

1. Background

Niue is a New Zealand-associated Polynesian Pacific island nation, with a total population of 1,700. Most of its population now reside in New Zealand. There is only one health-care facility, the Niue Fooou Hospital, on the island.

Under the leadership of Niue Health Department and, with technical assistance provided through the Pacific Regional Influenza Pandemic Preparedness Project (PRIPPP) under the Secretariat of the Pacific Community (SPC), Niue established a multisectoral pandemic task-force and developed its first draft of the *Niue Influenza Pandemic Preparedness Plan (NIPPP)* in July 2006.

The NIPPP acts as an umbrella plan providing directives and guidance to different sectors (both health and non-health), nongovernmental organizations and communities as to who takes lead responsibility in preparedness and response to avian and pandemic influenza. It is anticipated that each sector will in time develop its own contingency pandemic preparedness plan. The NIPPP was prepared in accordance with WHO Pandemic Alert phases and was modified to local conditions.

As part of the NIPPP, the Government of Niue organized a functional exercise on 13 November 2007 to test the health sector response to a pandemic influenza event.



Serious influenza cases are transferred by ambulance to Niue Fooou Hospital.

2. Objectives

2.1 General objectives

The exercise focused on using existing plans to develop a coordinated response to provide health-care services to those affected by pandemic influenza and those who had non-influenza medical conditions, based on resources anticipated to be available at the time.

This evaluation reviews the Community-Based Assessment Centre (CBAC) and influenza ward capability and competency based on the key performance indicators in the exercise outline. It does not attempt to evaluate the emergency coordination component (as that was tested during a cyclone response exercise in October 2007) but makes linkages with that component where relevant to the CBAC or influenza wards.

2.2 Specific objectives

The exercise tested components of the hospital emergency response plan, including reconfiguration of services to create a CBAC (during the one-day scenario), with the objectives to:

- establish and operationalize a CBAC to assess and triage patients, provide treatment with antiviral and other medications, and refer influenza patients for admission to Niue Fooou Hospital;
- establish and assess functional separation of Niue Fooou Hospital, including allocating separate staff to influenza wards and non-influenza wards, with no crossover during their shifts;
- assess communication between the hospital and the CBAC, patients and communities;
- increase public awareness of pandemic influenza and the use of the CBAC;
- assess the functions of the Niue International Health Regulations–National Focal Point (IHR–NFP);
- evaluate and identify gaps in order to improve preparedness and response planning.

3. Participating agencies and organizations

Table 11 Participating agencies and organizations
Niue Health Department (lead)
Niue Influenza Pandemic Taskforce (NIPT)
National Disaster Council
Niue Police
Community Affairs Department
External Affairs Office
Faith-based organizations (two local churches)
Broadcasting Corporation of Niue
Pacific Regional Influenza Pandemic Preparedness Project (PRIPPP), Secretariat of the Pacific Community (SPC)
New Zealand Ministry of Health, Wellington
World Health Organization, Samoa Office

Planning and communications during the process took place mainly between the Niue Ministry of Health, PRIPPP/SPC and the New Zealand Ministry of Health. The WHO Samoa Office provided initial inputs, and later joined as part of the evaluation team.

4. Type of exercise

Functional exercise.

5. Preparation for the exercise

Preparation for the implementation of the exercise was conducted through communication by e-mail and telephone and country visits from PRIPPP specialists and the New Zealand Ministry of Health.

A number of practical preparations were also necessary to facilitate the exercise, as outlined below.

5.1 CBAC requirements

- The Youth Centre was identified as the ideal place for the CBAC as it is not far from the hospital and has the appropriate facilities.
- Negotiations were carried out with relevant authorities, and agreement was signed.
- PPE and medical supplies, including medications, were put in place.
- A waiting room was set up with a television, pamphlets, masks and alcohol-based hand rub.
- The administration assistant was separated from incoming patients by a clear plastic screen, with medical records to be passed to the patients under a partition.

- Extra telephone lines were installed.
- A two-way radio system ('walkie-talkie') was borrowed from the police.
- Signboards were prepared (in Niuean and English) to guide people in the community to find the CBAC, as well as to assist in transporting patients from the CBAC to the influenza ward at the hospital.

5.2 Staffing and task requirements

- Staffing the CBAC required two nurses, a doctor, an administration assistant, a driver and a security officer.
- Staff will assess and manage or treat symptomatic and non-symptomatic members of the community who visit the CBAC.
- Management includes physical assessment and distribution of medicines, including antipyretics, antibiotics and antivirals, according to set criteria. Other medical supplies are sourced from the hospital but stored and distributed from the CBAC.
- Patients assessed and found to be very ill with influenza will be transferred to the influenza ward in Niue Fook Hospital (while normal medical care for urgent non-influenza cases will be carried out in the other wards of the hospital).
- The public will be kept informed about the unfolding influenza pandemic and the arrangements put in place to control it.

5.3 Ensuring that nurses are able to distribute prescription drugs

As antivirals and antibiotics are prescription drugs, and there is a high likelihood that there may not be a doctor as a member of the CBAC team, the nurses are to be given the authority through a standing order to distribute antivirals and other medications.

5.4 Development of forms to be used and piloted during the exercise

- A tool was developed to evaluate the CBAC and the overall exercise.
- A form was developed for patient assessment at the CBAC; it can be used as an admission form, with a copy sent or faxed to the Pandemic Operation Centre (POC).
- Criteria for antiviral administration and distribution were formulated.
- Information for simple home management of influenza patients was prepared.

5.5 Physical separation of the hospital

The layout of the hospital was studied to determine how it could be physically divided.

Two key areas of the hospital were separated: an influenza ward for infectious influenza patients, and a

non-influenza area for continued management of emergency and selective non-emergency cases. This division of services also applied to separation of staff, equipment and logistics. A tarpaulin was used to wall off the division, as it is not penetrable by the virus and easy to wash.

The Public Health Office was identified as the POC where the IHR–NFP would be located. It was also from this point that the coordination of information between the CBAC and the influenza wards would be processed.

5.6 Training and debriefing of participants

The staff of the CBAC team and other health-care workers were trained in infection control procedures, including use of PPE, application of proper handwashing procedures (such as use of alcohol-based hand rub) and non-pharmaceutical practices (such as maintaining 1 metre social distancing). This briefing was conducted prior to the exercise, so that everyone involved was aware of their roles and responsibilities during the exercise. The police, who were providing security-related measures, were also briefed on infection control procedures.

5.7 Invitation of observers

Some members of the taskforce were invited as observers. They included individuals from the External Affairs Office, the Community Affairs Department, local churches and the Broadcasting Corporation of Niue.



Patient being admitted to Niue Ffoo Hospital influenza ward.

6. Conduct of the exercise

The exercise required role players to perform a range of tasks related to their emergency roles in response to the scenario (outlined below). Participants also had to take action within tight time constraints.

6.1 The scenario: lead-in events

The New Zealand IHR–NFP had advised WHO and Niue three weeks previously (25 October 2007) that confirmed cases of pandemic influenza had been found in a number of locations in New Zealand, and some of these

cases had not undertaken any recent travel to affected areas, confirming that local transmission was occurring.

The Niue Government decided to stop all incoming air passengers immediately after receiving the notification from New Zealand. However, a full plane had arrived the day before. Though there were no sick passengers reported by the pilot and crew, and no one had been placed in quarantine, there were increasing concerns leading to some degree of panic among Niue Cabinet members and health and other relevant authorities.

During the previous three days there had been reports of people with influenza-like symptoms in five villages. Cases had so far been cared for by their families at home.

6.2 Sequence of events

- A nurse on the night shift at the hospital received a call at 07:05 from a family to say that they were bringing in a 30-year-old man who had been sick with influenza-like symptoms for a day but his condition had deteriorated rapidly and he was experiencing difficulty breathing. He had been one of the passengers on the last flight from Auckland before the border was closed.
- The nurse provided directions as to what they should do and where to take the patient (contact tracing was simulated only and had been ongoing).
- The Director of Health was informed and she called her core response team members to meet by 07:30.
- At 08:00 all staff were briefed in the hospital lobby and responsibilities were mapped out.
- The CBAC team left the hospital at 09:00 with all the necessary equipment to set up and operationalize the CBAC.
- At the same time, the police team that was tasked to ensure the security of the area was briefed and given a demonstration on use of PPE.
- At the CBAC the administrative clerk was installed behind a transparent plastic screen to document patients' details.
- The CBAC team put on PPE and checked all materials carefully (forms, telephone, two-way radio, etc.) before attending to the first patients.
- The patients were provided with surgical masks and directed how to put them on, and were given information leaflets upon arrival at the CBAC.
- In total, the CBAC team assessed 12 symptomatic and non-symptomatic members of the community.
- The CBAC nurses prescribed antivirals to symptomatic patients (in line with pre-established criteria and a standing order issued by a doctor).
- The CBAC team also identified a number of patients seriously ill with influenza who were transferred by ambulance to Niue Ffoo Hospital.

- The hospital staff had to manage the admittance of serious influenza cases whilst the non-influenza ward continued to provide urgent non-influenza patient care delivered by separate health-care workers.
- Immediately following the implementation of the exercise a hot debriefing was held at the CBAC.
- Information on admitted patients should go directly from the CBAC to the influenza ward nurse, and not via the officer in the POC. This is mainly for reasons of confidentiality but also for improved continuity of patient clinical management and the urgency of the information.

6.3 Press conference

A mock press conference was held prior to the end of the exercise at Foou Hospital. A local media team from the Broadcasting Corporation of Niue interviewed the Exercise Director, Deputy Director, Chief of Police and the IHR–NFP. The purpose of the press conference was to tell the public about the ‘influenza outbreak’ on Niue and other contingency plans had the outbreak affected the whole island.

7. Evaluation

The exercise went very well, and participants, observers and evaluators were excited by the positive outcomes.

An evaluation tool was used, and feedback from observers and participants was collected during the hot debriefings to give some rating of the preparedness of the Niue health sector to respond to a pandemic event.

8. Lessons learnt

Though the evaluation gave Niue a rating of 85–90% on the preparedness of its health sector to respond to a WHO Pandemic Alert Phase 5 influenza outbreak, the collaboration with other sectors needs to be evaluated in conjunction with the health sector response. In addition, the 40% of staff who may be affected or infected, according to New Zealand modelling, were not taken into consideration in this exercise.

8.1 Preparation for and conduct of the exercise

The preparation for and conduct of the exercise went very well, according to participants, observers and evaluators. There were few identified gaps that need to be addressed. Health-care providers expressed more confidence in dealing with infection control issues (both pharmaceutical and non-pharmaceutical measures), managing highly infectious patients and understanding the limited role of antivirals.

The principle area of concern was communication:

- During the conduct of the exercise, the IHR–NFP needs to clarify his position, including what to communicate to WHO and other agencies and counterparts in other Pacific island countries and territories.
- The conduct of the exercise definitely increased public awareness of pandemic influenza issues, through the involvement of non-health participants, media briefings and attendance of community observers.
- There was a recognized need for an awareness programme to follow on from the exercise using multimedia approaches.

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8.2 Pandemic preparedness

Recommendations based on evaluation of the exercise include:

- CBAC policy should be enforced, and should be able to be activated within a short period of time. There should be a nationwide campaign to help people understand and accept the function of the CBAC in relation to the hospital in times of emergency.
- A standing order for distribution of antiviral and other prescription drugs should be issued as an emergency policy. Criteria for antiviral administration should be part of the hospital and CBAC operation plan.
- The POC, or incident room, can be established within the current infrastructure and used as a centre of operations for other services, such as infectious disease surveillance, to be activated accordingly when the need arises.
- The role of the IHR–NFP needs clarification, in terms of who is taking the lead role and responsibilities. A clear IHR communication form needs to be drafted.
- There is a need to develop infection control guidelines that address all infection control equipment, supplies, practices and procedures. A system should also be developed where use of PPE is monitored and enforced.
- Awareness programmes for avian and pandemic influenza threats need to be strengthened, incorporating other potential infectious disease outbreaks.
- There is a need for essential service sectors (health and non-health, including nongovernmental organizations) to develop their respective emergency response plans and incorporate them in the national emergency response plan.
- An improved whole-of-government response to pandemic influenza should be developed through a multisectoral exercise of similar type in the near future.