

**Danielle Esler**

MBBS(Hons), BMedSci(Hons),
FRACGP, is a public health
registrar, North Sydney and
Central Coast Public Health
Unit, New South Wales.
desler@nscchahs.health.nsw.
gov.au

Emma Just

BN, GradCertC&FH, is a
surveillance officer, North
Sydney and Central Coast
Public Health Unit, New South
Wales.

Notification – what's it all about?

BACKGROUND

General practitioners are often unsure of their obligation to notify public health units of infectious disease in their patients. A measles case study in which contacts missed out on appropriate prophylaxis due to failure to notify by a GP and hospital staff is discussed.

OBJECTIVE

This article aims to demonstrate the rationale behind prompt infectious disease notification.

DISCUSSION

This case study highlights the importance of notification on clinical suspicion of a disease, and subsequent actions taken by public health units.

For general practitioners time is precious. It is not surprising that some GPs resent bureaucratic intrusion into their practice. This resentment can sometimes extend to the obligation to notify a public health unit of an infectious disease in a patient. This article seeks to clarify the legal obligations of GPs. It also will examine the process, and benefits of disease notification.

In New South Wales, the *Public Health Act 1991*¹ schedules notifiable diseases, with similar Acts existing in other states and territories. Under the *Act* persons of responsibility (doctors, hospital chief executive officers/general managers, laboratories, school principals, directors of child care facilities) are required to notify their local public health unit when they become aware that a person is suffering from a 'scheduled medical condition' (SMC). General practitioners are asked to notify for diseases when diagnosis is mainly clinical (*Table 1*), where hospital admission is unlikely, and when there is the imperative for a prompt public health action.² A notification (either by telephone or mail depending on the condition) is required following provisional diagnosis. The responsibility for other SMCs falls to laboratories, hospital CEOs, directors of child care centres, and school principals. Public health unit staff have an obligation to maintain the confidentiality of notifications received.³

Disease notification has multiple purposes. In some instances a notification has immediate public health ramifications (see *Case study*). For other diseases, such

as hepatitis C and chlamydia, notification data is primarily used to monitor disease epidemiology and assist in the development of prevention programs.

Discussion

Without commenting on some of the clinical decisions made by the GPs, this case study highlights some of the important issues surrounding notification.

Clinical suspicion and epidemiology

Although this case was not typical of measles (no conjunctivitis or Koplik spots) it did, from the onset of rash, fulfil the criteria for a suspected case of measles.² New South Wales Health classifies a suspected measles case as someone who has 'a morbilliform rash and fever present at the onset of rash and cough'.² Additionally the age and recent travel history of the patient combined with fever and rash should have raised the suspicion of measles. There are important factors to note about the changing epidemiology of measles in Australia. With improvements in immunisation coverage in recent years, most cases of measles seen in Australia are now imported from recently returned travellers or foreign visitors.⁴ The age of this patient is significant, as most people born after 1965 are considered to be susceptible to measles due to a single dose regimen and poor vaccine coverage during this period. The two dose MMR vaccination campaign was commenced in 1994. Those born before 1966 are thought to be immune due to exposure to wild measles⁴ (*Table 2*).

Table 1. SMC to be notified by doctors in NSW

Acquired immunodeficiency syndrome (AIDS)
 Acute viral hepatitis
 Adverse event following immunisation
 Food borne illness in two or more related cases
 Gastroenteritis among people of any age in an institution
 Leprosy
 Measles
 Pertussis
 Syphilis
 Tuberculosis

Case study – rash in a returned traveller

Mr LL, 34 years of age, became unwell with cough, fever and coryza 2 days after returning from an overseas trip. While overseas he had visited both China and Italy. Mr LL presented to a local GP on day 4 of his illness. At this stage he was diagnosed with an upper respiratory tract infection and commenced on amoxicillin. On day 5 of his illness he was feeling worse and attended another GP who asked him to continue the antibiotics. On day 6 of his illness he developed a morbilliform rash commencing on his head which rapidly becoming generalised. He visited a third GP who gave a provisional diagnosis of infectious mononucleosis, asked the patient to cease amoxicillin, prescribed erythromycin and told the patient he thought he might have measles. He also ordered measles serology. At none of these practices was he isolated from other patients.

On day 11 of the illness Mr LL was admitted to hospital for supportive care with cough, rash and fever (temperature 40°C). He was given a provisional diagnosis of infectious mononucleosis and was admitted to a single room. Measles serology was ordered on admission, as was a nasopharyngeal aspirate. Nasopharyngeal aspirate was negative for measles. IgM for measles returned positive on day 12 of the illness. At this stage, further questioning revealed the patient was not known to have had measles previously and was unsure as to his vaccination status. Although unaware of any measles contacts, he reported that he had recently 'been around' unwell children in China. Italy had also reported a measles cluster at the time the patient was in that country. The public health unit was not notified that the measles serology that was ordered by the third GP had returned a positive IgM until 19 days after the onset of the illness.

As a result of the positive measles serology the hospital laboratory contacted the local public health unit. The public health unit then took responsibility for identifying contacts that were at risk of contracting measles, organising prophylaxis and advising local medical staff of the possibility of an outbreak.

Reducing risk of spread

Due to the highly infectious nature of measles, suspected cases should be immediately isolated from other patients to minimise further transmission.⁵ At none of the practices Mr LL attended was he isolated from other patients.

Although both the third GP and the hospital doctors considered the diagnosis, as demonstrated by their inclusion of measles serology in the work up, the public health

unit was not notified until a positive serology occurred. There have not been any measles notifications subsequent to this case (see *Case follow up*). However, the possibility of spread, given the large number of contacts was high. In 2003, Wentworth Public Health Unit reported a measles outbreak with nine confirmed cases. Eight of these were linked to contact with the initial case who had attended an emergency department. The delay

in notification influenced the ability to provide effective prophylaxis to contacts exposed to the case early in Mr LL's illness. This is because prophylaxis is only effective if given within 7 days of exposure. Even if the third GP was unsure as to whether the patient had measles, a telephone call to the public health unit would have confirmed that he met the criteria to be a suspected case and therefore would have advised public health action. They would also have been able to expedite the serological confirmation.

Confirming the diagnosis

In this instance measles was confirmed with a positive IgM. The Communicable Disease Network Australia New Zealand measles control guidelines suggest: 'Laboratory confirmation should be sought on all sporadic clinical notifications and at least two cases during a cluster of cases'.⁶ Laboratory confirmation of measles includes:

- a positive IgM or a raised IgG titre (in the absence of recent measles vaccination)
- a positive measles specific polymerase chain reaction (PCR) result, or
- isolation of wild measles virus from a clinical specimen.

However, notification of suspected cases should not wait until investigation results are available.

Case follow up

Using the New South Wales Health criteria (*Table 3*) 23 people were identified as requiring measles prophylaxis. (They were unimmunised and previously unexposed.) According to guidelines, those over 9 months of age may be given MMR vaccine as prophylaxis within 72 hours of exposure, and normal human immunoglobulin (NHIG) within 3–7 days of exposure. As a result of this case, eight people were given NHIG. These people were either staff or other patients who shared the waiting room at the third general practice. Due to the delay in diagnosis, a large number of contacts were identified who were not eligible for prophylaxis. They included staff and patients at the first two general practices, as well as nine work colleagues of Mr LL. These people were given written and verbal information about measles and advised to seek medical attention at the first

Table 2. Acceptable presumptive evidence of immunity to measles²

- Children aged 1–4 years with documented evidence of having received one dose of a measles containing vaccine
- Persons over 4 years of age born during or since 1966 (unless serological evidence indicated otherwise) who have documented evidence of receiving two doses of a measles containing vaccine
- Persons born before 1966 (unless serological evidence indicates otherwise)
- Documented evidence of immunity
- Documented evidence of laboratory confirmed measles

Table 3. People classified as contacts of a measles case²

- All household members
- All children and adults at child care, preschool or school with the case, particularly those who share the same classroom
- All work colleagues of the case who share the same office
- All persons sleeping overnight in the same room as the case (eg. hospital, boarding school, military barracks)
- Persons who shared a waiting area in a health care facility (for up to 2 hours after the infectious case left)

sign of illness. Mr LL had also attended a number of 'open houses' while looking for property during the infectious period. Therefore a large number of unidentifiable contacts received no measles information. In light of the large number of unidentified contacts, the public health unit subsequently contacted the local division of general practice and a letter advising GPs in the area to be vigilant for cases of measles was distributed. The patient was not infectious during his international plane flight therefore no one on the plane received measles information.

Lessons learned

- The importance of isolation of possibly infectious patients from the waiting room.
- A high degree of clinical suspicion is necessary for many infectious diseases. If in doubt, call your local public health unit. They can advise on case definition, appropriate investigations and any necessary precautions.
- Notify early. Measles is a highly infectious disease among susceptible people.
- A large amount of work occurs behind the scenes. Your notification may set in place a complex array of preventive health measures.
- Have a high index of suspicion of measles

in a young adult with fever and rash recently returned from overseas.

- Promote opportunistic immunisation: the best protection against measles is through immunisation with two doses of MMR vaccine. In NSW the vaccine is free to adults born after 1966.

Conflict of interest: none declared.

Acknowledgments

The authors would like to thank Keira Morgan and the North Sydney Public Health Unit for their assistance.

References

1. The New South Wales Public Health Act, 1991.
2. NSW Health. Notifiable diseases. Response protocols for NSW public health units. September 2004. Available at www.health.nsw.gov.au/infect/diseases.html.
3. NSW Health. Notifiable disease data security and confidentiality. August 2000. Available at www.health.nsw.gov.au/policies/PD/2005/PD2005_181.html.
4. Zwar, N. No cheer in measles. *Australian Doctor* 23 June, 2006.
5. NSW Public Health Bulletin 2003;14:207–10.
6. Communicable Disease Network Australia New Zealand. Technical report series number 5. Guidelines for the control of measles outbreaks in Australia, July 2000. Available at www.nt.gov.au/health/cdc/treatment_protocol/measles_guide.pdf.

afp CORRESPONDENCE email: afp@racgp.org.au