

United Kingdom Advisory Panel

for Healthcare Workers Infected with Bloodborne Viruses

Assessing the risk of iatrogenic transmissions to patients from healthcare workers diagnosed with bloodborne virus infection in the absence of an index case: advice for local incident management teams

1. Introduction

This document has been developed in response to requests for advice from local incident management teams. It aims to provide practical advice on the conduct of local risk assessments on the risk of transmission to patients from healthcare workers found to be infected with bloodborne viruses. It is not intended to be prescriptive but to provide a rationale for different methods of risk assessment. Further advice may be obtained from the UKAP Secretariat and the HPA Bloodborne Virus Section (see www.hpa.org.uk/ukap).

2. Policy

If there is an index case of transmission of a bloodborne virus to a patient from a healthcare worker undertaking exposure prone procedures, a patient notification exercise should be undertaken. For HIV, the guidance provides that if there is no evidence of healthcare worker to patient transmission, a patient notification need only be undertaken in respect of category 2 exposure prone procedures. For hepatitis B and C, the policy is that if there is no evidence of healthcare worker to patient transmission, no patients need to be notified and offered testing. In the case of all three bloodborne viruses, patients may need to be notified in the event of "other relevant considerations".¹

Department of Health guidance to the NHS on healthcare workers infected with bloodborne viruses does not indicate how 'the absence of evidence of transmission' may be established. Where a healthcare worker is diagnosed with bloodborne virus infection in the absence of a probable case of iatrogenic transmission, some form of local investigation is usually undertaken. This local investigation sometimes takes the form of a 'patient cross-matching exercise', where a list of new diagnoses of bloodborne virus infection in the relevant geographical area and timeframe is compared with a list of patients treated by the healthcare worker.

3. Local approaches to identifying possible iatrogenic transmissions

Local incident management teams have developed their own methodologies for patient cross-matching exercises, depending on the length of the infected healthcare worker's period of employment; the number of hospitals involved; the number of patients who may have been exposed to the risk of iatrogenic transmission; the nature of the patient records available; and the ease of access to reports of new cases of bloodborne virus infection by the local incident management team. For example, if a surgeon worked in a hospital on a month's locum the previous year, it would be relatively easy to compile a list of patients on whom s/he undertook exposure prone procedures from the theatre register and to compare this with a list

¹ HIV infected health care workers: guidance on management and notification. Department of Health, July 2005, paragraph 8.4.

of new cases of the relevant bloodborne virus infection for the appropriate period for whom there were no other risk factors such as injecting drug use. On the other hand, in the case of a dentist with HIV, where the duration of infection is unknown, and the guidance recommends that the lookback should extend back 10 years in the first instance, it should be possible to start with a list of new HIV diagnoses and compare this list with the dentist's list of patients – which would take somewhat longer.

Difficulties have been experienced by local teams where, for example, a locum surgeon has worked in many different hospitals over a long period. Questions have been raised about the cost-benefits of patient cross-matching exercises undertaken in such a scenario. Local teams have also commented on the fact that patient cross-matching exercises are not specifically recommended in the guidance; that there is no formal advice about how to undertake one; as well as the fact that many now bloodborne virus infections are asymptomatic, and might therefore not be ascertained by a cross-matching exercise in any case. An important element of a patient cross-matching exercise is compiling a list of patients who underwent exposure prone procedures. In the case of a newly discovered HIV infected healthcare worker, where the current policy is that a patient notification exercise should always be undertaken in respect of category 3 exposure prone procedures, it could be argued that a list of category 3 EPP patients has to be compiled in any case. However, this is not the case for incidents involving healthcare workers infected with hepatitis B and C in the absence of evidence of iatrogenic transmission.

Analysis of the UKAP case-load shows that out of a total of 160 cases referred to UKAP from 2005 to 2010, a patient cross-matching exercise is known to have been undertaken in 53 (33%). No iatrogenic transmissions from infected healthcare workers to patients were detected. Therefore, how thorough does a local investigation have to be? UKAP advises that the investigation should be 'practical and proportionate' to the risk of transmission.

Patient cross-matching exercises have been recommended in the past for the following reasons:

- Hepatitis C transmissions have been discovered in the past through lookbacks.
- The advice, given on a case-by-case basis, to undertake patient notification exercises only where there is evidence of transmission, is based on the premise that the local investigation has taken adequate steps to establish as far as reasonably possible that there is no evidence of iatrogenic transmission.
- The resources required for a patient cross-matching exercise are far fewer than those required for a full patient notification exercise, the aim being to obviate the need for this larger piece of work and to avoid causing unnecessary anxiety to patients.

4. Local investigations and risk assessment

The steps to be taken to investigate an incident involving a healthcare worker infected with a bloodborne virus can be summarised as follows:

- 4.1 Undertake a full virology assessment of the healthcare worker. If the date of acquisition of the infection is unknown, determine the likely period when the healthcare worker may have been infectious. Stored serum samples may be available from, for example, hepatitis B screening or there may have been a negative test result following a needlestick injury. The occupational health department will liaise as appropriate with the healthcare worker's physician.

- 4.2 Compile a full employment history for the period when the healthcare worker is likely to have been infectious. This should include full information about needlestick injuries, both reported and unreported, and infection control practice. It is possible that the healthcare worker's infection was acquired from a patient whom they treated.
- 4.3 Ascertain whether the healthcare worker performed exposure prone procedures. If they did not, no patient notification exercise will be necessary and UKAP need not be consulted for advice unless there are "other relevant considerations". In the case of surgeons and theatre nurses, the pertinent question is whether the healthcare worker undertook exposure prone procedures as either main operator or first assistant with no other surgeon being present.
- 4.4 If the healthcare worker did perform exposure prone procedures, check for iatrogenic transmissions from the healthcare worker to patients by undertaking a patient cross-matching exercise. This can be done in two ways. Either obtain a list of all positive tests from the appropriate microbiology laboratories and investigate whether any individuals had treatment which may have exposed them to the risk of transmission from the infected healthcare worker. Alternatively compile a list of patients potentially exposed and check this against local, regional or national laboratory or surveillance lists of positive tests and then ascertain whether any of them were treated by the healthcare worker.
- 4.5 It should be relatively straightforward to compile a list of patients by using electronic records (including those used by dentists for claiming payment for NHS treatment.) If the absence of electronic records for the relevant healthcare worker makes it more difficult to compile a list of patients on whom the healthcare worker undertook exposure prone procedures, is there another way of cross-checking patient names against laboratory lists of bloodborne virus infection? For example, is it possible to interrogate a hospital patient administration system (PAS) or compile a list from theatre books?
- 4.6 If the healthcare worker is infected with a rare genotype of hepatitis C, a useful additional check is to investigate whether any of the laboratory cases with the same genotype were treated by the infected healthcare worker.
- 4.7 If matches are found between the list of laboratory cases and individuals treated by the healthcare worker, the local risk assessment will include a process of elimination for risk factors other than treatment by the infected healthcare worker. For example:
- Did the patient acquire his/her infection before the date of treatment by the healthcare worker?
 - Did infected individuals have any other known risk factors for bloodborne virus infection such as injecting drug use or country of origin in an area of high prevalence?
- 4.8 If positive cases are found among the healthcare worker's patients, undertake phylogenetic analysis on the serum of both the patient and the healthcare worker (with the consent of both) to establish whether or not iatrogenic transmission may have occurred. Inability to obtain consent shall not preclude the phylogenetic analysis of the virus where it is considered vital

in influencing the decision making process regarding the necessity for a patient notification exercise. Whether or not consent has been given, the infected healthcare worker and/or the patient should be kept informed about the phylogenetic analysis, including the implications and results for the individuals concerned, in accordance with good clinical practice. Once the result of testing is known, report the case to UKAP either by completing the UKAP enquiry pro forma and sending it to the Secretariat with an explanatory letter, or by using it as a check-list when writing the formal request for advice. In both cases, the Panel needs to know the full relevant history, including the methodology of the local investigation.

- 4.9 If no positive cases are found, report the case to UKAP, using the UKAP enquiry pro forma.
- 4.10 If the healthcare worker worked in more than one NHS trust or health board, the same process of investigation will have to be completed for each hospital where the healthcare worker was employed. The local investigations will need to be coordinated by local incident management teams. Once all the local investigations have been completed, the results should be compiled into one formal request for advice to UKAP. This is to prevent double-reporting to UKAP of the same case by different local NHS organisations and to ensure the provision of consistent advice.
- 4.11 It is usual for the director of public health responsible for the location of the 'index trust' where the healthcare worker's infection was discovered to take responsibility for ensuring appropriate action. However, the task of coordinating the local investigation may be **delegated** to the local health protection unit. Where more than one trust or health board is involved, it is usual for the consultant in communicable disease control or consultant in public health medicine (CCDC/CPHM) working with the index trust to liaise with CCDC/CPHM colleagues in the other areas who will facilitate the local investigations in their area.
- 4.12 Preserving the confidentiality of the healthcare worker is of paramount importance. Extra care will need to be taken where the healthcare worker has been employed in more than one region. Undertaking the local investigation a stage at a time may sometimes avoid the need to disclose their identity beyond the occupational health department.