Infection Management and Prevention Service

Going viral

The impact of a single measles presentation

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Introduction

The presentation of a child at a busy emergency department (ED), who was later diagnosed with measles lead to a cascade of events including contact tracing of staff, patients, carers and visitors.

The situation

The 8-month-old child recently returned from overseas. They attended their GP with fever and sore throat and were later referred to the paediatric tertiary referral hospital with fevers, sore throat, conjunctivitis and rash. They were in the waiting room and open bay areas for six hours. When measles was suspected they were transferred to a negative pressure room. Pathology confirmed measles the next day.

The problem

ED had 123 presentations on this busy evening. Due to the open-bay layout and transit of patients, parents, visitors and staff, extensive contact tracing was required. Assessment of measles immune status of staff, patients and all those who accompanied them was required. A taskforce including Public Health Unit, Infectious Diseases Consultants, Infection Control Nurses and hospital management was established to facilitate this resource and time intensive response.

Patients

Australian Immunisation Register records confirmed measles, mumps, rubella (MMR) vaccination for many, excluding them as contacts. Those considered immunocompromised were reviewed. Several with underlying illness or medical treatment required normal human immunoglobulin (NHiG) administration. Further 'at risk' groups included: those too young to have been vaccinated (‹12 months old); those who had not yet received the 12 month scheduled MMR vaccination and those for whom maternal antibodies may have waned. Of this cohort, children aged 9-12 months were advised to obtain the first MMR vaccination immediately, followed by the 2nd MMR vaccine in one month. For those aged ‹6 months, maternal MMR status was assessed (where known). If maternal immunity was confirmed the child was considered to be not at risk for measles infection. In cases where maternal immunity couldn't be confirmed, normal human immunoglobulin (NHiG) was recommended. Maternal immunity would no longer provide protection for babies aged 6-9 months, and as they were too young for MMR vaccination, NHiG was also recommended.

Staff

Contact tracing included those staff rostered to ED and staff who had visited (including cleaners, porters etc). ED staff were easily identified. Visiting staff were more difficult as many could not reliably recall if they were in ED during the period of risk. Hospital-wide communication (SMS, email, briefings) helped identify others who may have attended ED.

Prior to July 2016 Queensland Health only required mandatory vaccination for hepatitis B. There were limited staff MMR immunisation records and many staff were not aware of their measles immune status. Where able, records were obtained. If status was unknown, MMR vaccination was offered. Restricted time frames meant it was not practical to undertake serology to determine immunity.

Family/carers/visitors

Children presenting to ED were often accompanied by more than one person. Contact tracing was more complex when it wasn't a parent who had accompanied the child. In many cases other children had attended ED with the patient, resulting in additional exposures. Some of these required MMR vaccination or NHiG.

What went well?

The Infection Control Nurse was called in on the Saturday as it was beyond the capacity of the after-hours hospital manager to coordinate extensive contact tracing. The response incorporated infectious disease experts, public health, hospital management and infection control. It was coordinated like a disaster management response – actions were planned and communicated at key forums which assisted with collaborative decision making and delineation and allocation of roles and responsibilities.

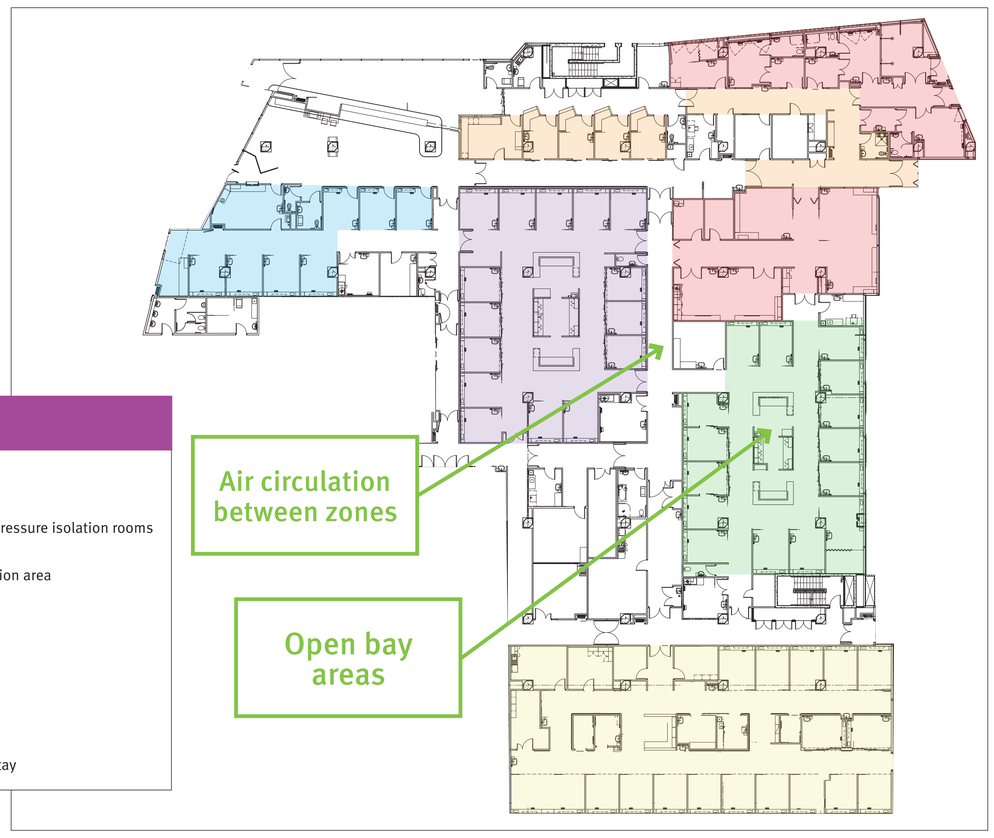
What didn't go so well?

Contact tracing extended beyond the capacity of the infection control team, with limited opportunity to draw skilled staff from other areas, particularly those with expertise to assess measles immune status. Incomplete staff immunisation records made staff assessment more difficult. Extended hours were required with little time to catch up with other infection control responsibilities. Up to 15mL of NHiG was indicated (0.5mL/kg to maximum of 15mL for immunocompromised children). Clinicians had limited experience administering such large volumes of intramuscular injection (IMI) in children. Injection across several anatomical sites was required, with little guidance available on maximum volume IMI for the various age groups. Competing priorities with the provision of clinical services meant it was difficult to accommodate the emergent need for NHiG and MMR vaccination of patients, families and staff. There were logistical problems with accommodating so many additional children for NHiG administration.

Lessons learned, moving forward, conclusion

Review of the contact tracing procedure was undertaken, with further delineation on roles, responsibilities and expectations. Furthermore, a need for development of a NHiG procedure was identified in order to guide ordering, receipt, storage, prescribing and administration of the product including dose, site and technique.

A single measles presentation at a busy children's hospital had a major impact for the infection control team, hospital services and hospital management. This incident resulted in action to improve procedures and processes.



Lady Cilento Children's Hospital

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