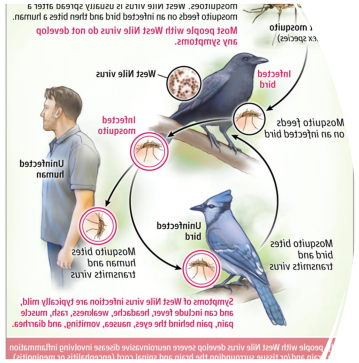
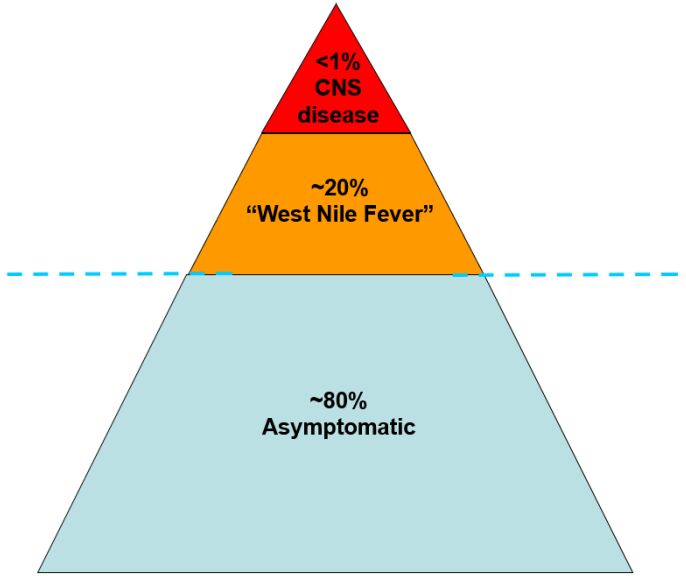




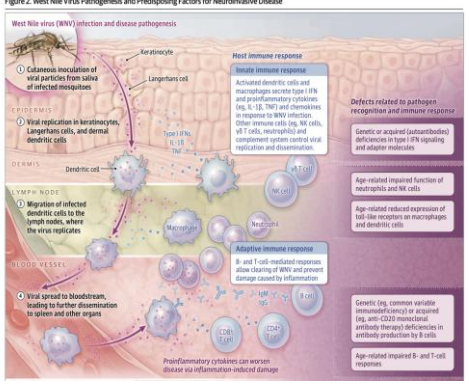
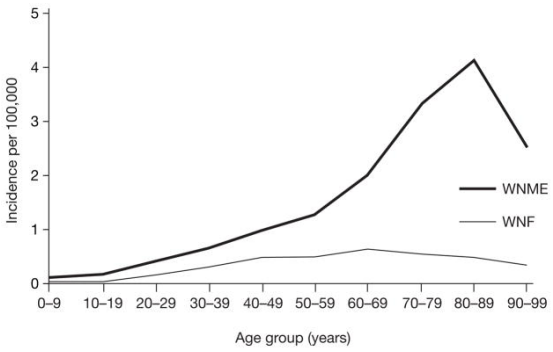


Figure 4. Diffuse Maculopapular Rash on Chest, Abdomen, and Arms of a Patient With West Nile Virus Disease

Gestione clinica infezione da West Nile virus

Emanuele Nicastri

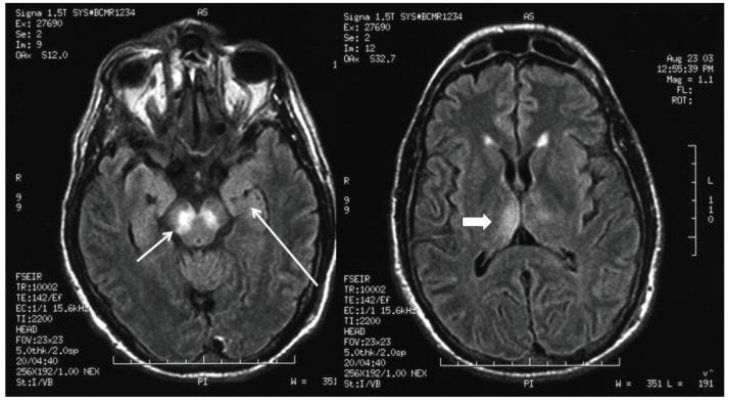
Istituto Nazionale per le Malattie Infettive Lazzaro Spallanzani IRCCS



IRCCS LAZZARO SPALLANZANI

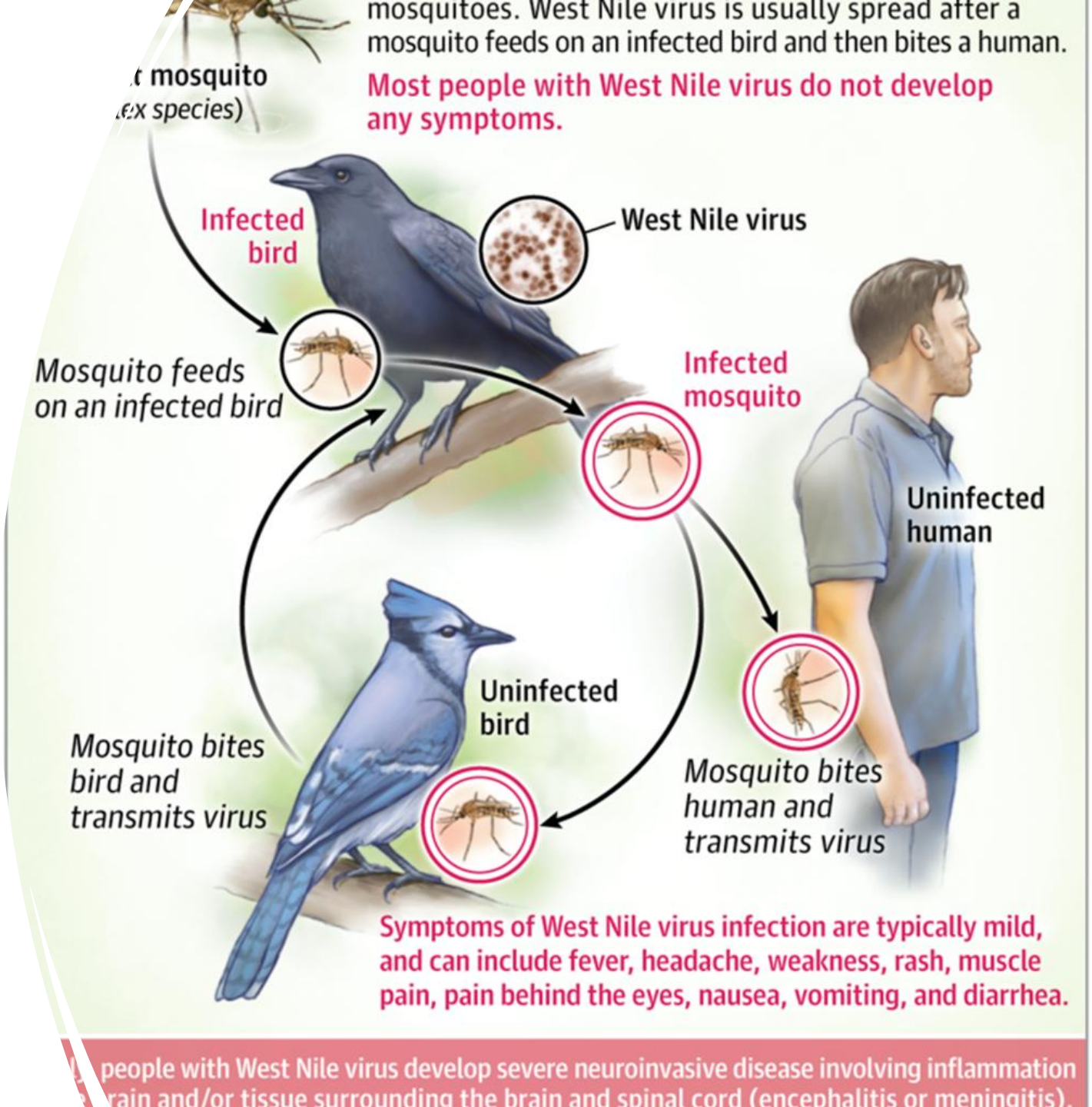
ISTITUTO NAZIONALE PER LE MALATTIE INFETTIVE "Lazzaro Spallanzani" Istituto di Ricovero e Cura a Carattere Scientifico

REGIONE LAZIO



What Is West Nile Virus Infection?

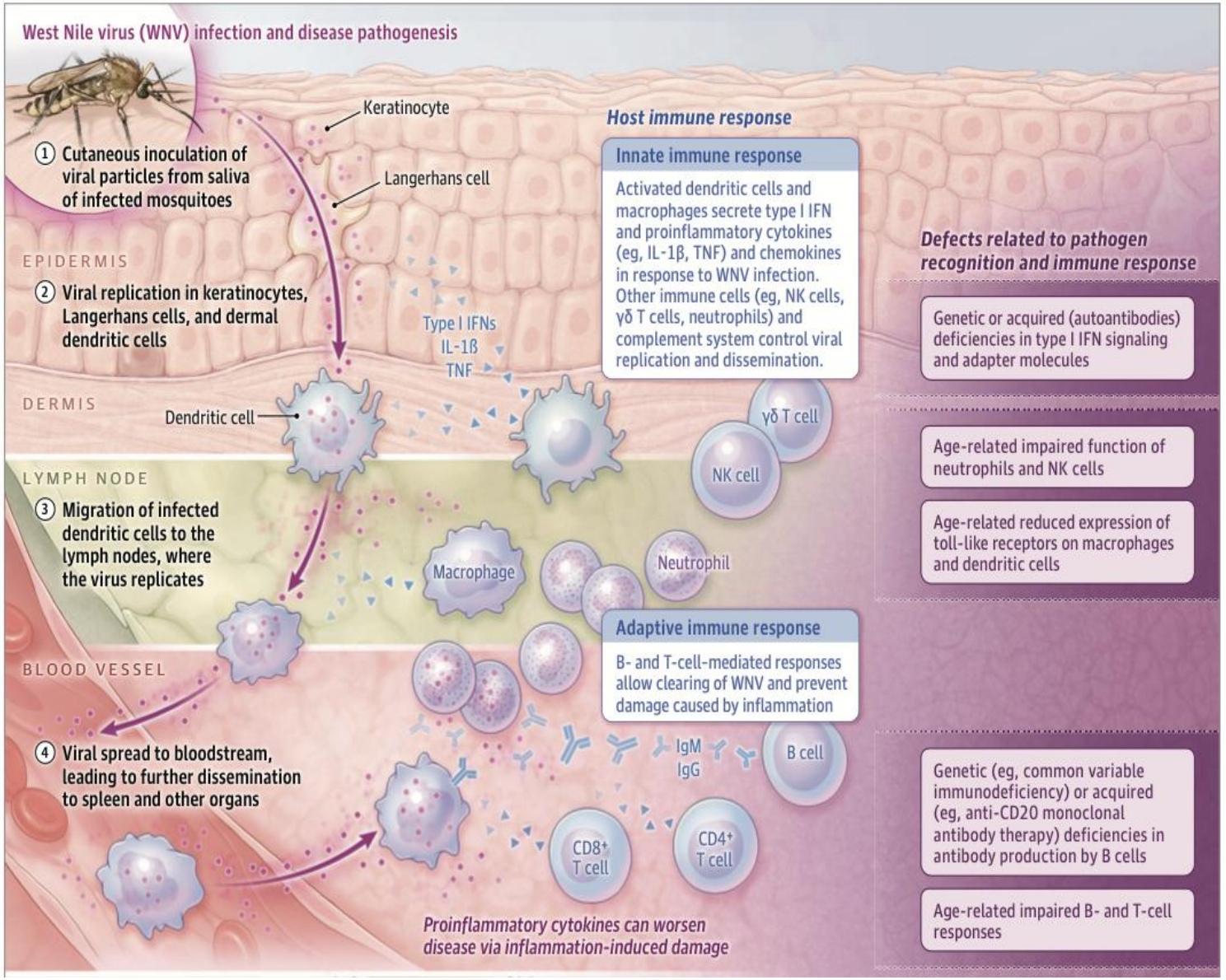
- JAMA 07.2025



West Nile Virus A Review

- **Gould JAMA 07.2025**

Figure 2. West Nile Virus Pathogenesis and Predisposing Factors for Neuroinvasive Disease



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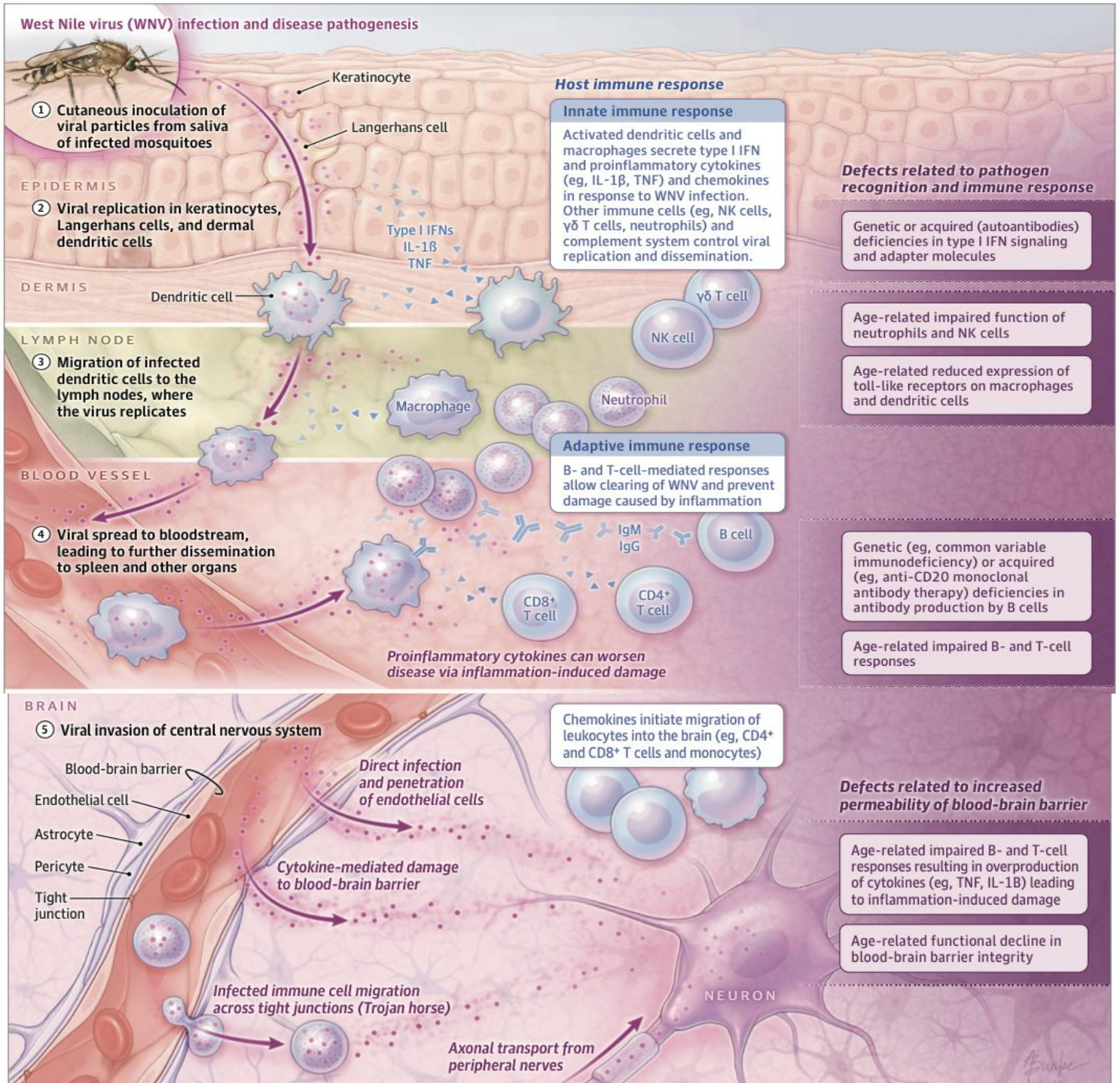

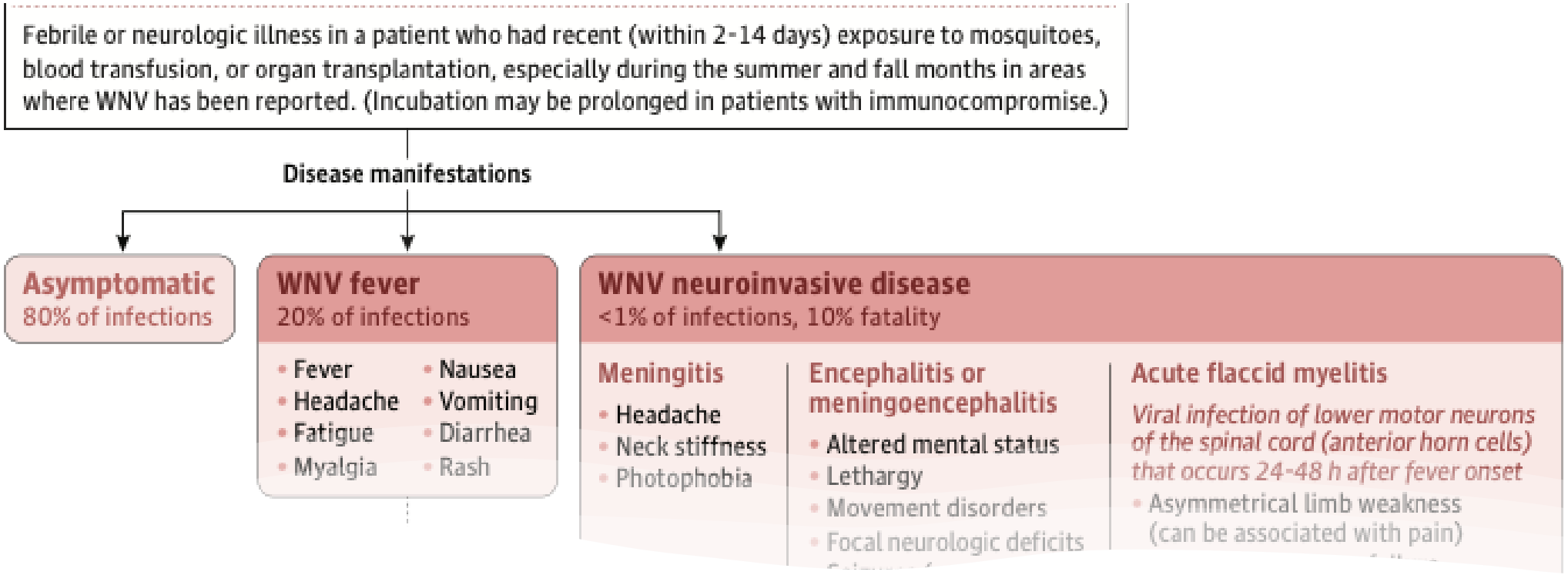

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West Nile Virus A Review

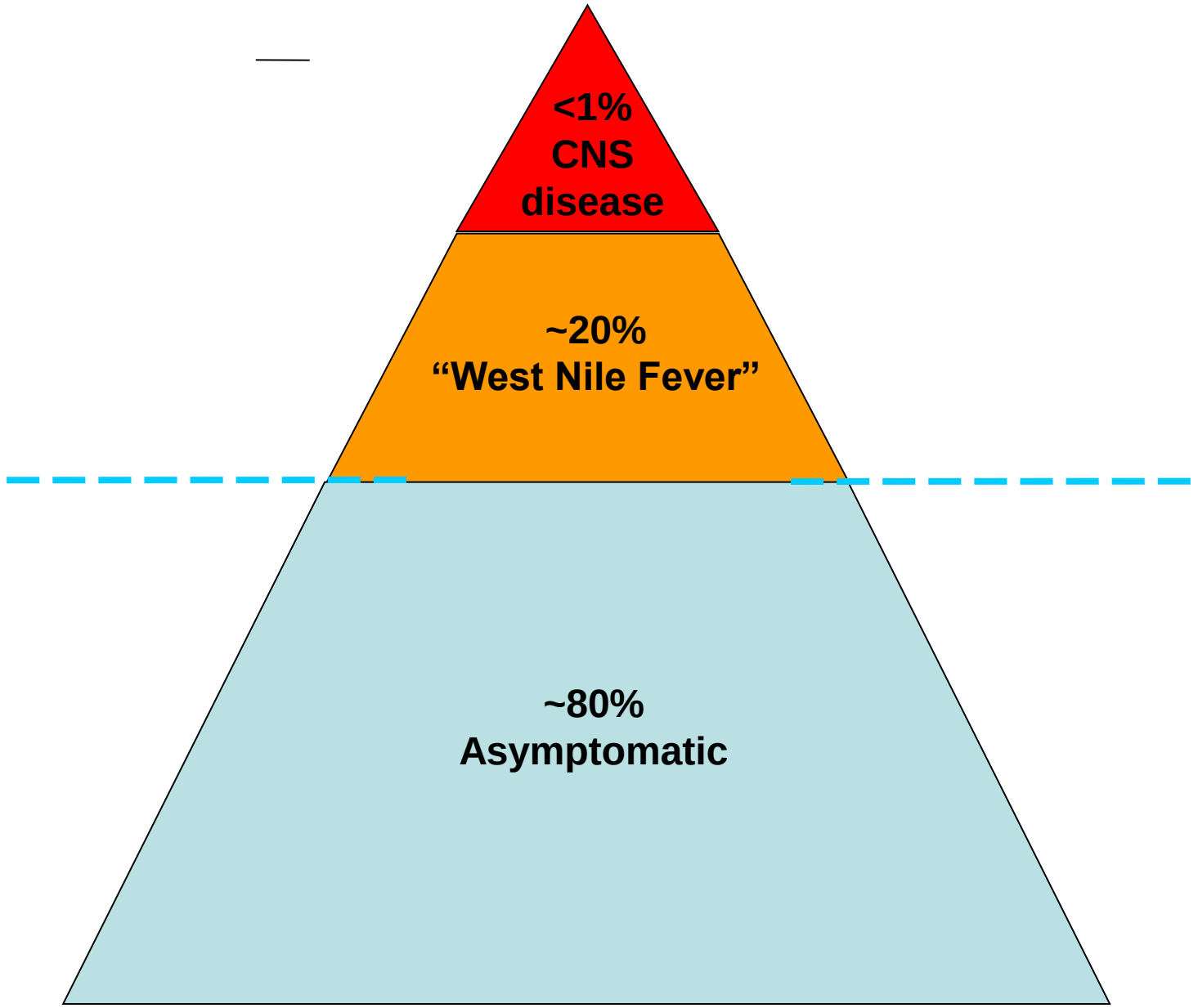
WNV Human Infection “Iceberg”

284 fatalities in 2002 in US

~ 3300 severe disease

~100,000
mild illness

~400,000
asymptomatic



West Nile virus

- Incubazione: 3-14 giorni (può essere più lunga in soggetti immunocompromessi)
- Nella maggior parte dei casi l'infezione è asintomatica (80% delle infezioni*)
- Nelle forme sintomatiche la maggior parte decorre come una sindrome simil-influenzale (20% delle infezioni*)
- Infezione grave con sintomi neurologici in meno dell'1% delle infezioni*

*dati stimati nel corso degli ultimi eventi epidemici di infezione da virus WN

West Nile virus

- Infezione da virus WN **non grave**:
  - Durata della sintomatologia: 3-6 giorni
  - Caratterizzata da
    - Febbre preceduta da brivido
    - Cefalea e dolore retro-oculare
    - Malessere
    - Artro-mialgie e rachialgia
    - **Rush cutaneo presente nel 50% dei casi (prevalentemente nei bambini)**
    - Epato-splenomegalia nel 10-20% dei casi
    - Sintomi aspecifici: **vomito, diarrea**, tosse, anoressia, faringodinia, linfoadenopatia generalizzata
    - **Assenza di sintomi neurologici**
  - **I sintomi regrediscono completamente, ma l'astenia può perdurare per settimane o mesi**

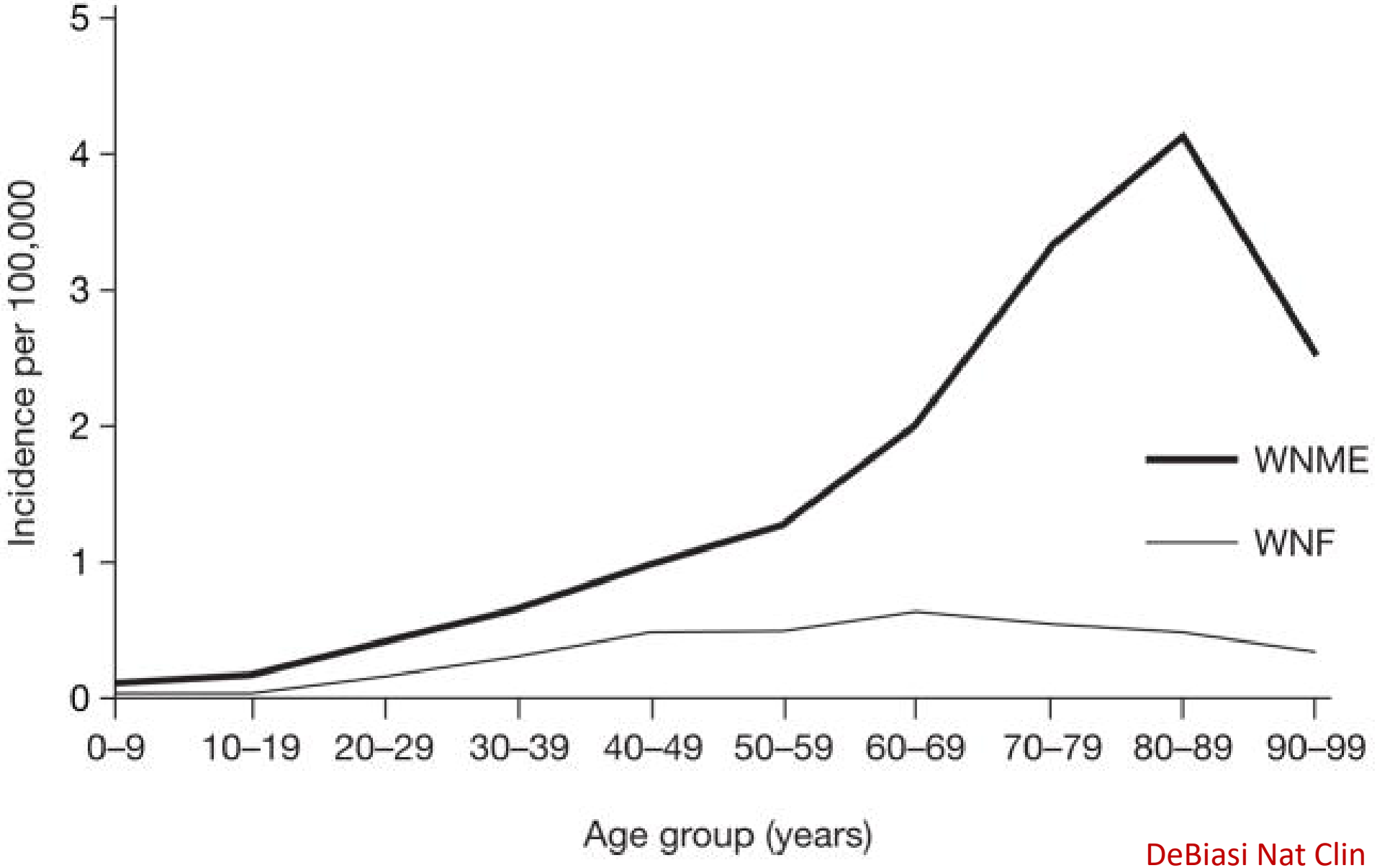
Clinical manifestation and outcome of WNV infection

Figure 4. Diffuse Maculopapular Rash on Chest, Abdomen, and Arms of a Patient With West Nile Virus Disease

Rash, morbilliform, maculopapular and non-pruritic and predominates over the torso and extremities, sparing the palms and soles, may be transient, lasting less than 24 hr.
It is more frequent in WN fever than in more severe manifestations, rash is more frequently observed among youngers. These findings raise the question as to whether the presence of a rash correlates with host immune or cytokine response to infection

Sejvar Viruses 2004

Incidence of WNV infection vs neuroinvasion



DeBiasi Nat Clin Pract Neurol. ;2013

West Nile virus

- Infezione da virus WN **grave**:
  - Più frequente in soggetti >60 aa o con condizioni di immunodepressione (tumori, diabete, trapianto)
- Coinvolgimento neurologico
  - Periodo prodromico di 1-7 giorni caratterizzato da febbre, con andamento spesso bifasico
  - Comparsa di sintomi neurologici:
    - **Encefalite** (con o senza segni di meningismo)
    - **Meningite**
    - **Paralisi flaccida**
  - La regressione dei sintomi richiede settimane o mesi e in alcuni casi possono esserci sequele neurologiche
  - Mortalità: 10% dei casi di infezione grave neurologica

West Nile virus

- Infezione da virus WN **grave**: quadri clinici
  - **Meningite:**
    - Meningite a liquor limpido
    - Febbre, cefalea e rigidità nucale
  - **Encefalite:**
    - Febbre
    - Compromissione dello stato di coscienza
    - Deficit focali
    - Convulsioni
    - Deficit della coordinazione, tremore, parkinsonismo
  - **Paralisi flaccida:**
    - Coinvolgimento dei corni anteriori del midollo spinale.
    - Simile alla poliomielite. Può progredire fino alla paralisi respiratoria, con necessità di ventilazione meccanica
    - La paralisi è spesso asimmetrica
    - Può essere associata a meningismo
    - In alcuni casi non è preceduta da febbre o altri sintomi prodromici
    - In diagnosi differenziale con Sindrome di Guillain-Barré indotta da WN virus (clinica e elettroneurografia)

Clinical manifestation and outcome of WNV infection

West Nile Neuroinvasive disease

- WNM is **indistinguishable from other viral meningitides** with abrupt onset of fever and headache and meningeal signs, including nuchal rigidity, Kernig's and/or Brudzinski's signs and photophobia or phonophobia.

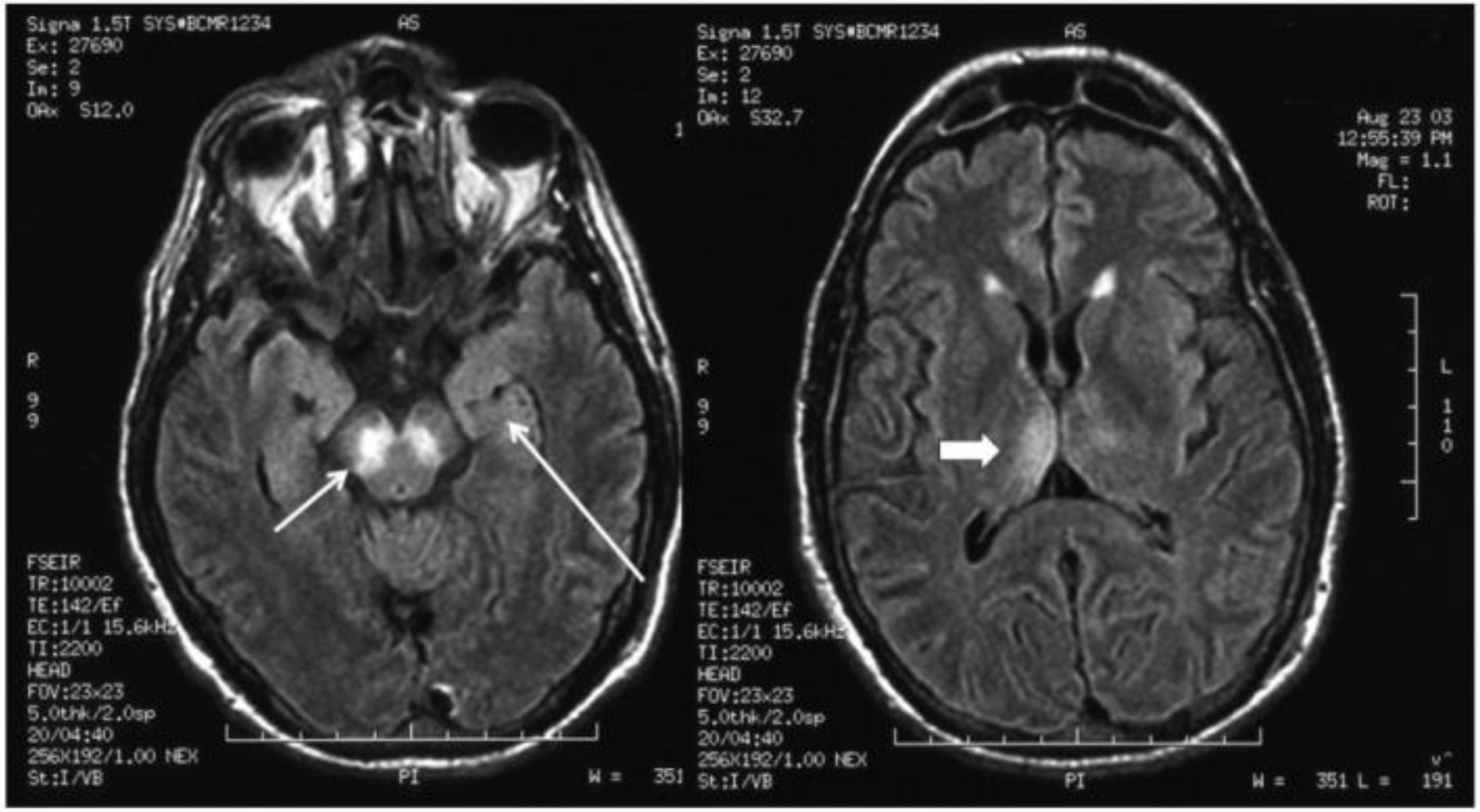
- The **associated headache may be severe**, requiring hospitalization for pain control; associated gastrointestinal symptoms, such as nausea, vomiting and diarrhea, may result in dehydration, exacerbating head pain and systemic symptoms

- WNM is generally associated with a favorable outcome, though, similar to WNF, some patients experience persistent headache, fatigue and myalgia

- CSF is characterized by a **modest pleocytosis, generally less than 500 cells/mm3, usually lymphocytic,**

Sejvar Viruses 2004

Clinical manifestation and outcome of WNV infection



West Nile virus encephalitis with associated parkinsonism and tremor, displaying signal abnormality in the substantia nigra (short arrow), the mesial temporal lobe (long arrow) and right posterior thalamus (thick arrow)

Sejvar Viruses 2004

Clinical manifestation and outcome of WNV infection

Table 1. Clinical and electrodiagnostic features of different types of weakness associated with West Nile virus infection.

Characteristic	West Nile Poliomyelitis	Guillain–Barré Syndrome	Fatigue-Related "Muscle Weakness"
Timing of onset	Acute phase of infection	One to eight weeks following acute infection	Acute infection
Fever and leukocytosis	Present	Absent	Present
Weakness distribution	Asymmetric; occasional monoplegia	Generally symmetric; proximal and distal muscles	Generalized, subjective, but neurologic examination normal
Sensory symptoms	Absence of numbness, paresthesias or sensory loss; pain often present	Painful distal paresthesias and sensory loss	Generally absent
Bowel/bladder involvement	Often present	Rare	Not present
Concurrent encephalopathy	Often present	Generally absent	May be seen with fever, meningitis or encephalitis
CSF Profile	Pleocytosis and elevated protein	No pleocytosis; elevated protein (albuminocytologic dissociation)	Pleocytosis and elevated protein in the setting of meningitis/encephalitis

Sejvar Viruses 2004

Clinical manifestation and outcome of WNV infection

Sagittal (A) and axial (B) T2 MR imaging of the cervical spinal cord of a patient with bilateral upper extremity paralysis and respiratory failure from West Nile poliomyelitis, displaying the increased signal in the anterior spinal cord (circle

Sejvar Viruses 2004

West Nile Virus Neuroinvasive Disease

Table 1. Clinical Features Seen in West Nile Neuroinvasive Disease

	Signs and Symptoms	
Common (>50%)	Fever (>38°C)	Generalized nonfocal weakness
	Anorexia	Trouble walking
	Nausea/vomiting	Numbness in limb or body
	Fatigue	Tremors
	Headache	Myalgias
	Trouble concentrating	Blurry vision
	Memory problems	Myoclonic jerks
	Confusion, delirium, lethargy	Marked sleepiness
	Stiff neck or neck pains	
Less common (5–50%)	Chills	Focal sensory loss
	Dizziness	Sensitivity to light
	Imbalance	Nonpruritic maculopapular rash
	Back pains	Dysphagia
	Somnolence	Nystagmus
	Slurred speech	Babinski sign
	Diarrhea	Stupor
	Arthralgias	Uncoordinated gait/ataxia
	Focal arm or leg weakness	Joint pains
	Paresthesias in limbs	
Uncommon (1–4%)	Seizure/status epilepticus	Paraplegia or quadriplegia
	Lymphadenopathy	Urinary/fecal incontinence
	Pharyngitis	Parkinsonism
	Conjunctivitis	Monocular visual loss
	Coma	Diplopia
	Facial palsy	Marked chorioretinitis

Davis Ann Int Med 200

West Nile virus

- Infezione da virus WN **grave**:
  - **Quadri non neurologici:**
    - Cuore: miocardite, aritmie
    - Occhio: neurite ottica, uveite, corioretinite
    - Tratto gastro-intestinale: epatite, pancreatite
    - Apparato genitale: orchite
    - Apparato muscolo-scheletrico: rabdomiolisi
  - **Gravidanza:**
    - Non ci sono dati definitivi sull'infezione materno-fetale.
    - Sembra che la **prevalenza di WNV e la evoluzione verso la forma neuroinvasiva nella donna in gravidanza sia simile alla popolazione generale ma con una minore gravità e letalità**.
    - Vi sono pochi **casi di trasmissione verticale** accertata con lesioni cistiche cerebrali e corioretinite o **durante l'allattamento**

Correlation Between WNV and Pregnancy: A Systematic Review

Included Studies	Study Design	Parameters Assessed	Clinical Manifestations	Diagnosis/Serology	Outcomes/Conclusions
Study of frequencies of WNV infections during pregnancy and intrauterine WNV infections					
Paisley J. E. et al., 2005 (U.S.A.) [29]	Cross-sectional study, 566 women presenting for delivery and 549 newborns	Demographic characteristics, clinical symptoms (fever and timing of fever, WNV infection, congenital infection) and maternal IgG, IgM testing and growth, IgG testing, IgM audiogram, and newborn Apgar scale	Maternal: fever Newborn: 15% Apgar score < 7 5.3% low birth weight, 2.4% short stature, 4.9% smaller head, retinal hemorrhage, Roth spots	22/547 (4%) IgG (+), 0/547 IgM (+) in cord samples in newborns 5/184 Maternal serum IgM (+)/IgG (+) & IgG cord blood (+) but IgM cord blood (−)	- There were no statistically significant differences in neonates according to maternal disease. - Intrauterine WNV infections seemed to be infrequent.
Study of effects during pregnancy					
Chapa J. B. et al., 2003 (U.S.A.) [31]	Case study, 1 African-American woman affected by the virus, in the second trimester of pregnancy	Demographic characteristics, clinical symptoms and maternal IgG, IgM control and growth, IgG, IgM control, and newborn Apgar score	Maternal: fever, headache, nausea, vomiting, sore throat, neck stiffness, diplopia, reduced joint movement, preeclampsia	IgM maternal CSF Positive–Serology on newborn not performed	- Pregnant women are at high risk of developing serious complications such as encephalitis. - Data on the effect of WNV on the fetus are limited.
Pridjian G. et al., 2016 (U.S.A.) [26]	Prospective longitudinal cohort study, 28 pregnant serologically confirmed WNV women, matched on maternal age and enrollment month with 25 controls, and their newborns	Pregnancy and newborn data were collected; cord blood WNV serology was obtained. Pediatric exams and the Bayley Scales of Infant and Toddler Development-Third Edition (Bayley-III) were performed	Maternal: fever, rash, low concentration, weakness, meningitis, encephalitis	Maternal IgG 28 (+)/IgM (−)	- No differences in pregnancy and delivery characteristics. - Mothers with infection were more likely to have a fever and used a greater amount of medication. - Birth weight, length, head circumference, and rate of congenital malformations were similar in babies born to WNV-infected and -uninfected mothers. - Follow-up physical exams were generally normal. - The Bayley-III assessments, available for 17 children born to mothers with WNV illness, showed performance at or above age level across domains. - The risk for adverse pregnancy and newborn outcomes in WNV pregnant women appears to be low.
O'Leary D. R. et al., 2015 (U.S.A.) [30]	Cross-sectional study, 71 women with WNV and 72 of their newborns	Demographic characteristics, clinical symptoms and maternal IgG, IgM control and growth, IgG, IgM control, and newborn Apgar score	77 pregnant women with WNV were monitored: 71 delivered 72 live infants, while 4 had miscarriages, and 2 had elective abortions. Most infants were born at term Newborn: 5.6% preterm, 4.8% low birth weight, 10.6% some major birth defect (aortic coarctation, cleft palate, Down syndrome, lissencephaly, microcephaly, and polydactyly)	1/55 (cord serum) infants IgM (+)	- Three infants had a WNV infection that could have been congenitally acquired. - Seven infants had major malformations, but only three of these had defects that could have been caused by maternal WNV infection based on the timing of the infections and the sensitive developmental period for the specific malformations, and none had any conclusive evidence of WNV etiology.

Correlation Between WNV and Pregnancy: A Systematic Review

Included Studies	Study Design	Parameters Assessed	Clinical Manifestations	Diagnosis/Serology		Outcomes/Conclusions
Stewart R. D. et al., 2013 (U.S.A.) [32]	Case study, 3 women with WNV and 1 newborn	Demographic characteristics, clinical symptoms and maternal IgG, IgM control and growth, IgG, IgM control, and newborn Apgar score	Maternal: fever (66.6%), Nausea/vomiting (66.6%), headache (33.3%), neurologic symptoms (33.3%)	3 Maternal IgG (+)/3 IgM (+) – 1/1 newborn IgG (+)/IgM (–)	-	The effect of pregnancy on WNV infection and the effect of maternal WNV infection on the fetus both require further investigation.
Study of effects during lactation						
Hinckley A. F. et al., 2015 (U.S.A.) [28]	Cross-sectional study, 6 WNV mothers while breastfeeding their infants	IgA, IgM, IgG, WNV Neutralizing Antibody Titer, and SLEV Neutralizing Antibody Titer were studied in breast milk, maternal and child plasma	Newborn: transient papular rash, aortic isthmus stenosis, aortic dissection	Constituents in Milk 1/6 (+) in WNV Neutralizing $Antibody Titer, Constituents in Maternal Serum 5/6 (+) in WNV Neutralizing Antibody Titer, 6/6 IgM(+)/IgG(+) Constituents in Child Serum 0/6 IgM(+)/IgG(+)	- -	Six infants breastfed from mothers with WNV: five remained healthy, and one developed a rash. Two fell ill during breastfeeding, and two had congenital antibodies.
Study of effects on development						
Sirois P. A. et al., 2014 (U.S.A.) [27]	Cross-sectional study, 11 neonates and infants born to mothers with WNV	Demographic characteristics, growth screening, Bayley scale III, and eye examination of newborns	No significant clinical events were reported 1/11 newborns were born prematurely. While completing the questionnaire, 1/11 children had a moderate developmental delay	Infant and neonate IgG n/IgM not measured	-	Maternal WNV infection does not appear to be associated with global developmental delays in young children.

Neurological symptoms, suggesting neuroinvasive disease, including cervical stiffness, diplopia, and decreased joint movement, with the patient's condition worsening during hospitalization. Pridjian et al. reported meningitis or encephalitis in 11 out of 28 participants , and 23% of participants in O'Leary et al.'s study exhibited neurological symptoms . Notably, only one pregnant woman required further medical intervention.

Pregnant women's symptoms and prognosis match those of the general population. A noteworthy difference is that there was a zero percent mortality following neuroinvasive disease compared to the average 10% of the general population, a finding that needs further investigation to be elucidated

Neuroinvasive West Nile virus infections after solid organ transplantation: Nebraska single center experience and systematic review

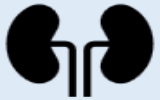
@TheTxIDJournal @AnumAbbasMD

Abbas *et al.* ***Transplant Infectious Diseases***. 2022.

Retrospective, single-center review

8 SOT recipients with neuroinvasive WNv infection

5 kidney
1 kidney-pancreas



1 liver

1 lung

Median time from transplant to infection: 49.8 months

3 meningitis
1 encephalitis
4 meningo-encephalitis

Systematic review:
29 studies

Abnormal movements:
myoclonus, tremors, seizures

69%

Mortality of neuroinvasive WNv in SOT:

46%

Conclusions:

1. Neuroinvasive WNv infections in SOT recipients can be severe and cause death.
2. Infections can be donor-derived or community acquired and require a high index of suspicion.

5 (62.5%) pts on IV Ig. None received IFN. All apart 1 decreased immunosuppression. 5 had an abnormal EEG. Two patients had neurologic sequalae, one had foot drop, and the other had chronic dizziness.
Two patients had WNV- related death

53 cases; most kidney trasnplant

Abbas , Transp ID 2022

Incubation Periods of Mosquito-Borne Viral Infections: A Systematic Review

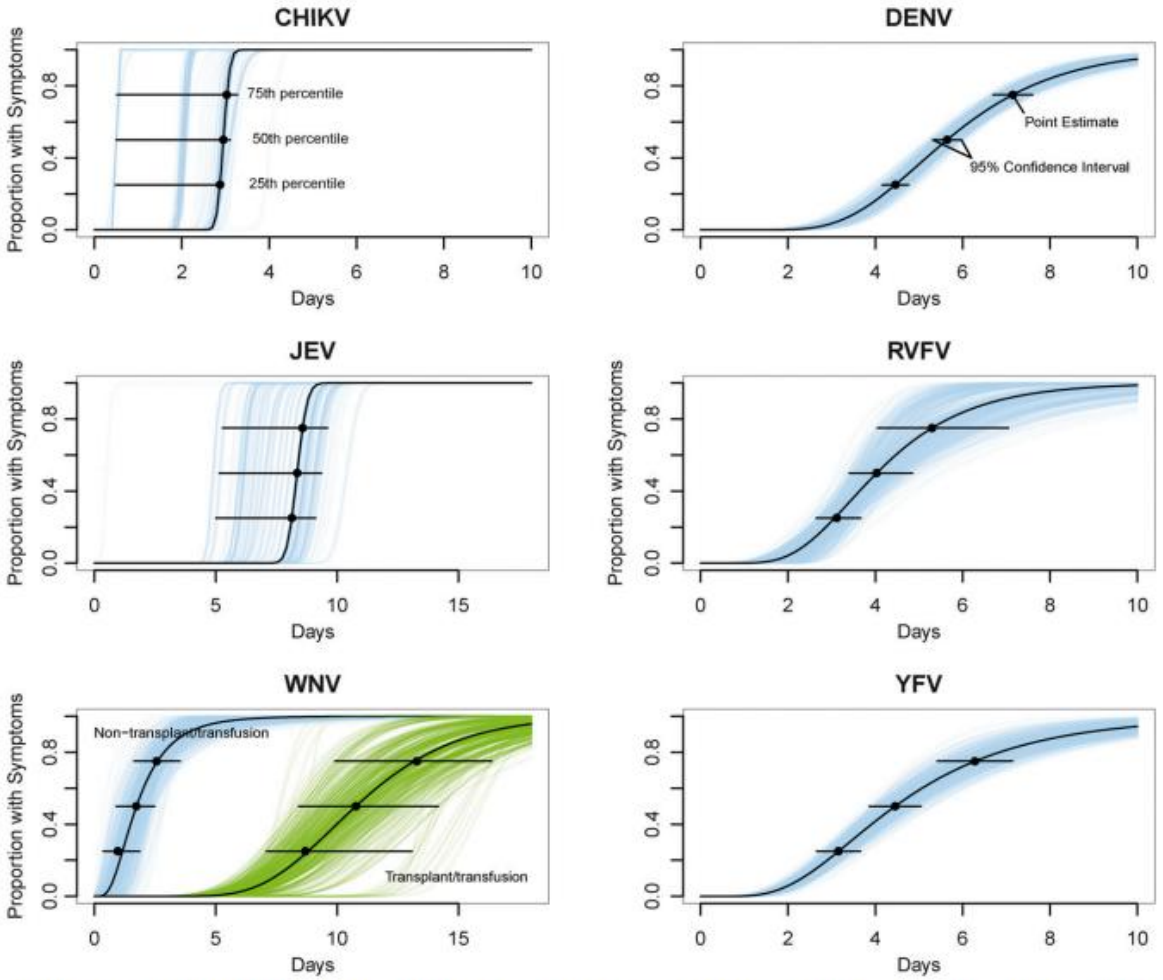
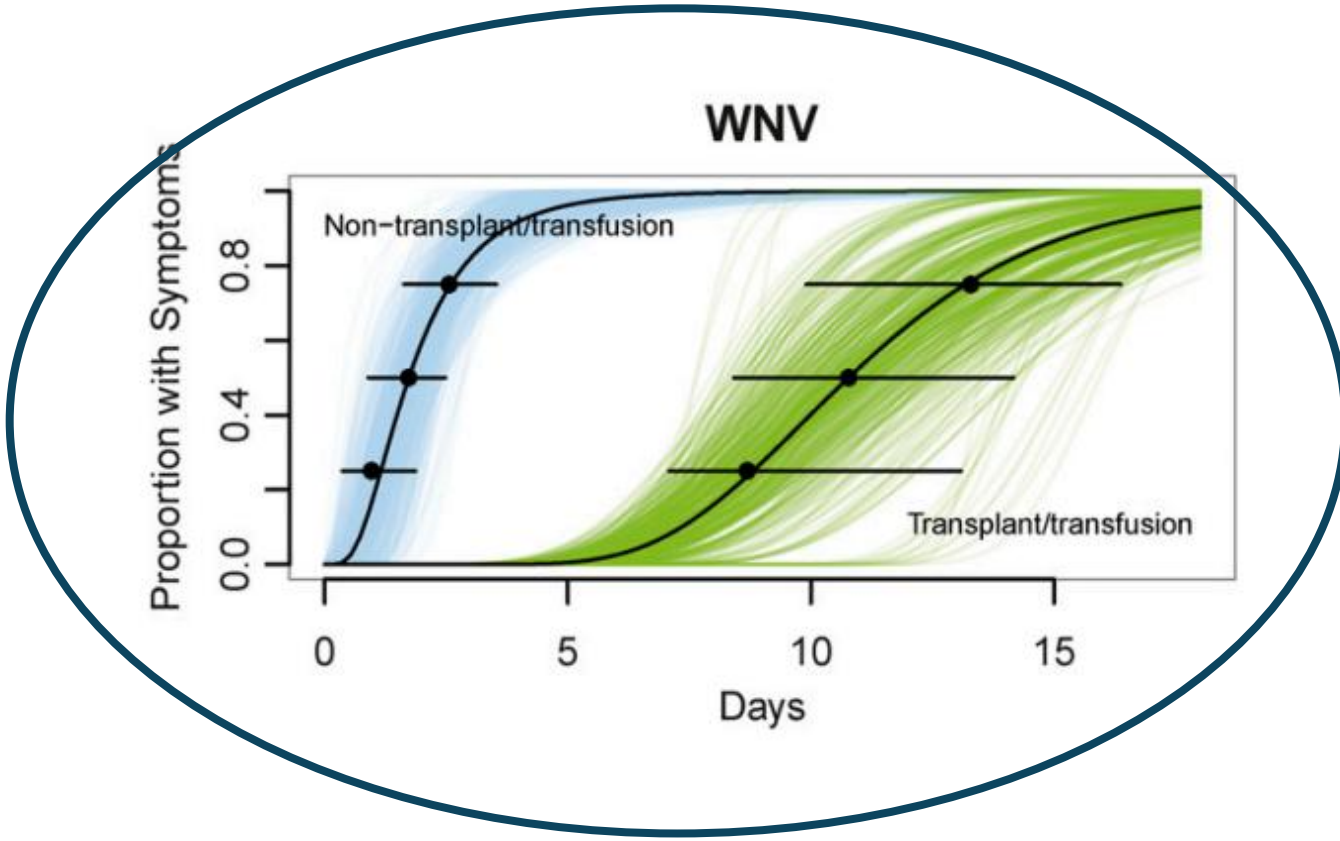


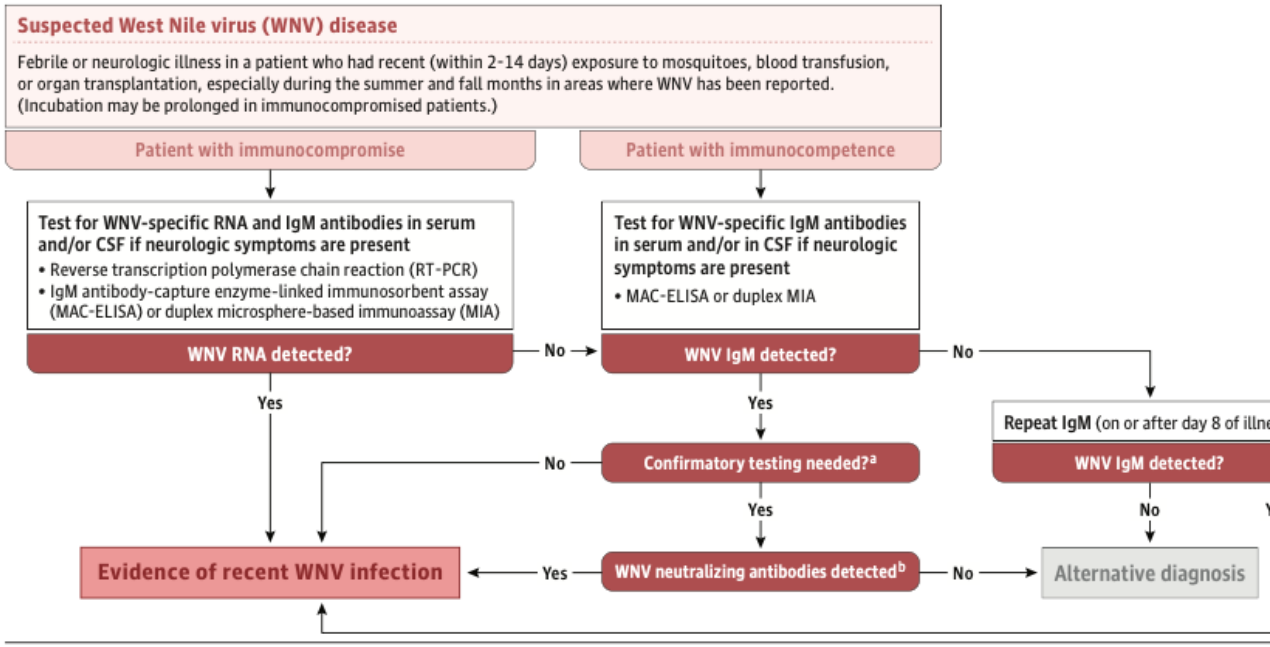
FIGURE 2. Estimated cumulative distributions of the incubation periods. Horizontal bars show the 95% confidence intervals at the 25th, 50th, and 75th percentiles. Individual lines represent bootstrap samples.



Rudolph AJTMH 2014

Figure 4. Diffuse Maculopapular Rash on Chest, Abdomen, and Arms of a Patient With West Nile Virus Disease

Figure 5. West Nile Virus Diagnostic Algorithm



CSF indicates cerebrospinal fluid.

[a]Indications for confirmatory testing by plaque reduction neutralization test: possible exposure to cross-reactive flaviviruses (eg, St. Louis encephalitis virus, Powassan virus, dengue virus); atypical or unusually severe presentation or death; suspected unusual route of transmission (eg, organ transplant, blood transfusion, laboratory); presentation outside of the typical WNV transmission season (ie, July-October).

[b]WNV-specific neutralizing antibody titers 4-fold or greater than for other flaviviruses tested.

Source: https://www.cdc.gov/west-nile-virus/hcp/diagnosis-testing/diagnostic-testing-algorithm

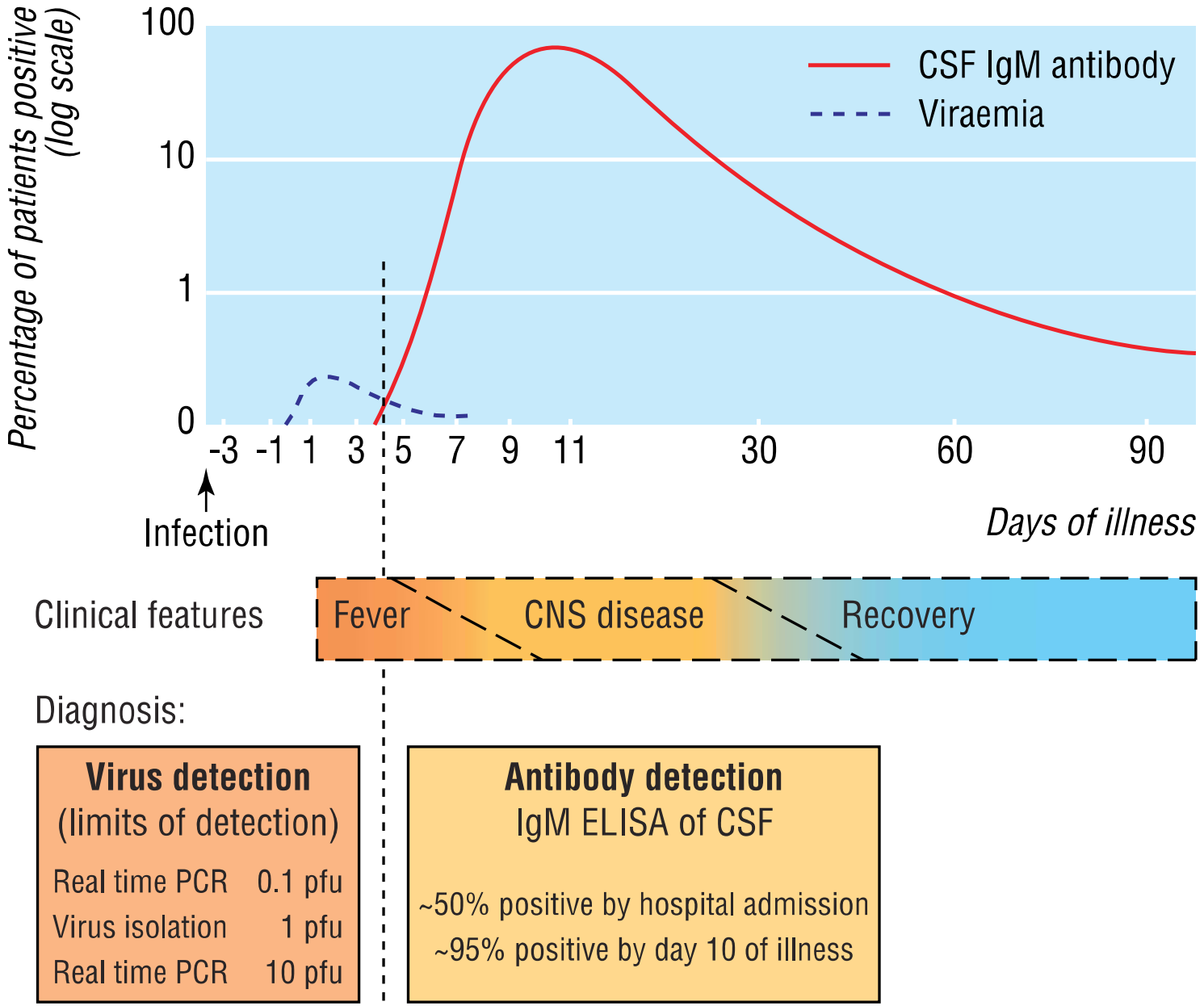
MMG/PLS, inviare **notifica di sospetto caso di WNV** ed il paziente all'ambulatorio dei centri riferimento regionale (Spallanzani, Cotugno, Padova, Bologna..) con ricette con i seguenti codici CUR non presenti in default nel nomenclatore

1. **Sierologia: 91.13.1_0** virus anticorpi Nas (specificare nelle note West Nile Virus IgG e IgM, pertanto quel codice va moltiplicato per 2 prestazioni sulla ricetta;
2. **PCR: 91.12.B_2** (virus acidi nucleici Nas) e specificare come nota, ricerca acidi nucleici Virus West Nile

La regione Lazio sta valutando l'uso della **esenzione P01**, e sempre notifica di sospetto caso di WNV sempre a carico del medico curante

West Nile virus

- La viremia di West Nile è molto precoce e limitata nel tempo, con cariche virali prossime ai limiti di detezione delle metodiche PCR
- Spesso i pazienti vengono ospedalizzati dopo 3-4 giorni di febbre quando la carica virale plasmatica è ormai troppo bassa
- La rilevazione **delle IgM nel liquor** rappresenta una metodica più robusta per la diagnosi
- Utile anche la valutazione longitudinale del titolo delle IgG (sieroconversione o incremento significativo del titolo a distanza di 7gg)



West Nile virus: terapia

- Non esiste terapia specifica
  - Nei casi gravi:
    - Ospedalizzazione
    - Terapia di supporto: liquidi (cristalloidi)
    - Supporto respiratorio
- Non esiste profilassi efficace (vaccino)
- Lotta alla diffusione dei vettori per ridurre la trasmissione di WN virus
- Sorveglianza delle infezioni negli equini:
  - Le epidemie nei cavalli precedono le epidemie umane. In entrambi i casi si tratta di ospiti accidentali, che non permettono l'ulteriore trasmissione del virus.

Agent studied	Subjects	Study type	Endpoints	Results
Omg-IgG-am,* standard IVIG, or normal saline (3:1:1)	62 patients aged ≥18 years with acute WNV encephalitis and/or myelitis	Phase 1/2, randomized, double-blind, multicenter[1]	Primary: safety (adverse events) and tolerability Secondary: functional score and mortality	No differences among groups
MGAWN1† (single, escalating dose of 0.3 mg/kg to 30 mg/kg) or normal saline (6:2)	40 healthy persons aged 18–65 years	Phase 1, randomized, double-blind, placebo-controlled[2]	Safety (adverse events), pharmacokinetics, immunogenicity (antibodies to MGAWN1)	Single infusions up to 30 mg/kg were safe and well-tolerated
MGAWN1† (single 30 mg/kg infusion) or normal saline	13 patients aged ≥18 years with WNV fever or neuroinvasive disease	Phase 2, randomized, double-blind, placebo-controlled (unpublished NCT00927953)	Safety (adverse events), efficacy (improvement in Modified Rankin Scale scores)	2/6 in MGAWN1 arm died vs. 1/7 in saline arm (study terminated early due to inability to enroll)
Interferon (IFN) α-2b	23 patients with WNV neuroinvasive disease; 15 received IFN α-2b and 8 received supportive care only	Unblinded, randomized, clinical trial[3]	Neurologic improvement	Greater neurologic improvement in IFN α-2b group; treatment associated with neutropenia and hepatitis that resolved after treatment stopped
Steroids	65 patients with WNV neuroinvasive disease (33, 50.7% received steroids)	Multicenter, retrospective, observational[4]	Intrahospital mortality, neurologic sequelae at discharge	No differences between groups
Steroids	281 patients with viral encephalitis (120, 43% received steroids); 10 cohorts included in meta-analysis (only 1 cohort included patients with WNV encephalitis (n=33), and 6 included patients with other flaviviruses (Japanese encephalitis, St. Louis encephalitis viruses)	Systematic review and meta-analysis[5]	Survival	No differences between groups
Ribavirin	233 patients hospitalized with WNV disease; 37 patients received ribavirin	Case series[6]	Survival	Higher rates of death among patients receiving ribavirin (41% vs 9%); findings likely reflect

West Nile Virus A Review

Gould JAMA 07.2025

Expanded profiling of Remdesivir as a broad-spectrum antiviral and low potential for interaction with other medications in vitro

Scientific Reports 2023

Viral family	Virus (strain) [cells]	Antiviral activity EC_{50} (μM)[a]	CC_{50} (μM)	Selectivity index (SI)[b]	Previously reported activity EC_{50} (μM)
Corona-	OC43 [Huh-7]	0.067 ± 0.005	18.9 ± 1.8	282	0.096–0.15[16,17]
	229E [H1 HeLa]	0.093 ± 0.053	> 50	> 538	0.024[18]
Picorna-	Enterovirus 68D [RD]	0.050 (n = 1)	2.82	56	0.1–1[8]
	Enterovirus 71 [RD]	0.140 (n = 1)	3.31	24	NA
	Rhinovirus A2 [H1 HeLa]	0.450 (n = 1)	> 10	> 22	NA
	Rhinovirus 14 [H1 HeLa]	0.385 ± 0.318		> 26	
	Rhinovirus 16 [H1 HeLa]	0.750 (n = 1)		> 13	
Flavi-	Dengue 1 virus (Western Pacific) [Huh-7]	0.21 (n = 1)	33.4	159	NA
	Dengue 1 virus (Djibouti) [Huh-7]	0.31 ± 0.09		108	
	Dengue 2 virus (New Guinea C) [Huh-7]	0.23 (n = 1)		145	
	Dengue 2 virus (RL) [Huh-7]	0.29 ± 0.07		115	
	Dengue 3 virus (VN32) [Huh-7]	0.12 (n = 1)		278	
	Dengue 3 virus (H87) [Huh-7]	0.17 ± 0.07		196	
	Dengue 4 virus (MY01) [Huh-7]	0.18 (n = 1)		186	
	Dengue 4 virus (Dakar_HD_34460) [Huh-7]	0.19 ± 0.05		176	
	Zika virus (PRVABC59) [Huh-7]	0.26 (n = 1)	33.4	128	NA
	Zika virus (Dakar) [Huh-7]	0.37 (n = 1)		90	
	Zika virus (MR766) [Huh-7]	1.15 ± 0.03		29	
	Yellow fever virus (YFS11) [Huh-7]	1.06 (n = 1)	33.4	32	NA
	Yellow fever virus (17D) [Huh-7]	0.18 ± 0.03		186	
	Japanese encephalitis (14–14-2) [Huh-7]	0.34 (n = 1)	33.4	98	NA
	West Nile (NY99) [Huh-7]	0.05 (n = 1)	33.4	668	NA

Outbreak of human neuroinvasive infection in Campania, Italy, August to September 2024

Table 1 – Epidemiological and diagnostic features of WNV infection outbreak in the province of Benevento, Campania, Italy. WNND = West Nile virus neuroinvasive disease; NAD = not available; AFP = acute flaccid paralysis.

Cases	Case classification	Travel outside province	Type of disease	Clinical presentation	Age	WNV RNA serum	WNV RNA CSF	IgM index	IgG index
Case 1	Confirmed	NO	WNND	Encephalitis	50-60	detectable	NA	8.12	1.55
Case 2	Probable	NO	WNND	Encephalitis	80-90	undetectable	undetectable	8.421	0.379
Case 3	Probable	NO	WNND	Encephalitis	70-80	undetectable	undetectable	8.736	0.326
Case 4	Probable	NO	WNND	Meningitis	60-70	undetectable	undetectable	6	1,5
Case 5	Probable	NO	WNND	Encephalitis	80-90	undetectable	NA	7.2	1.4
Case 6	Confirmed	NO	WNND	AFP	40-50	undetectable	detectable	NAD	NAD
Case 7	Probable	NO	WNND	Encephalitis	60-70	undetectable	undetectable	6.94	2
Case 8	Confirmed	NO	Asymptomatic	Asymptomatic	60-70	detectable	NA	NAD	NAD
Case 9	Confirmed	NO	WNND	Encephalitis	80-90	detectable	NA	8	0
Case 10	Confirmed	NO	WNND	Encephalitis	80-90	detectable	NA	8	1.5
Case 11	Probable	NO	WNND	Encephalitis	80-90	undetectable	NA	6.7	0
Case 12	Probable	NO	WNND	Encephalitis	80-90	undetectable	NA	6	2

- Five confirmed and seven probable cases of WNV were identified from August to September 2024.
- Predominantly affecting elderly males with comorbidities, all but one patient developed West Nile neuroinvasive disease, presenting with fever and impaired consciousness.
- Remdesivir was administered off-label in four cases, potentially reducing hospitalization and improving outcomes.
- Mortality was limited to two cases, attributed to bacterial infections.

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Conclusions

- WNV is primarily an **asymptomatic zoonosis in >80%** patients
- In young adults WNV infection if paucisymptomatic, is characterized by an **acute syndromic fever wih morbilliform rash**
- In **elderly or immunecompromised** patients WNV infection can be a **neuroinvasive infection with unfavourable outcome (10%)**
- **No drug or vaccine primary or secondary prophylaxis**
- **No effective antiviral** even if few anedoctical not randomized study mostly cases or case series are reported
- **Prevention is all**