

# Immunisation for health care workers

Sixth edition: revised October 2007

Endorsed by the Victorian Advisory Committee on Infection Control

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Health care workers may be exposed to, and transmit, vaccine-preventable diseases such as influenza, measles, rubella and pertussis. Maintaining immunity in the health care worker population helps prevent transmission of vaccine-preventable diseases to and from health care workers and patients.

The likelihood of contact with patients and/or blood or body substances determines vaccination recommendations. Health care workers should receive the vaccines they require before or within the first few weeks of employment, with the exception of influenza vaccine, which should be administered annually between March and May. Work activities, rather than job title, should be considered on an individual basis to ensure an appropriate level of protection is afforded to each health care worker.

Medical facilities are encouraged to formulate a comprehensive immunisation policy for all health care workers. Each worker should be individually assessed for specific vaccines, taking possible contraindications into account.

Work practices should include the use of standard and additional precautions to minimise exposure to blood and body fluids. If exposure does occur, guidelines for post exposure prophylaxis should be followed. Ensure that post exposure guidelines are easily accessible 24 hours a day.

## Vaccination program

### Database

Health services should have a register that:

- contains details of staff vaccine preventable disease history, vaccination, antibody and test (for example, TB status) results, record of vaccines consented/refused, batch number and brand name of vaccine
- is secure and accessible by authorised personnel when needed (24 hours/seven days a week)
- is updated when new events (vaccination, test, disease) occur
- is maintained by a designated staff member.

### Who vaccinates?

A medical practitioner should take responsibility for staff immunisation, if possible.

According to regulation 5(3) *Drugs, Poisons and Controlled Substances Regulations 2006*, a **Division 1 registered nurse** is able to provide immunisation services when:

- a) The **Division 1 registered nurse is an accredited nurse immuniser**. This nurse is able to both possess and administer the vaccine independently of the medical practitioner. A medical practitioner should be available to provide advice to the nurse on the use of the vaccine.
- b) The nurse is a **Division 1 registered nurse** who is **not** an accredited nurse immuniser. This nurse must obtain verbal or written authorisation from the medical practitioner to access and administer the vaccine for each patient. There should be a written record of this authorisation, including patient consent, for each patient vaccinated by the nurse. In case of an anaphylactic reaction, the medical practitioner should be physically available.

Note that:

- 'Off-site' immunisation can only be performed by an accredited nurse immuniser **or** by a Division 1 registered nurse (non-accredited nurse immuniser) who has the medical practitioner available on-site for consulting the patient.
- Nurses are at all times accountable and responsible for their actions. They must be aware of the limits of their knowledge and competence and work within these limits.

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## Funding

The health service provides screening, testing and database maintenance.

The Department of Human Services provides free influenza vaccine and PPD - Purified Protein Derivative for Mantoux testing. Stock is ordered through the department's Immunisation Program, telephone 1300 882 008.

## Informed consent

Informed consent, preferably in writing, should be obtained before screening and vaccination. If recommended vaccines are refused, obtain signed documentation of refusal.

## Health care worker personal immunisation record

Each health care worker should be given a personal immunisation record that documents vaccinations given and test results. These records, along with other program resources, are available from the department's Immunisation Program website at: <http://www.health.vic.gov.au/immunisation/> or telephone 1300 882 008.

## Risk categorisation

The following categorisation of health care workers may be used to guide vaccine protocols.

### Category A – Direct contact with blood or body substances

This includes all persons who have physical contact with, or potential exposure to blood or body substances. Examples include dentists, medical practitioners, nurses, allied health practitioners, health care students, emergency personnel (fire, ambulance and volunteer first aid workers), biomedical and engineering staff, mortuary technicians, central sterile supply staff, and staff responsible for cleaning, decontamination and disposal of contaminated materials.

### Category B – Indirect contact with blood and body substances

This includes workers in patient areas who rarely have direct contact with blood or body substances. These employees may be exposed to infections spread by droplets, such as measles and rubella, but are unlikely to be at risk from blood borne diseases. Examples include catering staff and ward clerks.

### Category C – Laboratory staff

Laboratories pose special risks because of the equipment used (such as centrifuges) and the possibility of exposure to high concentrations of micro-organisms generated by culture procedures. An additional risk to laboratory staff occurs in handling human blood and tissues.

Strategies for controlling infectious hazards in laboratories to create a safe working environment are covered in laboratory manuals and in AS/NZS2243.3:2002 *Safety in laboratories – Microbiological aspects and containment facilities*. An example of a detailed protocol is the *Code of practice in clinical laboratories*, Health Commission of New South Wales.

### Category D – Minimal patient contact

In many health care establishments, clerical staff, gardening staff and other occupational groups have no greater exposure to infectious diseases than the general public. These employees do not need to be included in vaccination programs or other programs aimed at protecting category A, B and C staff.

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## Vaccine preventable diseases

### Diphtheria/Tetanus

- Most health care workers will have received a primary course of diphtheria/tetanus vaccine however, if in doubt, offer three doses (ADT<sup>®</sup>) at one-monthly intervals.
- Recommend a further dose on the 50<sup>th</sup> birthday. A pertussis-containing vaccine (dTpa) may be used instead of ADT<sup>®</sup> at 50 years of age.

### Pertussis

- A single booster dose (given as dTpa vaccine) is recommended for health care workers in paediatric settings, particularly maternity and neonatal settings.

### Poliomyelitis

- Most health care workers will have received a primary course of polio vaccine, however, if in doubt, offer three doses of IPV vaccine at one-monthly intervals.
- Offer a booster dose at 10-yearly intervals to staff in possible contact with poliomyelitis cases or their pathology specimens.

### Measles/Mumps/Rubella

- Document at least two doses of a measles-containing vaccine for all staff born since 1966. Those born prior to 1966 are considered immune.
- If in doubt, offer two doses of MMR vaccine a minimum of one month apart.

### Varicella (chickenpox)

- Seek and document a history of chickenpox from all health care workers. A history of chickenpox is strongly predictive of prior infection (>90 per cent). Consider serological screening of people with no definite prior history of chickenpox (approximately 50 per cent of this group will be susceptible). Document results of testing.
- All non-immune direct care staff (see above for definition) should be vaccinated with varicella vaccine. Two doses of vaccine at least one month apart are required for adults.
- A small percentage of people vaccinated (<5 per cent) will develop a rash after the vaccine. These people, and only these, should be reassigned to duties that require no patient contact or placed on sick leave for the duration of the rash.

### Hepatitis B

- Offer a course of three doses of vaccine to all health care workers; emphasise that it is essential for all staff in categories A and C.
- Perform post-vaccination serological testing one month after the third dose of vaccine. If adequate anti-HBs antibodies are not reached following the third dose, the possibility of HBsAg carriage should be investigated. Those who are HBsAg negative and do not respond should be offered either a further double dose or a further three doses at monthly intervals of hepatitis B vaccine. Further testing should be performed four weeks later. Persistent non-responders should be informed about the need for HBIg within 72 hours of parenteral exposure to hepatitis B.
- Booster doses of hepatitis B vaccine are no longer recommended for people who have an adequate antibody response to the primary course, as there is good evidence that a primary course provides long lasting protection.

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## Hepatitis A

- Staff at higher risk of occupational exposure to hepatitis A includes nursing staff and other health care workers in contact with patients from Indigenous communities, in paediatric wards, infectious disease wards, emergency rooms and intensive care units or who frequently attend patients in rural and remote Indigenous communities.

## Influenza

- Offer annual influenza vaccine to all staff in direct care of patients.

## Meningococcal disease

- Laboratory personnel who frequently handle *N. meningitidis* should receive a single dose of meningococcal C conjugate vaccine, and should also receive the quadrivalent meningococcal polysaccharide vaccine.

## Typhoid

- Laboratory personnel who frequently handle this infectious agent on a routine basis.

## Yellow fever

- Laboratory personnel who frequently handle this infectious agent on a routine basis.

## Japanese encephalitis

- Laboratory personnel who frequently handle this infectious agent on a routine basis.

## Plague

- Laboratory personnel who frequently handle this infectious agent on a routine basis.

## Tuberculosis

- *Management, prevention and control of tuberculosis: guidelines for health care providers 2002–2005* (Infectious Diseases Unit, Department of Human Services) provides detailed guidance to health care institutions for establishing or revising their program for preventing tuberculosis in health care workers.
- Health care institutions must classify both the health facility and individual workers according to their occupational risk of tuberculosis, provide a TB screening program and post exposure follow-up protocol, and offer BCG vaccination only in line with the recommendations of the guidelines.
  1. **High risk** workers include all staff working in respiratory clinics and laboratories and specific tuberculosis treatment areas; staff working in intensive care, emergency departments, and bronchoscopy theatres; all those who regularly work with TB or HIV positive patients; laboratory staff exposed to potential tuberculous material; mortuary staff and all immunocompromised health care workers.
  2. **Medium risk** workers include other medical and nursing staff, physiotherapists, radiographers, paramedical and ambulance staff and students involved in direct patient care, non-clinical staff in regular close contact with patients and community nurses working with at-risk groups.
  3. **Low risk** staff are those not routinely exposed to patients or their clinical specimens, for example, kitchen staff, administration and clerical staff.

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- All medical, nursing, general ward, pathology, radiology, dental, mortuary and paramedical hospital staff should have their TB status determined pre-placement, unless they have documentation of a positive test, adequate treatment for disease or infection or a negative test within the previous three months.
- The frequency of periodic TB screening depends on the risk categories of the facility and the worker. Screen negative health care workers in high risk settings annually. Negative workers in medium risk settings require screening every two years unless the risk of infection is shown to be less than 1 per cent per annum. Health care workers in low risk settings need not be routinely screened during employment.
- All health care workers should have an exit test of TB status on completion of employment at each health care institution.
- BCG vaccination is no longer routinely recommended for Victorian health care workers, however health care facilities should consider offering BCG to health care workers and voluntary workers who are TB negative, where the risk of repeated exposure to infectious TB is high and not controlled despite appropriate infection control procedures. Use of BCG vaccination does not preclude periodic TB surveillance. Do not give BCG to those who are HIV infected or immunosuppressed, or who are pregnant or likely to be pregnant.

TB status in health care workers has traditionally been determined by administration of a Tuberculin (Mantoux) Skin Test (TST). The TST is known to have a number of limitations, including lack of sensitivity in people who have previously been vaccinated with BCG. Newer generation blood tests for TB infection measure levels of interferon-gamma that is released from previously sensitised lymphocytes when exposed to highly specific TB antigens. These tests are not confounded by BCG vaccination or non-tuberculous mycobacteria. Currently the interferon-gamma assays are not endorsed by the National TB Advisory Committee and Communicable Diseases Network of Australia (CDNA) for use within TB program activities in Australia. However, further studies and evaluation are planned or in progress and it is anticipated that interferon- $\gamma$  assay tests will be increasingly used as an alternative to TST in settings such as health care worker surveillance.

## References

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