

Health clearance for tuberculosis, hepatitis B, hepatitis C and HIV: New healthcare workers



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READER INFORMATION

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Summary

This guidance recommends that all new healthcare workers have checks for tuberculosis disease/immunity and are offered hepatitis B immunisation, with post-immunisation testing of response and the offer of tests for hepatitis C and HIV. These *standard health clearance* checks should be completed on appointment.

For new healthcare workers who will perform exposure-prone procedures (EPPs), *additional health clearance* should also be undertaken. Additional health clearance means being non-infectious for HIV (antibody negative), hepatitis B (surface antigen negative or, if positive, e-antigen negative with a viral load of 10^3 genome equivalents/ml or less) and hepatitis C (antibody negative or, if positive, negative for hepatitis C RNA). These checks should be completed before confirmation of an appointment to an EPP post, as the healthcare worker will be ineligible if found to be infectious.

For the purposes of this guidance, a new healthcare worker includes healthcare workers new to the NHS, healthcare workers moving to a post or training that involves EPPs and returning healthcare workers, depending on what activities they have engaged in while away from the health service (see paragraphs 21–23).

This guidance is intended not to prevent those infected with blood-borne viruses from working in the NHS, but rather to restrict them from working in those clinical areas where their infection may pose a risk to patients in their care. This is consistent with existing policy, which imposes restrictions on the working practices of those healthcare workers who are known to be infectious carriers of HIV, hepatitis B and hepatitis C.

It is recommended that the measures proposed in this guidance are implemented as soon as is reasonably practicable.

Introduction

1. In 2001, Ministers set up an expert group to carry out an assessment of the potential health risk posed to patients by healthcare workers who are new to the NHS and who are infected with tuberculosis (TB), hepatitis B, hepatitis C or HIV. This decision was prompted by the convergence of three issues:
 - the recruitment of staff to the NHS from overseas who were subsequently found to be infected with blood-borne viruses (BBVs);
 - individuals infected with BBVs who were seeking to enter medical, dental, midwifery and nursing schools and to qualify and practise as registered practitioners;
 - the burden of patient notification ('look-back') exercises, in terms of widespread anxiety for patients and high costs to the NHS.
2. In its report, the expert group made a number of recommendations designed to both reinforce and extend existing measures to reduce the risk of healthcare worker-to-patient transmission of BBVs and TB.¹ Those recommendations were accepted by Ministers and form the basis of this guidance. Screening arrangements for existing NHS staff were explicitly excluded from the expert group's remit; nor did the group consider measures to protect against other infectious disease risks (eg varicella).
3. Following consultation on the draft guidance in 2003,² this final version has been produced.

1 See www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/HealthClearance/fs/en

2 See www.dh.gov.uk/Consultations/ClosedConsultations/ClosedConsultationsArticle/fs/en?CONTENT_ID=4016880&chk=MX34eS

4. This guidance describes health clearance measures for new healthcare workers. Its primary purpose is to provide further protection for patients from exposure in the clinical care setting to TB, hepatitis B, hepatitis C and HIV. The new measures are intended not to prevent those infected with BBVs from working in the NHS, but rather to restrict them from working in those clinical areas where their infection may pose a risk to patients in their care. This is consistent with existing policy, which imposes restrictions on the working practices of those healthcare workers who are known to be infectious carriers of HIV, hepatitis B and hepatitis C.
5. Healthcare workers may also benefit from these new health clearance arrangements both personally (eg earlier diagnosis may lead to curative or life-prolonging treatment and prevention of onward transmission), and professionally (eg avoiding work activities that may pose a risk to their own health and making career choices appropriate to their infection status).
6. The action recommended by this guidance forms a necessary part of the implementation of HSC 2002/008³ and *The management of health, safety and welfare issues for NHS staff 2005*⁴ in relation to occupational health assessment for substantive NHS employees as well as temporary staff. UK Health Departments' guidance, *Immunisation against infectious disease* includes advice on the immunisation of healthcare workers – see **Annex A**.
7. For the purposes of this guidance, a new healthcare worker is defined as an individual who has direct clinical contact with NHS patients, whether as an employee of a trust or with the trust's agreement (eg student placements, visiting fellows) for the first time. Existing healthcare workers who are moving to a post or training that involves exposure-prone procedures (EPPs) are also considered as 'new'. Returning healthcare workers may also be regarded as 'new', depending on what activities they have engaged in while

3 DH (2002) *Pre and post appointment checks for all persons working in the NHS in England*, Health Service Circular 2002/008, www.dh.gov.uk/assetRoot/04/01/22/92/04012292.pdf

4 NHS Employers (2005) *The management of health, safety and welfare issues for NHS staff*, www.nhsemployers.org/practice/healthy-workplaces.cfm

away from the health service (see paragraphs 22 and 23). *Independent healthcare: National Minimum Standards Regulations*⁵ require all healthcare workers in the independent healthcare sector to comply with professional codes of practice and Department of Health (DH) guidelines on healthcare workers who are infected with BBVs.

8. The guidance does not apply to healthcare workers who are already employed in the NHS, with the exception of those moving to a post requiring the performance of EPPs for the first time in their career. This guidance is supplementary to routine occupational health checks/ immunisations for other infectious diseases (eg for rubella and varicella).
9. This guidance is intended to:
 - reinforce and extend existing measures to reduce the risk of healthcare worker-to-patient transmission of BBVs and TB;
 - reduce the future burden of patient notification exercises;
 - maintain public confidence in the healthcare workforce in light of the increasing global prevalence of serious communicable diseases, but without placing a disproportionate burden on the health service;
 - remind healthcare workers of their responsibility to seek professional advice about the need to be tested if they have been exposed to a serious communicable disease.

5 DH (2002) *Independent Health Care: National Minimum Standards Regulations*, www.dh.gov.uk/assetRoot/04/07/83/67/04078367.pdf

Rationale

Why is testing one-off and not repeated?

10. The logic of one-off testing of new healthcare workers has been questioned, given that healthcare workers will be at ongoing risk of occupational (and potentially non-occupational) exposure. Professional codes of practice from regulatory bodies require healthcare workers who may have been exposed to infection with a serious communicable disease, in whatever circumstances, promptly to seek and follow confidential professional advice about whether to undergo testing. Failure to do so may breach the duty of care to patients.
11. This means healthcare workers are under an ongoing obligation to seek professional advice about the need to be tested if they have been exposed to a serious communicable disease, obviating the need for repeat testing. This obligation applies equally to healthcare workers already in post.

Why are standard and additional health clearance (including tests for HIV, hepatitis B and hepatitis C) not recommended for all new healthcare workers?

12. The vast majority of nursing and medical duties do not pose a risk of infection to patients, provided that normal infection-control precautions are observed. However, there is a low risk of BBV transmission during EPPs. Healthcare workers who are infected with BBVs are not allowed to carry out EPPs, as injury to the worker could result in their blood contaminating their patient's open tissues.

Summary of action

13. The health checks recommended in this guidance are presented in two sections:
 - the standard health checks recommended for all healthcare workers;
 - the additional health checks recommended for healthcare workers who will perform EPPs.⁶

14. It is recommended that chief executives of NHS trusts and of primary care trusts, principals in the general medical and dental services and principals in the personal medical and dental services ensure that the following arrangements are in place as soon as is reasonably practicable:
 - To provide pre-appointment *standard health checks* for *all* new healthcare workers, to include:
 - checks for TB disease/immunity;
 - the offer of hepatitis B immunisation, with post-immunisation testing of response;

⁶ EPPs are those invasive procedures where there is a risk that injury to the worker may result in 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. Such procedures occur mainly in surgery, obstetrics and gynaecology, dentistry and some aspects of midwifery. Most nursing duties do not involve EPPs; exceptions include accident and emergency and theatre nursing. Further guidance and examples of EPPs can be found in **Annex B**.

- the offer of testing for hepatitis C and HIV, in the context of reminding healthcare workers of their professional responsibilities in relation to serious communicable diseases.

All new healthcare workers need to have standard health clearance before they have clinical contact with patients, ie be free from TB disease, with immunisation where appropriate, and to be offered immunisation against hepatitis B.

- To provide the following *additional health checks* for *all* new healthcare workers who will perform EPPs: health checks to establish that they are not chronically infected with hepatitis B, hepatitis C or HIV.

For new healthcare workers whose post or training requires performance of EPPs, it is suggested that appointment or admission to training should be conditional on satisfactory completion of standard and additional health clearance checks, ie that they are free from infection with hepatitis B, hepatitis C and HIV, as well as TB. It is therefore recommended that these checks be carried out early in the appointments/admissions process.

Existing health checks

15. Health clearance recommended by this guidance should be implemented alongside existing health checks for new healthcare workers and other pre-appointment checks.

Categories of new healthcare worker

16. Standard health clearance is recommended for all categories of new healthcare worker employed or starting training (including students) in a clinical care setting, either for the first time or returning to work in the NHS. Additional health clearance is recommended for healthcare workers who will perform EPPs. It is not possible to provide a definitive list of types or specialties of healthcare workers who perform EPPs, because individual working practices may vary between clinical settings and between workers. **Annex B** provides examples of EPPs.

Students

Medical students

17. The practical skills required of medical students to obtain provisional General Medical Council (GMC) registration⁷ or of pre-registration house officers to obtain full GMC registration⁸ do not include EPPs. Freedom from infection with BBVs is therefore not an absolute requirement for those wishing to train as doctors. This recognises that many career paths are available to doctors which do not require the performance of EPPs.
18. However, some commonly undertaken components of the undergraduate medical curriculum may involve students in EPPs. Additional health clearance is therefore recommended for those students who will be involved in EPPs. Students found to be infectious carriers of BBVs will need to

7 General Medical Council (2003) *Tomorrow's Doctors*, www.gmc-uk.org/education/undergraduate/tomdoc.pdf

8 General Medical Council (2005) *The New Doctor*, www.gmc-uk.org/education/foundation/new_doctor.asp

comply with occupational health supervision and guidance from the responsible head of course to ensure they do not perform EPPs. Further guidance on health clearance and management of infected medical students is being prepared jointly by the Council of Heads of Medical Schools, the Association of UK University Hospitals and the Higher Education Occupational Physicians Group.

Nursing students

19. Additional health clearance is not necessary for nursing students, as performance of EPPs is not a requirement of the curriculum for pre-registration student nurse training.

Dental, midwifery, paramedic, ambulance technician and podiatric surgery students

20. Additional health clearance is recommended for all dental (including dental hygienists and therapists), midwifery, paramedic, ambulance technician and podiatric surgery (but not podiatry) students before acceptance onto training courses, because EPPs are performed during training and practice of these specialties.

Healthcare workers who are performing EPPs for the first time

21. Healthcare workers moving into training or posts involving EPPs for the first time should also be treated as 'new', and additional health clearance is recommended. This will include, for instance, senior house officers (or equivalent training grade under the modernising medical careers initiative)⁹ entering surgical or other specialties involving EPPs, qualified nurses

⁹ This will not apply in future to senior house officers (or equivalent training grade under the modernising medical careers initiative) who have already had additional health checks as medical students in the UK.

wishing to train as midwives and post-registration nurses moving into work in operating theatres and accident and emergency for the first time.

Healthcare workers who are returning to the NHS and who may have been exposed to serious communicable diseases

22. The need for additional health checks for any particular healthcare worker who is returning to work in the NHS and who may have been exposed to serious communicable diseases while away should be based on a risk assessment. This should be carried out by the occupational health department. The timing of any tests should take account of the natural history of the infections (ie the ‘window period’). Guidance on the risk factors for hepatitis C and HIV is provided in paragraphs 32, 33 and 35.
23. Some examples of healthcare workers who might be considered ‘returners’ include those returning from research experience (including electives spent in countries of high prevalence for TB or BBVs), voluntary service with medical charities, sabbaticals (including tours of active duty in the armed forces), exchanges, locum and agency work or periods of unemployment spent outside the UK.

Healthcare workers from locum and recruitment agencies, including NHS Professionals

24. Guidance on pre-employment health checks to be carried out for temporary staff is covered in HSC 2002/008¹⁰ and is also set out in the Code of Practice for the Supply of Temporary Staffing.¹¹ Agencies covered by the national contract for the supply of temporary staff to the NHS will be ‘quality assured’ in relation to recruitment standards, including health checks.

10 DH (2002) *Pre and post appointment checks for persons working in the NHS in England*, Health Service Circular 2002/008, www.dh.gov.uk/assetRoot/04/01/22/92/04012292.pdf

11 See www.dh.gov.uk/assetRoot/04/07/95/82/04079582.pdf

25. Occupational health checks, to the same standard as applied to NHS employees, should form part of pre-employment checks conducted by providers of temporary staff, regardless of whether they have worked previously in the NHS. Providers of temporary staff may wish to use their local NHS Plus occupational health services to undertake health checks and clearance on their behalf. This will ensure appropriate standards are met and records kept. Health clearance appropriate to healthcare workers' duties should be verified before the individual undertakes any clinical work. While working on NHS premises, responsibility for continuing occupational health and safety needs of temporary workers lies with the NHS employer, as covered by the Health and Safety at Work etc Act 1974. Agencies are responsible for supplying staff who are fit to practise and should satisfy themselves that the staff they supply have the necessary clearances. This may include paper certification or, in the case of a growing number of NHS doctors, clearance recorded on their personal occupational health smart card (see paragraphs 51–53).

Healthcare workers in the independent healthcare sector

26. NHS trusts and primary care trusts that arrange for NHS patients to be treated by non-NHS hospitals or health establishments in the UK, including independent-sector treatment centres, should ensure that this guidance is followed. *Independent Health Care: National Minimum Standards* include core standards relating to infection control and the prevention of blood-borne virus transmission in the healthcare setting.¹² The Healthcare Commission takes these standards into account in determining whether providers have in place appropriate safeguards and quality assurance arrangements for their patients.

12 DH (2002) *Independent Health Care: National Minimum Standards Regulations*, www.dh.gov.uk/assetRoot/04/07/83/67/04078367.pdf. The standards apply to independent hospitals, independent clinics and independent medical agencies (as defined by section 2 of the Care Standards Act 2000).

Standard health checks for healthcare workers who are new to the NHS

27. Employers will need to set up mechanisms in conjunction with their human resources and occupational health departments to identify new healthcare workers, returning healthcare workers and those moving to posts involving EPPs for the first time, to ensure that the necessary health checks are carried out. Standard health checks for non-EPP posts may be conducted on appointment; these should be completed before clinical duties commence.

TB

28. In accordance with guidelines from the National Institute for Health and Clinical Excellence (NICE),¹³ health checks should include the following:
- Employees new to the NHS who will be working with patients or clinical specimens should not start work until they have completed a TB screen or health check, or until documentary evidence is provided of such screening having taken place within the preceding 12 months.
 - Employees new to the NHS who will not have contact with patients or clinical specimens should not start work if they have signs or symptoms of TB.
 - Health checks for employees new to the NHS who will have contact with patients or clinical materials should include:
 - assessment of personal or family history of TB;
 - symptom and signs enquiry, possibly by questionnaire;

13 NICE (2006) *Clinical diagnosis and management of tuberculosis, and measures for its prevention and control*, www.nice.org.uk/page.aspx?o=CG033&c=infections

- documentary evidence of tuberculin skin testing (or interferon-gamma testing) and/or BCG scar check by an occupational health professional, **not relying on the applicant's personal assessment**;
- tuberculin skin test (or interferon-gamma test) result within the last five years, if available.
- If an employee new to the NHS has no (or inconclusive) evidence of prior BCG vaccination, a Mantoux tuberculin skin test (or interferon-gamma test) should be performed.
- Employees who will be working with patients or clinical specimens and who are Mantoux tuberculin skin test (or interferon-gamma test) negative should have an individual risk assessment for HIV infection before BCG vaccination is given.
- Employees new to the NHS should be offered BCG vaccination, whatever their age, if they will have contact with patients and/or clinical specimens, are Mantoux tuberculin skin test (or interferon-gamma test) negative and have not been previously vaccinated.
- All new entrants to the UK from countries of high TB incidence are recommended by NICE to have a chest X-ray provided that they have not had one recently, are not younger than 11 years and are not possibly pregnant. Employees of any age who are new to the NHS and are from countries of high TB incidence, or who have had contact with patients in settings with a high TB prevalence, should have a Mantoux tuberculin skin test (or interferon-gamma test). If negative, recommendations in the two preceding bullet points should be followed. If positive, they should be referred to a TB clinic for assessment and consideration of treatment for disease or latent infection.
- If a new employee from the UK or other low-incidence setting, without prior BCG vaccination, has a positive Mantoux tuberculin skin test (or interferon-gamma test), they should have a medical

assessment and a chest X-ray. They should be referred to a TB clinic for consideration of TB treatment if the chest X-ray is abnormal, or for consideration of treatment of latent TB infection if the chest X-ray is normal.

- If a prospective or current healthcare worker who is Mantoux tuberculin skin test (or interferon-gamma test) negative, declines BCG vaccination, the risks should be explained and the oral explanation supplemented by written advice. He or she should usually not work where there is a risk of exposure to TB. The employer will need to consider each case individually, taking account of employment and health and safety obligations.
- Clinical students, agency and locum staff and contract ancillary workers who have contact with patients or clinical materials **should be screened for TB to the same standard as new employees in healthcare environments**, according to the recommendations set out above. Documentary evidence of screening to this standard should be sought from locum agencies and contractors who carry out their own screening.
- NHS organisations arranging care for NHS patients in non-NHS settings should ensure that healthcare workers who have contact with patients or clinical materials in these settings have been screened for TB to the same standard as new employees in healthcare environments.

Preventing infection in healthcare settings: occupational health

29. These recommendations set the standard for NHS organisations and therefore should apply in any setting in England and Wales where NHS patients are treated.

- Reminders of the symptoms of TB, and the need for prompt reporting of such symptoms, should be included with annual reminders about occupational health for staff who:
 - are in regular contact with TB patients or clinical materials;

- have worked in a high-risk clinical setting for four weeks or longer.
- One-off reminders should be given after a TB incident on a ward.
- There is a duty on staff to report symptoms as part of their responsibility to protect patients.¹⁴
- If no documentary evidence of prior screening is available, staff in contact with patients or clinical material who are transferring jobs within the NHS should be screened as for new employees.
- The risk of TB for a new healthcare worker who knows he or she is HIV positive at the time of recruitment should be assessed as part of the occupational health checks.
- The employer, through the occupational health department, should be aware of the settings with increased risk of exposure to TB, and that these pose increased risks to HIV-positive healthcare workers.
- Healthcare workers who are found to be HIV positive during employment should have medical and occupational assessments of TB risk, and may need to modify their work to reduce exposure.

Hepatitis B immunisation

30. It is recommended that all healthcare workers, including students who have direct contact with blood, blood-stained body fluids or patients' tissues, are offered immunisation against hepatitis B and tests to check their response to immunisation, including investigation of non-response. Guidance on immunisation against hepatitis B, which includes information about dosage/protocols and supplies, is contained in chapter 18 of the UK Health Departments' publication, *Immunisation against infectious disease*.

¹⁴ See General Medical Council (1997) *Serious communicable diseases*, www.gmc-uk.org/guidance/library/serious_communicable_diseases.asp; and Nursing and Midwifery Council (2004) *The NMC code of professional conduct: standards for conduct, performance and ethics*, www.nmc-uk.org/aFramedisplay.aspx?documentID=201

31. Healthcare workers for whom hepatitis B vaccination is contra-indicated, who decline vaccination or who are non-responders to vaccine should be restricted from performing EPPs unless shown to be non-infectious (see paragraphs 37-40). Periodic re-testing may need to be considered.

Offer of testing for hepatitis C: non-EPP workers

32. All healthcare workers who are new to the NHS should be offered a pre-test discussion and hepatitis C antibody test (and, if positive, a hepatitis C RNA test) in the context of their professional responsibilities in relation to hepatitis C. It would be helpful to remind them of the ways in which they might have been exposed to hepatitis C. The major risk factors for hepatitis C infection are:
- receipt of unscreened blood or untreated plasma products (in the UK before September 1991 and 1986 respectively);
 - the sharing of injecting equipment while using drugs;
 - having been occupationally exposed to the blood of patients known to be infected with hepatitis C, or deemed to be at high risk of infection, by sharps or other injuries (and not subsequently screened and shown to be non-infectious);
 - receiving medical or dental treatment in countries where hepatitis C is common and infection-control precautions may be inadequate.
33. Other, less common routes of hepatitis C transmission include sexual exposure, mother-to-baby, tattooing, body piercing and the sharing of toothbrushes and razors.
34. A positive test, or declining a test for hepatitis C, should not affect the employment or training of healthcare workers who will not perform EPPs. Healthcare workers have the right to decline testing, in which case they will not be cleared to perform EPPs.

Offer of testing for HIV: non-EPP workers

35. All healthcare workers who are new to the NHS should be offered an HIV antibody test with appropriate pre-test discussion, including reference to their professional responsibilities in relation to HIV. During this discussion, they should be given a copy of the guidance from their professional regulatory body, if relevant (see **Annex C**). It would be helpful to remind them of the ways in which they may have been exposed to HIV, which include:
- if they are male, engaging in unprotected sexual intercourse with another man;
 - having unprotected intercourse in, or with a person who had been exposed in, a country where transmission of HIV through sexual intercourse between men and women is common;
 - sharing injecting equipment while misusing drugs;
 - having a significant occupational exposure to HIV-infected material in any circumstances;
 - engaging in invasive medical, surgical, dental or midwifery procedures, either as a practitioner or patient, in parts of the world where infection-control precautions may have been inadequate, or with populations with a high prevalence of HIV infection;
 - engaging in unprotected sexual intercourse with someone in any of the above categories.
36. A positive test, or declining a test for HIV, should not affect the employment or training of healthcare workers who will not perform EPPs. Nevertheless, HIV-infected healthcare workers should remain under regular medical and occupational health supervision in accordance with good practice. Occupational health physicians should consider the impact of HIV positivity on the individual's resistance to infection when advising on suitability for particular posts, especially if the duties may involve exposure to known or undiagnosed TB.

Additional health checks for hepatitis B, hepatitis C and HIV for EPP healthcare workers who are new to the NHS and who will perform EPPs, and for existing workers who are new to EPPs

Hepatitis B

37. Previous guidelines assumed that a hepatitis B antibody (anti-HBs) response measured after a course of vaccine indicated non-infectivity. However, it is now recognised that, on occasion, this response may occur in individuals who have current infection (unpublished reports from a number of UK occupational health and virology departments). Where anti-HBs is present in such circumstances, it is usually in low titre, but levels of >100mIU/ml have been documented in hepatitis B-infected healthcare workers, some of whom would be restricted from performing EPPs under current guidelines. Relying on an anti-HBs response to vaccine to indicate non-infectivity may not be secure, since some infectious carriers of the virus could be missed. Therefore, it is now recommended that healthcare workers who will perform EPPs should:
- be tested for hepatitis B surface antigen (HBsAg), which indicates current hepatitis B infection;

- if negative for HBsAg, be immunised (unless they have already received a course of vaccine) and have their response checked (anti-HBs). Where there is evidence that a healthcare worker, who is known to have had previous hepatitis B infection which has cleared, now has natural immunity, immunisation is not necessary, but the advice of a local virologist or clinical microbiologist should be sought;
 - if positive for HBsAg, be tested for hepatitis B e-markers. If they are e-antigen (HBeAg) positive, they should not be allowed to perform EPPs. If they are HBeAg negative, they should have their hepatitis B viral load (HBV DNA) tested. If the HBV DNA is greater than 10^3 genome equivalents/ml, they should not be allowed to perform EPPs. HBV DNA testing should be carried out in designated laboratories (see paragraph 49).
38. There are no restrictions on the working practices of hepatitis B-infected healthcare workers who have HBV DNA at or below 10^3 genome equivalents/ml, subject to annual measurement of their HBV DNA.¹⁵
39. New guidance being published at the same time as this document, allows hepatitis B infected healthcare workers who are e-antigen negative and have relatively low HBV DNA to perform EPPs, whilst taking continuous antiviral therapy that suppresses their HBV DNA to 10^3 genome equivalents/ml or below. This is subject to regular monitoring by a consultant occupational physician.¹⁶

15 DH (2000) *Hepatitis B infected health care workers*, Health Service Circular 2000/020, www.dh.gov.uk/assetRoot/04/01/22/57/04012257.pdf

16 DH (2007) *Hepatitis B infected healthcare workers and antiviral therapy*, www.dh.gov.uk/publications

17 See refs 15 and 16 above, and NHS Management Executive (1993) *Protecting health care workers and patients from hepatitis B*, Health Service Guidelines HSG(93)40, www.dh.gov.uk/assetRoot/04/07/93/06/04079306.pdf and its addendum issued under cover of EL(96)77, www.dh.gov.uk/assetRoot/04/08/06/27/04080627.pdf, www.dh.gov.uk/assetRoot/04/08/06/26/04080626.pdf and www.dh.gov.uk/assetRoot/04/07/93/07/04079307.pdf

40. Guidance on hepatitis B-infected healthcare workers is contained in several DH documents.¹⁷

Hepatitis C

41. Healthcare workers who will perform EPPs should be tested for hepatitis C antibody. Those who are positive should be tested for hepatitis C RNA to detect the presence of current infection. Qualitative testing for hepatitis C virus RNA should be carried out in accredited laboratories that are experienced in performing such tests and which participate in external quality assurance schemes. The assays used should have a minimum sensitivity of 50IU/ml. Those who are hepatitis C RNA positive should not be allowed to perform EPPs. This extends existing guidance on hepatitis C testing¹⁸ to cover all staff new to the NHS who will perform EPPs, regardless of career stage.
42. Healthcare workers should be asked about antiviral treatment when submitting a blood sample, because special arrangements exist for healthcare workers who are receiving or have recently received interferon and/or antiviral therapy for hepatitis C.¹⁹

18 DH (2002) *Hepatitis C infected health care workers*, Health Service Circular 2002/010, www.dh.gov.uk/assetRoot/04/01/22/17/04012217.pdf

19 DH (2002) *Hepatitis C infected health care workers*, www.dh.gov.uk/assetRoot/04/05/95/44/04059544.pdf

20 See reference 18.

21 See reference 19.

43. Guidance on hepatitis C-infected healthcare workers is contained in Health Service Circular HSC 2002/010²⁰ and *Hepatitis C infected healthcare workers*.²¹

HIV

44. Healthcare workers who will perform EPPs should be tested for HIV antibody. Those who are HIV antibody positive should not be allowed to perform EPPs. Guidance on HIV-infected healthcare workers is contained in *HIV Infected Health Care Workers: Guidance on Management and Patient Notification*.²²

22

DH (2005) *HIV Infected Health Care Workers: Guidance on Management and Patient Notification*, www.dh.gov.uk/assetRoot/04/11/64/16/04116416.pdf

Other considerations

Overseas recruitment

45. All healthcare workers from outside the UK who are applying for employment or a training place in the NHS (including those applying under international recruitment arrangements) will need to have standard clearance for serious communicable diseases (ie in relation to TB and hepatitis B). Where their employment involves, or may involve, the performance of EPPs, they will require additional health clearance for serious communicable diseases (ie in relation to hepatitis C and HIV). It is recommended that both standard and additional health checks for serious communicable diseases be carried out in their own country before they apply for employment or training in the NHS. They should include the results of these health checks in their health declaration. This should assist in making them aware of the professional responsibilities in relation to serious communicable diseases in this country, and should avoid them making wasted applications. The prospective NHS employer or training institution should arrange for the necessary tests in this country to confirm the results of the tests already carried out *before* the post or training place is taken up. It should be made clear to applicants that all offers of employment or admission to training institutions will be conditional upon satisfactory health clearance.
46. Guidance on international recruitment of healthcare workers is available on the DH website at: www.dh.gov.uk/PolicyAndGuidance/HumanResourcesAndTraining/MoreStaff/InternationalRecruitmentNHSEmployers/fs/en

Laboratory tests

Identification and validation of samples submitted for testing

47. It is important that those commissioning laboratory tests for HIV, hepatitis B and hepatitis C ensure that samples tested are from the healthcare worker in question. Healthcare workers must not provide their own specimens.
48. The following standards of good practice for occupational health data recording have been agreed by the Association of National Health Occupational Physicians (ANHOPS) and the Association of NHS Occupational Health Nurses (ANHONS) as the two relevant professional bodies:
 - Laboratory test results required for clearance for performing EPPs must be derived from *an identified, validated sample (IVS)*. Results should not be recorded in occupational health records if not derived from an IVS.
 - An IVS is defined according to the following criteria:
 - the healthcare worker should show proof of identity with a photograph – NHS trust identity badge, new driver's licence, some credit cards, passport or national identity card – when the sample is taken.
 - The sample of blood should be taken in the occupational health department.
 - Samples should be delivered to the laboratory in the usual manner, not transported by the healthcare worker.
 - When results are received from the laboratory, the clinical notes should be checked for a record that the sample was sent by the occupational health department at the relevant time.

Laboratories

49. Laboratory tests should be carried out in accredited laboratories that are experienced in performing the necessary tests and which participate in appropriate external quality assurance schemes. Two laboratories are currently designated by DH for HBV DNA testing (see HSC 2000/020).

Health clearance certificates

50. 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 (eg annual HBV DNA level for e-antigen-negative healthcare workers – see paragraph 38). 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.
51. Electronic health clearance based on secure personal smart cards (known as the occupational health smart card (OHSC) scheme) was introduced in England from November 2001 on a rolling region-by-region basis via postgraduate medical deaneries for all hospital doctors in training. NHS Professionals issues cards for any locum doctors registered with them. Trainees in NHS trusts in Wales joined the scheme in 2005. The OHSC central database now contains information on over 52,000 NHS doctors. Current cardholding doctors can continue to use their smart cards after they leave the training grades, while other doctors who are new to the NHS, including medical locums, may also now apply centrally for a card if they feel they would benefit from its portability as they move between trusts. Application forms can be downloaded using the OHSC doctors' portal website at: www.ohsc-uk.com
52. Following a pilot exercise in London medical schools for students graduating in 2004, and the issue of a further 4,000 cards for the July 2005 graduates, installation plans are now in hand to extend coverage to all

undergraduate medical students across England. This will allow them to provide smart card evidence of health clearance before undertaking NHS clinical attachments and subsequently when they join postgraduate NHS training.

53. The aim in all cases is to strengthen the quality of pre-employment checks by streamlining and standardising health clearance procedures as staff move for training or career purposes. Smart cards allow relevant, accurate data to be transferred securely from one employer to another, thereby avoiding wasteful and unnecessary duplication of activity within human resources and occupational health units. For further information on this scheme, see www.nhsemployers.org

Healthcare workers who are applying for posts or training involving EPPs and who decline to be tested

54. Healthcare workers who apply for a post or training which may involve EPPs and who decline to be tested for HIV, hepatitis B and hepatitis C should not be cleared to perform EPPs.

Occupational health advice

55. Arrangements should be made to provide healthcare workers who are new to the NHS with access to specialist (consultant) occupational health advice during the pre-appointment health checks so that the processes can be explained and any questions about the health checks answered. Further, the occupational health department must be able to inform new healthcare workers of the results of their tests, including the implications for their own health and the need for referral for specialist assessment.
56. Occupational health departments and infection-control teams will wish to take the opportunity to emphasise the importance of routine infection-control procedures, including the importance of hand hygiene,

appropriate use of protective clothing and compliance with local policies in the hospital or unit in which they will eventually work. Documentation detailing local infection-control policies should be provided or signposted.

57. It would be appropriate to remind healthcare workers of the importance of avoiding needlestick injuries and other accidental exposures to blood and blood-stained body fluids.²³ The local arrangements for reporting such accidents should be explained, as should the range of interventions to protect healthcare workers (eg post-exposure prophylaxis after accidental exposure to HIV).
58. The importance of reporting symptoms that are suggestive of serious communicable disease such as TB or BBV infection to the occupational health department should be stressed. This is particularly important after the healthcare worker has been exposed to the risk of such infection, regardless of the route of exposure (occupational or not). If the new healthcare worker has not been provided with a copy of the written guidance on serious communicable diseases which has been produced by the appropriate professional regulatory body, it should be provided during the pre-appointment health checks. The advice from each relevant regulatory body is reproduced in **Annex C**.

Confidentiality

59. It is extremely important that healthcare workers receive the same right to confidentiality as any patient who is seeking or receiving medical care. Occupational health staff work within strict guidelines on confidentiality. They have a key role in revising local procedures for testing healthcare workers who are new to the NHS for serious communicable diseases. Occupational health notes are separate from other hospital notes.

²³ Useful guidance can be found on the Health Protection Agency's website under 'Blood-borne viruses and occupational exposure' at: www.hpa.org.uk/infections/topics_az/bbv/bbmenu.htm

Occupational health staff are obliged, ethically and professionally, not to release information without the informed consent of the individual. There are occasions when an employer may need to be advised that a change of duties should take place, but infectious disease status itself will not normally be disclosed without the healthcare worker's consent. Where patients are, or have been, at risk, however, it may be necessary in the public interest for the employer to have access to confidential information.

Publicising the new arrangements to prospective employees and students

60. It is recommended that employers publicise the new health clearance requirements in job descriptions and application packs. Training institutions such as medical and dental schools and schools and colleges of nursing and midwifery should include such information in their prospectuses and application packs. Publicity material should make it clear that health clearance will be required in accordance with this guidance.

Audit and surveillance

61. Local clinical audit of the arrangements for health clearance of new NHS healthcare workers should take place.

Annex A

Extract from *Immunisation against infectious disease**

Immunisation of healthcare and laboratory staff

Health and safety at work

Under the Health and Safety at Work Act 1974 (HSWA), employers, employees and the self-employed have specific duties to protect, so far as reasonably practicable, those at work and others who may be affected by their work activity, such as contractors, visitors and patients. Central to health and safety legislation is the need for employers to assess the risks to staff and others.

The Control of Substances Hazardous to Health (COSHH) Regulations 2002 require employers to assess the risks from exposure to hazardous substances, including pathogens (called biological agents in COSHH), to bring into effect measures necessary to protect workers and others who may be exposed from those risks, as far as is reasonably practicable.

Pre-employment health assessment

All new employees should undergo a pre-employment health assessment which should include a review of immunisation needs. The COSHH risk assessment will indicate which pathogens staff are exposed to in their workplace. Staff considered to

* DH (2006) Immunisation of healthcare and laboratory staff, in: *Immunisation against infectious disease* (the 'Green Book'), Chapter 12, www.dh.gov.uk/assetRoot/04/13/79/02/04137902.pdf

be at risk of exposure to pathogens should be offered routine pre-exposure immunisation as appropriate. This decision should also take into account the safety and efficacy of available vaccines. Staff not considered to be at risk need not routinely be offered immunisation, although post-exposure prophylaxis may occasionally be indicated.

Provision of occupational health immunisations

Employers need to be able to demonstrate that an effective employee immunisation programme is in place, and they have an obligation to arrange and pay for this service. It is recommended that the management of an immunisation programme is undertaken by an occupational health service which has appropriately qualified specialists. This chapter deals primarily with the immunisation of healthcare and laboratory staff. Other occupations are covered in the relevant chapters.

Immunisation of healthcare and laboratory staff

Any vaccine-preventable disease that is transmissible from person to person poses a risk to both healthcare professionals and their patients. Healthcare workers have a duty of care towards their patients which includes taking reasonable precautions to protect them from communicable diseases. Immunisation of healthcare and laboratory workers may therefore be indicated to:

- protect the individual and their family from an occupationally-acquired infection
- protect patients and service users, including vulnerable patients who may not respond well to their own immunisation
- protect other healthcare and laboratory staff
- allow for the efficient running of services without disruption.

The most effective method for preventing laboratory-acquired infections is by adoption of safe working practices. Immunisation should never be regarded as a substitute for good laboratory practice, although it provides additional protection. Staff who work mainly with clinical specimens or have patient contact may be exposed to a variety of infections. Staff who work mainly with specific pathogens are only likely to be exposed to those pathogens handled in their laboratory.

Many employers are directly or indirectly involved in the provision of healthcare and other patient services. Employees may be working in general practice, in the NHS, nursing homes or private hospitals and clinics. Full- or part-time permanent and agency staff should also have a health assessment.

Further information on pre-employment health assessment for healthcare staff, record keeping and the exchange of employee records between hospitals can be found in the Association of National Health Occupational Physicians (ANHOPS) guidelines (ANHOPS, 2004). The health assessment for laboratory staff should take into account the local epidemiology of the disease, the nature of material handled (clinical specimens, cultures of pathogens or both), the frequency of contact with infected or potentially infected material, the laboratory facilities including containment measures, and the nature and frequency of any patient contact. Staff considered to be at risk of exposure to pathogens should be offered pre-exposure immunisation as appropriate.

Following immunisation, managers of those at risk of occupational exposure to certain infections, and the workers themselves, need to have sufficient information about the outcome of the immunisation to allow appropriate decisions to be made about potential work restriction and about post-exposure prophylaxis following known or suspected exposure.

Recommendations by staff groups

The objective of occupational immunisation of healthcare and laboratory staff is to protect workers at high risk of exposure and their families, to protect patients and

other staff from exposure to infected workers, and to sustain the workforce. Potential exposure to pathogens, and therefore the type of immunisation required, may vary from workplace to workplace. The following offers guidance on the types of immunisation that may be appropriate.

Staff involved in direct patient care

This includes staff who have regular clinical contact with patients and who are directly involved in patient care. This includes doctors, dentists, midwives and nurses, paramedics and ambulance drivers, occupational therapists, physiotherapists and radiographers. Students and trainees in these disciplines and volunteers who are working with patients must also be included.

Routine vaccination

All staff should be up to date with their routine immunisations, e.g. tetanus, diphtheria, polio and MMR. MMR vaccine is especially important in the context of the ability of staff to transmit measles or rubella infections to vulnerable groups. While healthcare workers may need MMR vaccination for their own benefit, they should also be immune to measles and rubella, in order to assist in protecting patients. Satisfactory evidence of protection would include documentation of:

- having received two doses of MMR, or
- positive antibody tests for measles and rubella.

Selected vaccines

BCG

BCG vaccine is recommended for healthcare workers who may have close contact with infectious patients. It is particularly important to test and immunise staff working in maternity and paediatric departments and departments in which the patients are likely to be immunocompromised, e.g. transplant, oncology and HIV units (see Chapter 32 on TB).

Hepatitis B

Hepatitis B vaccination is recommended for healthcare workers who may have direct contact with patients' blood or blood-stained body fluids. This includes any staff who are at risk of injury from blood-contaminated sharp instruments, or of being deliberately injured or bitten by patients. Antibody levels for hepatitis B should be checked one to four months after the completion of a primary course of vaccine. Such information allows appropriate decisions to be made concerning post-exposure prophylaxis following known or suspected exposure to the virus.

Influenza

Influenza immunisation helps prevent influenza in staff and may also reduce the transmission of influenza to vulnerable patients. Influenza vaccination is therefore recommended for healthcare workers directly involved in patient care, who should be offered influenza immunisation on an annual basis.

Varicella

Varicella vaccine is recommended for susceptible healthcare workers who have direct patient contact. Those with a definite history of chickenpox or herpes zoster can be considered protected. Healthcare workers with a negative or uncertain history of chickenpox or herpes zoster should be serologically tested and vaccine only offered to those without VZ antibody.

Non-clinical staff in healthcare settings

This includes non-clinical ancillary staff who may have social contact with patients but are not directly involved in patient care. This group includes receptionists, ward clerks, porters and cleaners.

Routine vaccination

All staff should be up to date with their routine immunisations, e.g. tetanus, diphtheria, polio and MMR. MMR vaccine is especially important in the context of the ability of staff to transmit measles or rubella infections to vulnerable groups. While healthcare workers may need MMR vaccination for their own benefit, they

should also be immune to measles and rubella in order to assist in protecting patients. Satisfactory evidence of protection would include documentation of:

- having received two doses of MMR, or
- positive antibody tests for measles and rubella.

Selected vaccines

BCG

BCG vaccine is not routinely recommended for non-clinical staff in healthcare settings.

Hepatitis B

Hepatitis B vaccination is recommended for workers who are at risk of injury from blood-contaminated sharp instruments, or of being deliberately injured or bitten by patients. Antibody titres for hepatitis B should be checked one to four months after the completion of a primary course of vaccine. Such information allows appropriate decisions to be made concerning post-exposure prophylaxis following known or suspected exposure to the virus.

Varicella

Varicella vaccine is recommended for susceptible healthcare workers who have regular patient contact but are not necessarily involved in direct patient care. Those with a definite history of chickenpox or herpes zoster can be considered protected. Healthcare workers with a negative or uncertain history of chickenpox or herpes zoster should be serologically tested and vaccine only offered to those without VZ antibody.

Influenza

Influenza vaccination is not routinely recommended in this group.

Laboratory and pathology staff

This includes laboratory and other staff (including mortuary staff) who regularly handle pathogens or potentially infected specimens. In addition to technical staff, this may include cleaners, porters, secretaries and receptionists in laboratories. Staff working in academic or commercial research laboratories who handle clinical specimens or pathogens should also be included.

Routine vaccination

All staff should be up to date with their routine immunisations, e.g. tetanus, diphtheria, polio and MMR. MMR vaccine is especially important for those who have contact with patients. Satisfactory evidence of protection for such staff would include documentation of:

- having received two doses of MMR, or
- positive antibody tests for measles and rubella.

In addition to routine vaccination, staff regularly handling faecal specimens who are likely to be exposed to polio viruses, should be offered a booster with a polio-containing vaccine every ten years.

Individuals who may be exposed to diphtheria in microbiology laboratories and clinical infectious disease units should be tested and, if necessary, given a booster dose of a diphtheria-containing vaccine. An antibody test should be performed at least three months after immunisation to confirm protective immunity and the individual given a booster dose at ten-year intervals thereafter. The cut-off level is 0.01IU/ml for those in routine diagnostic laboratories. For those handling or regularly exposed to toxigenic strains, a level of 0.1IU/ml should be achieved. Where a history of full diphtheria immunisation is not available, the primary course should be completed and an antibody test should be performed at least three months later to confirm protective immunity. Boosters should be given five years later and subsequently at ten-yearly intervals.

Selected vaccines

BCG

BCG is recommended for technical staff in microbiology and pathology departments, attendants in autopsy rooms and any others considered to be at high risk.

Hepatitis B

Hepatitis B vaccination is recommended for laboratory staff who may have direct contact with patients' blood or blood-stained body fluids or with patients' tissues. Antibody levels for hepatitis B should be checked one to four months after the completion of a primary course of vaccine. Such information allows appropriate decisions to be made concerning post-exposure prophylaxis following known or suspected exposure to the virus.

Staff handling specific organisms

For some infections, the probability that clinical specimens and environmental samples of UK origin contain the implicated organism and therefore present any risk to staff is extremely low. For these infections, routine immunisation of laboratory workers is not indicated. Staff handling or conducting research on specific organisms and those working in higher risk settings, such as reference laboratories or infectious disease hospitals, may have a level of exposure sufficient to justify vaccination. The following vaccines are recommended for those that work with the relevant organism and should be considered for those working with related organisms and those in reference laboratories or specialist centres:

- hepatitis A
- Japanese encephalitis
- cholera
- meningococcal ACW135Y
- smallpox
- tick-borne encephalitis

- typhoid
- yellow fever
- influenza
- varicella.

Anthrax vaccine is also recommended for those who work with the organism, or those who handle specimens from potentially infected animals.

Rabies vaccination is recommended for those who work with the virus, or handle specimens from imported primates or other animals that may be infected.

Post-exposure management

Specific additional measures may sometimes be required following an incident where exposure to an infected individual, pathogen or contaminated instrument occurs. Advice should be sought from an occupational health department or from the local microbiologist or other appropriate consultant. Some advice on post-exposure management is contained in the relevant chapters or may be found in relevant guidelines (below).

Reference

Association of National Health Occupational Physicians (2004). *Immunisation of healthcare workers* ANHOPS Guidelines, September 2004, www.anhops.com.

Further reading

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Annex B

Exposure-prone procedures (EPPs)

1. 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.
2. When there is any doubt about whether a procedure is exposure-prone 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 healthcare Workers Infected with Blood-borne Viruses (UKAP). Some examples below of advice given by UKAP may serve as a guide, but cannot be seen as necessarily generally applicable, as the working practices of individual healthcare workers vary.
3. 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.
4. 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.
5. The decision whether an HIV, hepatitis B or hepatitis C-infected worker 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

6. UKAP has been making recommendations about the working practices of healthcare workers who are infected with HIV since the end of 1991, and healthcare workers who are infected with other blood-borne viruses (BBVs) since September 1993. Advice for occupational physicians arises from individual queries, cases or general issues which have been referred to UKAP since its inception.
7. Judgements are made by occupational physicians, or in conjunction with UKAP where doubt or difficulty exists, about whether any procedure is or is not exposure-prone against the following criteria:
- Exposure-prone procedures (EPPs) are those where there is a risk that injury to the worker may result in exposure of the patient's open tissues to the blood of the worker. These procedures include those

where the worker's gloved hands 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.

8. Occupational physicians and others who need to make decisions about the working practices of infected healthcare workers 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

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

UKAP's advice

10. 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 healthcare worker 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 (eg colleagues available to take over if an open procedure becomes necessary).

10.1 **Accident and emergency (A&E)**

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

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.

Other EPPs that may arise in an A&E setting include:

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

(See also Anaesthetics, Biting, Paramedics, Resuscitation.)

10.2 **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 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 A&E trauma cases such as patients with multiple rib fractures.

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 for example 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 for example 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.)

10.3 **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.

10.4 **Biting**

Staff who are working in areas that pose 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 healthcare workers 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 healthcare workers working with patients known to be 'regular and predictable' biters, there were no documented cases of transmission from the healthcare 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;
- a bite associated with a previous injury, ie non-intact skin.

The risk of infection also increased where the biter was 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 BBV transmission from an infected healthcare 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.

UKAP has advised that, despite the theoretical risk, since there is no documented case of transmission from an infected healthcare worker 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.

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 healthcare workers than to patients. Therefore, employers should take measures to prevent injury to staff, and healthcare workers who have been bitten by patients should seek advice and treatment, in the same way as after a needlestick injury.

10.5 **Bone-marrow transplants**

Not exposure-prone.

10.6 **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.)

10.7 **Chiropodists** – see Podiatrists

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

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;
- the construction and fitting of full dentures.

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.

10.9 **Ear, nose and throat (ENT) 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 that 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.

10.10 **Endoscopy**

Simple endoscopic procedures (eg gastroscopy, bronchoscopy) have not been considered exposure-prone. In general, there is a risk that surgical endoscopic procedures (eg 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.

(See also Biting, Laparoscopy.)

10.11 **General practice** – see Accident and emergency, Biting, Minor surgery, Midwifery/obstetrics, Resuscitation

10.12 **Gynaecology**

Open surgical procedures are exposure-prone. Many minor gynaecological procedures are not considered exposure-prone, examples of which include dilatation and curettage, suction termination of pregnancy, colposcopy, surgical insertion of depot contraceptive implants/devices, fitting intrauterine contraceptive devices (coils) and vaginal egg collection, provided that 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 (ie with fingers concealed in the vagina), then the latter would be an EPP.

(See also Laparoscopy.)

10.13 **Haemodialysis/haemofiltration** – see Renal medicine

10.14 **Intensive care**

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

10.15 Laparoscopy

Laparoscopy is mostly non-exposure-prone because fingers are never concealed in the patient's tissues. There are some exceptions: laparoscopy is exposure-prone if a main trochar is inserted using an open procedure, as for example in a patient who has had previous abdominal surgery. It is also exposure-prone if the rectus sheath is closed at port sites using a J-needle, and if 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 deal with this eventuality.

10.16 Midwifery/obstetrics

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 are not exposure-prone.

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 who assist at births in a community setting.

10.17 Minor surgery

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

10.18 Needlestick/occupational exposure to HIV

Healthcare workers 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 EPP is so low as to be considered negligible. However, in the event of the worker being diagnosed

as HIV positive, such procedures must cease in accordance with this guidance.

10.19 **Nursing**

General nursing procedures do not include EPPs. The duties of operating theatre nurses should be considered individually. Theatre scrub 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, Resuscitation.)

10.20 **Obstetrics/midwifery**

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

10.21 **Operating department assistant/technician**

General duties do not normally include EPPs.

10.22 **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.

10.23 **Optometry**

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

10.24 **Orthodontics** – see Dentistry and orthodontics (including hygienists)

10.25 **Orthopaedics**

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).

Non-EPPs include:

- 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 who is 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 that fingers and sharp instruments are not together in the wound;
- closed reductions of fractures and other percutaneous procedures.

10.26 Paediatrics

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

(See also Arterial cutdown.)

10.27 Paramedics

By 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 and emergency, Biting, Resuscitation.)

10.28 Pathology

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

10.29 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, thereby making them EPPs.

(See also Orthopaedics.)

10.30 **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.)

10.31 **Renal medicine**

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 at all times during the procedure. Therefore, 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. Different guidance applies for hepatitis B-infected healthcare workers.*

10.32 **Resuscitation**

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.

10.33 **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 healthcare

* See DH (2002) *Good practice guidelines for renal dialysis/transplantation units: prevention and control of blood-borne virus infection*, www.dh.gov.uk/assetRoot/04/05/95/11/04059511.pdf

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.)

10.34 **Volunteer healthcare workers (including first aid)**

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

Annex C

Regulatory bodies' statements on professional responsibilities

1. General Medical Council (GMC)

Extracts from *Serious Communicable Diseases (1997)*

The GMC Statement, *HIV Infection and AIDS: the Ethical Considerations*, was first sent to all registered medical practitioners in August 1988, and in April 1991 was sent to those who had obtained full registration since 1988. A revised version was sent in June 1993, and this was re-circulated to doctors as part of the series of booklets *Duties of a Doctor* in 1995.

In 1997, it was superseded by the booklet *Serious Communicable Diseases*. This term applies to any disease which may be transmitted from human to human and which may result in death or serious illness. It particularly concerns, but is not limited to, infections such as HIV, tuberculosis and hepatitis B and C.

Responsibilities of doctors who have been exposed to a serious communicable disease

29. *If you have any reason to believe that you have been exposed to a serious communicable disease you must seek and follow professional advice without delay on whether you should undergo testing and, if so, which tests are appropriate. Further guidance on your responsibilities if your health may put patients at risk is included in our booklet Good Medical Practice.*

30. *If you acquire a serious communicable disease you must promptly seek and follow advice from a suitably qualified colleague – such as a consultant in occupational health, infectious diseases or public health on:*
 - *Whether, and in what ways, you should modify your professional practice;*
 - *Whether you should inform your current employer, your previous employers or any prospective employer, about your condition.*
31. *You must not rely on your own assessment of the risks you pose to patients.*
32. *If you have a serious communicable disease and continue in professional practice, you must have appropriate medical supervision.*
33. *If you apply for a new post, you must complete health questionnaires honestly and fully.*

Treating colleagues with serious communicable diseases

34. *If you are treating a doctor or other healthcare worker with a serious communicable disease, you must provide the confidentiality and support to which every patient is entitled.*
35. *If you know, or have good reason to believe, that a medical colleague or healthcare worker who has, or may have, a serious communicable disease, is practising, or has practised, in a way which places patients at risk, you must inform an appropriate person in the healthcare worker's employing authority, for example an occupational health physician, or where appropriate the relevant regulatory body. Such cases are likely to arise very rarely. Wherever possible you should inform the healthcare worker concerned before passing information to an employer or regulatory body.*

2. General Dental Council

Extract from Maintaining Standards Guidance to dentists on professional and personal conduct (November 1997)

This guidance was sent to all registered dental practitioners in December 1997 and replaces the guidance entitled *Professional Conduct and Fitness to Practise*.

Dealing with Cross-Infection

4.1 *There has always existed the risk of cross-infection in dental treatment. Therefore, a dentist has a duty to take appropriate precautions to protect patients and other members of the dental team from that risk. The publicity surrounding the spread of HIV infection has served to highlight the precautions which a dentist should already have been taking and which are now more important than ever. Detailed guidance on cross-infection control has been issued by the Health Departments and the British Dental Association, and is endorsed by the Council.*

It is unethical for a dentist to refuse to treat a patient solely on the grounds that the person has a blood borne virus or any other transmissible disease or infection.

Failure to employ adequate methods of cross-infection control would almost certainly render a dentist liable to a charge of serious professional misconduct.

Dealing with Transmissible Disease

4.2 *A dentist who is aware of being infected with a blood borne virus or any other transmissible disease or infection which might jeopardise the wellbeing of patients and takes no action is behaving unethically. The Council would take the same view if a dentist took no action when having reason to believe that such infection may be present.*

It is the responsibility of a dentist in either situation to obtain medical advice which may result in appropriate testing and, if a dentist is found to be infected, regular medical supervision. The medical advice may include the necessity to cease the practice of dentistry altogether, to exclude exposure-prone procedures or to modify practice in some other way.

Failure to obtain such advice or to act upon it would almost certainly lead to a charge of serious professional misconduct.

3. Nursing and Midwifery Council – (formerly the United Kingdom Central Council for Nursing Midwifery and Health Visiting (UKCC))

Extract from Registrar's Letter 4/1994, Annex 1: Acquired Immune Deficiency Syndrome and Human Immuno-deficiency Virus Infection (AIDS and HIV Infection) – The Council's Position Statement

The Council's Code of Professional Conduct

2. *The 'Code of Professional Conduct for the Nurse, Midwife and Health Visitor' is a statement to the profession of the primacy of the interests of patients and clients. Its introductory paragraph states the requirement that each registered nurse, midwife and health visitor safeguard the interest of individual patients and clients. It goes on to indicate to all persons on the register maintained by the Council that, in the exercise of their personal professional accountability, they must 'act always in such a manner as to promote and safeguard the interests and well-being of patients and clients'.*

The Responsibility of Individual Practitioners with HIV Infection

13. *Although the risk of transmission of HIV infection from a practitioner to a patient is remote, and, on the available evidence much less than the risk of patient to practitioner transmission, the risk must be taken seriously. The Department of Health in England have commissioned a study to*

evaluate this risk. It is incumbent on the person who is HIV positive to ensure that she or he is assessed regularly by her or his medical advisers and complies with the advice received.

- 14. Similarly, a nurse, midwife or health visitor who believes that she or he may have been exposed to infection with HIV, in whatever circumstances, should seek specialist medical advice and diagnostic testing, if applicable. She or he must then adhere to the specialist medical advice received. Each practitioner must consider very carefully their personal accountability as defined in the Code of Professional Conduct and remember that she or he has an overriding ethical duty of care to patients.*



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