



A MEASLES OUTBREAK IN THE GLOBAL VILLAGE

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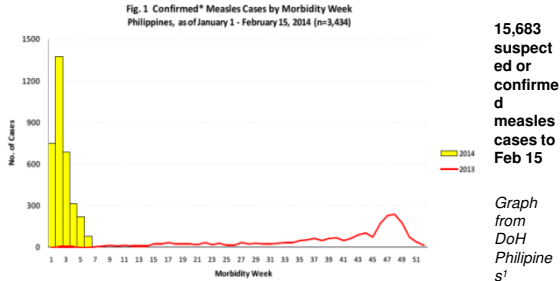


What do these things all have in common?



Typhoon Haiyan (Yolanda)
November 8, 2013

Measles outbreak in the Philippines



Measles cases in Western Australia

- 21 measles cases since 8/11/13 (in 2013 to 23/4 – 3 cases, in 2012, 1)
- 42.9% (n=9) hospitalised, no deaths
- 17 males, 4 females
- 11 acquired from the Philippines, 5 local transmission, remainder from elsewhere

Elsewhere : outbreaks worldwide including the US, Canada, NZ, Singapore and the UK

Why?

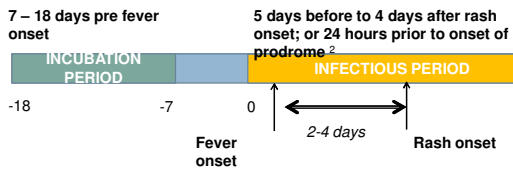
- International travel and migration
- Vaccine refusal
- Gaps in immunity in the population

Where are the gaps in measles immunity?

- Born 1966 or later and not had 2 MMRs and no prior history of measles^{2,3}
 - 1966-early 1990s: may be “fully immunised” but not immune
 - Children < 18 months/ < 4 yrs
 - Vaccine refusal
 - Contraindication to vaccine
- Immunocompromised

Measles refresher

- R_0 17 - highly infectious
- Secondary attack rates > 90%



HCW screening for measles

Why is HCW pre-employment screening important?

- (1) Occ health & safety
- (2) Prevent transmission to patients

Who should be screened?

All staff – categories A, B, C (i.e. all health care staff regardless of clinical contact)⁴



HCW screening for measles (cont)...

How should HCWs be screened?

Proof of immunity – either documented 2 MMRs or positive IgG serology (if birthdate 1966 or later)

Pre-employment MMR vaccination

- All HCWs
- All employees working with children
- Staff of RCFs³
- Others

WA Health policy: cat A and B (indirect pt contact eg ward clerks) staff should have proven measles immunity or 2 x MMR if non immune⁵



Others – pp170-172 10th ed Australian Immunisation Handbook

Current screening and vaccination coverage for HCWs

- Vaccination coverage of HCWs for VPDs remains suboptimal
- Recent study within a Victorian hospital found 8% of HCWs employed were not immune to measles (almost half were non immune to ≥ 1 VPD)⁶
- Cost of MMR screening with serology & vaccination estimated at \$33.25⁶
- Review of screening in NSW in 2003 – routine assessment of measles immunity in only 1/3 of centres⁷

Measles prevention and control measures

5 days before to 4 days after rash onset



Within 72 hours of exposure



Within 7 days of exposure



Management of measles exposure – prophylaxis²

Use of, and type of prophylaxis depends on

- Age
- Time since exposure
- Previous MMR vaccination history
- Pregnancy or immunosuppression

HCWs: prophylaxis with MMR (< 72 hrs) or NHIG (< 7 days). OR isolation to 14 days post rash onset in index case

Management of measles exposure – isolation²

- Index cases must be excluded from work until 4 days after rash onset
- Standard + airborne precautions for hospitalised index cases...ideally negative pressure
- HCWs looking after index case need proof of immunity

Case study 1 : James age 7 years

- Travelled to the Philippines returning mid Feb 2014
- 4 days after return developed temp 40 with runny nose and cough, followed by rash four days after that
- Diagnosis made in tertiary hospital 5 days after fever onset
- Vaccination history: first MMR ? at 9 mths in Philippines, second in Australia age 4 yrs



Contact history

- Household: parents and 3 siblings – all immune (childhood disease in Philippines)
- Day of fever onset: attended school Yr 2 (108 contacts)
- 2/7 after fever onset: attended GP first time (22 contacts)
- 4/7 after fever onset: attended GP 2nd time (30 contacts)
- 5/7 after fever onset: attended pathology lab for blood and urine specs (32 contacts)
- Same day: presented to ED of tertiary hospital and admitted to ward. Not diagnosed with measles until 12 hrs into admission so prior to this was not on airborne precautions. Approx 20 patient contacts (ward and ED) and 30 staff (ward and ED).

Who might need prophylaxis?

- All contacts get written information
- Non immune children in the school will require MMR (if < 72 hrs post exposure)
- Any pregnant contacts will need urgent measles IgG & if not immune, NHIG (if < 7 days post exposure)
- All immunocompromised contacts will need NHIG (if < 7 days post exposure)
- Any children too young to have received 2 x MMR will require either MMR, NHIG, or checking of maternal IgG status, depending on their age & time since exposure

Who might need prophylaxis? – HCWs

- Need to know immune status of all HCWs
- If non immune and no CI offer MMR within 72 hours of exposure
- If 72 hours to < 7 days post exposure offer NHIG
- Exposed, non immune staff who do not receive prophylaxis not to work in direct patient care until 14 days after rash onset of last case

Issues

- Cases often notified too late for MMR, sometimes even for NHIG...also with contacts ++
- Prior documentation of immune/serological status of HCWs (and employees in general) makes a big difference!

Case 2: Jill aged 36 years

- Fever onset early January
- Returned from Bali 6 days prior
- Diagnosis of measles made 6 days after fever onset
- Contact history: shopping centre, workplace 1.5 days, 2 different GP surgeries, 2 different hospital emergency departments
- 14 weeks pregnant
- Works in medical records department of a 3rd hospital



Issues

- Index cases can occur in hospital employees (cat A, B or C!)
- Outbreaks can occur in hospital settings

Case 3: Tim aged 19 years

- Born in the Philippines, first MMR 9 mths overseas, 2nd age 4 yrs in Australia
- Returned from trip to Philippines early Jan 2014
- Nursing student at university – on holidays
- Diagnosis made 8 days after fever onset
- Contact history: 3 GP visits (isolated by GP Immediately on 2 out of 3 occasions), 1 Presentation pathology lab for spec collection, not admitted



Issues

- "I've had all my childhood vaccinations"....is NOT a confirmation of measles immunity
- Childhood immunisations performed overseas
- Implications for infection spread if disease acquired at a different time of the year

Case 4: Henry aged 36 yrs

No recent travel
Unknown vacc history
Measles symptoms developed mid Feb 2014. Diagnosis made 7 days after rash onset

Contacts: GP surgery, 2 admissions to local hospital with hepatitis....after 2nd admission transferred to tertiary centre – no precautions until post infectious period

Contact tracing: > 500 contacts at local hospital, > 100 contacts at tertiary hospital, > 200 staff contacts



Issues

- Potential for large numbers of contacts
- Secondary cases do occur
- Diagnosis is often late – lack of clinician familiarity



Take home messages

- We still see measles – low incidence, high consequence – prevalence may begin to rise again
- Know the measles immune status of your employees !
- Don't assume immunity without documented evidence
- Ensuring immunity of employees is best...often measles cases are diagnosed too late for prophylaxis



References

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- (5). Communicable Disease Control Directorate. Operational directive: Health care worker immunisation policy. Perth: Department of Health, Western Australia; 2012.
- (6). Leung V, Harper S, Slavín M, Thursky K, Worth L. 2014. Are they protected? Immunity to vaccine-preventable diseases in healthcare workers at an Australian hospital. Aust NZ J Public Health; 38:83-6.
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