

Centre for Healthcare Related Infection Surveillance and Prevention
& Tuberculosis Control

GUIDELINE

Management of Human Immunodeficiency Virus (HIV), Hepatitis B Virus, and Hepatitis C Virus Infected Healthcare Workers

KEY CRITICAL POINTS

- Healthcare workers must not perform exposure prone procedures if they are human immunodeficiency virus (HIV) antibody positive
- Healthcare workers must not perform exposure prone procedures while they are hepatitis C virus (HCV) RNA positive
- Healthcare workers must not perform exposure prone procedures while they are hepatitis B virus (HBV) DNA positive
- Infected healthcare workers must strictly adhere to standard infection control precautions

This guideline provides the minimum recommended processes for the management of human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV) infected healthcare workers (HCWs).

There is an expectation that HCWs protect the health and safety of their patients¹. This obligation includes preventing transmission of blood-borne viruses (BBVs) from themselves to their patients¹.

Medical, dental, nursing faculties at colleges and universities must draw students' attention to this guideline before there is clinical contact with patients. Tertiary Education Provider's Responsibilities are outlined in Section 11 of the *Queensland Health Student Deed* with a specific instruction regarding this document at Section 11 (a & f).

Requirements

Responsibilities of the HBV/HCV/HIV Infected HCW

The infected HCW, like all HCWs must strictly adhere to standard infection control precautions. HCWs who are HBV/HCV/HIV positive, as defined below, must advise their supervisor of their status if they are, or have been, performing exposure prone procedures (EPPs), or if it is likely that they will be called upon to perform exposure prone procedures in their current position (if none of these situations apply there is no requirement to advise their supervisor).

Healthcare workers who are:

- HBeAg positive or HBV DNA positive (using an approved sensitive real-time PCR assay)¹
- HCV RNA positive (by PCR or similar test)¹
- HIV antibody positive (even if virus levels become undetectable on appropriately monitored anti-retroviral therapy)¹

MUST NOT PERFORM EXPOSURE PRONE PROCEDURES

HCWs generally have a professional obligation to undergo serological testing for BBVs at least annually, with more frequent testing to be performed if the HCW has been exposed to an increased risk of infection, whether occupational or non-occupational¹. It is not recommended that HCWs disclose their infective status to patients. The reasons for this are:

- patients, like HCWs, are best protected from exposure to blood-borne viruses by adoption of standard infection control practices
- there is no onus of confidentiality on the part of the patient

- a policy of providing a right for a patient to be informed of the HCW's infective status would send an erroneous message to the public concerning the risk of transmission between HCW and patient.

Infected HCWs should seek advice from a medical practitioner with appropriate expertise in regard to their clinical assessment and medical care and seek advice from that practitioner about their continued involvement in direct patient care. HCWs should make their medical practitioner aware of the Advisory Panel and the contents of this document.

Management of the HCW

HCWs must not perform EPPs if they are known to be HCV RNA positive (by PCR or similar test)¹. If an HCV infected HCW undergoes successful treatment, as indicated by two negative HCV RNA tests using different assays at least six months after completion of treatment, he/she may be considered to be non-infectious and can perform EPPs if the advice from the treating physician is that the likelihood of relapse is very low¹. However, further HCV RNA testing should be performed six months later and then yearly thereafter for the duration of their career, as an additional component of the recommended professional obligation for annual testing for BBVs for all HCWs performing EPPs¹.

An HBsAg positive HCW on suppressive antiviral therapy can only practise EPPs if HBV DNA undetectable (using an approved sensitive real-time PCR assay), with regular 3 monthly testing overseen by a specialist and HBV DNA consistently undetectable¹. An HBsAg positive HCW who is treated and becomes HBsAg undetectable on two consecutive occasions at least 3 months apart, and becomes HBV DNA undetectable, can practice EPPs but needs annual testing thereafter¹. With recently available treatments, the loss of surface antigen is considered to be a complete response to HBV therapy, with reliable suppression of infection¹.

Within the workplace, the infected HCW may also seek confidential advice on infection control procedures, continued involvement in patient care, matters of confidentiality, and other issues from:

- their supervisor; or
- a designated occupational health and safety physician; or
- an infectious diseases physician; or
- other recognised medical expert.

HCWs who believe that they cannot continue with their current duties should seek advice from their supervisor or the Advisory Panel on modification of duties.

All HCWs must adhere to the recommended procedures for the immediate assessment and management of occupational and non-occupational exposures to blood and body fluids as outlined in Queensland Health Guideline for the Management of Exposure to Blood and Body Fluids.

Responsibilities of Supervisors/Health Facilities in the Management of Infected HCWs

Generally, Queensland Health would be under a legal duty of confidence in relation to the disclosure by a HCW of their infective status. Likewise, there is an obligation upon supervisors to whom a HCW discloses their status to maintain confidentiality in relation to

disclosure of that information. Maintaining confidentiality will encourage HCWs to seek appropriate testing, counselling and treatment.

Supervisors must ensure that all HCWs, including HIV/HBV/HCV infected HCWs, are:

- capable of performing tasks adequately to the accepted professional standard
- practising recommended techniques
- complying with standard infection control precautions and adhering to approved guidelines for sterilisation and disinfection.

Supervisors must advise infected HCWs that their work practices may need to be modified. Modifications to work practices should be determined according to the following criteria:

- fitness for work, mental and physical capabilities
- ability to perform routine duties
- competence and compliance with established guidelines and procedures
- increased risk of contracting/transmitting secondary infections, e.g. tuberculosis; and
- training and expertise of the HCW.

Any modification should provide infected HCWs with opportunities to continue their chosen work, where practical, or to obtain alternative training (in a related field). Modification of, or transfer from duties and retraining should be organised by the relevant supervisor in consultation with the HCW. The transfer of infected HCWs from their roles in healthcare settings is not supported, except in accordance with this guideline.

Supervisors may wish to seek confidential advice and support for their decisions from the Advisory Panel in relation to modification of the HCW's practices. The HCW's name should not be disclosed during this consultation.

Restrictions on working practices of HCWs known to be infected with BBVs should be based on the likelihood that an EPP will form part of the duties of the field of work undertaken and an individual assessment of practice (refer Table 1)¹. Where there is a dispute over the ability of an infected HCW to continue with all or part of their duties the matter should be referred to the Advisory Panel and the HCW should discontinue their normal duties pending resolution of the dispute, but continue to perform alternative / other duties with full entitlements.

In those rare cases where an HIV/HBV/HCV infected HCW refuses to accept the advice of the Advisory Panel, the treating medical practitioner and supervisor of the HCW must inform the Director-General and the relevant registration authority for further action.

In situations where a supervisor or treating medical practitioner has been informed that a HIV/HBV/HCV infected healthcare worker has been involved in the performance of an exposure prone procedure, the Executive Director of the Communicable Diseases Unit must be notified – contact (07) 3328 9723

Exposure Prone Procedures

Exposure prone procedures are procedures where there is a risk of injury to the HCW resulting in exposure of the patient's open tissues to the blood of the worker¹. These procedures (refer to Appendix 1 for examples) include those where the worker's hands

(whether gloved or not) may be in contact with sharp instruments, needle tips or sharp tissues (spicules of bone or teeth) inside a patient's open body cavity, wound or confined anatomical space where the hands or fingertips may not be completely visible at all times¹. The nature of the EPP performed by the HCW can be categorised according to level of risk of transmission, in increasing order of magnitude¹:

Table 1: Categories of Exposure Prone Procedures by risk of transmission	
Category 1	A procedure where the hands and fingertips of the HCW are usually visible and outside the body most of the time and the possibility of injury to the worker's gloved hands from sharp instruments and/or tissues is slight ¹ . This means that the risk of the HCW bleeding into a patient's open tissues should be remote, e.g. insertion of chest drain ¹ .
Category 2	A procedure where the finger tips may not be visible at all times but injury to the HCW's gloved hands from sharp instruments and/or tissues is unlikely ¹ . If injury occurs it is likely to be noticed and acted upon quickly to avoid the HCW's blood contaminating a patient's open tissues e.g. appendicectomy ¹ .
Category 3	A procedure where the fingertips are out of sight for a significant part of the procedure, or during certain critical stages, and in which there is a distinct risk of injury to the HCW's gloved hands from sharp instruments and/or tissues ¹ . In such circumstances it is possible that exposure of the patient's open tissues to the HCW's blood may go unnoticed or would not be noticed immediately, e.g. suturing of an episiotomy ¹ .

Where there is uncertainty about the application of any of these defined terms (eg. whether certain procedures are exposure prone) the matter may be referred to the Advisory Panel. Also refer to Appendix 1 for examples of advice on EPPs.

Advisory Panel

Terms of Reference

Indemnity for Panel Members

Indemnity cover is provided for the members of the Advisory Panel as follows:

- for those members of the Panel who are medical practitioners, indemnity cover is provided under the terms of the *Queensland Health Policy 12 Indemnity for Queensland Health Medical Practitioners*
- for those members of the Panel whose membership of the Panel is part of the functions they are performing as health service employees or for, or on behalf of Queensland Health, indemnity cover is provided under the terms of the *Queensland Health Policy 13 Indemnity for Queensland Health Employees and Other Persons*
- for those members of the Panel whose membership of the Panel is directly related to their duties as a public service or State employee, indemnity cover is provided under the terms of the *Guideline for the Grant of Indemnities and Legal Assistance to State Employees*

Membership

- Chair – Executive Director, Communicable Diseases Unit
- Senior Medical Officer, Communicable Diseases Unit

- A clinician with expertise in infection control and in particular, the risk of transmission of blood borne viruses (e.g. infectious diseases physician, medical microbiologist, or hepatologist)
- Coopt a member who is in the same specialty area of expertise as the infected HCW e.g. medical, dental etc
- Coopt as required a lawyer with knowledge and expertise in medico-legal matters or alternatively in the area of discrimination
- Coopt as required a psychiatrist with experience in counselling of infected HCWs
- Advocate of the HCW (nominated by the HCW)

Secretariat

Department of Health's Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP) and Tuberculosis Control

- Organisation of Advisory Panel meetings
- Minutes of Advisory Panel meetings
- Maintenance of confidential records

Duties

1. To determine potential infectivity of the person referred and the risk of transmission
2. To provide advice on the application of any of the defined terms used in this standard
3. To provide specialist advice to physicians treating HCWs infected with blood-borne viruses, occupational health and safety physicians and professional bodies
4. To advise individual HCWs or their advocates how to obtain guidance on work practices
5. To advise whether patient notification exercises are indicated, of patients treated by HCWs with blood-borne viruses
6. To keep under review the literature on transmission of blood-borne viruses in healthcare settings and refer any changes relevant to current policy to the secretariat for actions
7. To report to the Director-General, Department of Health through the Executive Director, Communicable Diseases Unit

Who may consult the Panel

- the infected HCW
- the supervisor of the infected HCW
- the treating doctor of the infected HCW
- occupational health and safety staff
- infection control staff
- professional and regulatory bodies
- Tertiary Education Providers

In what circumstances

Examples of situations in which advice may be sought:

- where there is some uncertainty about whether a particular procedure is categorised as an 'exposure prone' procedure
- disclosure of the HCW's HIV/HBV/HCV status, to whom and when
- management of the infected HCW
- infection control procedures

- modification or redeployment from duties
- management of patient exposure to the blood of an infected HCW
- where a supervisor has been informed that a HIV/HBV/HCV infected HCW has been involved in the performance of an exposure prone procedure; and
- follow-up of a patient with a possible healthcare associated HIV, HBV or HCV infection

How to access the panel

Matters to be referred to the Advisory Panel should be directed to the Executive Director, Communicable Diseases Unit, Department of Health (07) 3328 9723.

Patient Notification Exercise

Purpose of patient notification

The overall objectives of patient notification are:

- to identify the patient population at a distinct risk of exposure to the infected HCW's blood during exposure prone procedure
- to provide patients with information about the nature of the risk to which they have been exposed
- to detect any HIV, HBV or HCV infection, provide care to the infected person and advice on measures to prevent onward transmission.

Deciding whether patient notification should take place

A lookback should be considered in all cases where a HCW who is performing EPPs is found to be infected with a BBV¹. These cases should be assessed on a case-by-case basis. In the absence of known transmission to a patient, a lookback should generally be conducted for all patients who have undergone category 3 procedures (see Table 1) by an infected HCW unless a comprehensive risk assessment identifies a negligible risk¹. Those who underwent category 1 or category 2 procedures (see Table 1) should only be notified if other considerations suggest they are at increased risk¹.

Relevant considerations include:

1. suspected transmission of a BBV from the HCW to patient(s)¹
2. evidence of poor infection prevention and control practice during the time the HCW was probably infectious with the BBV¹
3. evidence of physical or mental impairment which could affect the HCW's standard of practice¹
4. other relevant HCW medical conditions e.g. skin diseases such as weeping eczema¹
5. the employment history of the HCW¹
6. any evidence that the HCW has not followed recommended infection control practices¹
7. any reported episodes of high risk exposures e.g. sharps injuries¹.

Scope of the Patient Notification Exercise

The scope of the lookback consists of contacting the patients, offering a pre-test discussion and encouraging testing for the relevant virus(es)¹. The decision on how far back patient notification should go should be determined on a case by case basis¹.

The disclosure of the identity of a HCW to a patient should not be necessary and the right to confidentiality of the HCW should be respected, even if the infected HCW has died or has already been identified publicly¹.

Glossary of Terms

Term	Definition / Explanation / Details
Employee	Refers to all people employed by Queensland Health, including volunteers, contract workers and students.
Blood borne virus (BBV)	For the purpose of this guideline, the term blood borne virus includes human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV).
Exposure prone procedure (EPP)	Are procedures where there is a risk of injury to the HCW resulting in exposure of the patient's open tissues to the blood of the worker ¹ . These procedures (refer to Appendix 1 for examples) include those where the worker's hands (whether gloved or not) may be in contact with sharp instruments, needle tips or sharp tissues (spicules of bone or teeth) inside a patient's open body cavity, wound or confined anatomical space where the hands or fingertips may not be completely visible at all times ¹ . The nature of the EPP performed by the HCW can be categorised according to level of risk of transmission, in increasing order of magnitude. Refer to Table 1 for further information.
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
Health facilities	Those hospitals, community health centres and other public health care facilities in which health services are delivered by Queensland Health through its Hospital and Health Services.
Healthcare worker (HCW)	Refers to all people involved in the delivery of health services in healthcare facilities including students and laboratory staff, particularly those persons who have regular contact with patients or any contact with blood or body substances.
Serological testing	Laboratory tests done on blood serum to measure antibodies against antigens of the micro-organism thought to be causing the infection e.g. HBsAg.

References

1. Communicable Diseases Network Australia. Australian National Guidelines for the Management of Health Care Workers Known to be Infected with Blood-Borne Viruses. Department of Health and Ageing; 2012 [25 February, 2013]; Available from: [http://www.health.gov.au/internet/main/publishing.nsf/Content/E28B5CC8872BE9C5CA2572EC000829EE/\\$File/Guidelines-BBV-feb12.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/E28B5CC8872BE9C5CA2572EC000829EE/$File/Guidelines-BBV-feb12.pdf).

Revision History

Version Number	Date of Issue	Date of Next Revision
1.1 [QH-IMP-321-3:2010]	18/04/2012	Rescinded
2.0	08/04/2013	08/04/2015

Document Custodian

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Approval Date

8 April 2013

Appendix 1

Exposure Prone Procedures

Examples of advice on Exposure Prone Procedures (EPPs)

The information below is based on the Communicable Diseases Network Australia 2012 document titled *Australian National Guidelines for the Management of Health Care Workers Known to be Infected with Blood-borne Viruses* available at <http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-cdna-bloodborne.htm>.

Anaesthetics

Procedures performed purely percutaneously are not exposure-prone, nor have endotracheal intubation nor the use of a laryngeal mask been considered so. The only procedures currently performed by anaesthetists that would constitute EPPs are:

- the placement of portacaths (very rarely done) which involves excavating a small pouch under the skin and may sometimes require manoeuvres which are not under direct vision
- the insertion of chest drains in trauma cases such as patients with multiple rib fractures.

Modern techniques for skin tunnelling involve wire guided techniques and putting steel or plastic trochars from the entry site to the exit site where they are retrieved in full vision. Therefore skin tunnelling is no longer considered to be exposure-prone.

Arterial Cutdown

Although the use of more percutaneous techniques has made arterial or venous cutdown to obtain access to blood vessels an unusual procedure, it may still be used in rare cases. However, as the operator's hands are always visible, it should not be considered exposure-prone.

Biting

Staff working in areas posing a significant risk of biting should not be treated as performing EPPs. Published literature on this subject is very scarce. In follow-up studies of incidents involving infected health care workers working with patients known to be 'regular and predictable' biters in the UK, there were no documented cases of transmission from the health care worker to the biter.

However, where biters were infected, there were documented cases of seroconversion in their victims and the risk of infection was increased in the presence of:

- blood in the oral cavity – risk proportionate to the volume of blood
- broken skin due to the bite
- bite associated with previous injury i.e. non-intact skin
- biter deficient in anti-HIV salivary elements (IgA deficient).

Based on the available information, it can only be tentatively concluded that even though there is a theoretical risk of transmission of a blood borne virus from an infected health care worker to a biting patient, the risk remains negligible. The lack of information may suggest that this has not been perceived to be a problem to date, rather than that there is an absence of risk.

Despite the theoretical risk, since there is no documented case of transmission from an infected HCW to a biting patient, individuals infected with a blood borne virus should not be prevented from working in or training for specialties where there is a risk of being bitten. The evidence is dynamic and the area will be kept under review and updated in the light of any new evidence that subsequently emerges suggesting there is a risk. However, it is important for biting incidents to be reported and risk assessments conducted in accordance with current procedures. Biting poses a much greater risk to health care workers than to patients. Therefore employers should take measures to prevent injury to staff, and health care workers bitten by patients should seek advice and treatment, in the same way as after a needlestick injury.

Bone Marrow Transplants

Not exposure-prone

Cardiology

Percutaneous procedures including angiography/cardiac catheterisation are not exposure-prone. Implantation of permanent pacemakers (for which a skin tunnelling technique is used to site the pacemaker device subcutaneously) may or may not be exposure-prone. This will depend on whether the operator's fingers are or not concealed from view in the patient's tissues in the presence of sharp instruments during the procedure (see also Arterial Cutdown).

Dentistry and Orthodontics (including hygienists)

Procedures in dentistry which do not involve the possibility of injury to the dentist's hands are not EPPs, e.g. oral examination, radiology. Many procedures in general dentistry are category 1 or 2. Procedures in dentistry which could be regarded as category 3 comprise:

- maxillofacial surgery and oral surgical procedures, including the extraction of teeth (but excluding extraction of highly mobile or exfoliating teeth)
- periodontal surgical procedures
- endodontic surgical procedures, and
- implant surgical procedures.

Ear, Nose and Throat Surgery (Otolaryngology)

ENT surgical procedures generally should be regarded as exposure-prone with the exception of simple ear or nasal procedures, and procedures performed using endoscopes (flexible and rigid) **provided fingertips are always visible**. Non-exposure-prone ear procedures include stapedectomy/stapedotomy, insertion of ventilation tubes and insertion of a titanium screw for a bone anchored hearing aid.

Emergency Departments (ED)

ED staff who are restricted from performing EPPs must not provide trauma care. These staff should not physically examine or otherwise handle acute trauma patients with open tissues because of the unpredictable risk of injury from sharp tissues such as fractured bones. Cover from colleagues who are allowed to perform EPPs would be needed at all times to avoid this eventuality.

Other EPPs which may arise in an ED setting would include:

- rectal examination in presence of suspected pelvic fracture
- deep suturing to arrest haemorrhage
- internal cardiac massage.

Endoscopy

Simple endoscopic procedures (e.g. gastroscopy, bronchoscopy) have not been considered exposure-prone. In general there is a risk that surgical endoscopic procedures (e.g. cystoscopy, laparoscopy) may escalate due to complications which may not have been foreseen and may necessitate an open EPP. The need for cover from a colleague who is allowed to perform EPPs should be considered as a contingency.

General Practice

See Emergency Department, Minor Surgery, Midwifery/Obstetrics, Resuscitation

Gynaecology (see also Laparoscopy)

Open surgical procedures are exposure-prone. Many minor gynaecological procedures are not considered exposure-prone (examples include dilatation and curettage [D & C], suction termination of pregnancy, colposcopy, surgical insertion of depot contraceptive implants/devices, fitting intrauterine contraceptive devices (coils), and vaginal egg collection) **provided fingers remain visible at all times when sharp instruments are in use.**

Performing **cone biopsies** with a scalpel (and with the necessary suturing of the cervix) would be exposure-prone. Cone biopsies performed with a loop or laser would not in themselves be classified as exposure-prone, but if local anaesthetic was administered to the cervix other than under direct vision i.e. with fingers concealed in the vagina, then the latter would be an EPP (category 1).

Haemodialysis/Hemofiltration

See Renal Medicine

Intensive Care

Intensive care does not generally involve EPPs on the part of medical or nursing staff.

Laparoscopy

These are mostly non-exposure-prone because fingers are never concealed in the patient's tissues. Exceptions are: if main trochar inserted using an open procedure, as for example in a patient who has had previous abdominal surgery. Also exposure-prone if rectus sheath closed at port sites using J-needle, and fingers rather than needle holders and forceps are used. In general there is a risk that a therapeutic laparoscopy may escalate due to complications which may not have been foreseen necessitating an open EPP. Cover from colleagues who are allowed to perform EPPs would be needed at all times to avoid this eventuality.

Midwifery/Obstetrics

Simple vaginal delivery, amniotomy using a plastic device, attachment of foetal scalp electrodes, and infiltration of local anaesthetic prior to an episiotomy and the use of scissors to make an episiotomy cut are not exposure-prone. The only EPPs routinely undertaken by midwives are repairs following episiotomies and perineal tears: category 1 in the case of first degree lacerations; category 2 in the case of second, third and fourth degree lacerations. Repairs of third and fourth degree tears are normally undertaken by medical staff who may include general practitioners assisting at births in a community setting.

Obstetricians perform surgical procedures, many of which may be exposure-prone according to the criteria.

Minor Surgery

In the context of general practice, minor surgical procedures such as excision of sebaceous cysts and skin lesions, cauterization of skin warts, aspiration of bursae, cortisone injections into joints and vasectomies do not usually constitute EPPs.

Sharps Occupational Exposure

Health care workers need not refrain from performing EPPs pending follow up of occupational exposure to a BBV infected source. The combined risk of contracting a BBV from the source patient and then transmitting this to another patient during an EPP is so low as to be considered negligible.

However in the event of the worker being diagnosed with a BBV, such procedures should cease in accordance with this guidance.

Nursing

General nursing procedures do not include EPPs. The duties of operating theatre nurses should be considered individually. Instrument nurses do not generally undertake EPPs. However, it is possible that nurses acting as first assistant may perform EPPs.

Operating Theatre Technicians

General duties do not normally include EPPs.

Ophthalmology

With the exception of orbital surgery which is usually performed by maxillo-facial surgeons (who perform many other EPPs); routine ophthalmological surgical procedures are not exposure-prone as the operator's fingers are not concealed in the patient's tissues. Exceptions may occur in some acute trauma cases, which should be avoided by EPP restricted surgeons.

Optometry

The training and practice of optometry does not require the performance of EPPs.

Orthopaedics**EPPs**

- open surgical procedures
- procedures involving the cutting or fixation of bones, including the use of K-wire fixation and osteotomies
- procedures involving the distant transfer of tissues from a second site (such as in a thumb reconstruction)
- acute hand trauma
- Zadek's procedure.

Non-EPPs

- manipulation of joints with the skin intact
- arthroscopy, provided that if there is any possibility that an open procedure might become necessary, the procedure is undertaken by a colleague able to perform the appropriate open surgical procedure
- superficial surgery involving the soft tissues of the hand
- work on tendons using purely instrumental tunnelling techniques that do not involve fingers and sharp instruments together in the tunnel
- procedures for secondary reconstruction of the hand provided that the operator's fingers are in full view

- carpal tunnel decompression provided fingers and sharp instruments are not together in the wound
- closed reductions of fractures and other percutaneous procedures.

Paediatrics

Neither general nor neonatal/special care paediatrics has been considered likely to involve any EPPs. Paediatric surgeons do perform EPPs.

Paramedics

In contrast to other emergency workers, a paramedic's primary function is to provide care to patients. Paramedics do not normally perform EPPs. However, paramedics who would be restricted from performing EPPs should not provide pre-hospital trauma care. This advice is subject to review as the work undertaken by paramedics continues to develop.

Pathology

In the event of injury to an EPP restricted pathologist performing a post-mortem examination, the risk to other workers handling the same body subsequently is so remote that no restriction is recommended.

Podiatrists

Routine procedures undertaken by podiatrists who are not trained in and do not perform surgical techniques are not exposure-prone. Procedures undertaken by podiatric surgeons include surgery on nails, bones and soft tissue of the foot and lower leg, and joint replacements. In a proportion of these procedures, part of the operator's fingers will be inside the wound and out of view, making them EPPs (see also Orthopaedics).

Radiology

All percutaneous procedures, including imaging of the vascular tree, biliary system and renal system, drainage procedures and biopsies as appropriate, are not EPPs.

Renal Medicine

These procedures are not exposure-prone and neither hemofiltration nor haemodialysis constitute EPPs. The working practices of those staff who supervise hemofiltration and haemodialysis circuits do not include EPPs.

Resuscitation

Resuscitation performed wearing appropriate protective equipment does not constitute an EPP.

Surgery

Open surgical procedures are exposure-prone. This applies equally to major organ retrieval because there is a very small, though remote, risk that major organs retrieved for transplant could be contaminated by a health care worker's blood during what are long retrieval operations while the patient's circulation remains intact. It is possible for some contaminated blood cells to remain following pre-transplantation preparatory procedures and for any virus to remain intact since organs are chilled to only 10°C.

Trauma

Management of trauma patients is a high risk area in which many procedures must be considered to be exposure-prone, and where the emergent situation may result in rapid escalation of procedures. In general, HCWs with BBVs should not work in trauma medicine.

Examples of EPPs in trauma management would include:

- insertion of chest drains – where an incision is made and a finger inserted where there may be fractured ribs
- rectal examination in presence of suspected pelvic fracture
- deep suturing to arrest haemorrhage
- internal cardiac massage.