

This article is an early release of information from Inform'ACTION No. 34, which will be published very soon.

Chikungunya outbreak in New Caledonia in 2011 Status report as at 22 August 2011

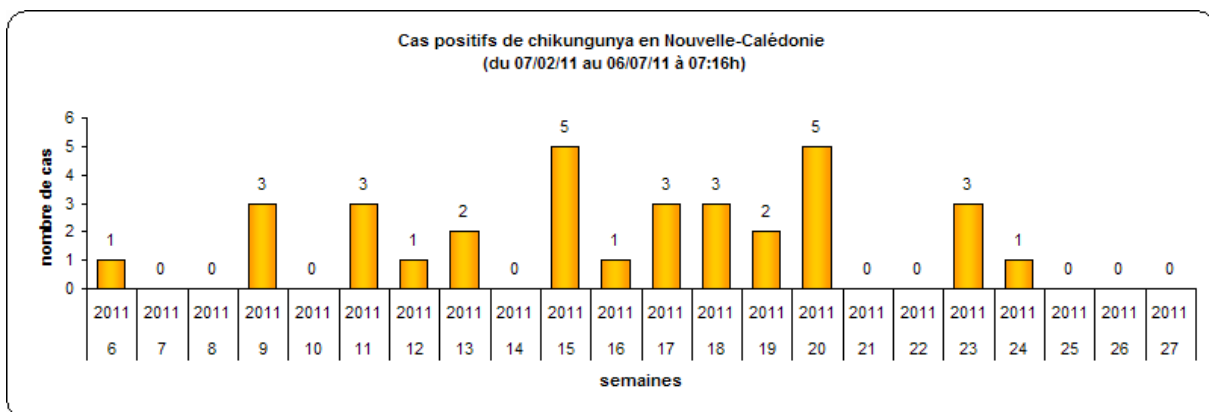
Introduction

Accustomed as it already is to dengue outbreaks, from the end of February to mid-June 2011, New Caledonia had to cope with a new virus — Chikungunya — introduced into the country by two holidaymakers returning home from Indonesia. The situation was a source of particular concern because the population has no immunity to this virus.

With 33 laboratory-confirmed cases between the end of February and mid-June 2011, the situation is being closely monitored by the government, even though the outbreak seems to have been brought under control since late June, with the advent of the cool season and the mobilisation and participation of all partners and the community.

Description of the outbreak

Figure 1: Positive cases of Chikungunya in New Caledonia from 07/02/11 to 7.16 am on 06/07/11



Two cases were imported from Indonesia. The first case, discovered on 25 February 2011, isolated in rural New Caledonia at Sarraméa did not lead to any other cases. It was diagnosed by a serology process requested in France by the attending physician, the results of which came through three weeks later.

The second case, discovered after interviewing the first, lives in Nouméa (Vallée des Colons neighbourhood). Not having consulted his doctor, he could not be detected quickly, and this resulted in a cluster, with seven new cases in six weeks.

Figure 2: Map of New Caledonia: distribution of cases of Chikungunya from 01/01/2011 to 06/07/2011 (07.16 am) – Number of cases: 3

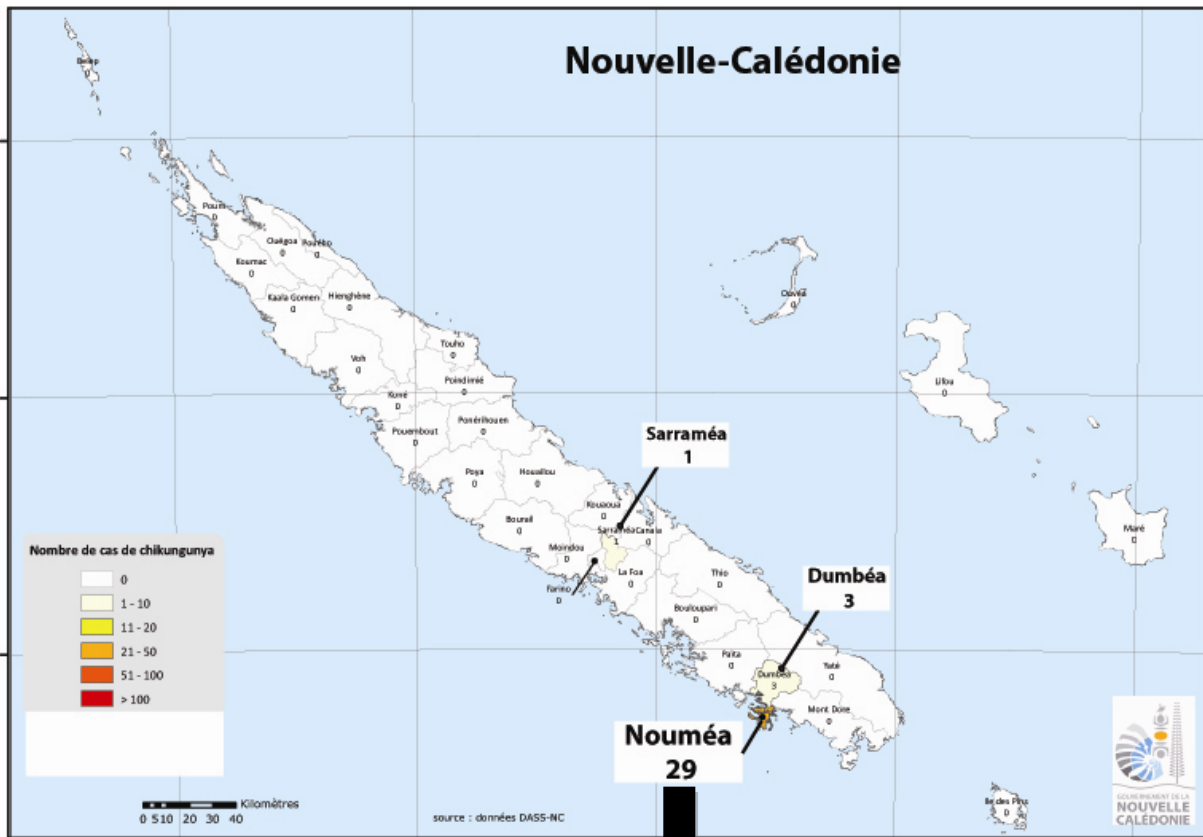
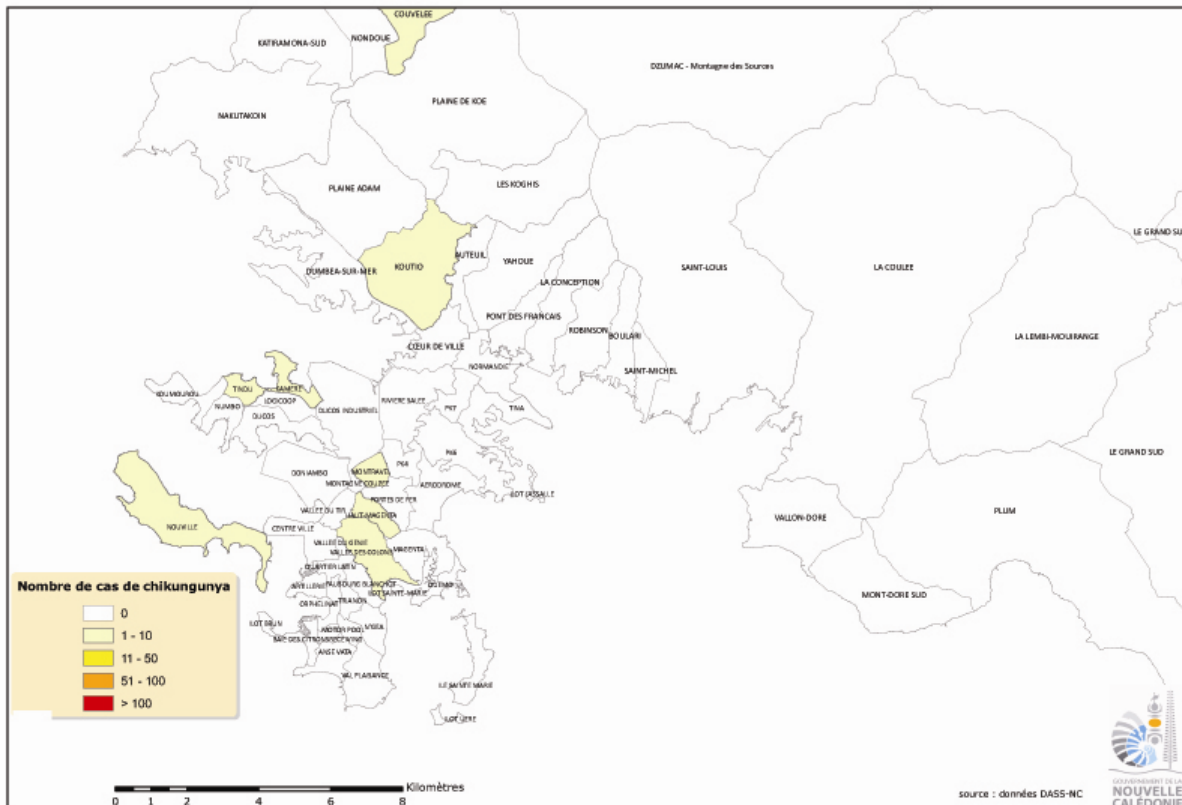


Figure 3: Map of greater Nouméa neighbourhoods: distribution of cases of Chikungunya from 01/01/2011 to 06/07/2011 (07.16 am) – Number of cases: 33



With no established connection, a fresh cluster occurred in another part of town, a settlement (Montravel), with nine cases in four weeks. Transmission was rapid because of a significant number of breeding sites in this area.

Then six new clusters gradually emerged: four in Nouméa — at Haut-Magenta, Koutio, Tindu and Nouville — and two at Dumbéa. For two of these, the only clear link was the presence at *nakamals* (*kava bars*) situated in the active cluster areas. Altogether, fifteen new cases were recorded over six weeks (from 09/04/11 to 17/05/11).

The outbreak was confined to Nouméa and Dumbéa, thanks to everyone's efforts and the onset of the cool season.

Clinical characteristics

From the clinical angle, 78 % of cases had fever and acute joint pains, mostly located in the smaller joints (elbows, wrists, finger joints).

A telephone survey was carried out with cases two months after the onset of the first clinical signs to determine any sequelae: it should be noted that, of 27 cases contacted, 40 % were still suffering from incapacitating joint pains.

Case definitions used

- suspected case: clinical signs:
Sudden onset with fever > 38.5 °C and joint pains
- probable case: clinical signs **and**:
specific IgM
- confirmed case: clinical signs **and**:
PCR + chik
Or seroconversion IgM and IgG
Or ↑ IgG x 4
Or specific IgM with close epidemiological correlation

Diagnostic methods

All the Chikungunya screening tests are carried out at the New Caledonia Pasteur Institute (IPNC)

The Institute has two types of test:

- an early detection test (using RT-PCR), since 2006
- later detection tests (IgM or IgG serologies), since the beginning of March 2011.

Control strategy

The Chikungunya control strategy is based on:

- detection and notification of every case (laboratory-confirmed or clinical), as quickly as possible, by the physicians (notification of clinical cases) and by IPNC (notification of laboratory-confirmed cases).
All screening tests carried out by IPNC are funded from the budgetary resources of the Government of New Caledonia.
- identification of breeding sites and spraying of insecticides by technical services of municipalities (Environmental and Health Hazards Inspection and Prevention Service for Nouméa).

Sentinel surveillance network

The dengue sentinel surveillance network was extended to Chikungunya as soon as the first cases were detected. Since the onset of the last dengue outbreak in February 2008, all the doctors in the territory have been included in the network — approximately 150 doctors in hospitals, dispensaries and private practice throughout the 33 municipalities of New Caledonia — for an undetermined

period. Before February 2008, the network comprised some thirty doctors in dispensaries and private practice, in 18 sites throughout New Caledonia.

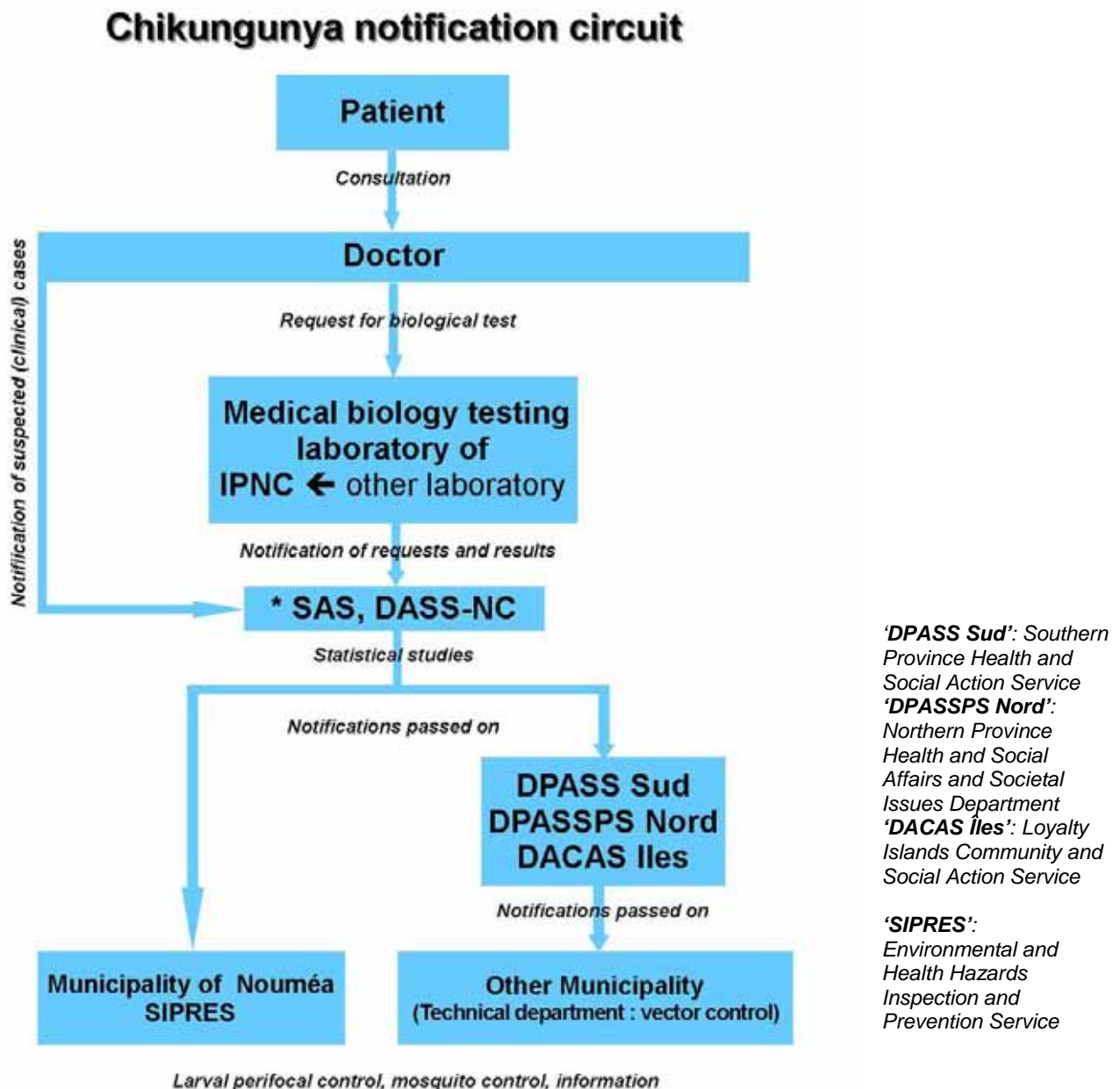
This network enables the circulation of these viruses to be tracked everywhere in the territory, by close surveillance of cases and free screening tests.

Notification circuit

Chikungunya is a notifiable disease (ND). The notification circuit (Figure 4) operates as follows.

- The patient consults a doctor, who completes the ND notification form.
- The form is sent by the doctor, either directly to DASS-NC (the New Caledonia Department of Health and Social Affairs) or to the testing laboratory (IPNC).
- Immediately upon receipt of results, DASS-NC reports positive cases (suspected, probable or confirmed cases) to the province concerned, which informs the technical arm of the municipalities in order for vector control measures to be introduced the very next day.

Figure 4: Chikungunya notification circuit



* Notification to Health and Social Action Service (SAS), New Caledonia Department of Health and Social Affairs (DASS-NC), by fax (05 11 33) or answering machine (25 11 33)

Measures taken to reduce the risk of transmission of the Chikungunya virus

In order to prevent and restrict the circulation of the virus, the health authorities, in conjunction with the various health partners and provinces concerned, introduced certain measures:

- reinforced entomological surveillance and vector control measures were taken, beginning in late February and targeting *Aedes aegypti* mosquito populations (the only vector mosquito for Chikungunya in New Caledonia) in areas where the mosquito is present or likely to establish a population. This involves detecting mosquito activity in order to take action to stem its propagation.
- thorough investigation of affected persons, their family and friends was carried out by DASS for every confirmed case, in order to identify breeding sites early and effectively and conduct perifocal control measures (larvicide and adulticide).
- advice was given to every patient and the people in close proximity to them, covering key points from the prevention campaign (mode of transmission, protection methods).
- awareness-raising work is done with residents of areas where there are active clusters, in order to urge them to destroy potential mosquito breeding sites in and around their homes; repellents, dustbin bags and mosquito nets for water drums were also distributed to settlements.
- a major public information campaign was staged at the outset, using the media (TV spots, interviews, radio, press), as well as a prevention drive in primary and secondary schools, in order to raise awareness among young people.
- an isolation procedure was also introduced at the hospital, concerning all the suspected or confirmed Chikungunya patients.

Perifocal control involves:

- identifying breeding sites around homes, within a 100 metre radius, in the presence of residents, to inform them and raise their awareness level;
- spraying an adulticide insecticide with deltamethrin around the home, using a portable hot fogger;
- three sprayings over eight days of an adulticide insecticide with malathion (in Nouméa) or deltamethrin (in the other municipalities) over a radius of at least 100 metres (or more if there is a cluster), using a cold fogger mounted on a vehicle.

Mosquitoes in Nouméa proved resistant to deltamethrin, so the municipality of Nouméa has, since 22 March 2011, been spraying with malathion. In the rural areas, no such resistance has been noted, so spraying is done with deltamethrin.

The day before spraying, people are notified of the dates and places (transmitted by SIPRES) on the DASS website.

Preventive measures for the Pacific Games

The measures planned for the Pacific Games period for athletes and visitors include:

- checking of health declaration forms (symptoms) and fever screening with the heat-sensitive camera on all incoming passengers to New Caledonia, before and during the Games period;

- checking of entomological surveillance measures around Tontouta International Airport and the disinsection of aircraft;
- distribution of a repellent 50% DEET and a bilingual French/English flyer (see picture) advising on its use in the 5 000 prevention kits handed out to delegation members;
- a big clean-up of sites by the municipalities hosting events, before the delegations arrive (waste, breeding sites, long grass, etc.);
- training in the Greater Nouméa area conducted by a multi-disciplinary team (DPASS Sud, municipalities and IPNC) for NC-2011 volunteers — the 'Green Squad' — approximately 70/80 people responsible for identifying breeding sites and rat control at six event venues and the Games Village (Nouvelle). DASS-NC has produced flyers as educational materials for this training effort.



Conclusion

New Caledonia has two seasons: a hot wet season and a cool dry season. Even if the epidemic was brought under control, helped by the onset of the cool season in June, it may reappear at the start of the next hot season, as some eggs may have been infected, allowing the emergence of directly virulent mosquitoes and the possible persistence of low-level circulation. Vigilance remains the watchword for the health authorities, with the added factor of large gatherings at the Pacific Games in August 2011.

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