr V Lal*

- **Dengue Maculopathy** (10-40% of admitted patients)
- Retinal vasculitis, retinal hemorrhages, uveitis
- Optic neuritis

# *The Controversy*

- Dengvaxia (Sanofi) – first anti dengue tetravalent vaccine
- Licensed in 19 countries – for use in endemic areas, age 9-45
- Stopped in Dec 2017 in the Philippines after 800.000 vaccinations
- **Associated with severe dengue in vaccinated seronegative patients**



REUTERS

World Business Markets Politics TV

HEALTH NEWS FEBRUARY 5, 2018 / 2:21 AM / A MONTH AGO

## Philippine lawyers sue Sanofi over dengue vaccine

# In conclusion

- Think « Dengue » in travellers, if fever and thrombocytopenia
- Monitor neurological, neuro-ophthalmic involvement
- Most important: prophylaxis!!!

