

Medical Journal of Australia 185, s32-4

Scenario One

While driving to work, Dr Robinson hears on the radio that there has been a marked increase in the past few weeks in the number of human cases of bird flu in Vietnam and Thailand.

On arrival at his practice, Dr Robinson notices that the receptionist has put a box of surgical masks on the bench. The practice is busy. His four other partners are already behind schedule.

Halfway through the morning, the receptionist knocks on the door. She is wearing a mask. Dr Robinson chides her for scaring patients. She replies that she is not taking the mask off.

“Mr Brindol is out there, hasn’t got an appointment. He is coughing and he has just been to Thailand.” She adds, “He is very sick, you should see him straight away.”

Dr Robinson follows the receptionist into the waiting room. Matt Brindol is sitting among the patients. Lily Chatwa, due to give birth in 2 weeks, is sitting next to him.

Matt Brindol is 26 years old. A triathlete, he is known to the practice for being obsessed with diet and fitness, and concerned about any minor injury. Dr Robinson is struck by Matt’s appearance. He is pale and sweaty, and coughing into a handkerchief. He is holding on to his chair with one hand as if he is afraid he will fall off.

Matt tells Dr Robinson he returned from Thailand 2 days earlier. His illness started on the way back: sore throat and muscle pains. The cough started yesterday. His pulse rate is 98 beats/min, blood pressure 100/70 mmHg, and temperature

38°C. Dr Robinson rings the local public health unit, who advise him to collect nasal and throat swabs. The patient, Dr Robinson is told, should be isolated until the results exclude avian influenza.

Dr Robinson puts on a surgical mask and gloves, takes swabs for viral studies, and rings the nearest laboratory for the courier service. He puts a surgical mask on Matt and says he must go home, and not see anyone until he is contacted. Dr Robinson tells him it is probably a cold virus, but they had better be careful as there is a slim chance it is bird flu.

Three hours later, the laboratory informs him that Matt Brindol, on the first test, is positive for influenza A. They have already sent the sample to a reference laboratory for further testing.

It is late afternoon; Dr Robinson hasn't had a break when the reference laboratory calls. The preliminary tests are positive for influenza A/H5N1. They are running confirmatory tests. The public health physician, Dr Tantu, informs Dr Robinson that Matt should be started on oseltamivir immediately for treatment, as should anyone who has been in close contact.

The local pharmacy has no oseltamivir. Dr Robinson gets the receptionist to ring all pharmacies to find some. He asks the other doctors if they could take his remaining patient load so he can work on the contacts.

The staff are alarmed at the activity. The public health unit sends a nurse to help with contact tracing and infection control. She arrives wearing a mask, gloves and apron, and carrying a bottle of disinfectant.

Dr Robinson rings Matt, but there is no answer, so he drives to Matt's house.

Matt is not at home. One of the neighbours informs Dr Robinson that an ambulance had been a couple of hours ago. Dr Robinson rings the local hospital and informs the emergency department registrar. The registrar replies that Matt has been admitted and was isolated.

Dr Tantu is still tracing patients from the practice. She has been called by the hospitals, who are demanding she request a supply of oseltamivir, the influenza antiviral, from either the state or federal stockpile. Dr Tantu asks Dr Robinson to take over contacting the practice's patients. She needs to get the paperwork done and contact authorities to try to get release of oseltamivir. She hands Dr Robinson a file. "You'll need to collect these details."

It is almost midnight. On the way back to his practice, Dr Robinson hears that a case of bird flu has been confirmed in his town. He realises with a start that, of course, Matt is the confirmed case. There are three additional suspected cases in Victoria. Overseas, there are confirmed cases in Thailand and Vietnam, and possible cases in Hong Kong and the United States. There is major concern that the avian influenza strain has changed to a form transmissible between humans. The World Health Organization is meeting urgently to review the alert level.

At the practice, the receptionist is still there. Dr Robinson asks why she hasn't gone home. She replies that she is too scared. She listens while he runs his voicemail. There are seven messages: one from one of the other practice doctors stating she is not coming in until the situation is clear in regard to the bird flu. The second is from the Divisions of General Practice wanting to talk to him about the practice being the designated flu practice for the area. The next is a message from Dr Tantu

— Lily Chatwa has refused to take antivirals, could he talk to her. Three messages are from media: the local paper, ABC Television and a radio station, all wanting interviews. The seventh is from the hospital saying that Matt Brindol died in intensive care while being intubated.

Dr Robinson insists his receptionist take her oseltamivir, and reassures her that if she gets the slightest symptoms all her family will be given antivirals.

The receptionist tells him she put all the used masks in the rubbish bin in the staff room, but the cleaning lady won't touch it. She starts crying and holds up the *Australian health management plan for pandemic influenza*, and points to the paragraph which says that if someone gets infected the family will be in quarantine for a week. She has tickets to a Barry Manilow concert next week in Sydney and, come hell or high water, she is going to go.

Dr Robinson goes home. As he stops the car, he realises he hasn't taken his oseltamivir, and he has none left.

Commentary

Influenza A/H5N1 (“avian flu” or “bird flu”) has a high fatality rate in humans. Once it gains the ability to transmit from human to human, it is less likely to have as high a fatality rate. Its deadliness to the population will be its ability to spread rapidly.¹

Pandemic influenza can potentially be controlled.² Key to the control is rapid diagnosis and early action. Practices need to have plans in the event of a contagious respiratory disease.^{2,3} Knowing who to speak to in the regional laboratory and public health unit is essential.⁴

Ensuring all health care workers know their roles and have contingency plans for events will reduce the pressure on key individuals. Plans also need to take into consideration the roles and concerns of non-medical staff.

Scenario Two

The federal Chief Medical Officer has announced Pandemic alert level 5 in Australia: *Large clusters but human to human transmission still localised, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully adapted (substantial pandemic risk).*

Dr Mackley is running a “non-flu” practice. She was relieved that the large practice in the next suburb was willing to be a flu practice. “Flu practices” have been designated in her area, as the medical practitioners in discussion with the local council had decided that that was easier than setting up a fever clinic. Radio and television announcements and posters in the street and on the practice door direct people with fever or respiratory symptoms to the flu practice. One of the doctors who had not wanted to work at the flu practice has come over to her practice. Her practice nurse had volunteered to assist the public health unit in monitoring people in quarantine. All in all, a bit chaotic, but the arrangements were working.

Dr Mackley is very busy. There are many new patients with chronic illnesses and complex histories.

This morning, Mrs Darnley brought in her 3-year-old girl, Phoebe. Phoebe has a 2-day history of diarrhoea and is refusing to eat or drink. The diarrhoea has not been severe, but the child on examination is moderately dehydrated, pale and listless. She is afebrile. Dr Mackley decides to observe the girl

for a while in the treatment room, and asks the mother to keep the child sipping on rehydration fluid.

Dr Mackley takes a phone call from a regular elderly patient, Mr Stilton, who has a cough, feels unwell and wants to come in. He won't go to the flu practice. He doesn't believe he has the flu, but is sure he will catch it if he goes there.

Dr Mackley rings the flu practice. They have a home visiting team. The flu practice say they will do a phone assessment, but their home visiting team has at least 10 houses to go, and by the way, did her practice have any extra staff she could send over?

As Dr Mackley is speaking on the phone, the daily fax comes through from the public health unit, listing houses in quarantine. She notes how much longer the list is today. She runs her finger down the list and stops at one. The house next door to the Darnleys' house is in quarantine. Dr Mackley checks on Phoebe. She is feverish and whimpering.

Dr Mackley rings the hospital and orders an ambulance. All ambulances are busy. She gets through to the paediatric registrar who informs her that young children with pandemic flu are presenting with atypical symptoms, often with gastrointestinal symptoms and sometimes encephalitis.

Dr Mackley quietly informs the rest of the staff that the child is a possible case.

Dr Mackley rings the public health unit and requests oseltamivir tablets for the practice and the family, and paediatric suspension for the child. Medication will only be provided for the girl and not for contacts until the case is proven. Dr Mackley puts on a surgical mask, gloves and gown, and enters the

treatment room. The mother is distraught. Dr Mackley tries to reassure her. She asks her to wear a mask and gloves and to hold the child while she puts an intravenous line in.

Later that day, Phoebe is confirmed as infected. The staff are put on post-exposure prophylaxis, but not required to be in quarantine. Dr Mackley, after discussion with the staff, decides the practice will remain a non-flu practice. In a lengthy meeting, the staff are debriefed. They reconsider the plans as to what to do with a suspect patient. They revise the infection control processes and go through, in detail, the management of personal protective equipment and disinfection of possibly contaminated areas. They all decide to keep a chart monitoring their temperature on a twice daily basis. Only one staff member says she will consider staying at home.

As Dr Mackley is winding up the meeting, Mr Stilton walks through the door, coughing.

Commentary

Antivirals and personal protective equipment (PPE) from the National Medical Stockpile will be distributed to a nominated point in each jurisdiction. The distribution from there will follow a jurisdictional plan.²

Primary health care practices should maintain a supply of PPE. All staff should be aware of and know how to implement infection control processes.⁵

The effectiveness of antivirals against a pandemic influenza virus will not be known until cases begin to occur.⁶ Consider antivirals as one of the tools: infection control practices, social distancing, quarantine practices and clinical control measures will be as important.

Atypical presentations of influenza can occur, particularly in the young and elderly.⁷ The spectrum of disease in an influenza pandemic will only become known as the pandemic evolves.

Scenario Three

It is 3 months since the first cases of pandemic influenza in Australia. Lime, a town of 23,000 people, has been badly affected by the pandemic influenza. All health care workers in the area have been put on prophylactic antivirals. The government is still maintaining a containment policy. Vaccine is at last being produced, and the town of Lime is one area designated to receive the first consignments. Health care workers will receive the vaccine, then the children.

For several weeks, Dr Turner has been working as a member of the home visiting team. He wears PPE all day and at the end of the day disposes of it, showers, and changes into “non-contaminated clothes” in an area set up by the local hospital. His family has been confident, and knows that if any of them get infected they will get antivirals.

Dr Turner has also been asked to work with the public health unit and local government to set up the vaccination clinics and education for health care workers.

Two weeks ago, Dr Turner had a mild cough. It only lasted a day. He had nasal and throat swabs which came back negative. He decided to stay in the hospital flats to reduce the risk to his family

On this day, he is asked to visit a family, the Gowers, who live in the same street as his family. The son, Ben, is sick and on antivirals. The boy’s parents have reported deterioration in his condition. Ben is Dr Turner’s daughter’s boyfriend.

Dr Turner examines Ben; he is cyanotic and afebrile, with a very low blood pressure. Dr Turner has seen this look before and knows the boy is likely to die. He notes Mrs Gower is unwell and finds out that she has been giving all her antivirals to Ben.

Ben stops breathing. He has no pulse. Dr Turner reaches for the adrenalin in his doctor's bag. He stops and instead turns to the family and informs them that Ben is dying and that they should say goodbye.

"Hold his hand." He adds, "Then you will need to wash your hands."

Dr Turner writes out a certificate of death. He rings the public health unit and informs them of Ben's death and that Mrs Gower will need antivirals. He rings the funeral services for the Gowers.

At the public health unit, the first batch of vaccines arrives under heavy guard. There had been no time to set up the needed vaccination processes. Of three nurses accredited to give vaccinations, only one has used multidose vials. Dr Turner works with the public health unit around the clock and finally has a flowthrough clinic design organised for the town hall. Six health care workers who can vaccinate have been found. Dr Turner is not sure of the validity of two of the nurses' accreditation. Immunity will take two doses and 4 weeks for each person.

"We can have this town immune in 4 to 5 weeks", the public health doctor states.

Dr Turner is not sure that that is going to be quick enough.

Two days later, in his daily phone call to his family, he finds out that his daughter has a temperature and has been assessed at

the fever clinic and started on antivirals. The laboratory is no longer doing testing and on the new definition, she has been classified as a positive case. She gave a history to the fever clinic of meeting with Ben while he was supposedly in quarantine.

Dr Turner decides to go home and spend the quarantine with his family. He offers to do phone assessments from home. On the first day at home, he gets a call from the laboratory. The second serum test shows he has had infection with A/H5N1 and he now has protective antibodies. They need him in the workforce.

Commentary

As an influenza pandemic progresses, the role of the health care worker may change. This will depend on skills, family pressures and immune status.^{3,8}

Over the years, a move has been made towards specialisation and accreditation in many skills. In a pandemic, ideally, health care workers will need a number of skills. A stocktake in an area of personnel who have the skills and authority to carry out activities such as vaccination should be done before a pandemic.⁹

In many communities, general practitioners may be dealing with families they have known for many years. GPs may need to make decisions which seem to go against the principles they have been trained in.⁸ GPs will have a role in ensuring their community understands “social distancing” and the requirement for quarantine within that.³ Compliance with quarantine will rely on many issues, such as provision of food to the quarantined

household and ability for people to carry on business and education, perhaps through electronic services.²

Author details: Moira McKinnon, Senior Medical Officer

Department of Health and Ageing, Canberra, ACT.

Correspondence: moira.mckinnon@three.com.au

References

1. Hampson AW, Mackenzie JS. The influenza viruses. *Med J Aust* 2006; 185 (10 Suppl): S39-S43. [<eMJA full text>](#)
2. Horvath JS, McKinnon M, Roberts L. The Australian response: pandemic influenza preparedness. *Med J Aust* 2006; 185 (10 Suppl): S35-S38. [<eMJA full text>](#)
3. Collins N, Litt J, Moore M, et al. General practice: professional preparation for a pandemic. *Med J Aust* 2006; 185 (10 Suppl): S66-S69. [<eMJA full text>](#)
4. Dwyer DE, Smith DW, Catton MG, Barr IG. Laboratory diagnosis of human seasonal and pandemic influenza virus infection. *Med J Aust* 2006; 185 (10 Suppl): S48-S53. [<eMJA full text>](#)
5. Collignon PJ, Carnie JA. Infection control and pandemic influenza. *Med J Aust* 2006; 185 (10 Suppl): S54-S57. [<eMJA full text>](#)
6. Harrod ME, Emery S, Dwyer DE. Antivirals in the management of an influenza pandemic. *Med J Aust* 2006; 185 (10 Suppl): S58-S61. [<eMJA full text>](#)
7. Boyd M, Clezy K, Lindley R, Pearce R. Pandemic influenza: clinical issues. *Med J Aust* 2006; 185 (10 Suppl): S44-S47. [<eMJA full text>](#)
8. Torda A. Ethical issues in pandemic planning. *Med J Aust* 2006; 185 (10 Suppl): S73-S76. [<eMJA full text>](#)
9. Booy R, Brown LE, Grohmann GS, MacIntyre CR. Pandemic vaccines: promises and pitfalls. *Med J Aust* 2006; 185 (10 Suppl): S62-S65. [<eMJA full text>](#)