



Public Health
England

Protecting and improving the nation's health

Integrated guidance on health clearance of healthcare workers and the management of healthcare workers living with bloodborne viruses (hepatitis B, hepatitis C and HIV)

Guidance from the UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses (UKAP)

July 2019



About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

Public Health England

Wellington House

133-155 Waterloo Road

London SE1 8UG

Tel: 020 7654 8000

www.gov.uk/phe

Twitter: [@PHE_uk](https://twitter.com/PHE_uk)

Facebook: www.facebook.com/PublicHealthEngland

On behalf of the UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses (UKAP), this document was prepared by:

- Dr Kirsty Foster, Consultant in Health Protection and UKAP Medical Secretary 2017 to 2018, PHE
- Dr David Mesher, Principal Scientist and UKAP Secretariat, PHE
- Ms Charlotte O'Halloran, UKAP Senior Administrator, PHE
- Dr Kirsty Roy, Senior Epidemiologist, Health Protection Scotland

For queries relating to this document, please contact: ukap@phe.gov.uk

© Crown copyright 2019

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](https://www.ogcl.gov.uk). Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

Published July 2019

PHE publications

gateway number: GW-379

PHE supports the UN

Sustainable Development Goals



UKAP membership

This document has been prepared on behalf of the UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses (UKAP). The role of UKAP is described in [Chapter 8](#). The UKAP members who contributed and supported this updated guidance are listed below.

Members

- Professor Jeremy Bagg (Dental Expert)
- Professor Christopher Conlon (Infectious Diseases Expert)
- Mr Chris Cox (Legal Expert)
- Dr Kumara Dharmasena (Microbiology Expert)
- Dr Mat Donati (Virology Expert)
- Ms Kay Francis (Midwifery Expert)
- Professor David Goldberg (Chair and Expert in Epidemiology and Public Health)
- Dr Julie Gordon (Emergency Medicine Expert)
- Dr Ali Hashtroudi (Occupational Health Expert)
- Dr David Hawkins (Deputy Chair and Genitourinary Medicine Expert)
- Mr Nikolaos Karydis (Surgery Expert)
- Dr George Kassianos (General Medical Practitioner Expert)
- Dr Andrea Kelleher (Anaesthetist Expert)
- Dr Patrick Kennedy (Clinical Hepatology Expert)
- Ms Helen Kirk (Occupational Health Nursing Expert)
- Mrs Joanna Lloyd (Lay member)
- Dr Vanessa MacGregor (Consultant in Communicable Disease Control Expert)
- Dr Wendy Matthews (Emergency Medicine Expert)
- Dr Alison Rimmer (Occupational Health Expert)
- Mr Richard Smith (Obstetrics and Gynaecology Expert)

Observers

- Dr Naresh Chada (Northern Irish Observer)
- Ms Emily Coelho (English Observer)
- Dr Marion Lyons (Welsh Observer)
- Dr Nicola Steedman (Scottish Observer)

Contents

About Public Health England	2
UKAP membership	3
Contents	4
Foreword	5
What is new in this document?	6
Chapter 1: Introduction	7
Part A: DEFINITION OF KEY TERMS	9
Chapter 2: Exposure prone procedures (EPPs)	9
Part B: GENERAL PRINCIPLES	12
Chapter 3: Duties and obligations of HCWs who are, or may be, living with a BBV	12
Chapter 4: Roles and responsibilities of organisations	14
Chapter 5: Confidentiality concerning the healthcare worker living with a BBV	16
Part C: BLOODBORNE VIRUS HEALTH CLEARANCE	17
Chapter 6: Health clearance for hepatitis B, hepatitis C and HIV: New HCWs	17
Part D: MANAGEMENT OF HEALTHCARE WORKERS LIVING WITH BLOODBORNE VIRUSES	27
Chapter 7: OH monitoring of HCWs living with BBVs	27
Part E: RISK ASSESSMENT AND INVESTIGATION OF POTENTIAL EXPOSURES	39
Chapter 8: The UK Advisory Panel on Healthcare Workers Infected with Bloodborne Viruses (UKAP)	39
Chapter 9: Investigation of a HCW diagnosed with BBV, including risk assessment and consideration of patient notification exercise	41
Part F: GENERAL PRINCIPLES OF BLOODBORNE VIRUS INFECTION CONTROL	43
Part G: LINKS TO GUIDANCE DOCUMENTS AND WEBPAGES	45
Appendix 1: Laboratory testing arrangements for health clearance and monitoring	46
Appendix 2: Evolution of policy on the management of blood-borne viruses in healthcare workers	50
Appendix 3: Previous guidance documents	56

Foreword

This document describes updated recommendations regarding the management of hepatitis B infection in healthcare workers. The advent of new, more effective treatments for hepatitis B virus means that previous restrictions on those healthcare workers with high pre-treatment viral load and/or those who are e Antigen positive are no longer required, as long as the healthcare worker is on effective treatment and complies with monitoring of their infection to demonstrate a low viral load.

The guidance also includes updated recommendations regarding the investigation of situations where a healthcare worker has been diagnosed with a bloodborne virus; based on the experience of almost 20 years of UKAP investigations changes have been made to the recommended lookback processes which will ensure that patient safety is maintained while reducing the impact on both the affected healthcare worker and the organisations employing them.

Finally, wording on responsibilities of healthcare workers to disclose their HIV status has been clarified to distinguish between those conducting EPPs and those who are not.

What is new in this document?

Changes in the document include:

- removal of exposure prone procedure (EPP) restrictions for Healthcare Workers (HCWs) living with Hepatitis B (HBV) with high pre-treatment HBV DNA levels and/or who are e Antigen (HBeAg) positive
- updated guidance on the ongoing monitoring and associated reporting to UKAP Occupational Health Register (UKAP-OHR) of HCWs living with HBV cleared to perform EPPs
- updated guidance on the risk assessment and investigation required following the identification of healthcare workers found to be living with a bloodborne virus (BBV)

Updated wording is in sections on:

- roles and responsibilities of healthcare workers and their employing organisations including statements about disclosure of BBV status

How to use this document

The document should be used in electronic format to ensure the most recent guidance is being followed.

Chapter 1: Introduction

In the UK, the policy on the management of HCWs living with HBV, hepatitis C (HCV) and human immunodeficiency virus (HIV) was precautionary and conservative in the first instance¹.

Policies have evolved over time guided by emerging evidence on the risk of HCWs transmitting BBVs to their patients, experience of patient notification exercises (PNEs) and the recommendations of the Expert Advisory Group on AIDS (EAGA), the Advisory Group on Hepatitis (AGH) and the UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses (UKAP), who have regularly reviewed the policies for managing HCWs living with BBVs.

1.1 Objectives

This integrated guidance provides updated, evidence-based recommendations that are intended to:

- reduce the risk of HCW to patient transmission of BBVs
- reduce the future burden of PNEs
- retain HCWs in the workforce and reduce adverse social and professional impact on HCWs living with BBVs.

The guidance is also intended to provide advice on key operational and service delivery issues that need to be addressed to ensure HCWs living with BBVs who perform EPPs are managed in a manner that safeguards their confidentiality and employment rights.

1.2 Target audience

The guidance is intended primarily for use by occupational health (OH) services who have the responsibility for dealing with all matters arising from, and relating to, the training and/or employment of HCWs living with BBVs.

The guidance should also be brought to the attention of all HCWs working in the UK, in the NHS and other settings including independent contractors such as general dental and medical practitioners and relevant staff; independent midwives; students; locums

¹ See [Appendix 2](#) for the evolution of UK policy on BBV in HCW

and agency staff; and visiting HCWs, providing a reminder of their responsibility to seek professional advice about the need to be tested if they have been exposed to BBVs. The guidance is also relevant to NHS organisations who arrange for NHS patients to be treated by non-NHS health establishments in the UK; these organisations should ensure that HCWs who perform EPPs on NHS patients in these settings follow this guidance.

The preparation of the integrated guidance has been supported by UKAP and the clinical and public health networks represented by UKAP members.

Part A: DEFINITION OF KEY TERMS

Chapter 2: Exposure prone procedures (EPPs)

Provided appropriate infection prevention and control precautions are adhered to scrupulously at all times, the majority of clinical procedures (including many which are invasive) in the healthcare setting pose no risk of transmission of BBVs from a HCW to a patient and can safely be performed.

Those procedures where an opportunity for HCW-to-patient transmission of BBV does exist are described as EPPs, where injury to the HCW could result in the worker's blood contaminating the patient's open tissues. This is described as "bleed-back" in this guidance.

EPPs include procedures where the worker's gloved hands may be in contact with sharp instruments, needle tips or sharp tissues 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.

The definition of EPPs covers a wide range of procedures, in which there may be very different levels of risk of bleed-back. A risk-based categorisation of clinical procedures has been developed, including procedures where there is negligible risk of bleed-back (non-EPP) and 3 categories of EPPs with increasing risk of bleed-back.

It should be noted that the majority of HCWs do not perform EPPs.

The definitions and examples of categories 1, 2 and 3 are:

Category 1

Procedures where the hands and fingertips of the worker are usually visible and outside the body most of the time and the possibility of injury to the worker's gloved hands from sharp instruments and/or tissues is slight. This means that the risk of the HCW bleeding into a patient's open tissues should be remote.

Examples: local anaesthetic injection in dentistry, removal of haemorrhoids.

Category 2

Procedures where the fingertips may not be visible at all times but injury to the worker's gloved hands from sharp instruments and/or tissues is unlikely. If injury occurs it is likely to be noticed and acted upon quickly to avoid the HCW's blood contaminating a patient's open tissues.

Examples: routine tooth extraction, colostomy.

Category 3

Procedures where the fingertips are out of sight for a significant part of the procedure, or during certain critical stages, and in which there is a distinct risk of injury to the worker's gloved hands from sharp instruments and/or tissues. In such circumstances, it is possible that exposure of the patient's open tissues to the HCW's blood may go unnoticed or would not be noticed immediately.

Examples: hysterectomy, caesarean delivery, open cardiac surgical procedures.

A series of speciality-specific lists of the most common clinical procedures, classified into EPP category depending upon the relative risk of bleed-back, has been developed by UKAP and are available on the UKAP webpage [here](#).

Non-exposure prone procedures

Non-EPPs are those 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. These procedures are considered not to be exposure prone provided routine infection prevention and control procedures are adhered to at all times.

Examples are:

- taking blood (venepuncture)
- setting up and maintaining intravenous lines or central lines (provided any skin tunnelling procedure used for the latter is performed in a non-exposure prone manner)
- minor surface suturing
- the incision of external abscesses
- routine vaginal or rectal examinations
- simple endoscopic procedures

Exposure prone environments

The exposure prone environment is “an environment in which there is a significant intrinsic risk of injury to the HCW, with consequent co-existent risk of contamination of the open tissues of the patient with blood from the HCW”. Examples include emergency HCWs attending to road traffic collisions (RTCs) or domestic/recreational/industrial accidents where sharp surfaces such as glass fragments, sharp metal or stone edges may lead to laceration of the skin of the HCW whilst in the process of attending to and/or retrieving a casualty.

The risk of BBV transmission between a HCW and patient, in the pre-hospital emergency setting is not known. UKAP has received no reports of such transmission in this setting, and standard literature searches are inconclusive in quantifying this risk. Nevertheless, there is a theoretical risk of such a route of infection, requiring an approach to risk assessment and mitigation that is both proportionate and practical, and considers the role of the emergency HCW, and the environment in which pre-hospital emergency care is given.

Guidance on emergency and pre-hospital trauma care is available on the UKAP webpage [here](#).

Part B: GENERAL PRINCIPLES

Chapter 3: Duties and obligations of HCWs who are, or may be, living with a BBV

All HCWs, including those who are self-employed or employed in the independent sector, are under ethical and legal duties to protect the health and safety of themselves and of others, such as colleagues and patients, and must have understanding of, and co-operate in health and safety matters.

The current statements of the General Medical Council (GMC), General Dental Council (GDC), the Nursing and Midwifery Council (NMC) and the Health & Care Professions Council (HCPC) about the ethical responsibilities of HCWs set out the expectations with regards to safeguarding the health of patients and minimising the risk of exposure to BBVs through the provision of care. These responsibilities are equally applicable to all other professional groups not covered by these regulatory bodies.

All healthcare professionals who have direct clinical care of patients, have a duty to keep themselves informed and updated on the codes of professional conduct and guidelines on infection with BBVs laid down by their regulatory bodies and any other relevant guidance issued.

All HCWs must meet the requirements for health clearance (screening for BBVs) at the appropriate stages of their career, including training and undertaking new roles which involve EPPs. HCWs applying for new posts should complete health questionnaires honestly.

HCWs who might perform EPPs also have a responsibility to seek advice and/or a BBV test, either through clinical services (most commonly this would be via their GP or attending a sexual health clinic) or from an OH service, if they have any reason to believe that they may have been exposed to a BBV infection, regardless of whether this was in an occupational or personal setting.

Any HCW who may perform EPPs and who has been diagnosed with a BBV infection must seek expert OH advice to enable appropriate occupational health care to be provided, and any restriction of working practice (if required) to be implemented. HCWs who are self-employed or working as a locum via an agency should arrange to take

advice from an accredited consultant occupational physician² independently if it is not provided by the locum agency or employer.

HCWs living with BBVs must not undertake procedures which are thought to be EPP whilst expert advice is sought or until they meet the appropriate criteria to recommence EPPs.

Any HCW who has concerns about another HCW's practice in relation to BBV infection should follow their local patient safety policies.

It is advisable, but not a requirement, that HCWs living with BBVs who are not carrying out EPPs seek support from occupational health. Employers should foster a supportive and non-stigmatising environment which encourages HCWs to access occupational health support and protects confidentiality. Occupational health providers should not share information about HIV status with any other staff member without the explicit consent of the HCW.

² Defined as a consultant who is on the specialist register for occupational medicine (i.e. MFOM or FFOM qualification).

Chapter 4: Roles and responsibilities of organisations

4.1 Occupational health (OH) service

All matters arising from and relating to the training and/or employment of HCWs living with BBVs should be co-ordinated through an accredited consultant occupational physician.³ Where a healthcare establishment's OH service does not have its own consultant occupational physician, arrangements should be put in place for this advice to be sought from such a consultant outside the establishment. Suitable arrangements must be in place for agency or locum staff, including dental staff, to ensure that they have access to a designated consultant occupational physician.

While the consultant occupational physician has responsibility for occupational medical management and assessment, if a physician is not immediately available, HCWs may initially seek advice from occupational health nurses. The nurse should make every effort to arrange for the HCW to see the consultant occupational physician as soon as possible.

Occupational health services should adopt a proactive role in helping HCWs to assess if they have been at risk of BBV infection and encourage them to be tested, if appropriate. It is the responsibility of the OH service to ensure that new HCWs who intend to perform EPPs, have the necessary clearance to do so. OH services should explain the testing arrangements for health clearance and how BBV infection might affect continued performance of EPPs.

After testing, OH services should inform HCWs of the results of their tests and the implications for their working practice, including where appropriate any requirements for further follow up and monitoring. All HCWs living with BBVs should be given accurate and detailed advice on ways to minimise the risks of transmission in the healthcare setting and to close contacts. It is recommended that referral of HCWs living with BBVs to the appropriate physician for specialist clinical assessment (if this has not already taken place), should be made by the OH service, and not by self-referral.

Responsibility for the ongoing monitoring of HCWs living with HBV or HIV cleared to perform EPPs, in accordance with this guidance, rests with the consultant occupational

³ Defined as a consultant who is on the specialist register for occupational medicine (i.e. MFOM or FFOM qualification).

physician. The HCW's treating physician is responsible for providing the necessary regular care for the HCW with respect to managing their BBV infection.

As part of the process of ongoing monitoring, responsibility for maintaining the HCW's record on the UKAP-Occupational Health Monitoring Register of Blood Borne Virus Infected Healthcare Workers (UKAP-OHR) (see [Chapter 7](#)), and the assurance of data entry, lies with the consultant occupational physician⁴.

4.2 Employers and commissioning bodies

All employers should ensure that new and existing staff (including agency and locum staff and visiting HCWs) are aware of this guidance and of the professional regulatory bodies' statements of ethical responsibilities. This may include issuing regular reminders. Commissioners may wish to stipulate this when placing service agreements with NHS organisations.

Providers using locums and agency staff are ultimately responsible for making sure that HCWs have the necessary health clearance to undertake EPP work.

4.3 Training establishments

Medical, dental, nursing and midwifery schools, colleges and universities should draw students' attention to this guidance and the relevant professional statements. Each training establishment should identify a nominated officer with whom students may discuss their concerns in confidence. In addition, all students should be appropriately trained in procedures and precautions to minimise the risk of occupational BBV transmission. All these issues should be addressed before there is clinical contact with patients.

Guidance on health clearance and management of medical and dental students living with BBVs, produced jointly by the Council of Heads of Medical Schools, Public Health England, Health Protection Scotland, the Association of UK Hospitals and the Higher Education Occupational Practitioners Group, can be found [here](#).

⁴ Delegated authority may also be given to specific named individuals within a given occupational health service to undertake these roles on behalf of the consultant occupational physician

Chapter 5: Confidentiality concerning the healthcare worker living with a BBV

There is a general duty to preserve the confidentiality of medical information and records. Breach of this duty is very damaging for the individuals concerned, and it undermines the confidence of the public and of HCWs in the assurances about confidentiality which are given to those who come forward for examination or treatment.

Occupational Health records are held separately from other hospital notes and can be accessed only by occupational health practitioners, who are obliged ethically and professionally not to release records or information without the consent of the individual.

Every effort should be made to avoid disclosure of the HCW's identity or information which would allow deductive disclosure. Any unauthorised disclosure about the BBV status of an employee constitutes a breach of confidence and may lead to disciplinary action.

The duty of confidentiality, however, is not absolute. Legally, the identity of individuals living with BBVs may be disclosed with their consent, or without consent in exceptional circumstances, where it is considered necessary for the purpose of treatment, the prevention of spread of infection or in the public interest where patients are, or may have been, at risk. Any such disclosure will need to be justified and based on a robust assessment of the risk to patient(s).

In balancing duty to the HCW living with a BBV and the wider duty to the public, complex ethical issues may arise. As in other areas of medical practice, a HCW disclosing information about another HCW will be required to justify their decision to do this. The need for disclosure must be carefully weighed and where there is any doubt the HCW considering such disclosure may wish to seek advice from his or her professional body.

The duties of confidentiality still apply even if the HCW has died or has already been identified publicly.

Further detailed advice on managing confidentiality when consulting UKAP can be found in **Part E** of this document.

Part C: BLOODBORNE VIRUS HEALTH CLEARANCE

Chapter 6: Health clearance for hepatitis B, hepatitis C and HIV: New HCWs

Health clearance measures for new HCWs provide protection for patients from exposure in the clinical care setting to HBV, HCV and HIV. These measures are not intended to prevent those living 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 restrictions imposed on the working practices of those HCWs who are known to be living with a BBV.

The HCW also benefits from the health clearance arrangements personally (e.g. earlier diagnosis may lead to curative or life-prolonging treatment and prevention of onward transmission), and professionally (e.g. avoiding work activities that may pose a risk to their own health and making career choices appropriate to their infection status).

Employers should establish mechanisms, in conjunction with their human resources and occupational health services, to identify new HCWs and ensure that the necessary health checks are carried out.

The guidance does not apply to HCWs 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 OH checks and immunisations for other infectious diseases (e.g. for rubella and varicella). Guidance on health clearance for tuberculosis is not reproduced in these guidelines.

Guidance on the immunisation of HCWs is not reproduced in this document, as recommendations are continually under review by the Joint Committee on Vaccination and Immunisation. Current advice on immunising HCWs can be found in the relevant

chapter of Immunisation against Infectious Disease (commonly known as The Green Book).⁵

6.1 Categories of new HCWs

For the purpose of this guidance, a new HCW is defined as an individual who has direct clinical contact with patients in the NHS or independent sector for the first time, whether as an employee or with the employer's agreement (e.g. student placements, visiting fellows).

Existing HCWs who are moving to a post or training that involves EPPs for the first time in their career, are also considered as 'new'.

Returning HCWs may also be regarded as 'new', depending on what activities they have engaged in while away from the health service.

Students

Medical students

The practical skills required of medical students to obtain provisional GMC registration⁶ or of pre-registration foundation house officers (Foundation Year 1) to obtain full GMC registration⁷ generally 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.

However, some components of the undergraduate medical curriculum may provide an opportunity for students to perform EPPs, (e.g. obstetrics and gynaecology, trauma or surgical attachments). Additional health clearance is therefore recommended for those students who may find themselves in a position where the opportunity to perform an EPP may arise. Medical schools should ensure that their students do not perform EPPs as part of their training until there has been time to complete screening. Students found to be infectious carriers of BBVs will need to comply with OH supervision and guidance from the responsible head of course to ensure they do not perform EPPs until they meet the criteria set out in **Part D**.

⁵ Department of Health. The Green Book, Immunisation of healthcare and laboratory staff, Chapter 12. Available at: www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book

⁶ General Medical Council. Outcomes for graduates (Tomorrows Doctors), 2015. Available at: https://www.gmc-uk.org/-/media/documents/outcomes-for-graduates-jul-15-1216_pdf-61408029.pdf

⁷ General Medical Council. Promoting Excellence: standards for medical education and training, 2015. Available at: https://www.gmc-uk.org/-/media/documents/promoting-excellence-standards-for-medical-education-and-training-0715_pdf-61939165.pdf

Guidance on health clearance and management of medical and dental students living with a BBV, produced jointly by the Council of Heads of Medical Schools, Public Health England, Health Protection Scotland, the Association of UK Hospitals and the Higher Education Occupational Practitioners Group, can be found [here](#).

Nursing students

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, and podiatric surgery students

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

Emergency healthcare students

Paramedic and ambulance technician students may require EPP clearance subject to the outcome of a risk assessment see [here](#).

HCWs who are performing EPPs for the first time

HCWs 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, foundation house officers entering surgical or other specialties involving EPPs, qualified nurses wishing to train as midwives and post-registration nurses moving into work in operating theatres or accident and emergency for the first time.

HCWs moving to a new role who have previously performed EPPs

Healthcare workers who are moving from an existing post that involves EPPs to a new post that involves EPPs are not required to provide evidence of health clearance if they started practising EPPs before 2007.

Healthcare workers who are moving from an existing post that involves EPPs to a new post that involves EPPs should be able to provide evidence of their health clearance if they started practising EPPs after 2007⁸. If evidence of clearance is not provided then this HCW should be treated as 'new', and additional health clearance is recommended.

⁸ Work is ongoing to standardise HCWs access to electronic records, but it remains the responsibility of the HCW to request evidence of their health clearance from their previous employer

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

The need for additional health checks for any HCW 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 and will depend on what activities they have engaged in while away from the health service. This should be carried out by the OH service. The timing of any tests should take account of the natural history of the infections (i.e. the 'window period').

Some examples of HCWs who might be considered 'returners' include those returning from research experience (including electives spent in countries of high prevalence for 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.

HCWs from locum and recruitment agencies.

OH 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. Health clearance appropriate to HCWs' duties should be verified before the individual undertakes any clinical work⁹. 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 Act 1974. Agencies are responsible for supplying staff that are fit for the post they are being recruited into.

HCWs in the independent healthcare sector

NHS organisations that arrange for NHS patients to be treated by non-NHS hospitals or health establishments in the UK, including the independent sector, should ensure that the health clearance guidance is followed.

6.2 Standard BBV health checks for all new HCWs

Standard health clearance is recommended for all categories of new HCWs employed or starting training (including students) in a clinical care setting, either for the first time or returning to work in the NHS.

⁹ Whilst it is the responsibility of the agency to clear temporary staff for EPPs, the NHS employer has the responsibility to check they have been cleared.

Standard health checks for non-EPP posts may be conducted on appointment; these should be completed before clinical duties commence. Declining to disclose BBV status on appointment should not affect the employment or training of HCWs who will not perform EPPs. HCWs may however, wish to disclose this information in confidence to their occupational health service, who can then ensure that appropriate OH advice and support is provided, including advising on suitability for a particular post or need for vaccination or other actions where appropriate.

Offer of hepatitis B immunisation: non-EPP HCWs

It is recommended that all HCWs, 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 immunisation¹⁰, including investigation of non-response¹¹. Guidance on immunisation against hepatitis B, which includes information about dosage, protocols and supplies, is contained in the relevant chapter of the Green Book.¹²

HCWs for whom hepatitis B vaccination is contra-indicated, who decline vaccination or who are non-responders to vaccine (i.e. those with anti-HBs levels of less than 10 mIU/mL) should be restricted from performing EPPs unless shown to be non-infectious for hepatitis B. Periodic re-testing may need to be considered.

Declining vaccination (whether contra-indicated or not), or non-response to vaccine, will not affect the employment or training of HCWs who will not perform EPPs.

Offer of testing for hepatitis C: non-EPP HCWs

All HCWs who are new to the NHS should be offered a pre-test discussion and an HCV antibody test (and if positive, an HCV RNA test), in the context of their professional responsibilities. During this discussion, they should be given a copy of the guidance from their professional regulatory body, if relevant. It would be helpful to remind them of the ways in which they might have been exposed to HCV.

Being HCV positive, or declining a test for HCV, will not affect the employment or training of HCWs who will not perform EPPs.

¹⁰ To determine the immune status of HCWs who received Hep B vaccine as part of a childhood schedule, a challenge dose of HepB vaccine can be used to determine the presence of vaccine-induced immunologic memory.

¹¹ HBsAb levels of >100IU/mL do not preclude the HCW being HBsAg positive and a chronic carrier. Testing for HBsAg is good medical practice for the benefit of the HCW

¹² Department of Health. The Green Book, Hepatitis B, Chapter 18. Available at:

www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book

Offer of testing for HIV: non-EPP HCWs

All HCWs who are new to the NHS should be offered an HIV test with appropriate pre-test discussion, including reference to their professional responsibilities. During this discussion, they should be given a copy of the guidance from their professional regulatory body, if relevant. It would be helpful to remind them of the ways in which they may have been exposed to HIV.

Declining a test for HIV or having HIV will not affect the employment or training of HCWs who will not perform EPPs. In the event that a HCW discloses that they are living with HIV, consultant occupational physicians should consider the impact of HIV infection on the individual's susceptibility to other infections when advising on suitability for particular posts.

6.3 Additional BBVs health checks (testing for HBV, HCV and HIV) for new HCWs who will perform EPPs, and for existing HCWs who are new to EPPs

Additional health clearance is required for HCWs who will perform EPPs. It will obviously be to the advantage of HCWs to establish their BBV status early as they make their career choices.

HCWs have the right to decline to be tested for HIV, HBV and HCV, in which case, they will not be cleared for EPP work.

Practising HCWs who undertake EPPs or who perform clinical duties in renal units are under a professional duty to seek medical advice on the need to be tested if they may have been exposed to HIV, HBV or HCV, occupationally or otherwise. If found positive, the HCW should obtain and follow appropriate clinical and OH advice.

The time for testing for new HCWs may vary depending upon the particular chosen career, but times considered appropriate are:

- junior doctors entering all surgical specialties, obstetrics and gynaecology, should be tested before their first foundation house officer post (this will include those posts in accident & emergency and trauma care where doctors may be called upon to perform EPPs)
- prospective dental students, hygienists and therapists should be tested before entry into dental school, as EPPs form an integral part of their training and in the work of dentists
- prospective midwifery students should be tested before embarking on midwifery courses

- nurses should be tested before they move to specialised areas of work where they may be required to perform EPPs, e.g. operating theatre and accident & emergency nursing
- ambulance staff should be tested before they embark on training as paramedics or technicians
- podiatrists should be tested before they commence training in podiatric surgery

This list covers the major specialties but is not intended to be exhaustive. It is not possible to provide a definitive list of types or specialties of HCWs who perform EPPs, because individual working practices may vary between clinical settings and between workers. Examples of EPPs are available on the UKAP webpage [here](#).

6.4 Health clearance for HCWs who will perform EPPs: Hepatitis B virus

Hepatitis B testing of HCWs who will perform EPPs

New HCWs who intend to perform EPPs or clinical duties in renal units should:

- be tested for hepatitis B surface antigen (HBsAg) first with appropriate pre-test discussion, including reference to their professional responsibilities
- if negative for HBsAg, be offered vaccination (unless they have already received a course of vaccine) and have their response checked (anti-HBs)¹³. Where there is evidence that a HCW, who is known to have had previous HBV 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. Healthcare workers for whom hepatitis B vaccination is contra-indicated, who decline vaccination or who are non-responders to vaccine (i.e. those with anti-HBs levels of less than 10 mIU/mL) should be restricted from performing EPPs or clinical duties in renal units, unless shown to be non-infectious. They should be tested annually for HBsAg

All testing should be carried out by any accredited specialist virology laboratory that is experienced in performing such tests. Further guidance on laboratory testing for BBVs, including management of results from overseas laboratories, is provided in [Appendix 1](#).

Initial health clearance for HBsAg positive HCWs who intend to perform EPPs or clinical duties in renal units

HCWs initially testing positive for HBsAg, should be tested for hepatitis B viral load (HBV DNA). On the grounds of patient safety, HCWs who perform EPPs or undertake

¹³ To determine the immune status of HCWs who received Hep B vaccine as part of a childhood schedule, a challenge dose of HepB vaccine can be used to determine the presence of vaccine-induced immunologic memory.

clinical duties in renal units will not be allowed to practice if they have an HBV DNA level at or above 200 IU/mL¹⁴ regardless of their treatment status.

Initial clearance to perform EPPs requires 2 Identified and Validated Samples (IVS) taken no less than 4 weeks apart with both showing a viral load result below 200 IU/mL. The decision to clear individual HCWs to undertake EPPs, or clinical duties in renal units, is the responsibility of the consultant occupational physician. UKAP may be consulted on the application of the policy, as required.

HCWs living with HBV should continue to be periodically monitored in line with UKAP-OHR requirements (see [Chapter 7](#))

6.5 Health clearance for HCWs who will perform EPPs: Hepatitis C virus

HCV testing of HCWs who will perform EPPs

New HCWs who intend to perform EPPs should be tested for HCV antibody with appropriate pre-test discussion, including reference to their professional responsibilities. Those who are positive should be tested for HCV RNA to detect the presence of current infection. Testing for HCV RNA should be carried out by an accredited specialist virology laboratory that is experienced in performing such tests.

The Advisory Group on Hepatitis (AGH) has assessed that the risk of transmission of HCV from a HCW of unknown HCV status through EPPs is low and therefore advised that existing HCWs doing EPPs should not be routinely tested for HCV. However, appropriate HCV testing should be conducted for existing HCWs who carry out EPPs who are aware that they may have been exposed to HCV infection, occupationally or otherwise.

HCWs who have antibodies to the HCV and are HCV RNA negative should be allowed to continue performing EPPs.

HCWs who have active, or current, infection (i.e. who are HCV RNA positive) should be restricted from performing EPPs or commencing training for careers that rely upon performing EPPs.

HCWs living with HCV who have been treated with antiviral therapy and who remain HCV RNA negative for at least 6 months after cessation of treatment should be permitted to return to performing EPPs at that time. As a further check, they should be shown still to be HCV RNA negative 3 months after. Provided that these criteria are

¹⁴ The cut off used historically (10³ gEq/mL) to monitor HCWs living with HBV who have been cleared to perform EPPs, is equivalent to 200 IU/mL, as determined using a CE marked assay, which is standardised to the WHO International Standard for Hepatitis B Virus Nucleic Acid Amplification Techniques.

met, a return to EPPs is to be a local decision and does not need to be referred to UKAP (although UKAP is available to provide advice if required).

Testing for HCV RNA should be carried out by an accredited specialist virology laboratory that is experienced in performing such tests. Further guidance on laboratory testing for BBVs, including management of results from overseas laboratories, is provided in [Appendix 1](#).

6.6 Health clearance for HCWs who will perform EPPs: HIV

HIV testing of HCWs who will perform EPPs

New HCWs who intend to perform EPPs should be tested for HIV infection with appropriate pre-test discussion, including reference to their professional responsibilities. The presence of HIV antibody should not automatically restrict HCWs from performing EPPs. Confirmation of HIV infection should be undertaken and plasma viral load measured¹⁵.

Guidance on laboratory testing for BBVs, including management of results from overseas laboratories, is provided in [Appendix 1](#).

Initial health clearance for HIV positive HCWs who intend to perform EPPs

HCWs living with HIV with a plasma viral load above 200 copies/mL should be restricted from performing EPPs.

Initial clearance to perform EPPs requires a HCW to be on effective combination anti-retroviral therapy (cART) and to have had 2 IVS¹⁶ test results taken no less than 12 weeks¹⁷ apart with both demonstrating a viral load below 200 copies/mL. The decision to clear individual HCWs to undertake EPPs is the responsibility of the consultant occupational physician. UKAP may be consulted on the application of the policy, as needed.

¹⁵ Vaccine Induced Sero-Reactivity (VISR) may be encountered when testing HCWs who have participated in HIV vaccine trials. Documentary evidence of the HCWs participation in a vaccine trial, with evidence of negative serum HIV p24 antigen and viral load (RNA/DNA) is sufficient to confirm the HCWs HIV negative infectious status. Detecting HIV antibody as a consequence of VISR should not prevent HCWs performing EPPs.

¹⁶ An IVS is defined by Association of NHS Occupational Physicians (ANHOPS) and the Association of NHS Occupational Health Nurses (ANHONS) as meeting the following criteria (a) the healthcare worker should show a proof of identity with a photograph – Trust identity badge, new driver's licence, some credit cards, passport or national identity card – when the sample is taken; (b) the sample of blood should be taken in the occupational health department; (c) samples should be delivered to the laboratory in the usual manner, not transported by the healthcare worker; (d) 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.

¹⁷ For the purposes of initial health clearance, no less than 12 weeks apart is defined as between 12 and 16 complete calendar weeks.

For HCWs currently restricted from EPPs who are already on cART and have a viral load below the clearance threshold, one IVS at 12-16 weeks since their last undetectable viral load is sufficient proof on which to grant clearance for conducting EPPs¹⁸.

HCWs performing EPPs who are living with HIV should continue to be periodically monitored in line with UKAP-OHR requirements (see [Chapter 7](#))

6.7 Redeployment and retraining

Employers should assure HCWs living with BBVs that their status and rights as employees will be safeguarded so far as practicable. If for any reason, a HCW is unable to recommence EPP practice, employers should make every effort to arrange suitable alternative work and retraining opportunities, or where appropriate, early retirement, in accordance with good general principles of occupational health practice. With the opportunity for HCWs living with HIV or HBV to recommence EPPs once the criteria in this guidance have been met, it is anticipated that the number of HCWs requiring retraining will be small. There may, however, be a requirement for short term redeployment while the HCW commences antiviral treatment and until a point that their infection is cleared (for HCV), or their viral load is reduced below the level required to perform EPPs.

¹⁸ If a HCW's viral load test is performed outside the UK, advice should be sought from UKAP

Part D: MANAGEMENT OF HEALTHCARE WORKERS LIVING WITH BLOODBORNE VIRUSES

Chapter 7: OH monitoring of HCWs living with BBVs

7.1 Monitoring roles and responsibilities

The model for allowing HCWs living with HBV or HIV to undertake EPPs whilst on therapy relies on continuing care and regular viral load monitoring by both their treating physician and consultant occupational physicians. Effective monitoring requires close working between these 2 parties to ensure that the policy is being adhered to appropriately, thus minimising the risk of transmission.

Where a healthcare establishment's OH service does not have its own consultant occupational physician, arrangements should be put in place for this advice to be sought from such a consultant outside the establishment. Suitable arrangements must be in place for agency or locum staff, including dental staff, to ensure that they have a designated consultant occupational physician who is responsible for their monitoring, in accordance with this guidance.

All HCWs living with HBV or HIV who perform EPPs should have their viral load measured regularly using a blood IVS¹⁹ as described in this Chapter. Blood testing for this purpose will usually be carried out by the OH service, but where this would give rise to duplication of testing, local arrangements should be made between the treating physician and the OH service to ensure that blood drawn from HCWs for viral load measurements in Genitourinary Medicine (GUM)/Sexual Health or Infectious Diseases settings follows the principles of an IVS (see [Appendix 1](#)).

¹⁹ An IVS is defined by Association of NHS Occupational Physicians (ANHOPS) and the Association of NHS Occupational Health Nurses (ANHONS) as meeting the following criteria (a) the healthcare worker should show a proof of identity with a photograph – Trust identity badge, new driver's licence, some credit cards, passport or national identity card – when the sample is taken; (b) the sample of blood should be taken in the occupational health department; (c) samples should be delivered to the laboratory in the usual manner, not transported by the healthcare worker; (d) 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.

To support and monitor implementation of the policy and to ensure patient safety, all HCWs living with HBV or HIV including locum staff, who wish to perform EPPs (and for HCWs living with HBV, clinical duties in renal units), and who meet the criteria for clearance, must be monitored locally and registered on the UKAP-OHR, a central confidential register, managed by PHE (on behalf of Health Protection Scotland, Public Health Wales, and the Public Health Agency for Northern Ireland) and overseen by UKAP²⁰.

Each HCW must be registered onto the UKAP-OHR by their designated consultant occupational physician. Their ongoing viral load monitoring data should be reported to UKAP-OHR by OH providers periodically in line with this guidance. Action taken as a result of an increase in viral load should be reported using the register to record that restrictions on EPP performance are put in place appropriately and, where necessary, risk assessments and patient notification exercises are carried out.

The UKAP-OHR is a secure and confidential system. Access to the individual records of the HCWs on the register is limited to the designated consultant occupational physicians responsible for the care, monitoring, management and EPP clearance of the HCW. Delegated authority may also be given by the consultant occupational physician to specific named individuals within a given OH service to undertake these roles on behalf of the consultant occupational physician. Limited access will also be given to a small number of individuals who manage the register on behalf of UKAP.

Whilst it is important that UKAP should be called upon for advice on the application of the policy as needed, decisions to clear individual HCWs for EPP work remain the responsibility of the consultant occupational physician.

The roles and responsibilities of the respective individuals involved in the monitoring process for HCWs living with BBVs who are performing EPPs are set out below:

A. Healthcare worker

The HCW must be under the care of a designated consultant occupational physician. They must accept that it is a condition of undertaking EPPs that they consent to ongoing monitoring including:

- i. the registration of their details and monitoring data on the UKAP-OHR

²⁰ UKAP-OHR currently records monitoring data on HCWs living with HIV; a phased introduction of HCWs living with HBV is planned for 2019. Details of this will be circulated to Occupational Health departments and appropriate clinical networks.

- ii. the release of viral load test results to the consultant occupational physician if the treating physician undertakes monitoring²¹
- iii. to attend the OH service (or other appropriate service) when arranged and to provide an IVS for viral load monitoring at the appointed times
- iv. to seek advice if change in health condition may affect their fitness to practise or impair their health
- v. to notify OH when they are changing their practice or their place of employment, including informing the new OH service of BBV status and monitoring (where EPPs are involved in new role)²²
- vi. to notify their consultant occupational physician and treating physician if there has been an interruption to therapy or sub-optimal adherence

Thus, HCWs must agree that by seeking to undertake EPPs, they are giving implied consent to i and ii, and they are undertaking to satisfy iii – vi.

It is recommended that the OH department puts in writing to the HCW, the requirements they must meet in order to continue practising EPPs.

If the HCW is moving to a new employer, they should liaise with their existing OH physician to ensure the transfer / sharing of necessary information about the monitoring of their viral load for ongoing EPP clearance to the occupational health service of their new employer.

B. Consultant occupational physician

The consultant occupational physician is responsible for the monitoring of the HCW, including:

- i. ensuring that appointments are available for testing in accordance with the testing protocol, and timings are followed
- ii. reacting promptly to any alerts received via the UKAP-OHR
- iii. taking appropriate action when those who should present for tests do not do so, e.g. notifying the relevant manager of the HCW's non-attendance and restriction from EPP practice
- iv. ensuring that IVS samples are collected and tested and results obtained in a timely manner
- v. interpreting the viral load results in relation to clearance to perform EPPs

²¹ Some HCWs may have their viral load tested regularly as part of their clinical HIV care; in these situations, results can be shared with OH, with the HCW's consent, to avoid unnecessary repeat testing. The treating clinician must provide assurance that the sample meets criteria of IVS.

²² HCWs should keep their OH consultant informed of any change in role / place of work so that monitoring records can be updated, any new monitoring arrangements established and their clearance to practice maintained

- vi. notifying the HCW that they are cleared to perform EPPs
- vii. ensuring that the UKAP-OHR is updated within the specified time-frame
- viii. advising the employer if the HCW is no longer fit to perform EPPs²³
- ix. timely liaison with treating physicians when required

The consultant occupational physician should inform UKAP-OHR of any change of employer and provide contact details for the new OH service which will be taking over monitoring the HCW's infection.

C. Treating physician

The treating physician is responsible for:

- i. the clinical management and support of the HCW
- ii. advising and maintaining timely communications with the consultant occupational physician responsible for monitoring the HCW
- iii. advising the HCW what constitutes a risk of therapy failure (e.g. an interruption to therapy or sub-optimal adherence).
- iv. notifying the consultant occupational physician if there has been a risk of therapy failure.

As a point of good practice, all HCWs living with HBV or HIV cleared to perform EPPs should maintain a record of the procedures performed. In the event of an HCW having an increase in viral load, such a log book would provide a quick and confidential way to identify patients who may have been at increased risk of infection from the HCW.

D. Occupational Health Register (UKAP-OHR)

The UKAP-OHR team will register HCWs on the database and provide regular reports to Occupational Health departments on the monitoring status of HCWs under their care. The OHR team is not responsible for the clearance of HCWs.

²³ Advising employer about clearance to practice should be on an 'exception' basis – i.e. once cleared the employer is only updated if there is a change to this status

7.2 Monitoring and ongoing clearance for HCWs who will perform EPPs: Hepatitis B

Monitoring of HCWs who will perform EPPs

HCWs who are HBsAg positive should not be restricted from performing EPPs or clinical duties in renal units if:

- i. HBV DNA viral load is less than 200 IU/mL (either from natural suppression, or 12 months after stopping a course of antiviral therapy)²⁴, and
- ii. they are monitored every 12 calendar months by their consultant occupational physician

Or if:

- i. they are on continuous antiviral therapy, and
- ii. their viral load is suppressed to below 200IU/mL, and
- iii. their HBV DNA levels are monitored every 12 weeks by their consultant occupational physician

The 12-week²⁵ or 12-month²⁶ monitoring period should be taken from the date the previous IVS was drawn, and not from the date the result was received.

If a HCW's plasma viral load is above 200 IU/mL, they should be restricted immediately from performing EPPs until their viral load returns to being stable below 200 IU/mL (see [Resuming EPPs](#)). The significance of any increase in plasma viral load above the cut-off, identified through routine monitoring, should be assessed jointly by the consultant occupational physician and treating physician with input from appropriate local experts (e.g. consultant virologist or microbiologist).

The table below sets out the expected course of action for HBV DNA level test results below and above the level for EPP clearance, after the HCW has satisfied the initial clearance criteria.

²⁴ Those who have undergone a course of such treatment need to show that they have a viral load that does not exceed 200 IU/mL one year after cessation of treatment before a return to unrestricted working practices can be considered. Any health care worker living with HBV returning to unrestricted working practices would be subject to the same 12 monthly re-testing as recommended for other unrestricted health care workers living with HBV.

²⁵ Quarterly viral load testing can be performed no earlier than 10, and no later than 14 complete calendar weeks after the date of the preceding specimen taken for occupational health monitoring purposes.

²⁶ Annual viral load testing can be performed no earlier than 50, and no later than 54 complete calendar weeks after the date of the preceding specimen taken for occupational health monitoring purposes.

Guidance on laboratory testing for BBVs, including management of results from overseas laboratories, is provided in [Appendix 1](#).

HBV DNA Level	Action
<60 IU/mL	No action. Retest in 12 weeks or 12 months depending on antiviral treatment status
>60 but < 200 IU/mL	A case-by-case approach based on clinical judgement should be taken which may result in no action (as above) or recommending that a second test should be done 10 days later to verify the viral load remains below the threshold. Further action will be informed by the test result.
200 IU/mL or above	<p>The HCW should cease conducting EPPs immediately. A second test must be done on a new blood sample 10 days later to verify the viral load remains above 200 IU/mL.</p> <p>If the viral load is still in excess of 200 IU/mL, the HCW should cease conducting EPPs until their viral load, in 2 consecutive tests no less than 4 weeks apart, is reduced to <200 IU/mL.</p> <p>If the viral load is below 200 IU/mL then further action should be informed by the test result as above. If test results are unexpected (e.g. from very high viral load to low viral load) then seek further advice from a local virologist or UKAP secretariat.</p> <p>A full risk assessment²⁷ should be triggered to determine the risk of HCW to patient transmission. At a minimum, this will include discussion between the consultant occupational physician and the treating physician on the significance of the result in relation to the risk of transmission.</p> <p>The need for public health investigation/action (e.g. patient notification) will be determined by a risk assessment on a case by case basis in discussion with UKAP.</p>

²⁷ Guidance on performing a local risk assessment can be found in [Chapter 9](#)

Resuming exposure prone procedures

If a HCW does not attend for their monitoring appointment, then they should cease conducting EPPs. 12-weekly monitoring can be performed no later than 14 complete calendar weeks after the preceding IVS specimen taken for occupational health monitoring purposes. 12-monthly monitoring can be performed no later than 54 complete calendar weeks after the preceding IVS specimen taken for occupational health monitoring purposes.

If a HCW does not attend for the missed viral load test within this timeframe (for whatever reason) then resumption of EPPs requires 2 IVS taken no less than 4 weeks apart with both showing a viral load results below 200 copies/mL.

HCWs living with HBV who take a career break from performing EPPs or clinical duties in renal units, may wish to continue monitoring during this period to facilitate a return to EPPs or clinical activities. Individuals with a break in their monitoring record must meet the criteria for initial clearance before returning to performing EPPs or clinical duties in renal units.

Treatment issues

It is for the HCW to decide, in collaboration with their treating physician, whether they wish to take antiviral therapy for occupational health reasons when it is not clinically indicated, taking account of possible advantages and disadvantages.

Breakthrough infection, with increases in serum HBV DNA and in serum alanine aminotransferase (ALT) levels can be associated with the emergence of resistant virus. With successful oral antiviral treatment, the rate of viral replication in HCWs should be suppressed to levels where the risk of emergence of drug resistant strains is likely to be low. Early detection of the emergence of resistance through the 12-weekly monitoring can be achieved by using sensitive HBV DNA assays, as is recommended here, allowing consideration of an early change in antiviral therapy before patients have been put at appreciable risk.

If breakthrough infections occur due to the development of resistant strains, and HBV DNA levels rise above 200 IU/mL, then it is recommended that the HCW be restricted from performing EPPs (or clinical duties in renal units) until such time as they have been re-stabilised on different oral antiviral drugs. This would be demonstrated by HBV DNA levels of less than 200 IU/mL on 2 consecutive tests performed no less than 4 weeks apart.

HCWs should be advised by their treating physician of the importance of notifying them of missed doses, drug interactions, or other factors that might influence their viral load, as soon as is practicable and before further EPPs are performed.

It is recommended that if a HCW stops antiviral treatment for any reason, they should immediately cease to perform EPPs or clinical duties in renal units and seek the advice of their treating physician if this has not already been obtained. If the HBV DNA levels remain below 200 IU/mL, a year after cessation of treatment, it may be appropriate for the employer to permit a return to EPPs at that time, subject to a future test 6 calendar months later and annual testing thereafter as is recommended in these guidelines.

7.3 Monitoring and clearance for HCWs who will perform EPPs: Hepatitis C

HCWs who have active, or current, infection (i.e. who are HCV RNA positive), should be restricted from carrying out EPPs.

HCWs who have antibodies to the HCV and are confirmed as having a sustained viral response (i.e. who are HCV RNA negativity), following treatment should be allowed to perform EPPs, subject to guidance in [Chapter 6](#).

Guidance on laboratory testing for BBVs, including management of results from overseas laboratories, is provided in [Appendix 1](#).

7.4 Monitoring and ongoing clearance for HCWs who will perform EPPs: HIV

Monitoring of HCWs who will perform EPPs

HCWs living with HIV must meet the following criteria before they can perform EPPs:

Either

- i. be on effective cART, and
- ii. have a plasma viral load <200 copies/mL

Or

- iii. be an elite controller²⁸

And

- iv. be subject to plasma viral load monitoring every 12 weeks
- v. be under joint supervision of a consultant occupational physician and their treating physician
- vi. be registered with UKAP-OHR

²⁸ An elite controller is defined as a person living with HIV who is not receiving antiretroviral therapy and who has maintained their viral load below the limits of assay detection for at least 12 months, based on at least 3 separate viral load measurements.

HCWs living with HIV who are cleared to perform EPPs are subject to viral load testing every 12 weeks²⁹ while continuing to perform such procedures. The 12-week period should be taken from the date the previous IVS was drawn, and not from the date the result was received.

If a HCW's plasma viral load rises above 1,000 copies/mL, they should be restricted immediately from performing EPPs until their viral load returns to being consistently below 200 copies/mL in at least 2 consecutive tests no less than 12 weeks apart. The significance of any increase in plasma viral load above 200 copies/mL and below 1,000 copies/mL should be assessed jointly by the consultant occupational physician and treating physician with input from appropriate local experts (e.g. consultant virologist or microbiologist).

The table below sets out the expected course of action for viral load test results below and above the level for EPP clearance, after the HCW has satisfied the initial clearance criteria.

Guidance on laboratory testing for BBVs, including management of results from overseas laboratories, is provided in [Appendix 1](#).

Viral load test result	Action
<50 copies/ml or below	No action. Retest in 12 weeks
≥50 but <200 copies/mL	A case-by-case approach based on clinical judgement should be taken which may result in no action (as above) or a recommendation that a second test should be done 10 days later to verify the viral load remains below the threshold. Further action will be informed by the test result.
≥200 copies/mL but <1,000 copies/mL	A second test should automatically be done 10 days later on a new blood sample to verify that the viral load remains above the threshold. If the count is still in excess of 200 copies/mL, the HCW should cease conducting EPPs until their count, in 2 consecutive tests no less than 12 weeks apart, is reduced to <200 copies/mL. If the viral load was below 200 copies/mL then further action will be informed by the test result as above.

²⁹ Quarterly viral load testing can be performed no earlier than 10, and no later than 14 complete calendar weeks after the date of the preceding specimen taken for occupational health monitoring purposes.

	<p>If test results are unexpected (e.g. from very high viral load to low viral load) then seek further advice from a local virologist or UKAP secretariat.</p>
<p>1,000 copies/mL or above</p>	<p>The HCW should cease conducting EPPs immediately. A second test must be done on a new blood sample 10 days later to verify the viral load remains above 1,000 copies/mL.</p> <p>If the count is below 1,000 copies/mL further action will be informed by the test result as above.</p> <p>If test results are unexpected (e.g. from very high viral load to low viral load) then seek further advice from a local virologist or UKAP secretariat.</p> <p>If the count is still in excess of 1,000 copies/mL, a full risk assessment should be triggered to determine the risk of HCW to patient transmission. At a minimum, this will include discussion between the consultant occupational physician and the treating physician on the significance of the result in relation to the risk of transmission.</p> <p>The need for further public health investigation / action (e.g. patient notification) will be determined by a risk assessment on a case-by-case basis in discussion with UKAP.</p>

Resuming exposure prone procedures

If a HCW does not attend for their monitoring appointment, then they should cease conducting EPPs. 12-weekly monitoring can be performed no later than 14 complete calendar weeks after the preceding IVS specimen taken for occupational health monitoring purposes.

If a HCW does not attend for the missed viral load test within 14 weeks from the date the previous IVS was drawn (for whatever reason) then resumption of EPPs requires demonstration of consistent viral load suppression to very low or undetectable levels, by 2 samples taken no less than 12 weeks apart demonstrating viral load below 200 copies/mL.

HCWs living with HIV who take a career break of more than 14 weeks from performing EPPs may wish to continue 12 weekly monitoring during this period to facilitate a return to EPPs. Individuals with a break in their monitoring record must meet the criteria for initial clearance before returning to EPP activities.

Treatment issues

HCWs should be advised by their treating physician of the importance of notifying them of missed doses, drug interactions, or other factors that might influence their viral load, as soon as is practicable and before further EPPs are performed.

If there is any suggestion that the HCW's infection is no longer controlled by their antiretroviral treatment, the treating physician overseeing the case may consider it appropriate that viral load tests are performed sooner than the next 12-week test. Advice on the management of suspected treatment failure or suboptimal response should be sought from the appropriate specialist team.

Elite controllers

Elite controllers comprise a small proportion (0.2-0.55%) of all people living with HIV, who are not receiving antiretroviral therapy and have maintained their viral load below the limits of assay detection for at least 12 months, based on at least 3 separate viral load measurements.

A HCW who meets the definition of being an elite controller can be cleared for EPP activities without being on treatment but must remain subject to 12 weekly viral load monitoring to ensure they maintain their viral load below 200 copies/mL and to identify any rebound promptly. Any such cases should be referred to UKAP for advice on a case-by-case basis.

7.5 Failure to attend or refusal to test (HBV, HIV and HCV)

All HCWs living with BBVs performing EPPs should be advised by their consultant occupational physician and their treating physician of the importance of periodic monitoring of their viral load and the implications of not doing so.

Where a HCW does not attend for their appointments at the specified interval or attends but refuses to have their viral load tested, it is recommended that the consultant occupational physician should inform the HCW's employer that they are no longer cleared to perform EPPs, until it has been established that the HCW has an up-to-date viral load which does not exceed the cut-off.

7.6 Patient notification exercises (PNEs)

Finding that a HCW has performed EPPs while living with HCV, or that the viral load of a HCW living with HIV or HBV has risen above the cut-off for performing EPPs would not, in itself, be an indication to trace, notify and offer testing to patients treated by the HCW (i.e. undertake a PNE).

The need for a PNE should be determined on a case-by-case basis taking into consideration a risk assessment of the HCW's practice and probity in relation to the risk of BBV transmission to EPP patients, the relative infectious window period, and significance of any viral load "blip", in line with the principles in existing guidance. UKAP should be consulted for advice on undertaking a PNE (see [Part E](#) for contact details).

7.7 Management of accidental exposure

There may be occasions when a HCW living with a BBV is aware of accidentally exposing a patient to their blood or body fluid. These incidents should be managed in accordance with local needlestick injury policies.

Part E: RISK ASSESSMENT AND INVESTIGATION OF POTENTIAL EXPOSURES

Chapter 8: The UK Advisory Panel on Healthcare Workers Infected with Bloodborne Viruses (UKAP)

UKAP was set up originally under the aegis of EAGA in 1991 to consider individual cases of HCWs living with HIV. In 1993 its remit was extended to cover HCWs living with other BBVs, in particular HBV and more recently HCV. Advice for consultant occupational physicians arises from individual queries, cases or general issues which have been referred to the UKAP since its inception.

8.1 The role of UKAP

UKAP's remit is to:

- establish, and update as necessary, criteria on which advice on modifying working practices of HCWs may be based
- provide supplementary specialist occupational advice to treating physicians of HCWs living with BBVs, consultant occupational physicians and professional bodies
- advise individual HCWs or their advocates how to obtain guidance on working practices
- advise those with the responsibility for managing incidents involving HCWs living with BBVs
- keep under review the literature on transmission of BBVs in healthcare settings

The current membership list and code of conduct for members, is available at the [UKAP webpages](#).

8.2 When to consult UKAP

UKAP advises as a committee and may be consulted through its Secretariat. The Panel is available for consultation and for advice on the implementation of guidance for managing HCWs living with BBVs.

The Panel works within the framework of government guidance concerning HCWs and BBVs and aims to interpret the guidance in relation to individual cases on a consistent basis.

Cases are considered by UKAP. Experts from other specialties not represented on the panel are co-opted to advise as necessary.

8.3 How to consult UKAP

Occupational health clinicians, consultants in communicable disease control / health protection (CCDC / CHP) and public health medicine (CPHM), medical directors and other physicians, Directors of Public Health, and others wishing to obtain the UKAP's advice should contact the UKAP Secretariat by, email (ukap@phe.gov.uk). Those seeking the advice of UKAP should ensure the anonymity of the referred HCW and should avoid the use of personal identifiers.

Each case reported to UKAP is assigned a unique UKAP case number which is used in all subsequent correspondence to maintain confidentiality. UKAP does not hold any named / identifiable information on the HCWs involved; investigating teams are advised to keep the number of people who know personal details of the affected HCW to a minimum.

The Secretariat to UKAP is provided by staff at PHE (National Infection Service), and Health Protection Scotland.

Chapter 9: Investigation of a HCW diagnosed with BBV, including risk assessment and consideration of patient notification exercise

Previously, if a HCW who carried out EPPs was identified as having a BBV and the diagnosis had not been made in the context of a proven transmission event from the HCW to an index patient, a crossmatching exercise was advised in order to identify any transmissions which could then lead to wider patient notification action.

A review of the past 20 years of UKAP's experience of the investigation and management of HCWs with a BBV found that the risk of transmission of any BBV from HCW to patient is extremely low and the risk / benefit (cost / benefit) of undertaking large, resource-intensive lookback exercises does not support the routine use of this approach.

Therefore, the panel now advises that the local risk assessment following the identification of a HCW living with a BBV no longer requires a cross-matching exercise be undertaken. In addition, a patient notification exercise (PNE) will only be recommended if transmission is identified through an index case report, or if the local risk assessment identifies factors that increase the risk of BBV transmission from the HCW.

Local risk assessment

Maintaining patient safety is paramount, therefore, UKAP recommends a formal, structured local risk assessment (involving occupational health, and public health as a minimum) is undertaken, to identify any factors that may impact on the HCW's ability to practise safely and/or increase the risk of transmission from the HCW to patients. It is envisaged that in most situations, this would not be the case and that no further public health action / investigation would be required.

In cases where other risks are identified, specific / tailored advice on further action will be provided by UKAP based on a case by case basis.

The advice from UKAP is based on clinical and public health risk; this does not preclude organisations undertaking their own investigation / lookback or consideration of notifying patients, but this would be outside the remit / scope of UKAP's work.

Process for initial investigation (guided by UKAP proforma)

The UKAP enquiry form can be found [here](#) and can be used to guide this initial investigation:

- i. If a HCW living with a BBV has been recognised as the source of transmission to a patient, the local investigating team should make a careful appraisal of the facts, seeking relevant specialist advice (e.g. occupational health, epidemiological and virological advice). This process should involve as few other people as possible, on a strictly confidential need-to-know basis, in order to preserve the HCW's confidentiality.
- ii. If there is no recognised transmission to a patient associated with the HCW, the local investigating teams should collect information to assess the following factors that would increase the risk of transmission from HCW to patient
 - a. Evidence of a confirmed or highly-likely transmission
This would likely be identified from investigation of an index case of BBV infection where exposure by a named HCW is the only plausible risk factor
 - b. Poor infection prevention and control (IPC) practice or identified breaches that could have resulted in significant exposure to the blood/body fluids of the HCW
e.g. repeated needlestick injuries or observed poor IPC practice
 - c. Consideration of other elements of HCW's conduct or behaviour (that may have led to poor compliance with treatment of their BBV infection and / or their compliance with good IPC practice
- iii. If no 'risks' are identified, the proforma, confirming that a local risk assessment has been completed, should be returned to UKAP and no further action is required.
- iv. If concerns about index case / transmission, poor IPC practices and/or other factors affecting the HCW's practice are identified, the case should be discussed with the UKAP secretariat who will advise on further actions required. Actions may include reviewing specific EPPs undertaken, providing information to patients and offering testing for BBVs

Following these changes in approach to local risk assessment and PNEs, UKAP will continue to monitor the number and nature of incidents where HCWs with BBVs may have been practising EPPs. These data will inform any future amendments to guidance.

Further guidance on local investigation and patient notification is available from the UKAP secretary.

Part F: GENERAL PRINCIPLES OF BLOODBORNE VIRUS INFECTION CONTROL

The general principles and practices of infection prevention and control (IPC) are designed to protect HCWs and patients from infection caused by a broad range of pathogens including BBVs. These principles and practices must be followed when caring for all patients to minimise the risk of exposure to blood products and any associated BBVs.

Guidance for clinical HCWs on minimising the risk of exposure to blood products and any associated BBV can be found on the Health and Safety Executive [webpage](#) and has been reproduced below. The measures recommended will also minimise the risk of transmission from HCWs to patients and from patient-to-patient. The measures are:

- avoid contact with blood or body fluids
- take all necessary precautions to prevent puncture wounds, cuts and abrasions in the presence of blood and body fluids
- avoid use of, or exposure to, sharps (needles, glass, metal, etc.) when possible, and discard sharps directly into the sharps container immediately after use, and at the point of use
- take particular care in handling and disposal if the use of sharps is unavoidable – 'one use only' contaminated sharps must be discarded into an approved sharps container (this is generally safer and more practical than attempting to recycle contaminated items). This must be constructed to BS 7320; 1990/ UM 3291, and used containers must be disposed of through a waste management company who will dispose of them safely as 'waste for incineration only'
- protect all breaks in exposed skin by means of waterproof dressings and/or gloves. Chain mail and armoured gloves are available to protect the hands when working with sharp instruments or exposed to bone splinters, etc.
- protect the eyes and mouth by means of a visor or goggles/safety spectacles and a mask when splashing is a possibility (this will also protect against bone fragments in orthopaedic surgery and post-mortem examination)
- avoid contamination of the person or clothing by use of waterproof/water resistant protective clothing, plastic apron, etc.
- wear rubber boots or plastic disposable overshoes when the floor or ground is likely to be contaminated
- apply good, basic hygiene practices, including hand-washing, before and after glove use, and to avoid hand-to-mouth/eye contact. Disposable gloves should never be washed and reused, as they may deteriorate during use and in washing. If latex

gloves are worn, powder-free, low-protein products should be chosen to help prevent latex allergy. Any disposable gloves should be CE marked for use with biological agents

- control surface contamination by blood and body fluids by containment and appropriate decontamination procedures
- dispose of all contaminated waste safely and refer to relevant guidance

Part G: LINKS TO GUIDANCE DOCUMENTS AND WEBPAGES

Regulatory bodies for statements on professional responsibilities

General Medical Council

Duties of a Doctor: specifically, Domain 2: Safety & Quality

General Dental Council

Standards for the Dental Team: specifically, standards 1,6,7,8 and 9

Nursing & Midwifery Council

The Code for Nurses and Midwives: specifically, standards 5,8,16,17,19 and 23

Health & Care Professions Council

Standards of conduct, performance and ethics: specifically, standards 1,6 and 7

UKAP guidance and documents

UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses (UKAP), including UKAP-OHR registration and guidance on categories of exposure prone procedures can be found [here](#)

UKAP enquiry proforma can be found [here](#)

Appendix 1: Laboratory testing arrangements for health clearance and monitoring

Identified and validated samples (IVS)

Those commissioning tests to establish or monitor a healthcare worker's BBV status should ensure that IVS are used; that is, they should ensure that samples tested are from the HCW in question and not open to fraudulent submission of samples or tampering with samples or results. HCWs should not submit their own samples to a laboratory.

The standards for occupational health data recording have been agreed by the Association of NHS Occupational Physicians (ANHOPS) and the Association of NHS Occupational Health Nurses (ANHON) as the 2 relevant professional bodies. The standards are:

- laboratory test results required for clearance for undertaking EPPs, and ongoing monitoring thereafter must be derived from an IVS
- results should not be recorded in occupational health records if not derived from an IVS

An IVS is defined by ANHOPS and ANHONS as meeting the following criteria:

- the HCW should show a proof of identity with a photograph (for example 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 service³⁰
- samples should be delivered to the laboratory in the usual manner, not transported by the HCW
- 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 service, at the relevant time

³⁰ Blood testing for the purpose of ongoing monitoring of HCWs living with HIV or HBV who perform EPPs will usually be carried out by the occupational health service but where this would give rise to duplication of testing, local arrangements should be made between the treating physician and the occupational health service to ensure that blood drawn from HCWs living with HBV or HIV for viral load measurements in GUM/Sexual Health or infectious diseases settings follows the principles of an IVS.

All samples sent for BBV testing for EPP clearance purposes should be accompanied by a request which contains as a minimum:

- forename
- surname
- date of Birth
- purpose of testing 'clearance for EPP'
- information on whether the HCW is, or is not, taking antiviral therapy

For circumstances where coding is required or preferred, the consultant occupational physician should liaise with the lead consultant microbiologist/virologist in the local laboratory to ensure a consistent coding system unique to that laboratory is used, and that serial samples from the same HCW are identifiable as such.

Testing arrangements

Laboratories must be accredited to provide the assays used in healthcare clearance and monitoring for bloodborne virus infection and must use assays that comply with relevant national regulations and professional guidance³¹. Such assays must also have performance characteristics demonstrating the necessary sensitivity and reproducibility inherently required by the thresholds defined in this integrated guidance.

The use of personal identifiers in requests for laboratory tests may be avoided and care taken to ensure that the number of people who know the HCW's identity is kept to a minimum. However, full person identifiers must always be used when sending results to the UKAP-OHR.

Where coding is used, the consultant occupational physician should liaise with the lead consultant microbiologist/virologist in the local laboratory to ensure a consistent coding system unique to that laboratory is used, and that serial samples from the same HCW are identifiable as such.

All tests for clearance and monitoring must be conducted by an accredited laboratory in the UK. Tests conducted outside the UK cannot be accepted for these purposes.

³¹ The turnaround time (TAT) for an HIV viral load test is subject to local agreement and will vary between laboratories. Consultant occupational physicians should consider the TAT of their local laboratory when scheduling appointments for occupational health monitoring to ensure viral load results are available no later than 14 complete calendar weeks after the date of the preceding specimen taken for occupational health monitoring purposes.

Hepatitis B diagnostic cut-off and changes to designated laboratory status

The original guidance for HCWs living with HBV specified a cut-off of 10^3 genome equivalents/mL (gEq/mL), above which HCWs were not allowed to perform EPPs. HBV DNA testing was restricted to 2 designated laboratories, (the West of Scotland Specialist Virology Centre and the Public Health Laboratory Birmingham), who were able to benchmark HCW-derived samples against a WHO International Standard known to contain 10^3 gEq/mL.

In the years since issuance of that guidance, commercially available HBV viral load assays have been developed that use a WHO International Standard for Hepatitis B Virus Nucleic Acid Amplification Techniques³². The International Standard and CE marked quantitative HBV DNA PCR assays calibrated to this standard are now widely available and it is now standard practice for HBV viral load assay results to be reported in international units per millilitre (IU/mL).

Going forward, viral load testing can be undertaken by an accredited virology laboratory in the United Kingdom, provided a CE marked assay, which is standardised to the WHO International Standard for Hepatitis B Virus Nucleic Acid Amplification Techniques, is used and HBV DNA levels are reported in international units per millilitre (IU/mL). The historical cut-off has been converted to IU / mL by dividing by a factor of 5 to approximate the conversion used in the most commonly used assays. Thus 10^3 gEq / mL = 200IU / mL, and this replaces the previous cut-off for performing EPPs.

Two cut-offs have been used historically for pre-treatment viral load. 10^3 gEq/ml is equivalent to 200 IU/mL; 10^5 gEq/ml is equivalent to 20,000 IU/mL. Where pre-treatment viral load was measured before the introduction of this new guidance, viral loads reported as either gEq/mL or IU/mL are acceptable; results should not be converted between units. Previous and newly-issued guidance on hepatitis B diagnostic cut-offs for clearance of HCWs performing EPP are shown in the table below:

Item	Previous guidance	New guidance
Cut-off for clearance to perform EPP	$<10^3$ gEq/mL	<200 IU/mL
Testing laboratory	One of 2 designated laboratories.	An accredited laboratory in the UK, using a CE marked assay standardised to the

³² Bioassays, including quantitative HBV DNA PCR (viral load) testing use complex biological systems to test activity, they are therefore variable from test to test. By using a biological reference material or standard of known concentration, bioassay results can be compared and calibrated to give a consistent result, no matter when or where the bioassay is performed. The WHO International Standards are calibrated in units of biological activity which are assigned following extensive studies involving multiple international laboratories.

		WHO International Standard for Hepatitis B Virus Nucleic Acid Amplification Techniques, reported in IU/mL.
Specimen type	Identified and validated samples (IVS)	IVS

Appendix 2: Evolution of policy on the management of blood-borne viruses in healthcare workers

HIV

The first guidance, published by the General Medical Council in 1988 addressed the duties of doctors living with HIV or who had developed acquired immune deficiency syndrome (AIDS). This stated:

'It is imperative, both in the public interest and on ethical grounds that any doctors who consider that they may have acquired HIV should seek appropriate diagnostic testing and counselling, and if found to be infected, should have regular medical supervision. They should also seek specialist advice on the extent to which they should limit their professional practice in order to protect their patients. They must act upon that advice, which in some circumstances would include a requirement not to practise or to limit their practice in certain ways. No doctors should continue in clinical practice merely on the basis of their own assessment of risk to patients.³³

This was followed in 1988 with a recommendation from EAGA that HCWs who know or who suspect that they had acquired HIV and who ordinarily perform or assist in surgical invasive procedures, where blood to tissue contact can occur, must seek expert advice on whether there is a need to limit or modify their working practice.

These recommendations were made when there was no known case of HCW-to-patient HIV transmission. In making these recommendations, EAGA acknowledged the theoretical risk of such transmission based on existing knowledge of HBV transmission. Assessment of the magnitude of the risk was based on reports of occupationally acquired HIV. This evidence pointed to a low risk of transmission but grave consequences if such a transmission were to occur.

Worldwide, there have been 3 reports of healthcare associated HIV transmission from HCWs during EPPs; a Florida dentist,³⁴ where the exact route of transmission was

³³ General Medical Council. HIV infection and AIDS: The Ethical Considerations. May 1988.

³⁴ Ciesielski C, Marianos D, Ou CY, Dumbaugh R, Witte J, Berkelman R, et al. Transmission of human immunodeficiency virus in a dental practice. *Ann Intern Med.* 1992;116 (10):798-805.

never established, a French orthopaedic surgeon,³⁵ and a gynaecologist in Spain.³⁶ In the last 2 cases, transmission occurred during category 3 EPPs.³⁷ A further transmission has been reported involving a French nurse who was co-infected with HCV;³⁸ this did not involve an EPP and the exact route of transmission remains unclear. Genetic relatedness of virus in the HCW and patient(s) was demonstrated in all 4 cases. These 4 cases of transmission involved HCWs who were not undergoing antiretroviral therapy at the time of transmission.

In 1991, following the Florida dentist incident³⁹, EAGA strengthened its advice stating that:

“HIV infected HCWs should not perform invasive surgical procedures in which injury to the worker could result in blood contaminating a patient’s open tissues.”⁴⁰

EAGA updated its guidance in 1993,⁴¹ recommending that HCWs living with HIV should not perform exposure prone procedures (EPPs) (as defined in **Chapter 2**). Updated versions of the guidance were subsequently published in 1998⁴² and 2005.⁴³

The risk of HIV transmission from a HCW to their patient was later reviewed by a Tripartite Working Group of EAGA, AGH and UKAP using data available from PNEs undertaken between 1988 and 2008. No cases of HCW to patient HIV transmissions were identified despite over 10,000 patients being tested.⁴⁴ The group concluded that the risk of HIV transmission from an untreated HCW living with HIV to a patient during

³⁵ Lot F, Segulier JC, Fegueux S, Astagneau P, Simon P, Aggoune M, et al. Probable transmission of HIV from an orthopedic surgeon to a patient in France. *Ann Intern Med.* 1999;130:1-6.

³⁶ Mallolas J, Arnedo M, Pumarola T, Erice A, Blanco J, Martinez E, et al. Transmission of HIV-1 from an obstetrician to a patient during a caesarean section. *AIDS.* 2006;20:285-99.

³⁷ 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 (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. 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 Department of Health. HIV Infected Health Care Workers: guidance on management and patient notification. London;2005. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4116415

³⁸ Goujon C, Scheider V, Grofti J, Montigny J, Jeantils V, Astagneau P, et al. Phylogenetic analyses indicate an atypical nurse-to-patient transmission of human immunodeficiency virus type 1. *J Virol.* 2000;74:2525-32.

³⁹ In 1990, a dentist in Florida was found to have transmitted HIV to 6 patients; the exact mode of transmission was never identified.

⁴⁰ UK Health Departments. AIDS/HIV infected health care workers – occupational guidance for health care workers, their physicians and employers. 1991.

⁴¹ UK Health Departments. AIDS/HIV Infected health care workers: Guidance on the management of infected health care workers. 1993.

⁴² UK Health Departments. AIDS/HIV infected health care workers: Guidance on the management of infected health care workers and patient notification. December 1998.

⁴³ UK Health Departments. HIV infected health care workers: Guidance on the management and patient notification. 2005.

⁴⁴ The Expert Advisory Group on HIV and AIDS, the Advisory Group on Hepatitis and the UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses. The Report of the Tripartite Working Group, Management of HIV-infected Healthcare Workers. 2011.

EPPs was extremely low for the most invasive procedures (category 3) and negligible for less invasive procedures (category 1); this risk could be reduced even further by cART, if the HCW's viral load is suppressed to a very low or undetectable level. Following this report, updated guidance was published in January 2014 which allowed HCWs living with HIV to undertake EPP if they were either on effective cART and had a plasma viral load <200 copies/mL or were an elite controller and subject to viral load testing every 3 months.⁴⁵

Hepatitis B

As at the end of 2018, there had been 9 episodes of documented transmission of HBV from surgeons to patients in the UK since 1991, when HBV vaccination became widespread. There has also been transmission of HBV from a doctor to 2 patients which did not involve EPPs. Worldwide, since 1970 there have been more than 40 clusters where over 400 patients contracted hepatitis B from a HCW.^{46,47,48,49,50}

The policy on the management of HCWs living with HBV has evolved over time in light of epidemiological findings, the development of better laboratory tests and improved treatment options. The first guidance, issued by the Department of Health in 1993,⁵¹ followed a number of documented outbreaks of HBV in patients who were operated on by HBV e-antigen (HBeAg) positive HCWs. Based on recommendations from AGH, these HCWs were restricted from performing EPPs. This guidance was later amended in 1996 to allow an HBeAg positive HCW who was successfully treated and whose HBeAg negative status was sustained 12 months after cessation of therapy, to be able to resume EPPs.⁵²

Further cases of HBV transmission were, however, subsequently reported in HCWs living with HBV who were HBeAg negative. These HCWs were found to have high HBV DNA levels and in 2000, guidelines were issued which restricted HBeAg negative HCWs who had HBV DNA levels above 10³ gEq/mL from performing EPPs or clinical duties in renal units. The practice of HCWs with levels below 10³ gEq/mL, was not

⁴⁵ Public Health England. The management of HIV infected healthcare workers who perform exposure prone procedures: updated guidance. 2014.

⁴⁶ Smellie MK, Carman WF, Elder S, Walker D, Lobidel D, Hardie R, et al. Hospital transmission of hepatitis B virus in the absence of exposure prone procedures. *Epidemiol Infect.* 2006;134(2):259-63.

⁴⁷ Health Service Circular 2000/ 020 Hepatitis B Infected Health Care Workers. Department of Health. 23 June 2000.

⁴⁸ Health Service Circular 2000/ 020 Hepatitis B Infected Health Care Workers: Guidance on the Implementation of Health Service Circular 2000/020. Department of Health. 2000.

⁴⁹ Gunson RN, Shouval D, Roggendorf M, Zaaier H, Nicholas H, Holzmann H, et al. Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections in health care workers (HCWs): guidelines for prevention of transmission of HBV and HCV from HCW to patients. *J Clin Virol.* 2003;27:213-30.

⁵⁰ Lewis JD, Enfield, Sifri CD. Hepatitis B in healthcare workers: Transmission events and guidance for management. *World J Hepatol* 2015;7:488-97.

⁵¹ UK Health Department. Health Service Guidelines HSG(93)40: Protecting health care workers and patients from hepatitis B. 1993.

⁵² UK Health Department. Addendum to HSG(93)40: Protecting Health Care Workers and patients from hepatitis B. 1996.

restricted subject to annual testing of their HBV DNA levels.⁵³ The 10^3 gEq/mL HBV viral load cut-off point was chosen because:

- it allowed a margin of safety to accommodate natural fluctuations in HBV DNA levels
- the lowest documented HBV DNA level at which transmission was reported was 10^4 gEq/mL

Following advice from AGH, further guidance was issued in 2007, allowing HCWs living with HBV who were HBeAg negative and who had pre-treatment HBV DNA levels between 10^3 and 10^5 gEq/mL to perform EPPs while on oral antiviral therapy, provided their viral load was suppressed to below 10^3 gEq/mL and were subject to HBV DNA level testing every 3 months.⁵⁴

Successful implementation and the efficacy of the policies for managing HCWs living with HBV has resulted in no detected transmission of HBV from HCWs to patients since the policy change in 2000.

In 2015, the UKAP Secretariat initiated a review of the evidence base on newer, more effective treatments for hepatitis B (such as Tenofovir and Entecavir) which are now standard care. The expert UKAP working group agreed in 2017 that the evidence was of a satisfactory quality and indicated that currently available antiviral therapies (unavailable at the time of the implementation of extant 2007 guidance), were far more effective in suppressing virus and far more resilient to resistance than predecessor therapies (such as Lamivudine). Thus in 2019, restrictions on EPP-performing HCWs living with hepatitis B with a high pre-treatment viral load (greater than 10^5 gEq/ml) and / or who are e-Antigen positive were lifted, subject to Tenofovir (first line) and Entecavir being used and strict monitoring in place (similar to UKAP-OHR for HIV).

Hepatitis C

The first reported incident in the UK, of HCV transmission from a HCW to a single patient was in 1994.⁵⁵ Following this, the AGH recommended in 1995 that HCWs living with HCV associated with transmission of HCV to patients should no longer perform EPPs.⁵⁶ Following 5 further incidents in the UK in which HCWs living with HCV transmitted HCV to 15 patients, DH published guidance in 2002⁵⁷ introducing additional restrictions based on the advice from AGH.

⁵³ UK Health Department. Health Service Circular HSC 2000/020:Hepatitis B infected health care workers. 2000.

⁵⁴ UK Health Department. Hepatitis B infected health care workers and antiviral therapy. 2007.

⁵⁵ Duckworth GJ, Heptonstall J and Aitken C for the Incident Control Team and Others. Transmission of hepatitis C virus from a surgeon to a patient. *Commun Dis Public Health*. 1999;2:188-92.

⁵⁶ Disease Surveillance Centre (CDSC). Hepatitis C virus transmission from health care worker to patient. *Commun Dis Rep CDR Wkly*. 1995;5:121.

⁵⁷ Department of Health. Hepatitis C Infected Health Care Workers. 2002.

As at the end of 2015, there had been 11 incidents of HCWs living with HCV transmitting the virus to 28 patients in the UK. With the exception of 2, all HCWs were surgeons and all but 3 of these transmissions have been in the highest category 3 EPP. The 3 exceptions occurred in non-EPPs; one involving a repair of a paraumbilical hernia, one from a midwife to a mother in a post-natal ward and the third from an anaesthetist to a patient. The route of transmission in these cases has never been identified.^{58,59,60}

Six documented international cases involving surgeons have also been described in the literature, resulting in the acquisition of HCV in 23 patients.^{61,62} In addition there have been 3 cases involving anaesthesiology HCWs who transmitted HCV to 9 patients, with 2 of these HCWs having initially acquired their infection from a patient.^{63,64,65}

Recent reviews have highlighted the issue of substance misuse by HCWs, resulting in the transmission of HCV to large numbers of patients. In these cases, the HCWs were addicted to injectable anaesthetic opioids and in some cases, it was established that the HCW would partly inject themselves with the opioid before injecting the patients, resulting in subsequent transmission of the virus (drug diversion).⁶⁶

The guidance restricts HCWs who are known to be living with HCV (HCV RNA positive) from carrying out EPPs. HCWs living with HCV who have a sustained viral response to therapy, that is those who remain HCV RNA negative 6 months after the course of treatment has ended, are allowed to return to performing EPPs at that time and are subject to a further check 3 months later.

Health clearance for new HCWs

The 2002 guidance for managing HCWs living with HCV was also the first to recommend testing of HCWs who were about to start careers or training that would rely

⁵⁸ Public Health England. Personal communication. 2015.

⁵⁹ Muir D, Chow Y, Tedder R, Smith D, Harrison J, Holmes A. Transmission of hepatitis C from a midwife to a patient through non-exposure prone procedures. *J Med Virol*. 2014;86(2):235-40.

⁶⁰ Mawdsley J, Teo CG, Kyi M, Anderson M. Anaesthetist to patient transmission of hepatitis C virus associated with non exposure-prone procedures. *J Med Virol*. 2005;75(3):399-401.

⁶¹ Hatia RI, Dimitrova Z, Skums P, Teo EY, Teo CG. Nosocomial hepatitis C virus transmission from tampering with injectable anesthetic opioids. *Hepatology*. 2015 Mar 22. doi: 10.1002/hep.27800. [Epub ahead of print]

⁶² Cardell K, Widell A, Frydén A, Akerlind B, Månsson AS, Franzén S, Lymer UB, Isaksson B. Nosocomial hepatitis C in a thoracic surgery unit; retrospective findings generating a prospective study. *J Hosp Infect*. 2008;68(4):322-8.

⁶³ Cody SH, Nainan OV, Garfein RS, Meyers H, Bell BP, Shapiro CN, et al. Hepatitis C virus transmission from an anesthesiologist to a patient. *Arch Intern Med*. 2002;162:345-50.

⁶⁴ Ross RS, Viazov S, Gross T, Hofmann F, Seipp H-M, Roggendorf M. Transmission of hepatitis C virus from a patient to an anaesthesiology assistant to 5 patients. *N Engl J Med*. 2000;343:1851-4.

⁶⁵ Stark K, Hänel M, Berg T, Schreier E. Nosocomial transmission of hepatitis C virus from an anesthesiologist to 3 patients--epidemiologic and molecular evidence. *Arch Virol*. 2006;151(5):1025-30.

⁶⁶ Schaefer MK, Perz JF. Outbreaks of infections associated with drug diversion by US health care personnel. *Mayo Clin Proc*. 2014;89(7):878- 87.

on the performance of EPPs. This principle of screening HCWs for BBVs was further developed and expanded to include HIV and HBV in the guidance on health clearance for HCWs new to the NHS published in 2007.⁶⁷ This guidance aimed to identify, and consequently restrict, all new HCWs living with BBVs from working in clinical areas where their infection may pose a risk to patients in their care. The guidance did not apply to HCWs 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, who were considered to be under an ongoing obligation to seek professional advice about the need to be tested if they had been exposed to a serious communicable disease.

⁶⁷ Department of Health. Health clearance for tuberculosis, hepatitis B, hepatitis C and HIV: new healthcare workers. March 2007.

Appendix 3: Previous guidance documents

The previous publications have provided important guidance for all HCWs and their employers. Their development across the years, however, has resulted in relevant information being contained across a number of documents.

In October 2017, consolidated guidance was published which brought together all existing guidance documents into a single comprehensive guidance that clarified the duties of HCWs, their medical advisers and employers, and described i) the BBV health clearance measures for new HCWs⁶⁸, ii) the follow-up and management of HCWs living with HIV and/or HBV who perform EPPs and iii) procedures which should be followed if a PNE is being considered.

The 2017 guidance combined and replaced the following:

General

Health clearance for tuberculosis,⁶⁹ hepatitis B, hepatitis C and HIV: New healthcare workers. Department of Health. March 2007 . (The bloodborne virus sections of this guidance only; the document should still be used for guidance on clearance for tuberculosis).

HIV

The Management of HIV infected Healthcare Workers who perform exposure prone procedures: updated guidance, January 2014. Public Health England.

Hepatitis B

Hepatitis B infected healthcare workers and antiviral therapy. Department of Health. March 2007.

Hepatitis B infected healthcare workers. Health Service Circular, HSC 2000/020. Department of Health. 23 June 2000 .

⁶⁸ This guidance does not cover the checks for tuberculosis disease/immunity

⁶⁹ The consolidated guidance does not include recommendations on health clearance for new HCWs for tuberculosis; current guidance is however, available [here](#).

Hepatitis B infected healthcare workers: guidance on implementation of Health Service Circular, HSC 2000/020. Department of Health. 2000 .

Protecting healthcare Workers and Patients from Hepatitis B: Recommendations of the Advisory Group on Hepatitis. Department of Health. August 1993 .

Protecting healthcare Workers and Patients from Hepatitis B. Health Service guidelines, on Hepatitis. HSG(93)40. Department of Health. 18 August 1993 .

Addendum to HSG(93)40: Protecting healthcare workers and patients from hepatitis B - EL (96) 77. Department of Health. 26 September 1996 .

Addendum to HSG(93)40: Protecting health care workers and patients from hepatitis B. Department of Health. April 2004.

Hepatitis C

Hepatitis C infected healthcare workers. Health Service Circular, HSC 2002/010. Department of Health. 14 August 2002.

Hepatitis C Infected Healthcare Workers. Department of Health. August 2002.