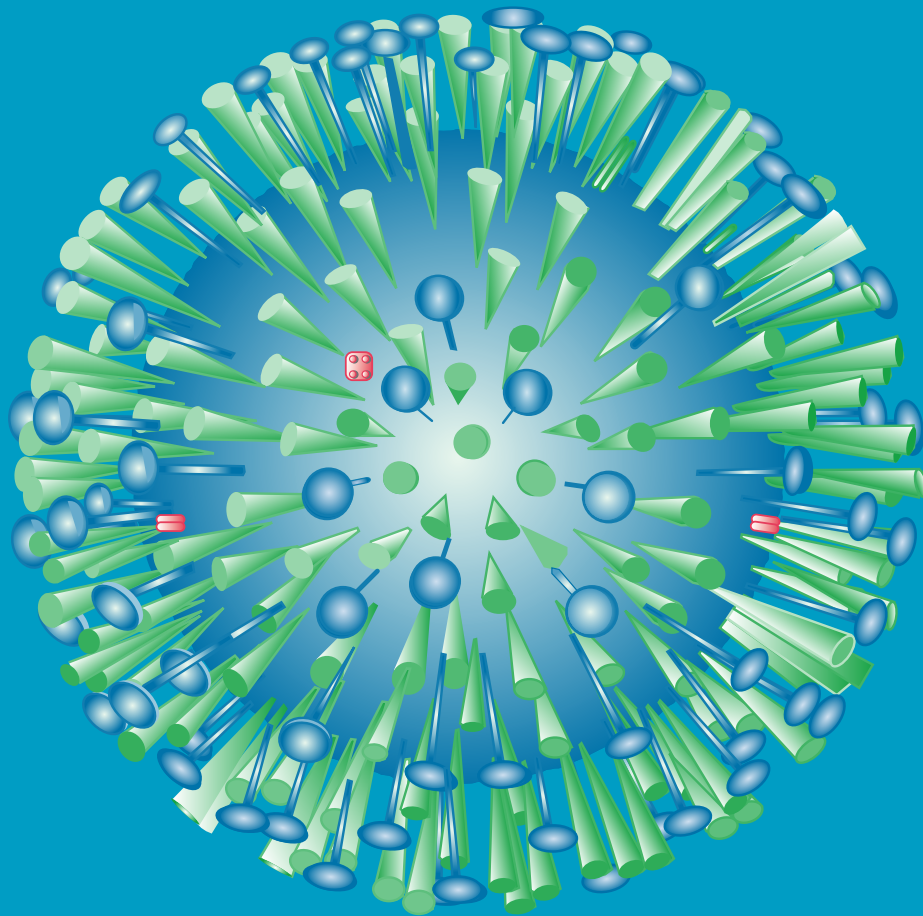




Exercise Paton Evaluation Report



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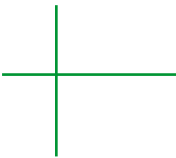
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SHPN (B) 070121
ISBN 978-1-74187-192-0

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July 2007

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Executive summary

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Exercise Paton, conducted on 30 November 2006, tested the response of NSW emergency departments (EDs), multi-purpose services (MPSs) and public health units to the presentation of a single case of pandemic influenza to a public hospital facility. It followed the development of the policy document *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response*. *Exercise Paton* was not designed to test the surge capacity of the health system during an influenza pandemic, or to test the interface between the health sector and other government and non-government sectors. It is acknowledged that further exercises need to be undertaken to test the health system's capacity to respond to a larger number of presentations and to test inter-sectorial communication, decision-making and response. During the exercise, all EDs and MPSs in NSW were required to activate the "enhanced ED triage" level and be prepared to identify, isolate and treat a presenting suspected case of pandemic influenza. While all 210 EDs and MPSs in NSW were required to activate during *Exercise Paton*, a mock patient was only deployed to 18 (8.6%) of them.

This report describes the five objectives of *Exercise Paton*, how the exercise was conducted (including precursor and deployment activities), the performance of facilities against the five objectives, and the lessons learnt from it. In general, facilities performed well during *Exercise Paton*, with evidence that conducting the exercise has improved the confidence of facilities to be able to respond to a suspected case of pandemic influenza, should a pandemic occur. The key lessons learnt from *Exercise Paton* were a need for:

- improvement in hospital infection control practices and training
- clarification on decision-making processes related to the management of suspected cases of pandemic influenza
- guidelines for dealing with persons accompanying suspected or confirmed cases
- a method of ensuring that communication methods meet the need of the various stakeholders to collect and distribute information rapidly and accurately
- refinement of existing case and contact data collection forms
- increased support, including provision of written material, for public health unit staff involved in providing advice to cases and contacts
- revision of existing state pandemic policy documents to ensure consistency of messages.

Introduction

Exercise Paton was a NSW-wide simulation exercise, conducted on 30 November 2006, to test the ability of NSW emergency departments (EDs), multi-purpose services (MPSs), and public health units to respond to a suspected case of pandemic influenza during the early stage of a pandemic. The exercise was named after Dr Robert Paton, the NSW Director-General of Public Health during the Spanish Influenza pandemic of 1918–19. *Exercise Paton* was, in part, funded by the Australian Government Department of Health and Ageing.

Exercise Paton required all NSW facilities that operated emergency care services (i.e., EDs and MPSs) to be able to activate “enhanced ED triage” (as described in the *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response* document) and be able to identify, isolate, and treat a suspected case, should one present. Public health units were required to provide public health advice to ED staff and conduct public health interviews and limited contact tracing.

In addition to the hospital and public health unit activities, two laboratory aspects of the pandemic response were tested—the quality of specimens collected from the mock patients, and the time taken for transportation of these specimens from hospital facilities to the two NSW specialist testing laboratories, using conventional transportation methods.

Although all facilities were required to activate in readiness to receive mock patients, only 18 sites, spread across all area health services (AHSs), actually received patients. The exercise players were blinded to the location of these sites until the time of deployment.

Information on performance of facilities was collected by observers at each of the facilities tested. This was done through debriefs with facilities after the exercise, interviews with stakeholders, and through a questionnaire sent to all NSW facilities.

This report describes performance against each of the five objectives of *Exercise Paton* and summarises the key lessons learnt and provides recommendations for future actions.

Objectives of *Exercise Paton*

The objectives of *Exercise Paton* were to:

1. ensure all hospitals with EDs and MPSs in NSW were able to activate an “enhanced ED triage” level response to pandemic influenza
2. identify barriers to effective early containment of pandemic influenza
3. test the inter-relationship between EDs or multi-purpose services and public health activities
4. evaluate the preparedness of EDs, MPSs, and public health units to respond to initial cases of pandemic influenza
5. progress facility-based pandemic influenza planning.

Exercise activities

Pre-exercise activities

In preparation for *Exercise Paton*, pilot activities were conducted in four facilities, two each in Hunter New England AHS and North Coast AHS (a list of pilot sites is attached in the Annex). The findings from the pilot activities informed the development of both the *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response* guidelines and the planning and conduct of *Exercise Paton*.

A draft version of the *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response* was released for AHS comment in August 2006 and was followed by a state-wide workshop to discuss the role of EDs and MPSs during an influenza pandemic. Version 1 of the hospital response guidelines was released soon afterwards and became one of two key documents that guided activities during *Exercise Paton* (the second being the *Pandemic Influenza Interim Response Protocol for Public Health Units*. Available on www.health.nsw.gov.au/pandemic/docs/piresponse.pdf).

In preparation for the pilot activities and the full exercise, public health unit staff (and others) received training in the use of NetEpi, a web-based public health case/contact data management and communication computer program used in NSW.

A password-protected website was established specifically for the exercise and this was the primary dissemination mechanism for resources, information and exercise instructions.

Notification

On 28 November 2006 (2 days before the exercise) the Chief Health Officer provided AHS chief executives with the exercise scenario and case/contact definition and requested that all facilities that provided emergency care services in their AHS activate "enhanced ED triage" by 9:00am on 30 November. *Exercise Paton* was conducted from 9:00am until 12:30pm on 30 November.

Activation

All facilities were required to activate enhanced ED triage and be prepared to receive a mock patient. Eighteen facilities were actually tested, four in Greater Southern AHS and two in the remaining AHSs. Test facilities were chosen to ensure a mix of small and large, urban and rural, community and tertiary referral hospitals. The location of the facilities to be tested was not released prior to the exercise. A list of facilities tested is attached in the Annex.

An AHS employee acted as an observer for each of the mock patients. Their role was to support the mock patient and record data.

Reporting

Information from the exercise was collected through direct observation by external observers and mock patients at the tested sites, through debriefs with stakeholder-specific groups, and from a questionnaire sent to all facilities the day after the exercise via AHS functional area coordinators.

Performance against the exercise objectives

Objective 1: Ensure all hospitals with emergency departments and all multi-purpose services in NSW are able to activate the “enhanced ED triage” level response to pandemic influenza.

Performance against this objective was measured using information gleaned from:

- observations of the observers at test sites
- responses to a questionnaire sent to all facilities the day after *Exercise Paton*
- feedback during the various stakeholder debriefing sessions.

Of the 18 facilities tested during *Exercise Paton*, 15 were able to activate and conduct enhanced ED triage successfully in its entirety. The other three were able to implement components of the response but not in its entirety.

Of the facilities that were not tested, the vast majority reported being able to activate enhanced ED triage for the exercise and most of these facilities reported that they could, if required, activate again within 8 hours (Figures 1 and 2).

Figure 1. Responses to the *Exercise Paton* facility questionnaire (N=146) (Data points represent a mean of responses to a five point Likert scale ranging from “strongly disagree”=1 to “strongly agree”=5)

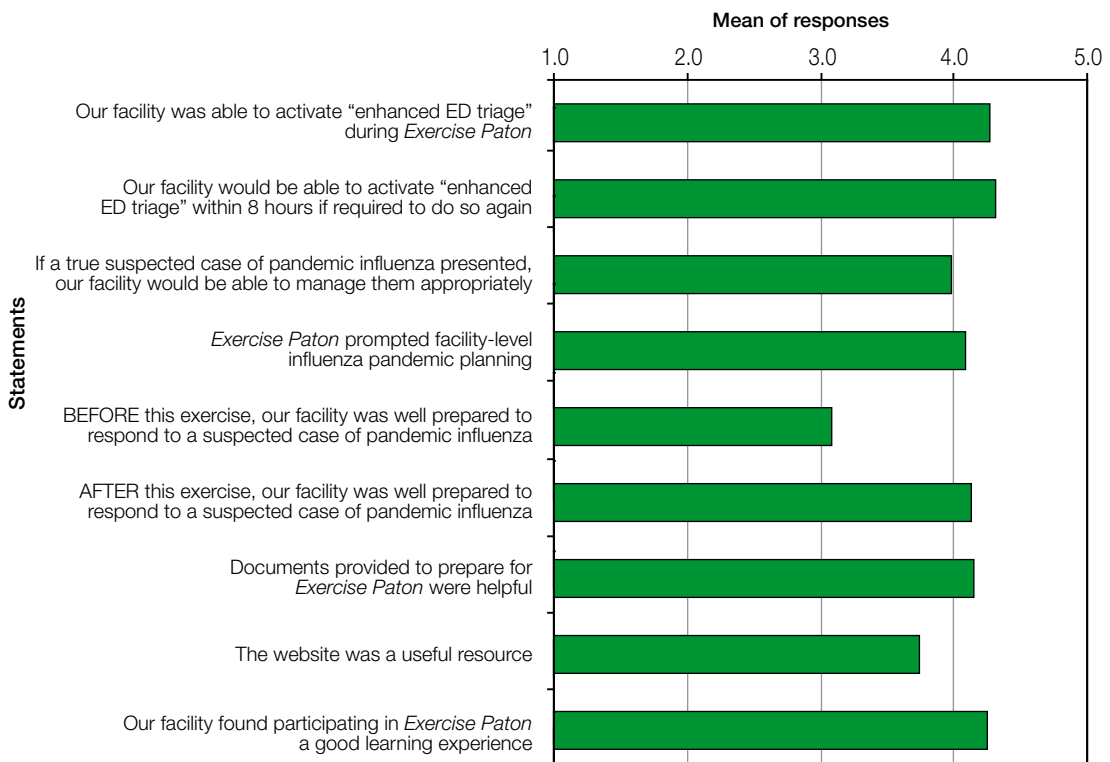
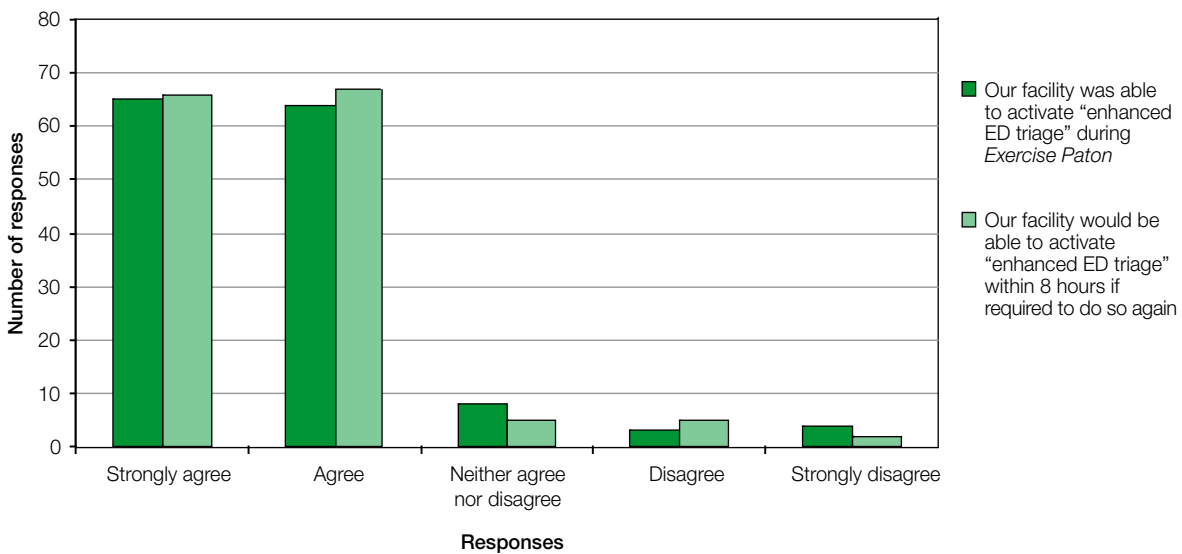


Figure 2. Responses to the *Exercise Paton* facility questionnaire relating to the ability of emergency departments to activate “enhanced ED triage” during *Exercise Paton* and self-reported ability to do so again within 8 hours if required to do so (N=146)



In general, it was the smaller facilities that reported they would have difficulties activating “enhanced ED triage” (and then isolating and managing a suspected case of pandemic influenza). These facilities described the physical layout of the ED, lack of single rooms for isolating a patient, and insufficient nursing staff or no medical staff, as the barriers to activation. Three facilities reported either not being aware they were required to participate in the exercise or not having access to the information and resources before the exercise date.

It is understood that there will be facility-specific barriers that make implementing various components of a response to pandemic influenza difficult. It is important that these limitations are identified during facility and AHS planning processes and that strategies be developed to overcome them, while meeting the objectives of containing pandemic influenza.

Objective 2: Identify barriers to effective early containment of pandemic influenza.

A key objective of *Exercise Paton* was to identify the policy and implementation issues that may inhibit a successful response to pandemic influenza. Performance against this objective was measured using information gleaned from:

- observations of the observers at test sites
- feedback received from facilities via the facility questionnaire
- interviews with stakeholder groups
- observations of the exercise control team
- a report from the reference laboratories.

A number of policy and implementation issues were identified:

- failure to comply with key infection control practices to prevent the transmission of pandemic influenza
- the need for clarification on how staff should decide whether to admit or discharge a potentially infectious patient
- the need for policy guidance on the management of people accompanying suspected cases
- the need for clear and tested first and second line communication mechanisms
- the need for consistency in the advice provided to contacts by public health staff
- the need to test plans for managing a surge of suspected cases of pandemic influenza
- the need for policy clarification and training around packaging and transport of pandemic influenza virus specimens
- the need to ensure consistency across some documents and protocols.

Objective 3: Test the interrelationship between emergency departments or multi-purpose services and public health activities.

Performance against this objective was measured by information gleaned from:

- review of time and content of logged communication
- observations of the observers at test sites
- review of NetEpi entries.

No problems were reported with the communication between EDs and public health units when notifying that a suspected case had been identified. In most cases, the ED called the public health unit by telephone to make the initial notification, and then sent clinical information to the public health unit by facsimile.

Exercise observers noted that data collection forms were taken into the infectious areas, thus posing an infection risk. The *NSW Infection Control Policy Directive* (available on www.health.nsw.gov.au/policies/pd/2007/PD2007_036.html) states that paperwork and medical records should remain outside the isolation area at all times.

Many clinicians and public health unit staff found the case and contact data collection forms difficult to use and provided useful feedback for further development. These forms will be revised and piloted before being finalised.

The *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response* guidelines state that the decision to admit or discharge suspected cases of pandemic influenza should be made in consultation with public health units and infectious disease physicians. Two of the test sites did not consult with their public health unit before discharging the suspected case (based on clinical indication) and one test site decided to discharge the suspected case despite contrary advice from the public health unit.

Objective 4: Evaluate the preparedness of emergency departments, multi-purpose services and public health units to respond to initial cases of pandemic influenza.

Performance against this objective was measured using information gleaned from:

- responses to the facility questionnaire
- interviews with stakeholder groups
- observations of the observers at test sites
- observations of the exercise control team
- reports from the reference laboratories.

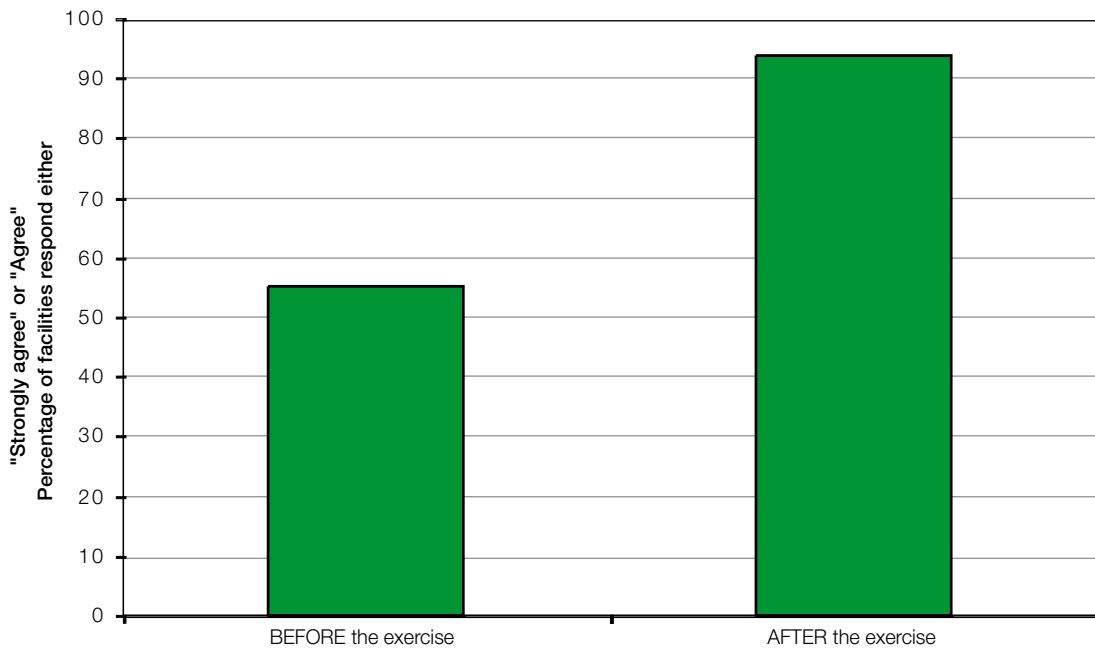
Responses to the facility questionnaire clearly indicated that preparation for *Exercise Paton* across NSW had been extensive in the majority of facilities (Figures 1 and 3) and that taking part in the exercise had improved the ability of facilities to respond to a suspected case of pandemic influenza. Some 55% of facilities “agreed” or “strongly agreed” that they were well prepared to respond to a suspected case of pandemic influenza before the exercise compared to 94% after the exercise (Figure 3).

Exercise Paton provided public health units with the opportunity to test communication with EDs and implement public health response to an infectious disease risk using a number of new tools (the *Pandemic Influenza Interim Response Protocol for Public Health Units*, new data collection forms, fact sheets and the web-based public health data collection and management program NetEpi). The public health response was generally well executed, although there was some variation in the depth of investigation, familiarity with the supporting documents and the quality of advice provided to one of the potentially infectious contacts. Public health notification to the Communicable Disease Branch at NSW Health was prompt, as was the public health follow-up of contacts.

Public health units reported an ability to respond to the small numbers of cases and contacts dealt with during *Exercise Paton*, but noted that their ability to adequately respond would be severely tested with even a marginal increase in these numbers.

Geographical isolation in rural and remote settings was also reported as a potential barrier to delivery of public health services.

Figure 3. Responses to the *Exercise Paton* facility questionnaire statements relating to the ability of emergency departments to respond to a suspected case of pandemic influenza before (N=143), compared with after (n=145), the exercise.



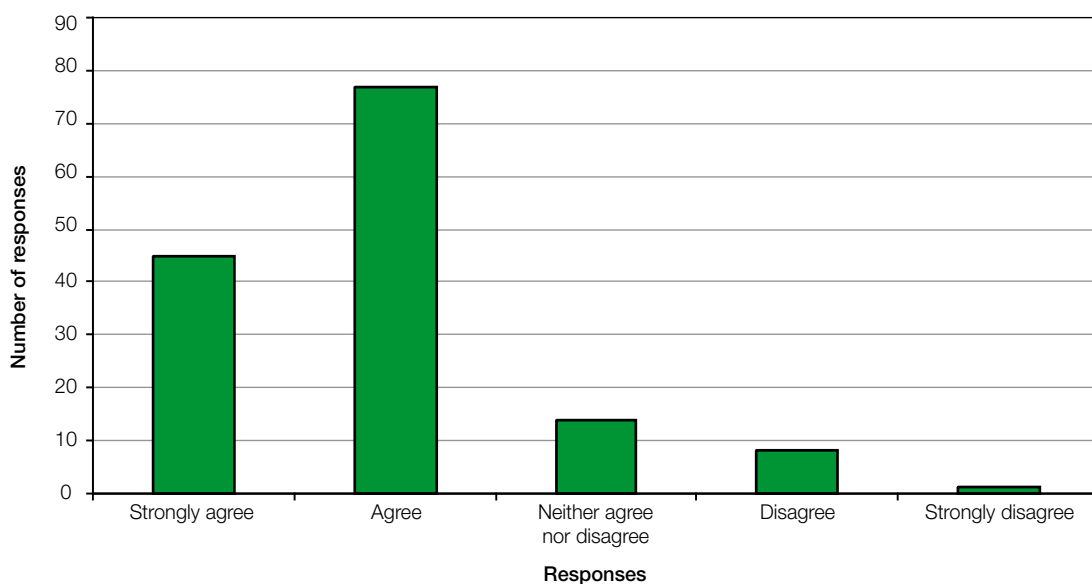
Objective 5: Progress facility-based pandemic influenza planning.

Performance against this objective was measured using information gleaned from:

- responses to the facility questionnaire
- interviews with stakeholder groups
- observations of the observers at test sites.

Exercise Paton has prompted facility-based planning, with 84% of facilities "strongly agreeing" or "agreeing" to the statement that "*Exercise Paton* prompted facility level influenza pandemic planning" (Figure 4). This was reflected in the (a) ability to activate enhanced ED triage again if required to do so (Figure 1) and (b) preparedness to respond to a real suspected case of pandemic influenza (Figure 3).

Figure 4. Responses to the *Exercise Paton* facility questionnaire statement "*Exercise Paton* prompted facility level influenza pandemic planning" (N=145)



Laboratory aspects tested during *Exercise Paton*

Specimen collection, labelling and transport

A total of 19 specimens were received by the two NSW specialist testing laboratories: the Institute for Clinical Microbiology and Medical Research (ICPMR) (17 specimens) and South Eastern Area Laboratory Services (SEALS) (two specimens). All specimens were in the correct viral transport medium and the quality of the specimens ranged from good to excellent, indicating that the appropriate technique was used to collect specimens in the EDs.

Transport (using normal transportation methods) of these specimens took between 30 minutes and 4 hours from hospitals located within the Sydney metropolitan area and between 20 and 28 hours in areas outside Sydney (including facilities in South East Sydney Illawarra AHS and North Sydney Central Coast AHS that are located outside the Sydney metropolitan area). Whilst the exercise did not aim to test the timeliness of specimen transport in an emergency situation, the information collected on transport times, particularly from facilities outside the Sydney metropolitan area, highlights the need for AHSs to adopt more rapid transportation methods to ensure timely delivery of specimens to specialist testing laboratories during the early stages of a pandemic.

The packaging of specimens sent to reference laboratories varied widely, with five of the 19 specimens received being labelled incorrectly and multiple samples being poorly packaged. Clearer packaging requirements are being developed and will be circulated to facility laboratories when complete.

Key issues and recommendations

Key issue 1: Infection control

The need for improvements in infection control knowledge and practice in facilities was reinforced during the exercise as significant breaches in infection control practice were identified. Incorrect use of personal protective equipment, poor hand hygiene and, in some cases, inappropriate packaging of specimens for transport were highlighted as particular areas of concern.

Inter-facility differences in the way infection control practice was being implemented were noted.

Compared with medical staff, nursing staff were generally more aware of, and likely to comply with, infection control policies and procedures.

The following recommendations on infection control are not specific in the management of pandemic preparedness and response. Rather, they should be seen as being important in the management of all types of communicable disease.

Recommendation: That continued emphasis be placed on standardising infection control practices across NSW.

Recommendation: That AHSs ensure that ongoing training and monitoring of infection control be conducted in line with the NSW Health *Infection Control Policy* (policy directive 2007_036. Available on www.health.nsw.gov.au/policies/pd/2007/PD2007_036html).

Recommendation: That clinical staff (including medical staff) receive regular infection control training that includes practical components such as “how to don and remove PPE”.

Recommendation: That the crucial contribution of hand hygiene and hand hygiene practice continues to be emphasised in all infection control strategies and campaigns.

Key issue 2: Decision-making regarding whether to admit or discharge a suspected case of pandemic influenza

Given that the overarching response strategy in the early part of a pandemic is one of containment of the illness, the decision to discharge a suspected (and therefore potentially infectious) patient with a novel influenza virus is a highly important one. In the initial stage of a pandemic, when uncertainty about the behaviour of the virus is likely to be high, the decision to discharge a suspected case must, therefore, be made in consultation with an infectious diseases physician and the public health unit. If necessary, advice from an expert advisory group can be sought. As a general principle, during the initial stage, all suspected cases should be admitted until an alternative diagnosis is made or the infectious period passes. As the pandemic progresses and more is learnt about the clinical and epidemiological features of the virus, this principle can be reassessed.

Recommendation: That the *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response* be revised to state (i) the requirement for consultation with public health units and infectious disease physicians before making a decision to discharge a potentially infectious patient and (ii) the default decision in the initial stage of a pandemic should be to admit a suspected case of pandemic influenza until an alternative diagnosis is made or the infectious period is over.

Key issue 3: Management of people accompanying suspected cases

People such as parents, friends or guardians who accompany a suspected case presenting at an ED pose a number of infection control and management issues. For example, accompanying people may well meet the definition of a contact of the suspected case and may, therefore, be required to enter quarantine. If these people are not already contacts, strategies will need to be implemented to mitigate the ongoing risk of transmission to them.

Children's hospitals face unique issues with regard to managing parents/guardians who accompany children presenting to their facilities, because of the importance of the carer role in these settings.

Recommendation: That the NSW Department of Health develop guidelines for management of people accompanying suspected and confirmed cases of pandemic influenza. Consultation will need to occur with stakeholders, in particular with children's hospitals, in the development of these guidelines.

Key issue 4: Communication

Exercise Paton highlighted the importance of clear communication to facilitate rapid response. Whilst, overall, communication during the exercise was effective, some minor issues were identified.

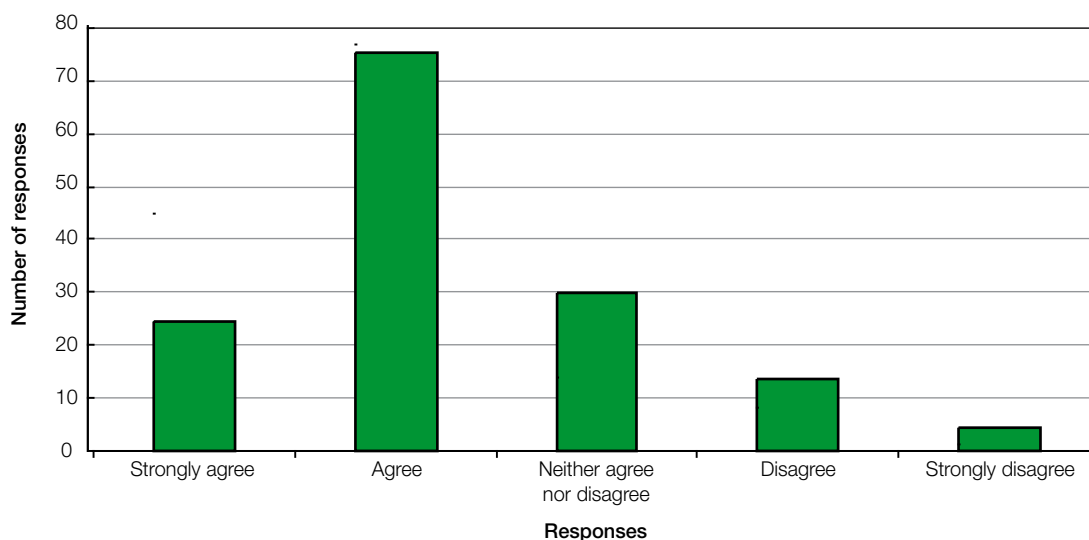
Access to the internet and web-based information. Most facilities found the *Exercise Paton* web site a useful resource and an effective method for accessing information (Figures 1 and 5). However, some facilities had trouble accessing the site or accessing information on the site (due to lack of familiarity by users and the relatively rudimentary nature of the website design).

Communication via email. It was noted that relying on email alone for communication, and not requiring confirmation of receipt of the information, was unacceptable.

Electronic data management. The usability of NetEpi (the electronic data management and communication system used by public health) is much improved compared to earlier versions, and connectivity was achieved at all sites. However, further work is required to make NetEpi more user-friendly, given that people who may be required to fulfil a temporary workforce need during a pandemic, will be untrained in its use.

NetEpi compatible case and contact data collection forms for use in EDs and by public health units were developed for *Exercise Paton*. Experience gained during the exercise will be utilized to improve these forms.

Figure 5. Responses to the *Exercise Paton* facility questionnaire statement "The exercise website was a useful resource" (N=144).



Recommendation: That in future public health emergencies (and simulation exercises), email communication should not be relied upon when conveying urgent and important information. Instead, such communication should occur person-to-person or through multiple modalities.

Recommendation: That further refinement of pandemic influenza data collection forms used in EDs and by public health units be conducted to enhance the utility of the forms for the collection of data and describing the epidemiology of the disease.

Key issue 5: Consistency in advice provided to contacts

Communication to contacts of cases of pandemic influenza will need to include advice on potentially highly emotive issues, such as the requirement for quarantine and the person's risk of illness and death.

In general, although advice provided to contacts of the suspected cases during *Exercise Paton* was generally accurate, the effectiveness of the risk communication was variable.

Recommendation: That in future public health emergencies (and simulation exercises), improved support, including standardised written material, be given to those providing public health advice.

Key issue 6: Managing a surge of suspected cases of pandemic influenza

The capacity to respond to a surge of suspected cases of pandemic influenza, both in EDs and public health units, was raised as an issue because of the perception that even a small increase in numbers would quickly overwhelm services, particularly in smaller facilities.

Recommendation: That the NSW Department of Health continues to work with AHSs to develop models for enhancing workforce response capacity.

Key issue 7: Consistency across documents and processes

Pandemic influenza policy formulation is being carried out apace in a rapidly changing environment, and care needs to be taken to ensure consistency between policy documents.

During *Exercise Paton*, inconsistencies were noted between policy documents from different states (e.g., in requirements for viral specimen collection), and between state and AHS policies regarding certain infection control practices.

Recommendation: That the Department of Health review existing pandemic influenza policy documents, including the guidelines in *Hospital Response to Pandemic Influenza, Part 1: Emergency Department Response*, to ensure consistency of messages.

Annex – facilities involved in pilot activities, and facilities that received mock patients for *Exercise Paton*

Facilities involved in the pilot activities for *Exercise Paton*

Facility	Area Health Service
John Hunter Hospital	Hunter / New England
Glen Innes Hospital	Hunter / New England
Kyogle Multi Purpose Service	North Coast
Macksville Hospital	North Coast

Facilities that received mock patients during *Exercise Paton*

Facility tested	Area Health Service
Tweed Heads Hospital	North Coast
Port Macquarie Hospital	North Coast
Mater Hospital, Newcastle	Hunter / New England
Gunnedah Hospital	Hunter / New England
Dubbo Base Hospital	Greater Western
Broken Hill Hospital	Greater Western
Queanbeyan District Hospital	Greater Southern
Holbrook District Hospital	Greater Southern
Wagga Wagga Hospital	Greater Southern
Braidwood Hospital	Greater Southern
Royal North Shore Hospital	Northern Sydney / Central Coast
Wyong Hospital	Northern Sydney / Central Coast
Children's Hospital at Westmead	Located within Sydney West
Mt Druitt Hospital	Sydney West
Balmain Hospital	Sydney South West
Liverpool Hospital	Sydney South West
Sutherland Hospital	South Eastern Sydney / Illawarra
Bulli Hospital	South Eastern Sydney / Illawarra

