

3 EXPOSURE PRONE PROCEDURES (EPP)

Exposure prone procedures (EPPs) are invasive procedures where there is potential for direct contact between the skin, usually finger or thumb of the healthcare worker, and sharp surgical instruments, needles, or sharp tissues (e.g. fractured bones), spicules of bone or teeth in body cavities or in poorly visualised or confined body sites, including the mouth of the patient.

During EPPs, there is an increased risk of transmitting bloodborne viruses between healthcare workers and patients.

EPP categories

The nature of the EPP performed by the healthcare worker can be categorised according to level of risk of transmission, in increasing order of magnitude.

Category 1	A procedure where the hands and fingertips of the healthcare worker 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. This means that the risk of the healthcare worker bleeding into a patient's open tissues should be remote, e.g. insertion of a chest drain.
Category 2	A procedure where the fingertips may not be visible at all times but injury to the healthcare worker's gloved hands from sharp instruments and/or tissues is unlikely. If injury occurs it is likely to be noticed and acted upon quickly to avoid the healthcare worker's blood contaminating a patient's open tissues, e.g. appendicectomy.
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 healthcare worker's gloved hands from sharp instruments and/or tissues. In such circumstances it is possible that exposure of the patient's open tissues to the healthcare worker's blood may go unnoticed or would not be noticed immediately, e.g. hysterectomy.

Source: DH/HP/GHP3. *HIV Infected Health Care Workers: Guidance on Management and Patient Notification*. London; 2005

Advice on EPPs in specific areas of clinical care

Accident and emergency (A&E)

A&E staff members who are restricted from performing EPPs should not provide pre-hospital 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. 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 A&E setting would include:

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

(See also **Anaesthetics, Biting, Paramedics and Resuscitation**)

Anaesthetics

Endotracheal intubation, use of a laryngeal mask and procedures performed purely percutaneously are not exposure prone. The only procedures currently performed by anaesthetists which 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 accident and emergency trauma cases such as patients with multiple rib fractures.

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The insertion of a chest drain may or may not be considered to be exposure prone depending on how it is performed. Procedures where, following a small initial incision, the chest drain with its internal trochar is passed directly through the chest wall (as may happen e.g. with a pneumothorax or pleural effusion) and where the lung is well clear of the chest wall, would not be considered to be exposure prone. However, where a larger incision is made, and a finger is inserted into the chest cavity (e.g. with a flail chest) and where the healthcare worker could be injured by the broken ribs, the procedure should be considered exposure prone.

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 (see also **Arterial cutdown**).

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 no longer be considered exposure prone.

Biting

Staff working in areas posing a significant risk of biting should not be treated as performing EPPs.

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 are not concealed from view in the patient's tissues in the presence of sharp instruments during the procedure (see also **Arterial cutdown**).

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.

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 – see below) 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

(see also **Biting**).

General practice

See **Accident and Emergency, Biting, 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 & 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

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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/Haemofiltration

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 trocar 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, rather than a diagnostic, 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, 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 members who may include general practitioners assisting at births in a community setting.

Minor surgery

In the context of general practice, minor surgical procedures such as excision of sebaceous cysts, 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 risks 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 room 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 (see also **Accident and Emergency, Renal Medicine/Nursing, and Resuscitation**).

Obstetrics/Midwifery

See **Midwifery/Obstetrics**. Obstetricians perform surgical procedures, many of which will be exposure prone according to the criteria.

Operating room 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

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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.

Orthodontics

See **Dentistry and orthodontics (including hygienists)**

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;
- Nail avulsion of the toes for in-growing toenails and 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 (see also **Arterial cutdown**).

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 (see also **Accident & Emergency, Biting and Resuscitation**).

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**).

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Radiology

All percutaneous procedures, including imaging of the vascular tree, biliary system and renal system, drainage procedures and biopsies as appropriate, are not EPPs (see also **Arterial cutdown**).

Renal medicine

These procedures are not exposure prone and neither haemofiltration nor haemodialysis constitute EPPs. The working practices of those staff who supervise haemofiltration 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 (see also **Laparoscopy, Minor Surgery**).

Volunteer health care workers (including first aid)

The important issue is whether or not an infected health care worker undertakes EPPs.