Health clearance certificates
Following testing, health clearance certificates should be provided by occupational health to management to indicate if an individual is fit for employment, whether or not the employee is cleared for EPPs, and the time-scale for any further testing required. The certificate, which will not include clinical information, should be sent to appropriate managers or, in the case of students, to the head of course in accordance with local arrangements.

Healthcare workers who are applying for posts or training involving EPPs and who decline to be tested
Healthcare workers who apply for a post or training which may involve EPPs and who decline to be tested for hepatitis B and hepatitis C should not be cleared to perform EPPs.

Exposure-prone procedures
Exposure-prone procedures (EPPs) are those invasive procedures where there is a risk that injury to the worker may result in the exposure of the patient's open tissues to the blood of the worker. These include procedures where the worker's gloved hands may be in contact with sharp instruments, needle tips or sharp tissues (eg 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. However, other situations, such as pre-hospital trauma care, should be avoided by healthcare workers who are restricted from performing EPPs.
When there is any doubt about whether a procedure is exposure-prone or not, expert advice should be sought from a consultant occupational health physician.
Procedures where the hands and fingertips of the worker are visible and outside the patient's body at all times, and internal examinations or procedures that do not involve possible injury to the worker's gloved hands from sharp instruments and/or tissues, are considered not to be exposure-prone, provided that routine infection-control procedures are adhered to at all times.
Examples of procedures that are not exposure-prone include:

- taking blood (venepuncture);
- setting up and maintaining IV lines or central lines (provided that any skin-tunnelling procedure used for the latter is performed in a non-exposure-prone manner, ie without the operator's fingers being at any time concealed in the patient's tissues in the presence of a sharp instrument);
- minor surface suturing;
- the incision of external abscesses;
- routine vaginal or rectal examinations;
- simple endoscopic procedures.

Appendix 3

Exposure Prone Procedures (EPPs)

B1. EPPs are those invasive procedures where there is a risk that injury to the HCW may result in the exposure of the patient's open tissues to the blood of the HCW. These include procedures where the HCWs gloved hands may be in contact with sharp instruments, needle tips or sharp tissues (e.g. 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. However, other situations, such as pre-hospital trauma care and care of patients where the risk of biting is regular and predictable, should be avoided by HCWs restricted from performing EPPs.

B2. When there is any doubt about whether a procedure is an EPP or not, expert advice should be sought in the first instance from a consultant occupational health physician who may in turn wish to consult the UK Advisory Panel for Health Care Workers Infected with Blood-borne Viruses (UKAP). Some examples of advice given by UKAP below may serve as a guide, but cannot be seen as necessarily generally applicable, as the working practices of individual HCWs vary.

B3. Procedures where the hands and fingertips of the HCW are visible and outside the patient's body at all times, and internal examinations or procedures that do not involve possible injury to the HCWs gloved hands from sharp instruments and/or tissues, are considered *not* to be an EPP, provided routine infection control procedures are adhered to at all times.

B4. Examples of procedures that are *not* an EPP include:

- taking blood (venepuncture);
- setting up and maintaining IV lines or central lines (provided any skin tunnelling procedure used for the latter is performed in a non-EPP manner i.e. without the operator's fingers being at any time concealed in the patient's tissues in the presence of a sharp instrument);
- minor surface suturing;
- the incision of external abscesses;
- routine vaginal or rectal examinations;
- simple endoscopic procedures.

B5. The decision whether an HIV, Hep B or Hep C infected HCW should continue to perform a procedure, which itself is not exposure-prone, should take into account the risk of complications arising which necessitate the performance of an EPP; only reasonably predictable complications need to be considered in this context.

Examples of UKAP advice on EPPs

B6. The UKAP has been making recommendations about the working practices of HCWs infected with HIV since the end of 1991, and those infected with other BBVs since September 1993. Advice for occupational physicians arises from individual queries, cases or general issues which have been referred to the UKAP since its inception.

B7. Judgements are made by occupational physicians or in conjunction with the UKAP where doubt or difficulty exists, about whether any procedure is or is not exposure prone against the criteria as stated in para B1.

B8. Occupational physicians and others who need to make decisions about the working practices of infected HCWs may find the advice helpful. In some cases this advice may help clarify matters, and in others may direct the reader to seek further specific advice about the individual case under consideration.

Cautionary note

B9. In the past, UKAP has not favoured issuing guidance about what areas or particular procedures of medical, nursing or midwifery practice involve EPPs. This is because individual working practices may vary between hospitals and between HCWs. Advice for one HCW may not always be applicable to another. Therefore this list must be interpreted with caution, as it is provides examples only and is not exhaustive. It should also be noted that UKAP keeps its advice under ongoing review.

B10. The following advice has been given by UKAP in relation to specialities and procedures. Please note that these are only examples and do not obviate the need for a full risk assessment at local level, including the procedures likely to be undertaken by a HCW whose practice is restricted in a particular post; the way in which they would be performed by that individual; and the context in which they would operate e.g. colleagues available to take over if an open procedure becomes necessary.

Accident and Emergency (A&E)

B11. A&E staff who are restricted from performing EPPs should not provide pre-hospital trauma care.

B12. These members of 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.

B13. 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
- internal cardiac massage

(See also Anaesthetics, Biting, Paramedics and Resuscitation)

Anaesthetics

B14. Procedures performed purely percutaneously are not exposure prone, nor have endotracheal intubation nor the use of a laryngeal mask been considered so.

B15. 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; and

- the insertion of chest drains in A&E trauma, cases such as patients with multiple rib fractures.

B16. 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, as may be necessary e.g. with a flail chest, and where the HCW could be injured by the broken ribs, the procedure should be considered exposure prone.

B17. 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

B18. 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

B19. Staff working in areas posing a significant risk of biting should not be treated as performing EPPs. In October 2003, UKAP considered a review of the available literature on the risk of onward transmission from HCWs infected with BBVs to patients. The review showed that the published literature on this subject is very scarce. In follow up studies of incidents involving infected HCWs working with patients known to be 'regular and predictable' biters, there were no documented cases of transmission from the HCW 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).

B20. Based on the available information, it can only be tentatively concluded that even though there is a theoretical risk of transmission of BBV from an infected HCW 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.

B21. UKAP has advised that, despite the theoretical risk, since there is no documented case of transmission from an infected HCW to a biting patient, individuals infected with BBVs should not be prevented from working in or training for specialties where there is a risk of being bitten.

B22. 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 NHS procedures. Biting poses a much greater risk to HCWs 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

B23. Not exposure prone.

Cardiology

B24. 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).

Chiropodists

B25. See Podiatrists

Dentistry and orthodontics (including hygienists)

B26. The majority of procedures in dentistry are exposure prone, with the exception of:

- examination using a mouth mirror only;
- taking extra-oral radiographs;
- visual and digital examination of the head and neck;
- visual and digital examination of the edentulous mouth;
- taking impressions of edentulous patients; and
- construction and fitting of full dentures.

B27. However, taking impressions from dentate or partially dentate patients would be considered exposure prone, as would the fitting of partial dentures and fixed or removable orthodontic appliances, where clasps and other pieces of metal could result in injury to the dentist.

Ear, Nose and Throat (ENT) Surgery (Otolaryngology)

B28. 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

B29. 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 that 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, Laparoscopy).

General Practice

B30. See Accident and Emergency, Biting, Minor Surgery, Midwifery/Obstetrics, Resuscitation

Gynaecology

B31. 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.

B32. 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.

Haemodialysis/Haemofiltration

B33. See Renal Medicine.

Intensive Care

B34. Intensive care does not generally involve EPPs on the part of medical or nursing staff

Laparoscopy

B35. Mostly non-exposure prone because fingers are never concealed in the patient's tissues. Procedure becomes exposure prone 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.

B36. 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

B37. Simple vaginal delivery, amniotomy using a plastic device, attachment of fetal scalp electrodes, infiltration of local anaesthetic prior to an episiotomy and the use of scissors to make an episiotomy cut are not exposure prone.

B38. The only EPPs routinely undertaken by midwives are repairs following episiotomies and perineal tears. Repairs of more serious tears are normally undertaken by medical staff who may include general practitioners assisting at births in a community setting.

Minor Surgery

B39. 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.

Needlestick/Occupational Exposure to HIV

B40. HCWs need not refrain from performing EPPs pending follow up of occupational exposure to an HIV infected source. The combined risks of contracting HIV infection from the source patient and then transmitting this to another patient during an exposure prone procedure is so low as to be considered negligible. However in the event of the HCW being diagnosed HIV positive, such procedures must cease in accordance with this guidance.

Nursing

B41. General nursing procedures do not include EPPs. The duties of operating theatre nurses should be considered individually. Theatre scrub nurses do not generally undertake exposure prone procedures. However, it is possible that nurses acting as first assistant may perform EPPs.
(See also Accident and Emergency, Renal Medicine and Resuscitation)

Obstetrics/Midwifery

B42. See Midwifery/Obstetrics. Obstetricians perform surgical procedures, many of which will be exposure prone according to the criteria.

Operating Department Assistant/Technician

B43. General duties do not normally include EPPs.

Ophthalmology

B44. 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

B45. The training and practice of optometry does not require the performance of EPPs.

Orthodontics

B46. See Dentistry and orthodontics (including hygienists)

Orthopaedics

B47 EPPs include:

- 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 (this advice may not apply to other situations such as when nail avulsions are performed by podiatrists).

B48 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

B49. 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

B50. 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

B51. 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

B52. 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

B53. 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

B54 The 2002 guidance stated, 'Obtaining vascular access at the femoral site in a distressed patient may constitute an exposure prone procedure as the risk of injury to the HCW may be significant'. There have since been technological advances in the way venous access is obtained, including in renal units. In procedures performed now, the operator's fingers remain visible all the time during the procedure. Therefore these procedures are not exposure prone and neither haemofiltration nor haemodialysis constitute an EPP.

B55. The working practices of those staff who supervise haemofiltration and haemodialysis circuits do not include EPPs. (Different guidance applies for hep B infected HCWs*)

Resuscitation

B56. Resuscitation performed wearing appropriate protective equipment does not constitute an EPP. The Resuscitation Council (UK) recommends the use of a pocket mask when delivering cardio-pulmonary resuscitation. Pocket masks incorporate a filter and are single-use.

Surgery

B57. 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 HCW'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)

B58. The important issue is whether or not an infected HCW undertakes EPPs. If this is the case, this guidance should be applied, whether or not the HCW is paid for their work.