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Case Presentation

Dr Ronald McCoy, RACGP



Emergency hospital, Camp Funston, Kansas 1918

Courtesy of National Museum of Health and Medicine



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Pandemic influenza planning for general practice

- What is pandemic influenza planning?
- How relevant is pandemic influenza planning to general practitioners?



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The Case — Malcolm has a fever

- It is the June in the year 2000 and something, and the world appears to be in the early stages of an imminent influenza pandemic.
- Malcolm Wilson is a 35 year old air traffic controller who presents without an appointment to your clinic with cough, fever, and severe tiredness that came on overnight.
- He has been well in the past, apart from some very mild asthma that is well controlled on Budesonide 400 mcg twice daily. He is on no other medication.



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The Case — Malcolm has a fever — 2

- Malcolm is with his wife, Linda, who is 30 weeks pregnant, and is concerned that he may have “bird” flu. Malcolm’s two children, aged 2 and 7 are at home at the moment with his mother-in-law.
- This morning, you also received an email disease alert today from the governments of Australia, New Zealand and the Pacific region have issued a Phase 4 Pandemic Influenza alert which means that small clusters of human pandemic influenza infection are occurring within the country, but that the spread is highly localised.



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References

- For stages of the epidemic see Australian Management Plan for Pandemic Influenza - June 2005. Phase 4 is on pages 75-76
- <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-pandemic-influenza.htm>



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Discussion

- What other information would you like?
- What is the differential diagnosis?
- What clinical features might lead you to a diagnosis of influenza in this man?
- What clinical features might help you distinguish cases of influenza vs URTI
- How might these features differ in a pandemic from seasonal influenza?



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Discussion

- Is this “bird flu”?
 - The Avian flu issue is a ‘red herring’. Although a pandemic might be related to H5N1 strain, it may well be another strain or another disease such as Tb.
 - The source of the pandemic is really irrelevant to your management and when to refer.

SO WHAT ABOUT MALCOLM?



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Discussion

- What are the immediate next steps in Malcolm's clinical assessment?
- The main aim here is to:
 - diagnose influenza
 - distinguish it from other infections
 - assess severity of infection
 - Influenza vs URTI or seasonal influenza– see chart



Case study — Managing Malcolm

- On further questioning you find that Malcolm has:
 - a headache, severe muscle and joint pains
 - Temp of 38.7, Pulse 92/min, Respiratory rate of 20
 - He is oriented
 - He is not cyanosed, and has a clear chest.



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Case study — Managing Malcolm-2

- How are you going to manage Malcolm?
- Are there any risks to his family?
- What should be done?
- What is the role of vaccination?
- What other measures are necessary?



DISCUSSION: YOUR PRACTICE INFLUENZA PLAN

You should have an influenza pandemic plan for your practice.

- While there are national and state based guidelines, ultimately each practice will know what suits them best.
- For example, one GP has said that they work in two practices, and they have decided that in the event of a pandemic, all suspicious patients would be seen at only one clinic.
- When producing your practice influenza plan, take into account the extent of an epidemic. In the early stages of a pandemic, many cases will be managed at home, monitored for complications and referred if the clinical condition deteriorates.



DISCUSSION: YOUR PRACTICE INFLUENZA PLAN — 2

- In the event of escalating pandemic numbers, more staff would be needed and may have to change from their normal daily occupations e.g. move from general practices to makeshift fever hospitals
- Absenteeism, due to health labour workforce shifts and illness, may necessitate closing of clinics
- Some clinics have already started to produce their own flu plans



DISCUSSION: YOUR PRACTICE INFLUENZA PLAN — 3

- INFECTION CONTROL
 - Respiratory infection control measures need to be stepped up. These measures include:
 - getting patients to ring first
 - having clear triage procedures for patients and staff in place
 - asking patients to wait in designated area
 - staff use appropriate PPE
 - patients to wear masks;
 - educate re respiratory etiquette;
 - avoid nebulisers
 - There are a lot of useful resources on the Australian Government website



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Resources

- **Preparing for an Influenza Pandemic - A Practical Guide for Medical Practitioners**

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/pubhlth-pandemic-gp.htm>

Infection control Guidelines

'Prepared and Protected - Infection Control and Personal Protective Equipment for Respiratory Diseases

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-pandemic-resources.htm>

Numbers of public health units in Australia
File name: Public Health Unit contact numbers



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DOES QUARANTINE WORK?

- There were comments about SARS in Australia, and whether quarantine worked. In fact, the identified cases in Australia were picked up by alert general practitioners and managed very well.
- The use of fever hospitals in Hong Kong was very effective in controlling the epidemic



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WHAT IS THE ROLE OF VACCINATION?

- In the event of an Avian Influenza epidemic, a vaccine would take 4 weeks to 3 months to produce, perhaps longer:
 - Issues re production – use of multidose vials
 - Issues re administration – the need for two separate episodes of vaccination
- Initially the main public health interventions would be respiratory etiquette, quarantine and antivirals.



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ACCESSING ANTIVIRALS AND PPE STOCKPILES

- Influenza is being monitored very closely, and what has been conclusively demonstrated in past pandemics is that isolation and quarantine can dramatically slow an epidemic.
- Although it may not stop the epidemic, slowing any epidemic is important to give extra time for vaccine production and distribution, and ultimately, less death and illness.



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ANOTHER WORD ON PUBLIC HEALTH UNITS

- In an epidemic, the public health response is critical and general practitioners will need to work in close conjunction with these units in each state.
- Remember that highly pathogenic Avian Influenza is a quarantinable disease and clinicians will be required to report suspected cases to local Public Health Units.
- There may also be data collection forms to complete during an epidemic.



CASE DISCUSSION: BUT WHAT ABOUT POOR OLD MALCOLM?

- Malcolm appears to have influenza but he is not severely compromised, and can be managed at home:
 - Assess and monitor asthma. Ensure he uses a spacer at home, and not a nebuliser.
 - symptomatic management of influenza — antipyretics, bed rest and fluids etc.
 - Ensure that he and his family stay in isolation and take antivirals.
 - Reassess Malcolm within a day or so.

Malcolm is one of the early cases in a pandemic, and he is likely to receive a lot of attention! Later in a pandemic, this is less likely to happen.



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REGARDING ANTIVIRALS

- There are reports that Tamiflu makes no difference to onset of influenza.
- A lot of the studies of Avian influenza treatment were of people from rural and remote areas in third world countries who had received antivirals far later than recommended.
- Antivirals are for prophylaxis, not treatment. They are not 100% but will certainly help slow an epidemic and buy time for vaccine production.
- In Malcolm's case, he has young children and an elderly relative who are at special risk and require antivirals.
- The local public health unit will help with dosages especially in children and pregnant women.



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ANTIVIRALS IN PREGNANCY

- The benefits and risks of the use of antivirals during pregnancy need to be weighed up and considered on a case by case basis
- If possible, consult with an obstetrician.
- During a pandemic, and because of the increased morbidity and mortality experienced by pregnant women, especially during the 2nd and 3rd trimester, the potential benefits of zanamivir and oseltamivir may justify the potential risk to the foetus.
- The following slide has some information on antivirals in pregnancy



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Use of Antivirals in pregnancy

- **Zanamivir Pregnancy Category B1**
- There is no information on the outcome of human pregnancies exposed to zanamivir or on placental transfer in humans. In rats, low level placental transfer was noted after intravenous administration of zanamivir. There were no malformations observed in animals with intravenous or subcutaneous administration. No recommendation given.
- **Oseltamivir Pregnancy Category B1**
- Animal studies revealed no teratogenic effect. Because animal reproductive studies may not be predictive of human response and there are no adequate and well controlled studies in pregnant women, it is recommended that oseltamivir only be used in pregnancy if the potential benefit justifies the potential risk to the fetus.
- **Amantadine Pregnancy Category B3**
- Amantadine related complications during pregnancy have been reported. The use of amantadine during pregnancy is **absolutely contraindicated**.



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INFLUENZA SYMPTOMS

- Influenza can present in many forms, and each epidemic is likely to be different in the pattern of symptoms.
- The following is a list of influenza symptoms with the differences in presentation in children and the elderly:
 - **Constitutional** — Fever, Chills, Headache, Marked malaise, Muscle and joint pains.
 - **Respiratory** — Cough, Sore throat, Hoarseness, Stuffy or runny nose, shortness of breath, Pleuritic chest pain, Retrosternal pain, Sputum production and haemoptysis, Earache (mainly in children),
 - **Gastrointestinal** — Vomiting, Diarrhoea (especially in children), Abdominal pain (mainly in children and elderly).
 - **Neurological** — Confusion, Drowsiness, Convulsions, Meningism (mainly in children).



Case study — The next step — Malcolm at home

- You visit Malcolm at home later that day, and his wife says that she is very worried.
- Malcolm looks pale and cyanosed, and is confused.
- He has a respiratory rate of 26/min, pulse 104/min, BP 100/65, and is dizzy when he tries to stand.
- What is your management?
- What are the complications of influenza?
- What factors are associated with increased morbidity and mortality with seasonal human influenza?



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Influenza: when to refer?

Refer adults if:

-

Temp	<35 or >39 degrees Celsius
Pulse	New arrhythmia or pulse >100/min
BP	<100 systolic or dizziness on standing
Respiratory rate	>24/min
Skin colour (lips, hands)	Cyanosis
Chest signs or symptoms	Any abnormality on auscultation or chest pain
Mental status	New confusion
Function	New inability to function independently
Persistent vomiting	(>2-3 times/24 hours)
Oxygen saturation (if available)	<90% on room air



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What happened next?

- You referred Malcolm to the hospital, and in the meantime, fever clinics have been established in your area.
- The number of cases in your local area has now dropped dramatically due to public health interventions, principally quarantine measures
- Malcolm had a difficult course, but survived and has been recuperating quickly at home.
- You subsequently hear that there were other people in his workplace who had influenza, and in fact, a close work friend died. None of his family have acquired influenza, quite possibly due to the prompt administration of antivirals.



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Your management

He has been off work for 5 weeks and wants now to return to work as soon as possible, as there have been many absences from work.

- What would you like to discuss with Malcolm?
- What is your management?
- When will he be ready to return to work?



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SO WHAT ABOUT MALCOLM?

- Malcolm is an air traffic controller
- Cognitive deficits and neurological sequelae after severe illness are not uncommon. In some epidemics, there have been new patterns of complications, e.g. postviral encephalitic lethargica, and clinicians may need to be on the look for these
- Monitoring for post-influenza complications is also important. Post-viral depression is not uncommon and may require antidepressant therapy.
- Psychosocial aspects of the pandemic: grief, death and dying



TAKE HOME MESSAGES

- A pandemic will affect whole communities
- Pandemic influenza could present differently from seasonal influenza:
 - Affect different demographics
 - More severe illness
 - Physical and psychological sequelae
- Containment through the use of quarantine, antivirals and respiratory hygiene may slow the spread of pandemic influenza and buy time for vaccine production
- Practices need to prepare now, with staff education and stockpiling PPE