Subject: Prophylaxis for haemophilus influenzae type B infections

1. PURPOSE

The purpose of this document is to describe the Public Health action to be taken by Health Care Workers (HCWs) and Public Health staff (PHS) for the management of Haemophilus influenzae type b (Hib) cases.

2. BACKGROUND OF DISEASE

Haemophilus influenzae type b (Hib) is a highly contagious bacterium, which is known to cause meningitis, epiglottitis, pneumonia, septic arthritis, cellulitis, pericarditis, empyema and osteomyelitis. Before the introduction of Hib vaccines, this organism was the most frequent cause of life threatening infection in children under five years of age. Although invasive Hib infections are now rare, there is a specific protocol for the prophylactic treatment of close contacts of Hib cases¹.

3. EPIDEMIOLOGY

Worldwide occurrence of Hib is most prevalent amongst children aged 2 months to 2 years². Before the availability of Hib vaccination, at least 500 cases of Hib occurred each year in Australian children under 8 years of age and the annual mortality was around 10-15 deaths². Hib meningitis accounted for approximately 60 per cent of all invasive Hib disease and most cases occurred in children under 18 months of age. Five per cent of Hib meningitis cases were fatal and up to 40 per cent of survivors were left with neurological sequelae (e.g. deafness, intellectual impairment)².

Hib used to be the most common cause of bacterial meningitis in children before the introduction of conjugated Hib vaccines. Since Hib vaccines were included in the routine schedule in 1993, there has been a reduction of >90% in notified cases of Hib disease from 502 in 1992, to an average of 30 cases per year between 1999 to 2002, with approximately 15 cases a year currently reported in Australia. This reduction has been particularly marked in Indigenous children.

4. INCUBATION PERIOD

2-4 days

4.1 Period of communicability: Non-communicable within 24-48hrs of starting effective antibiotic therapy.
4.2 Transmission: Airborne or droplet; direct contact with contaminated nose or throat secretions.

5. DIAGNOSIS AND TREATMENT

Isolation of *Haemophilus influenzae* type b (Hib) organisms from a normally sterile site.


6. NOTIFICATION CRITERIA

Reporting requirements in line with the national case definitions³, is as follows:

Only confirmed cases should be notified.

Confirmed case — requires laboratory definitive evidence only.

Laboratory definitive evidence.

1. Isolation of *Haemophilus influenzae* type b (Hib) from normally sterile site where typing has been confirmed at an approved reference laboratory; or

2. Detection of *Haemophilus influenzae* type b (Hib) antigen in cerebrospinal fluid when other laboratory parameters are consistent with meningitis.

7. REPORTING OF CASES

Confirmed cases are reported to the Communicable Disease Control Directorate (CDCD) in the Perth metropolitan area on 9388 4852 and to the local Public Health Unit (PHU) in regional areas to enable an early response. Automatic electronic Laboratory notification of disease will also occur.

8. PUBLIC HEALTH MANAGEMENT / PREVENTATIVE MEASURES

HCWs working within an acute care setting should note that the household/close contacts of a confirmed Hib case may need prophylaxis (as per Immunisation Guidelines), which can be provided by the hospital or by the Public Health Physician (PHP).

9. PUBLIC HEALTH ROLE

On receipt of a notification, the PHU staff will contact the reporting medical officer, to ascertain the history of onset of disease and testing undertaken, to support confirmation of disease and the need for contact tracing. The Medical Officer should be advised of the PHUs role in investigating the source of infection, identification and management of contacts. History taking should include identifying:

- exposure period;
- infectious period;
- immediate household;
- any at risk groups. (e.g. un-immunised children in the home or at day care); and
- those contacts that need prophylaxis as per recommendation and/or information sheet.
9.1 Surveillance

Incomplete vaccination of household, child care, or nursery contacts should be carefully observed for symptoms of Hib infection and immediately referred for medical evaluation if they develop a febrile illness.

10. Chemoprophylaxis for immediate contacts

As the incidence of invasive Hib is now very low, Rifampicin chemoprophylaxis is no longer routinely indicated, unless the household contains either:

- an infant under 7 months of age (regardless of immunisation status), or
- a child aged 7 months to 5 years who is inadequately vaccinated according to the Hib schedule.

In both cases, all persons in the household should receive Rifampicin prophylaxis following a case of invasive Hib disease in any household member, with the exception of a pregnant woman for whom ceftriaxone may be used. The recommended dose of Rifampicin is 20mg/kg as a single daily dose (maximum daily dose 600 mg) for 4 days. Neonates (<1 month of age) should receive 10mg/kg daily for 4 days².

If the index case attends a child care facility for more than 18 hours a week, Rifampicin should be given to all children and staff who were in the same room group in the 7 days preceding the onset of illness, provided at least one of those close contacts is a child under 24 months of age who is inadequately vaccinated².

The intermingling of children at the beginning and end of the day is usually of short duration and not enough to justify extending the use of Rifampicin².

Rifampicin is of no value when more than 30 days after initial contact with the case has passed².

10.1 Screening

Children with:

- confirmed invasive Haemophilus influenzae non-type b (Hib) infection; or
- recurrent invasive Hib disease;

after receiving 2 or more doses of PRP-OMP Hib vaccine (Pedvax Hib) or 3 or more doses of PRP-T-Hib vaccine (Infanrix Hexa), should be screened for immune deficiency.

11. ROUTINE Hib VACCINATION SCHEDULE

**Indigenous children** — 3 doses of PRP-OMP Hib vaccine (PedvaxHib) given at 2 months, 4 months followed by a booster dose at 12 months².

**Non-Indigenous children** — 4 doses of PRP-T-Hib vaccine (Infanrix Hexa) given at 2 months, 4 months, 6 months, followed by a booster dose of PedvaxHib at 12 months².

If any dose of PRP-T-Hib vaccine (Infanrix Hexa) is administered, a total of 4 doses of Hib containing vaccine should be given².
For catch-up Hib vaccination schedules, see the Australian Immunisation Handbook.

**METROPOLITAN AND REGIONAL PUBLIC HEALTH UNITS**

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<tr>
<th>Public Health Units</th>
<th>Contact Numbers</th>
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**REFERENCES**


**NOTE:** The new edition, 9th of the NHMRC Australian Immunisation Handbook will be released shortly and will then be the first reference point for immunisation information.

Dr Neale Fong
DIRECTOR GENERAL