

# 04

## Immunisation and Health Information for Health Care Workers and Others in At Risk Occupations

### Introduction

Workers in a variety of occupations may be exposed to infectious agents during their employment. In the Irish workforce, the largest at risk group are Health Care Workers (HCWs). Other groups at significant risk include security & emergency services workers.

A risk assessment should be performed to establish if vaccinations are required for employees in a particular work setting. This is required under the Safety, Health & Welfare at Work Act (Biological Agents Regulations). It should ideally occur before commencing employment or work placement. A decision to vaccinate a worker should be based on the activities they perform rather than their job title.

Persons who travel abroad in the course of their work are advised to have a travel health risk assessment by a competent health professional at least 6 weeks prior to the intended travel date. Employers should facilitate access to such professional advice, at least 6 weeks prior to the intended travel date.

In relation to HCWs, immunisation should be regarded as one part of good infection control practices, which include hand washing and universal precautions when dealing with body fluids. Immunisation is an essential component in preventing transmission of infections.

### Group 1: Health Care Workers (HCW)

This refers to all who have direct patient contact, both clinical and non-clinical staff. It applies to those who have roles in which:

- work requires face to face contact with patients, or
- normal work location is in a clinical area such as a ward, emergency department or outpatient clinic, or
- work frequently requires them to attend clinical areas.

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Such staff include:

- Medical, Nursing, and Allied Health Professionals
- Medical, Nursing and Allied Health Students
- Dentists, Dental Hygienists and Dental Assistants
- Hospital Porters and Cleaners
- Ambulance Personnel
- Other At Risk Health care Personnel and Volunteers

### **BCG**

At present no licenced BCG vaccine is available in Ireland. Advice will be provided when adequate supplies are available.

### **Hepatitis A**

Following a risk assessment, Hepatitis A vaccine is recommended for those who handle faeces as a diagnostic sample.

### **Hepatitis B**

All HCW, both clinical and non-clinical, who have direct patient contact should be immune to Hepatitis B.

Acceptable levels of immunity are Anti HBs titre >100mIU/ml.

If a low response (10-99mIU/mL) is confirmed by 2 different assays, administer a booster dose. There is no need to retest the anti HBs level.

If a HCW has not been vaccinated, a course of Hepatitis B vaccination should be given. Anti-HBs levels must be checked two months after the final dose.

If a HCW at high risk has been fully vaccinated against Hepatitis B and their response is unknown, their anti HBs should be measured. If anti HBs titres are below recommended levels, a booster dose of Hepatitis B vaccine should be given and anti HBs titre checked 2 months later. If there is no increase in the anti HBs titre, refer to Chapter 9 for further advice.

### **Influenza**

All HCWs must be offered seasonal influenza vaccination annually.

### **Measles, mumps and rubella**

All HCWs, both clinical and non-clinical, who have direct patient contact should be immune to measles, mumps and rubella. This applies to roles in which:

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- work requires face to face contact with patients, or
- normal work location is in a clinical area such as a ward, emergency department or outpatient clinic, or
- work frequently requires them to attend clinical areas.

*Presumptive evidence of immunity to **measles** is:*

- written documentation of vaccination with 2 doses of MMR vaccine at least 1 month apart

or

- serological evidence of prior measles exposure (i.e. detectable measles-specific IgG in blood) from an Irish National Accreditation Board (INAB) accredited laboratory.

*Presumptive evidence of immunity to **mumps** is:*

- written documentation of vaccination with two doses of MMR vaccine at least 1 month apart.

As the clinical interpretation of mumps serology post-vaccine can be challenging, detectable mumps IgG at a single time-point is not considered sufficient evidence for immunity. Administration of two doses of MMR vaccine is preferred to repeat serological testing.

*Presumptive evidence of immunity to **rubella** is:*

- written documentation of vaccination with one dose of live rubella or MMR vaccine

or

- laboratory evidence of immunity (serum rubella IgG >10 IU/ml); equivocal results should be considered negative.

HCWs without satisfactory evidence of protection against measles or mumps require 2 doses of MMR vaccine at least 28 days apart. Those without satisfactory evidence of protection against rubella require 1 dose of MMR vaccine.

### **Pertussis**

A booster dose of Tdap is recommended for HCWs who are in contact with infants, pregnant women or the immunocompromised. Follow up booster injections are as recommended in Chapter 15.

### **Varicella**

All HCWs who have direct patient care both clinical and non-clinical should be immune.

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Acceptable evidence of immunity is:

- documented evidence of two doses of varicella vaccine given at least 1 month apart
- or
- serological evidence of immunity (positive varicella IgG titre)
- or
- validated clinical history of varicella infection

Routine post vaccination serology is not recommended. However, in a very high risk area such as haematology, oncology and transplantation, there may be a role for post vaccination serology to ensure sero-conversion (the non-response rate in adults is in the region of 10 – 25%). Staff found to be non-immune should be offered a third varicella vaccine and retested. If they remain negative, and are exposed to a varicella infected person, a reasonable course of action is to place them on non-clinical duties from Days 8-21 following exposure.

### Group 2: Prison Workers

This includes Prison Officers and Prison Administration and Support Officers.

#### BCG

At present no licenced BCG vaccine is available in Ireland. Advice will be provided when adequate supplies are available.

#### Hepatitis B

All prison workers should be strongly encouraged to receive hepatitis B vaccination if not previously vaccinated (see Chapter 9 for immunisation schedule). Either a rapid (0, 1, 2 & 12 months) or very rapid (0, 7, 21 days and 12 months) schedule should be used. Anti-HBs levels should be checked 2 months after the final dose of vaccine (see Chapter 9 for updated advice on the definition and management of low and non-responders).

### Group 3: Security & Emergency Services

- Members of Security and Rescue Services
- Members of An Garda Síochána
- Members of the Fire Brigade
- Members of the Defence Forces
- Employees of Security Companies
- Other workers potentially exposed to 'Blood To Blood' injuries.

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### Hepatitis B

All workers in this category should be offered hepatitis B vaccine if not previously vaccinated. Anti-HBs levels should be checked 2 months after the final dose of vaccine (see Chapter 9 for the definition and management of low and non-responders).

### Group 4: Laboratory & Research Workers

This includes scientists dealing with human body fluids, e.g.

- Medical laboratory technicians
- Research scientists.

### BCG

At present no licenced BCG vaccine is available in Ireland. Advice will be provided when adequate supplies are available.

### Diphtheria

Workers in this category who handle material that may contain pathogenic corynebacteria require a diphtheria containing booster (Td) every 10 years. This includes most laboratory staff (see Chapter 6 for immunisation schedule).

### Hepatitis A

All workers in this category who handle faeces as a diagnostic sample should be offered hepatitis A vaccine (see Chapter 8 for schedule).

### Hepatitis B

All workers in this category should be offered hepatitis B vaccination if not previously vaccinated. Anti-HBs levels should be checked 2 months after the final dose of vaccine (see Chapter 9 for updated advice on the definition and management of low and non-responders).

### Meningococcus

Laboratory personnel potentially exposed to *N. meningitides* should be given one dose of MenACWY vaccine. Booster doses of MenACWY vaccine should be given at 5 year intervals for those who remain at ongoing risk of exposure.

Two doses of MenB vaccine 2 months apart are also recommended. The need for boosters has not been determined.

### Polio

Workers in this category who handle faeces as a diagnostic sample should show evidence of polio vaccination and may need to be offered immunisation (see Chapter 17 for immunisation schedule).

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### Other vaccine-preventable micro-organisms

Medical laboratory staff working in higher risk settings (e.g. reference laboratories or infectious disease units or with other clinical contact) or those conducting research into specific organisms should be considered for immunisation against cholera, influenza, Japanese encephalitis, rabies, typhoid, and varicella.

### Group 5: Veterinary & Animal Workers

This group includes persons who work with animals and have exposure to animal tissues, e.g. veterinary staff, abattoir workers, zoological workers, dog wardens, veterinary inspectors, agricultural officers and poultry workers.

#### BCG

At present no licenced BCG vaccine is available in Ireland. Advice will be provided when adequate supplies are available.

#### Hepatitis A

This is recommended for susceptible staff working with non-human primates susceptible to hepatitis A infection.

#### Influenza

Agricultural workers who have close, regular contact with pigs, poultry or water fowl should be offered seasonal influenza vaccination annually. This is to reduce the risk of co-infection with avian influenza virus.

#### Rabies

This may be recommended to those at increased risk (see Chapter 18).

#### Tetanus

Tetanus containing vaccine (Td or Tdap) is recommended every 10 years for to those at increased and ongoing risk of being in contact with tetanus spores. Tetanus spores are present in the soil, and in the intestine and faeces of cattle, sheep, horses, chicken, dogs, cats, rats, guinea pigs, and chickens (see Chapter 21).

### Group 6: Other Occupational Groups

#### Hepatitis A

Workers in contact with faecal material should be checked for hepatitis A immunity. Those not immune to hepatitis A should be offered hepatitis A vaccination.

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Such workers include:

- sewage & water treatment workers
- crèche workers
- selected aircraft maintenance workers
- staff of institutions for persons with learning difficulties should be offered Hepatitis A and B vaccination if not previously vaccinated.

### **Pneumococcal**

- Welders: Pneumococcal polysaccharide vaccine (PPV23) should be offered to welders and other workers exposed to metal fumes as there is a strong association between welding and the development of invasive pneumococcal disease (see Chapter 16).

### **Occupational Body Fluid Exposure**

Occupational blood and body fluid exposures (e.g. through needle stick or sharps injuries, bites, breaches of skin and mucosal exposure) may occur in the health care sector. For guidance refer to Chapter 9 and the Emergency Management of Injuries (HPSC, Guidelines for the Emergency Management of Injuries. [www.emitoolkit.ie](http://www.emitoolkit.ie)).

### **Bibliography**

Behrman A et al (2013). Varicella immunity in vaccinated healthcare workers. *Journal of Clinical Virology* 57 (2013) 109– 114