



Pacific Health Realities: The Way Forward, Noumea New Caledonia

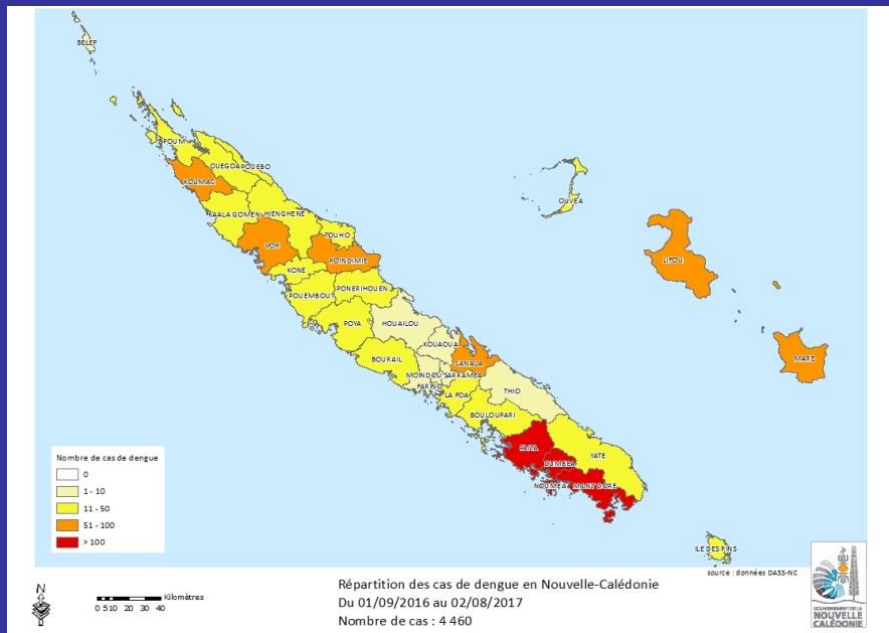


DENGUE: Seriousness & severity prediction (2017 epidemic)

Severine Page
BPharm, PhD
Public Health Pharmacist
DASS - Service de santé publique

SPC, 27-29th September 2017

New Caledonia

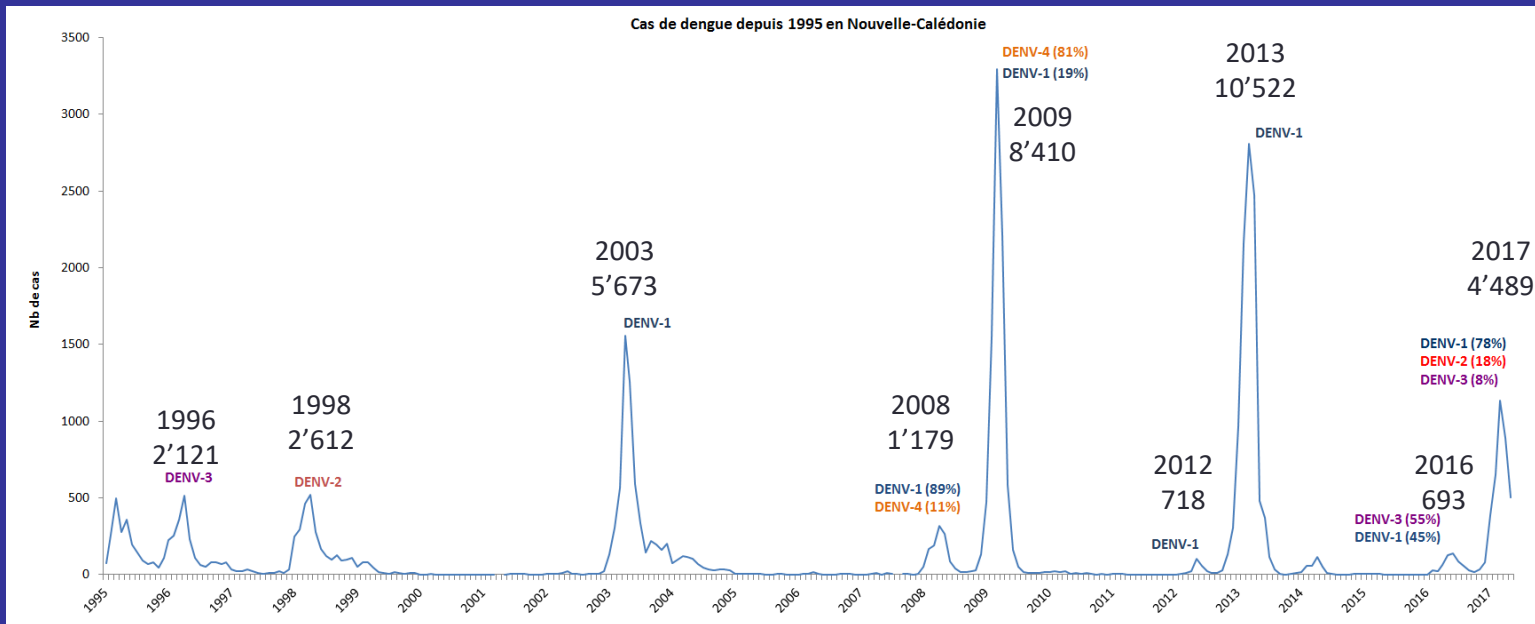


On 1st January 2016 : 274 579 inhabitants.
74% in South province

Epidemiologic surveillance for dengue :

- Mandatory declaration of disease (43 diseases including arboviruses)
- Syndromic surveillance for influenza, gastroenteritis and arboviruses (24 doctors participate)
- Non specific surveillance (A&E data, temperature measurements , drug consumption, air quality measurements)
- Hospital data on dengue
- All medical doctors: declaration of unexpected progression/outcomes

Dengue history in NC



Seroprevalence study conducted in 2013:

=> **50.3%** (IC95% [50.0-50.6])

Amongst seropositive individuals, only **45.4%** reported having had a previous dengue infection.

Triple Dengue Epidemic January – August 2017

- 4489 dengue cases (53% confirmed, 4% probable, 43% possible)
- 597 hospitalisations (13,3%)
- 11 fatal cases (0,25%*): ~1,4 deaths/month

Can we identify risk factors which are predictive of severity?

What does the WHO tell us?

Criteria for severe dengue :

- Severe plasma leakage leading to shock or fluid accumulation with respiratory distress
- Severe bleeding
- Severe organ impairment (liver, heart, kidney, brain)

What does the WHO tell us?

The warning signs of severe dengue are

- Abdominal pain or tenderness
- Persistent vomiting
- Clinical fluid accumulation
- Mucosal bleeding
- Lethargy or restlessness
- Liver enlargement >2cm
- Increase in haemtocrit concurrent with a rapid decrease in platelet count

What does the WHO tell us?

Hypothesised increased risk for severe dengue:

- Single previous infection with dengue > 2 years
- Previous infection with Zika



DENGUE:

Seriousness & severity prediction



What can we learn from this year's epidemic?

The study involves the DASS, the CHT, the Pasteur Institute

Data collection:

- Classification of cases
- Patient characteristics & all relevant variables

Data analysis:

- Univariate analyses of all variables
- Multivariate analyses of all variables



DENGUE:

Seriousness & severity prediction



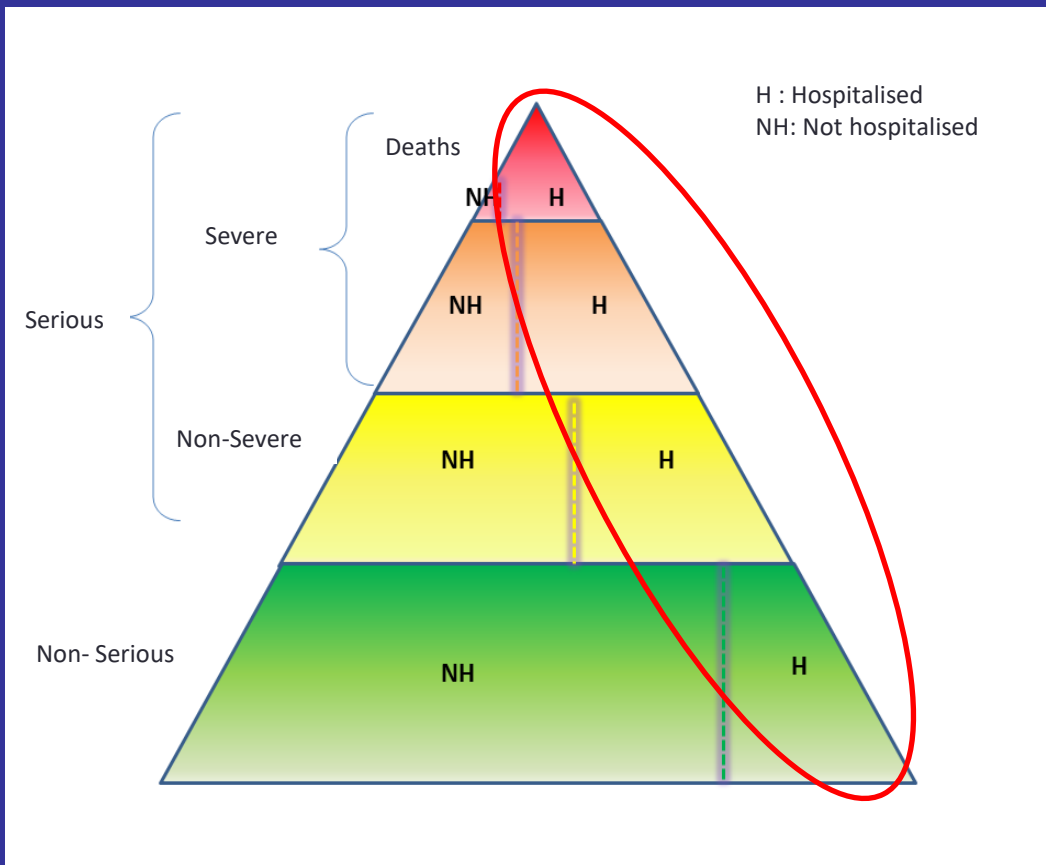
What can we learn from this year's epidemic?

Aims of the study

Identification of low cost & easily available composite variables (signs & symptoms) for the early identification of patients at risk of developing a severe form of dengue

Ensuring rapid & adequate medical surveillance & treatment

Classification of cases



Characteristics & variables

- Age, sex, ethnic origin
- Medical & drug histories
- Biochemical analyses at various time-points (serotyping, blood counts, LFTs...)
- Clinical signs & symptoms
- Type of medical care (community, hospital, ICU, transfusion...)
- Outcomes

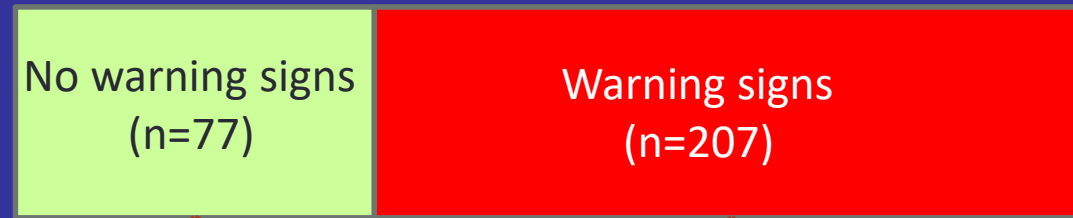
What does this year's epidemic tell us so far*?

42% of cases with 1 or more warning signs, developed a severe form of dengue

Serious and/or severe cases:

- Serious & severe: 17% had acute hepatitis
- Serious & severe: ~51% had pre-existing chronic diseases (CV & obesity) *versus* 35% in non-severe cases (non-serious & non-severe)
- Amongst severe cases, 35% had none of the warning signs

Hospitalised dengue cases (n=284/400)



65%
(n=50)

Non-serious
dengue (n=50)

14%
(n=11)

Non-severe , serious
Dengue (n=131)

58%
(n=120)

21%
(n=16)

Severe, serious
Dengue (n=103)

42%
(n=87)

What does this year's epidemic tell us?

Fatal cases (n=11):

- 45,5% had abdominal pain or tenderness
- 1st dengue infection n= 3/11, 2nd dengue infection n=5/11, undetermined yet n= 3/11
- No significant difference between serotypes 1, 2 & 3 (p=0,16)
- No particular age group stands out, no differences between sexes or ethnic groups



DENGUE:

Seriousness & severity prediction



The way forward:

Communication:

- Modification of the dengue declaration form
- Develop ways to ensure declaration forms are completed
- Inform all medical doctors of new criteria for hospital referral

Vaccination:

- New Caledonia does not (yet) meet the WHO criteria for vaccination of the population (≥ 9 years) against dengue