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Occupational Health and Management of Biological Risks

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Key aspects

- Risk assessment for biological risks and proactive measures to reduce work risk
- the management of needlestick injuries with pathogens of other biologicals
- the management of dangerous pathogens – containment facility health surveillance
- individual risk factors such as pregnancy risk assessments and immuno-compromised staff and the importance of detailing measures within the risk assessment

Risk assessment

- What makes a good risk assessment?

Risk assessment

- Comprehensive assessment of risks of exposure and the nature of the pathogen or potential pathogens
- Considers how staff can be potentially exposed to infection material
- Mode of transmission, e.g. via blood, airborne, faeco-oral, etc.
- Considers measures that can reduce risk e.g. personal protective equipment, vaccination, etc
- Provides information on what to do in the event of an accidental exposures
- Details any particular risks due to nature of the work or flags if individual worker factors are relevant

National Guidance on managing infection risks

- Infection at work: controlling the risks Advisory Committee on Dangerous Pathogens 2003
- Blood borne viruses in the workplace; Guidance for employers and employees HSE. Infection at work: Controlling the risks. 2006
- Biological agents: Managing the risks in laboratories and healthcare premises HSE Advisory Committee on Dangerous Pathogens 2005
- The Green Book - Chapter 12 - Immunisation of healthcare and laboratory staff

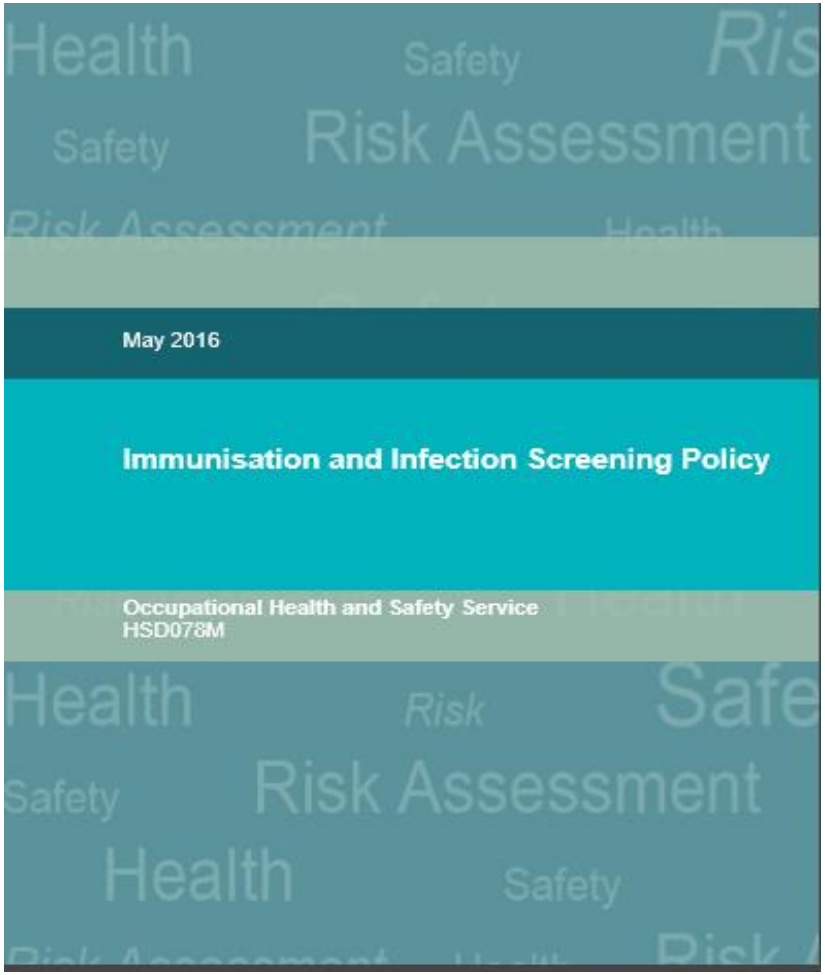
Occupational Health provision of further measures that can reduce risk

- Vaccination
- Accidental exposure management and post exposure prophylaxis were appropriate
- Worker assessments for specific risks
  - due to nature of the work/organism
  - individual worker factors, e.g. pregnancy, immunosuppression, non-responder to vaccine, etc.

Immunisation

- Immunisations are available via Occupational health

- Detailed in Immunisation and Infection Screening policy



Immunisation and COSHH

- COSHH requires that if the risk assessment shows there to be a risk of exposure to biological agents for which effective vaccines exist, then these should be offered if the employee is not already immune.
- The pros and cons of immunisation/non-immunisation should be explained when making the offer.
- Health and Safety at Work Act requires that employees are not charged for protective measures such as immunisation.

Work where vaccination may be required

- Culturing or handling of human pathogens or purified biological toxins
- Handling or processing of human blood, serum or tissue specimens
- Contact with patients or work in clinical areas of hospitals

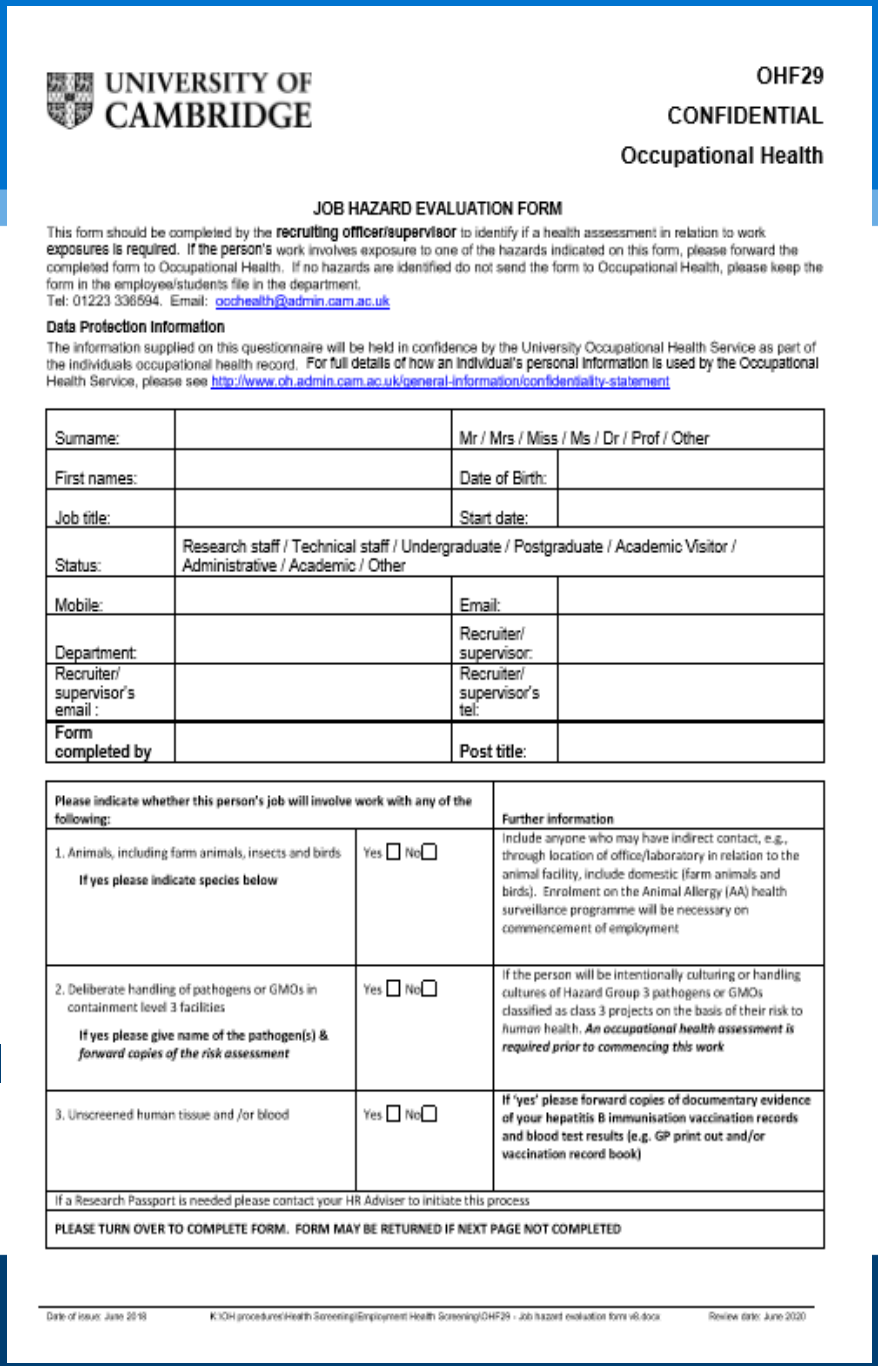
- Travel -
  - Fieldwork outside the UK
  - Travel other than to Northern Europe, North America or Australasia

Vaccination

- Hepatitis B
- Diphtheria
- Rabies
- MMR – Measles/Mumps/Rubella
- Varicella (Chicken pox)
- TB (BCG)

Job Hazard Evaluaion form

- Triggers vaccination/OH
- Main vaccination provided for lab workers is hepatitis B vaccine for individuals working with unscreened blood,
- Other vaccines may be indicated, e.g. diphtheria, rabies
- Additional assessment may be required for work with Hazard Group (HG) 3 pathogens in containment level 3 facilities



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Occupational Health

JOB HAZARD EVALUATION FORM

This form should be completed by the **recruiting officer/supervisor** to identify if a health assessment in relation to work exposures is required. If the person's work involves exposure to one of the hazards indicated on this form, please forward the completed form to Occupational Health. If no hazards are identified do not send the form to Occupational Health, please keep the form in the employee/students file in the department.
Tel: 01223 336694. Email: ochealth@admin.cam.ac.uk

Data Protection Information

The information supplied on this questionnaire will be held in confidence by the University Occupational Health Service as part of the individuals occupational health record. For full details of how an individual's personal information is used by the Occupational Health Service, please see http://www.oh.admin.cam.ac.uk/general-information/confidentiality-statement

Surname:		Mr / Mrs / Miss / Ms / Dr / Prof / Other	
First names:		Date of Birth:	
Job title:		Start date:	
Status:	Research staff / Technical staff / Undergraduate / Postgraduate / Academic Visitor / Administrative / Academic / Other		
Mobile:		Email:	
Department:		Recruiter/ supervisor:	
Recruiter/ supervisor's email :		Recruiter/ supervisor's tel:	
Form completed by		**Post title:**	

Please indicate whether this person's job will involve work with any of the following:		**Further information**
1. Animals, including farm animals, insects and birds **If yes please indicate species below**	Yes ☐ No ☐	Include anyone who may have indirect contact, e.g., through location of office/laboratory in relation to the animal facility, include domestic (farm animals and birds). Enrolment on the Animal Allergy (AA) health surveillance programme will be necessary on commencement of employment
2. Deliberate handling of pathogens or GMOs in containment level 3 facilities **If yes please give name of the pathogen(s) & *forward copies of the risk assessment***	Yes ☐ No ☐	If the person will be intentionally culturing or handling cultures of Hazard Group 3 pathogens or GMOs classified as class 3 projects on the basis of their risk to human health. ***An occupational health assessment is required prior to commencing this work***
3. Unscreened human tissue and /or blood	Yes ☐ No ☐	**If 'yes' please forward copies of documentary evidence of your hepatitis B immunisation vaccination records and blood test results (e.g. GP print out and/or vaccination record book)**
If a Research Passport is needed please contact your HR Adviser to initiate this process		
PLEASE TURN OVER TO COMPLETE FORM. FORM MAY BE RETURNED IF NEXT PAGE NOT COMPLETED		

Date of issue: June 2018 K:\OH procedures\Health Screening\Employment Health Screening\OHF29 - Job hazard evaluation form v6.docx Review date: June 2020

Biological Hazard Groups definition

- **Hazard Group 1**: unlikely to cause human disease;
- **Hazard Group 2**: can cause human disease and may be hazard to employees; it is unlikely to spread to the community and there is usually effective prophylaxis or treatment available;
- **Hazard Group 3**: can cause severe human disease and may be a serious hazard to employees; it may spread to the community, but there is usually effective prophylaxis or treatment available;
- **Hazard Group 4**: causes severe human disease and is a serious hazard to employees; it is likely to spread to the community and there is usually no effective prophylaxis or treatment available.

Source: HSE - Biological Agents: Managing the risks in laboratories and healthcare premises

Specific Health Assessments - biological agents

- Initial health assessment for workers with HG 3 organisms.
- Workers due to work with HG 3 organisms are required to attend occupational health for a face to face assessment
- Questionnaire assessment and review
- Considers worker factors, e.g. immunosuppression, skin problems, any health conditions which may impact on safety in working in the laboratory, etc.
- Considers immunisation/screening
- The risk assessment of work important as part of this assessment

Hazard Group 3 pathogen work

- Skin Check
- Immunisation review/Serum Storage/Serology if appropriate
- Described as health surveillance but more of a health assessment process
- Opportunity to provide advice - No ongoing follow up

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HEALTH ASSESSMENT:
HAZARD GROUP 3 PATHOGENS / CLASS 3 GENETICALLY MODIFIED ORGANISMS

All staff and students who will be involved in laboratory work with hazard group 3 pathogens, or class 3 genetically modified organisms must complete health screening before beginning this work.

The aim is to identify anyone who may be at particular risk from infection, if exposed, in order to advise on appropriate precautions to help mitigate the risk.

If an Occupational Health Adviser / Physician considers specific precautions or support measures are required to ensure your safety we will advise your manager of these, after discussion with you. Information on any underlying health issue will not be divulged unless you request this.

Whilst you continue in such work you must inform Occupational Health if:
- you are involved in any incident where you may be accidently exposed to the pathogen(s) you work with.
- you develop any health symptoms that might be caused by exposure to the pathogen(s) you work with.
- you develop any health conditions which may increase your risk of infection if exposed.
- you change your address or name.

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1. Personal details

Surname: _____ Mr / Mrs / Miss / Ms / Dr / Prof / Other

First name(s): _____ Date of birth: _____

Job title: _____ Department: _____

Telephone: _____ email: _____

GP name and address:

Exposure incidents reported to OH

- Needlestick injury/mucous membrane blood exposure
- Commonest exposure reported to OH - exposure to blood - need to consider the risks of hepatitis B, hepatitis C and HIV
- Could be inoculation with other agent – key risks assessment documents what to do in event of an exposure so appropriate treatment and advice is provided

Information for staff

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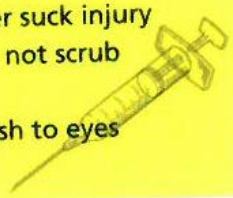
OCCUPATIONAL HEALTH SERVICE

Sharps/Splash Injury – be safe

If you are injured by a used or dirty sharp or splash of blood or body fluid to eyes or mouth **immediately:**

- make the wound bleed under water - never suck injury
- wash the wound with soap and water - do not scrub
- dry and apply a waterproof dressing
- thoroughly wash away any body fluid splash to eyes or mouth



Reporting:

During office hours report the incident to:

- your supervisor and Departmental Safety Officer (DSO) who will assist with an initial risk assessment to ascertain the level of risk, and
- the University Occupational Health Service (OHS) tel: 01223 336594, for further assessment, follow up advice and treatment.

Out of hours:

- report the incident to your supervisor and DSO immediately or at the first available opportunity
- attend Addenbrooke's Hospital Emergency Department for assessment and advice
- contact the OHS on the next working day for further assessment, follow up advice and treatment.

Always complete a University accident/incident form.

Immediate action following a potential exposure incident

- encourage the wound to bleed, but do not scrub the wound: this may increase tissue damage
- wash any wound or contaminated skin with soap and clean water. Cover with a sterile dressing
- if blood is splashed into the eye or mouth, stop and wash out immediately with tap water or saline
- report the incident to the person on charge – supervisor, ward manager/duty doctor [in hospital setting]. Don't delay, or fail to report the accident even if you were not following correct procedures.
- Attend OH or, if closed, follow the hospitals out-of-hours procedure for sharps accidents.

An exposure is significant where:

- exposure is caused by a puncture wound, cut, scratch or by a splash into your eye, mouth or onto broken skin.
- the material involved is blood, serum, cerebral spinal fluid, genital secretions or other body fluids if visibly blood-stained or fresh tissue samples
- The risk of disease transmission is increased if the injury is deep, or caused by a hollow bore needle (especially if used for venous or arterial puncture) or there is visible blood on the device
- A splash of blood or body fluid onto visibly intact skin is NOT considered a significant risk unless extensive or prolonged.

Reducing risks of sharps

- The most common exposure risk comes from careless handling of hypodermic needles, intravenous cannulae, surgical and laboratory sharps.
- Broken skin on hands should be covered with a waterproof plaster.
- Disposable gloves should be worn when working with blood: they may not stop a penetrating injury, but they do reduce the volume of blood inoculated
- Where possible use safety- needles if taking blood
- Never re-sheath needles & dispose of used sharps into a proper sharps bin immediately after use.
- Do not carry used sharps dispose immediately in sharps bin positioned next to the donor.
- Ensure adequate supervision to ensure confidence and competence.

Individual worker risk factors

- Pregnant workers
- Immunosuppressed
- Non-responders to vaccine
- Staff who decline vaccine

Pregnant workers

- Pregnancy risk assessment covers biological agents
- To consider risks to the unborn child from work with biologicals as part of this process and explore adjusted duties if required

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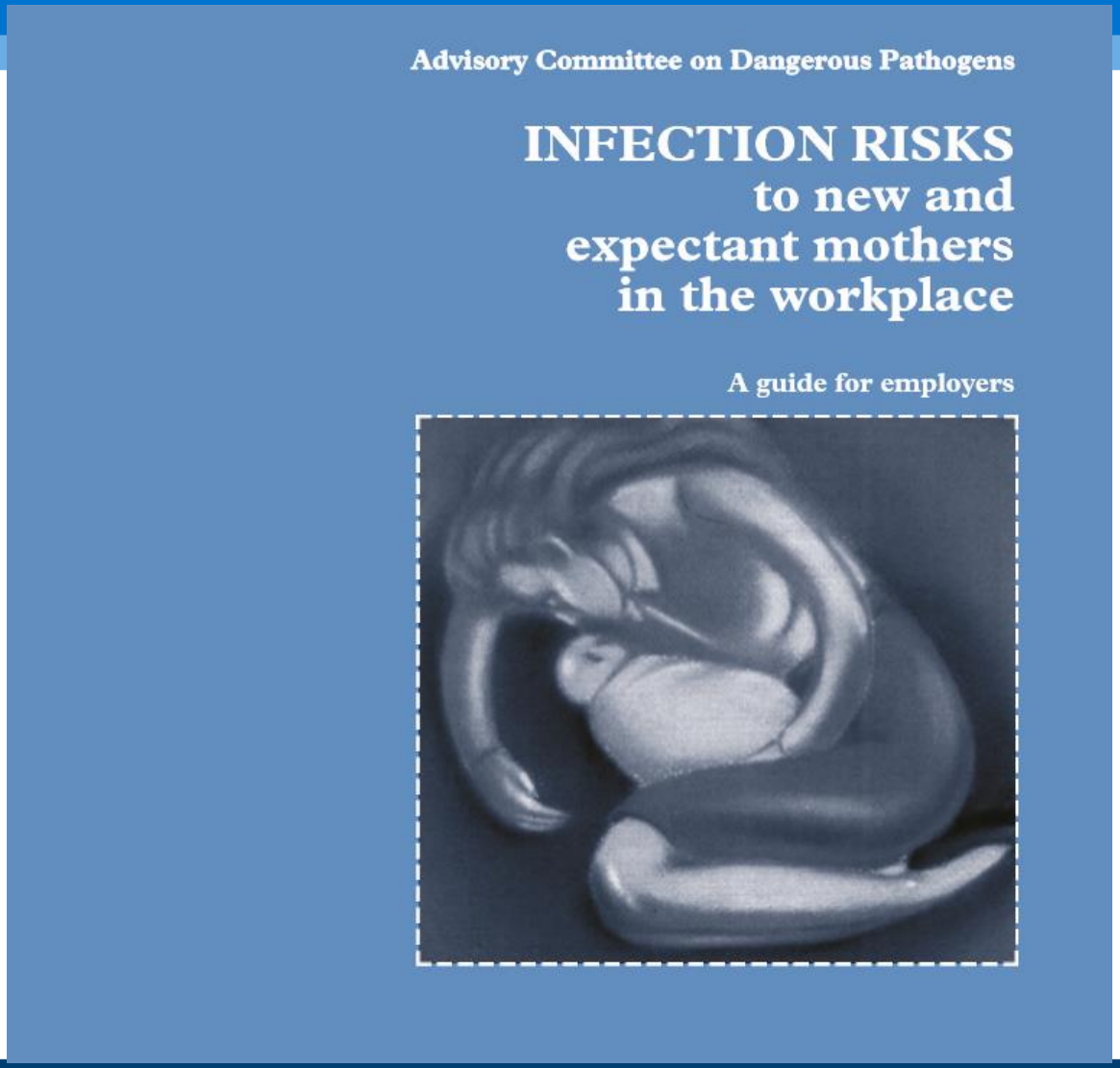
Radiation (Ionising and non-ionising) Electromagnetic fields		A specific risk assessment is required for staff working with radiation. For most work with ionising radiation, no additional precautions or exclusions will be required during pregnancy. However the prior risk assessment should take into account pregnancy even if not currently relevant. If the situation arises further advice should be sought from the University Radiation Protection Adviser (RPA) – contact Safety Office. An accident which results in intake of radioactive materials by the mother may lead to foetal intake. In the event of suspected intake y the mother, RPA advice must be sought immediately. Exposure to electric and magnetic fields should not exceed statutory exposure limits. There is no evidence of detrimental effects to the embryo or foetus if working within exposure limit values, but in the event of pregnancy being declared, the risk assessment must be reviewed and any concerns discussed.	
Biological			
Any biological agent of hazard groups 2, 3, and 4 Any biological agent known to cause abortion of the unborn child, or physical and neurological damage. These agents are included in hazard groups 2, 3 and 4.		A risk assessment of the work with biological agents, tissues or materials that may harbour such agents should already be in place which should include information as to whether the agent is considered to be a mutagen or toxic to reproduction. This should be re-assessed immediately and regularly thereafter as the pregnancy progresses. If there is a known high risk of exposure to a highly infectious agent, including those that are known to cause foetal loss, then it will be appropriate for the pregnant worker to avoid exposure altogether. Further advice can be sought from the Biological Safety Adviser and /or Occupational Health	

Guidance on infections risk to new and expectant mothers



Immunosuppressed staff

- Managing the risks is the same risk assessment approach for the individuals
- Individuals on immunosuppressive treatment should have been informed by their treating doctors of the risks of treatment
- Risk assessment should cover if any particular risks to specific groups e.g. immunosuppressed staff and staff can be asked to self report if they have a risk factor. If staff are not comfortable in informing their manager they can contact occupational health for advice
- As part of risk assessment may consider if more control measures could be implemented to reduce risks of infection where possible. This might include the provision of extra PPE.

Immunosuppression examples

- Receiving chemotherapy for cancer
- Receiving immunosuppressive drugs for other inflammatory condition, e.g. rheumatological disease, skin disease, inflammatory bowel disease, neurological disease, etc.
- HIV positive (with CD4 count <200)
- Solid organ transplant recipient on immunosuppressive drugs
- Primary immunodeficiency

Other factors where individual immunity is a relevant

- Non-response to vaccination – if we know staff are not immune, for example to hepatitis B vaccination an individual risk assessment should be completed
- Individuals who decline vaccination or where is it contraindicated
- Further measures may be required in the event of an exposure where there could be risks of exposure to hepatitis B
- Urgent advise should be sought from Occupational Health

Employees who do not wish to receive vaccination

- Employees may not wish to take up the offer of immunisation, or else do not respond to a vaccine.
- If so, you should carry out a local assessment to determine the likelihood of infection for that particular individual carrying out the work that could result in exposure.
- If existing controls are not thought to be adequate then adjustments to work should be made to allow them to work safely. This might include the provision of extra PPE.
- Immunisation should only be seen as a useful supplement to reinforce physical and procedural control measures, not the sole protective measure.

Questions