OCCUPATIONAL TRANSMISSION

OF HIV

Summary of Published Reports

March 2005 Edition
Data to December 2002

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& Collaborators*

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Latest version will be available at the Health Protection Agency web site:
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57	35	(5)	14	106

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USA	Europe	(UK)	Rest of World	Total
139	85	(14)	14	238

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Occupational transmission of HIV
Summary of reports to December 2002

Explanatory notes and commentary

Background

Since the first case of documented seroconversion after a specific occupational exposure to HIV was reported in 1984[1], national or regional systems for the surveillance of occupationally acquired HIV infection have been developed in most of the countries mentioned in these summary tables. These tables contain details of all the published cases of occupationally acquired HIV infection of which we are aware (Tables 3 and 4), but the true incidence of occupationally acquired HIV infection is unknown, and is likely to be much higher. Early case descriptions appeared in mainstream journals but newly recognised cases are now likely to be included in aggregate data in routine surveillance output from national or regional surveillance centres, rather than being the subject of a detailed report in a peer reviewed journal, and, inevitably, some loss of detail results. Cases may be reported late to national centres, or not reported at all.

Case definition

Cases of occupationally acquired HIV infection are usually categorised as either "definite" or "possible", but the definitions used vary slightly from country to country. Tables 3 and 4 have been compiled by listing cases according to locally used definitions, rather than applying the definitions in use in the UK. New information may become available to investigators after a case report has been published. This may lead to reclassification of a possible case as either a documented case or as non-occupationally acquired. Some of the changes between this edition of the summary tables and the previous one reflect this.
There is little variation between countries on what constitutes a “documented case”. A "documented case" is one for which there is documented evidence of HIV seroconversion (a recorded negative result of a test for anti-HIV followed by a subsequent positive result) associated in time with a specific occupational exposure to a source of HIV. Most of the cases included in Table 3 fulfil this definition. Sometimes, however, the HIV infectivity of the source may have been inferred, rather than documented. Alternatively, the specific exposure incident leading to HIV infection may have passed unnoticed or unreported, or the source may not have been precisely identifiable, but subtyping or genotyping of HIV from an infected healthcare worker may have shown the strain to be indistinguishable from that of the putative source (see case A21, Table 3 Appendix).
The definitions used by different countries for "possible" cases are more variable. In general, the term implies that a health care worker has been found to be HIV infected, and that subsequent investigations have revealed no other identified risk for infection other than occupational exposure. In the UK, a restrictive definition of “possible” is used, requiring likely exposure to an HIV infected source, and criteria are stringently applied, so that the term "probable" might better describe the UK cases.
Categorisation of healthcare workers by occupation also varies from country to country, as do the tasks which different groups of healthcare workers undertake. In France, Italy and Spain, venepuncture is usually undertaken by nurses, whereas in the United States, venepuncture is performed by phlebotomists, who are categorised as clinical laboratory workers.
Large numbers of cases are reported from Germany including several with “occupational work area” exposure. The excess of male cases amongst these would suggest that some of these may have additional risk factors. Other countries use the possible occupational tables more to record ‘probable’ cases.

Risk factors for HIV transmission

A case-control study has identified risk factors for HIV seroconversion following an occupational percutaneous exposure to HIV-infected blood in healthcare workers; these are needles having been used in the patient’s vein or artery, deep injuries, visible contamination of the device with blood, and late stage disease in the source patient[2]. This same study also established that the use of zidovudine as HIV PEP resulted in an 81% reduction in the risk of transmission of HIV in healthcare workers following percutaneous injury to HIV-infected blood[2].

Update

Only Tables 3-6 and 8 have been updated and included in this edition of the Report. For details of the other Tables, please refer to the previous edition (December 1999), available at: http://www.hpa.org.uk/infections/topics_az/hiv_and_sti/publications/hiv_octr_1999.pdf

Information on the new cases was provided by National Surveillance Centres to the Health Protection Agency Centre for Infections, and additional cases were identified through a literature search.

There have been an additional six documented cases and eighteen possible cases described since the last edition; resulting in a total of 106 documented and 238 possible cases. Another two cases have been reclassified as possible, rather than documented cases.

Of the six documented cases, three of the six documented cases have no reported HIV negative baseline results, but all were genetically linked as having the same virus strain as that of the source patient. Four of the source patients were reported to have AIDS. Percutaneous exposures, mainly needlestick injuries, accounted for four of the six reported cases. Of the remaining two cases, one was a mucous membrane exposure. In the other case, although the exposure was reported as undetermined, the reports concluded that non-intact skin was the probable route of transmission[3]. Overall, the route of transmission in documented cases of occupational acquisition of HIV was predominately percutaneous exposures with 91% (96/106) of cases in Table 3 (with two of these cases involving both percutaneous and mucocutaneous exposures). Overall, 24 cases reported that the source patient involved had AIDS.

Table 8 shows that there are now 24 cases of HIV seroconversion despite initiation of post-exposure prophylaxis (PEP). Two new cases have been identified since the last edition. Both of these healthcare workers commenced PEP within two hours of the exposure. In one case the healthcare worker changed regimen due to the antiretroviral treatment history of the source patient, and in the other an accidental administration of a small volume of blood was made whilst attempting to remove the needle (and syringe) from the site of injury.
Overall, only three cases of PEP failure were due to mucocutaneous exposure, the remainder were percutaneous injuries. Of those cases that reported a time between the exposure and administration of PEP, 83% (19/23) commenced PEP within two hours, with only one case outside twenty-four hours post-exposure. A time between exposure and initiation of PEP was not reported for one case.

Healthcare Worker

Nurses and clinical laboratory workers consisted of 69% (73/106) of the documented cases of occupationally acquired HIV infection, and 39% (94/238) of possible cases. Doctors, including medical students (but not surgeons) involved 13% (14/106) and 12% (28/238) of documented and possible cases, respectively. In comparison, surgeons consisted of <1% (1/106) of documented cases and 7% (17/238) of possible cases, and 3% (8/238) of possible cases involved dentists/dental workers but none of the documented cases.

Country

Two cases from Belgium have now been reclassified from documented to possible cases. France has identified two new possible cases. Germany has seen a further two documented and seven possible cases, although those cases classified (in Germany) as ‘occupational work area’ have not been included in this update. The UK has reported six more possible cases (all of which were possibly acquired abroad in countries of high HIV prevalence). The USA has now two more documented cases; of which one seroconversion occurred despite PEP, and two possible cases. Australia has seen one further documented seroconversion, where the healthcare worker seroconverted despite triple PEP. An additional two countries have published details of occupationally acquired HIV infection: Brazil with one documented case and Trinidad & Tobago with one possible case.

A majority [94% (325/344)] of the cases contained within this document (inclusive of documented and possible reports) are from countries with developed surveillance systems and with relatively low HIV prevalences. No information has been reported, for this new edition, to the Health Protection Agency Centre for Infections or identified in the published literature, of cases occurring in South East Asia, the

Indian Sub-Continent, or Africa. As the reporting of occupational transmission of HIV is reliant on established and appropriate surveillance programmes, these world areas may not have the necessary systems in place to report occupational exposures and collate information on occupational transmission. With reference to the UK possible cases, 13 of 14 healthcare workers had worked in areas of high HIV prevalence (specifically, Africa and the Indian Sub-Continent).

Conclusions

In order to try and prevent occupationally acquired HIV infections occurring, it is obviously imperative that healthcare workers receive adequate training and education on the management and prevention of occupational exposures. Universal precautions should be adhered to, where appropriate, and healthcare workers should experience the necessary training in their use, and other preventative techniques, such as the correct methods for disposing of sharps. Procedures need to be in place for advice on the appropriate management of occupational exposures to bloodborne viruses, and provision of PEP where required. Reporting of such incidents to the appropriate hospital department is essential and should be encouraged in order to ensure adequate follow-up, testing and management of the affected healthcare worker.

Contributors

This tabular summary of information relevant to occupationally acquired HIV was developed by others at the Health Protection Agency's Centre for Infections. A particular debt of gratitude is owed to all involved in this work and previous versions of these tables, especially Dr J Heptonstall[4-6]. Those involved in the production of this version were Ms S Tomkins, Dr F Ncube and Dr BG Evans. Thanks are given also to Ms J Farley who patiently typed the tables. We also acknowledge the input of individuals from other National Surveillance Centres.

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[6] Heptonstall J, Porter K, Gill ON. Occupational Transmission of HIV - Summary of published reports December 1995. Internal PHLS report.

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Table 3

OCCUPATIONALLY ACQUIRED HIV IN HEALTHCARE WORKERS
Cases of documented seroconversion after a specific exposure incident

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
1. Anon (NR,84)	UK	F Nurse	AIDS	"Injection" needlestick while resheathing after obtaining blood from arterial line.	27+	49+	Fever, macular rash, 3rd week	None
2. Oksenhendler (85,86)	France	F Nurse	PGL HBsAg+ve	Superficial self-inflicted needlestick to finger while recapping needle contaminated with bloody pleural fluid.	1+, 13+	68+	Fever, vomiting, 4th week	None
3. Neisson-Vernant (85,86)	France (Martinique)	F Student Nurse	AIDS	Pricked index finger with needle during venepuncture.	30+	180+	Fever, macular rash, 9th week	None
4. Gioannini (87,88)	Italy	F Nurse	HIV+ve asymptomatic	Heavy blood splash to hands, eyes and mouth while disoccluding arterial catheter.	1+, 21+	43+ (21+ Ag+ve)	Fever, arthralgia, 2nd week	NR
5. Michelet (87,88)	France	F Nurse	AIDS	Needlestick without injection from large bore needle of vacutainer tube (venepuncture).	13+	45+	Generalised lymphadenopathy, fever, weight loss, 4th week	None
6. Lima (86,88)	Italy	F Student Nurse	HIVAg+ve, anti-HIV-ve IDU (anti-HIV+ve 14 months later)	Superficial needlestick injury from phlebotomy needle.	<7+	300+	None	None
7.CA Madrid (NR,88)	Spain	F Nurse	HIV+ve (clinical status not reported)	'Inoculation injury'.	NR	52+	NR	None
8. Serra (88,89)	Spain	F Student Nurse	HIV+ve asymptomatic	Needlestick while recapping needle after venepuncture.	0, 32+	71+ (32+ Ag+ve)	Hepatitis SC1 Symptoms, day 71	None

PGL = persistent generalised lymphadenopathy NR = not reported

Continued…………..

Table 3 (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure		Acute illness	PEP
					Negative(s)	First pos.		
9. Looke (90,90)	Australia	M HCW occupation not known	AIDS CD4 count NK	Deep needlestick after taking blood. Given AZT (Table 8, case 1).	0	42+	Flu-like symptoms, generalised lymphadenopathy, 5th week	Yes (AZT)
10. Tait (90,91)	S Africa	Intern	HIV+ve & PTB	Finger pulp injury from lancet while drawing blood. Given AZT (Table 8, case 2).	0	24+	Lymphadenopathy, fever, diarrhoea, malaise, 3rd week	Yes (AZT)
11.CA Madrid (90,91)	Spain	F Nurse	NR	Needlestick.	NR	3-5 months	NR	None
12. Tait (90,92)	S Africa	F Nurse	HIV+ve & PTB	Puncture of palmar skin by stilette of IV cannula.	0	180+	NR	None
13. Tait (NR,92)	S Africa	F Nurse	HIV+ve	Deep needlestick injury with IV cannula (restless patient). Given AZT (Table 8, case 3).	0	63+	16 weeks pregnant, no seroconversion illness	Yes (AZT)
14. Lot (89,92)	France	F Nurse	AIDS terminally ill	Needlestick during venepuncture.	8+	39+	2nd week	None
15. Lot (90,92)	France	F Nurse	AIDS terminally ill	Deep needlestick involving vacuum tube system. Given AZT (Table 8, case 4).	0	52+ (24+Ag+ve)	3rd week	Yes (AZT)
16. Lot (90,92)	France	Nurse	HIV+ve symptomatic	Superficial needlestick when penetrating a rubber stopper after sampling for blood culture.	0	87+	None	None
17. Lot (91,92)	France	F Nurse	AIDS	Moderate needlestick involving vacuum tube system. Given AZT, course not completed (Table 8, case 16).	0	112+	3rd week	Yes (AZT)
18. Lot (92,92)	France	F Nurse	AIDS	Deep needlestick involving vacuum tube, impaling foot, after venepuncture. Given AZT for 48 hours (Table 8, case 17).	0	69+ (32+Ag+ve)	4th week	Yes (AZT)

PTB = pulmonary tuberculosis NR = not reported

Continued……………

Table 3 (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
19. Lot (91,93)	France	Nurse	AIDS	Deep needlestick during disposal after venepuncture	22+	186+	3rd week	None
20. Gurtler (88,92)	Germany	F Nurse	AIDS	Needlestick during disposal after venepuncture.	0	49+	Flu-like symptoms, Day 28	NR
21. Gurtler (91,93)	Germany	M Nurse	AIDS	Deep needlestick while attempting to penetrate plastic stopper of specimen bottle with needle after venepuncture.	0	49+	None	None
22. Anon/Winceslaus (92,93)	UK	F HCW	AIDS	Percutaneous injury – used IV cannula introducer (18-20G) discarded during resuscitation. Given AZT (Table 8, case 5).	0, 42+	56+ (43+Ag+ve)	2nd week	Yes (AZT)
Case 23 has been re-classified as possible occupational transmission and moved to Table 4 (case 237).								
Case 24 has been re-classified as possible occupational transmission and moved to Table 4 (case 238).								
25. Ippolito (NR,93)	Italy	F Nurse	AIDS	Deep percutaneous injury – used IV cannula introducer.	1+	43+	3rd week	None
26. CDSC (92,93)	UK	F Phlebotomist	HIV+ve asymptomatic	23G needlestick during venepuncture on vertically infected child.	4+	90+	None	None
27. CDSC (92,93)	UK	F HCW	AIDS	21G needlestick during venepuncture.	0	81+	6th week	None
28. CA Madrid (92,94)	Spain	F Nurse	NR	Seroconversion after percutaneous exposure (needlestick) to blood.	NR	180+	6th week	None
29. Baird (93,94)	Australia	M Doctor	HIV+ve CD4 normal no AZT	Percutaneous exposure via "butterfly" needle after phlebotomy, pre-disposal.	1+	14+, 21+	3rd week	None
30. OFSP/Jost (94,94)	Switzerland	F Nurse	AIDS	Percutaneous exposure to blood via needle in sharps bin. Matched on sequencing.	0	91+	NR	None

NR = not reported

Continued……………

Table 3 (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
31. NCHECR/Menzies (92,95)	Australia	F HCW occupation not known	HIV+ve CD4 count 150	Hollow needle (21G butterfly) injury after venepuncture. Gloves worn.	0	38+	16-35 days	None
32. NCHECR/Menzies (94,95)	Australia	F HCW occupation not known	HIV+ve	Hollow needle injury after venepuncture. Gloves worn.	NR	NR	NR	None
33. Lot F (96,97)	France	F Nurse	seroconverting P24 Ag+ve	Needlestick injury during taking blood for culture	0	83	NR	None
34. Lot (94,95)	France	F Nurse	AIDS terminally ill	Deep needlestick after venepuncture, no gloves. AZT given (table 8, case 9).	0	87+	None	Yes (AZT)
35. O'Shaughnessy (95,95)	Canada	M Physician	AIDS terminally ill	Shallow puncture wound from 21-25G needle.	17+	70+ (17+Ag+ve)	3rd week	None
36. Garcés (93,96)	Spain	F Nurse	HIV+ve PTB, HCV+ve	Needlestick after venepuncture. Acute HCV also.	0	44+	Viral illness 7th week, jaundice 8th week	None
37. Weisburd (91,96)	Argentina	F Nurse	HIV+ve	Piercing wound from butterfly needle drawn back from sick patient. Given AZT (table 8, case 10).	0	131+	Jaundice, vomiting 8th week	Yes (AZT)
38. Jost/OFSP (95,97)	Switzerland	F Nurse	AIDS terminally ill	Needlestick injury after injection.	0	95+	NR	None
39. Ippolito/SIROH (NR,97)	Italy	F Housekeeper	HIV+ve samples in lab	Splash face/mucous membranes/eyes from residual samples in biochemistry lab. Acute HCV also. Given AZT (Table 8, case 11).	0	53+	3rd week	Yes (AZT)
40. Ippolito/SIROH (94,96)	Italy	F Surgeon	HIV+ve	Scalpel cut of gloved finger during incision of perianal abscess. Oral KS one year post-exposure.	0	40+	None	No, declined

NR = not reported

Continued……………..

Table 3 (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
41. Kasongo (NR,97)	Zambia	F Doctor	HIV+ve	Needlestick after venepuncture.	NR	NR	NR	None
42. Brink (95,97)	S Africa	F Doctor	HIV+ve infant	Injury with 25G needle while drawing arterial blood sample	0	60	Hepatitis,SCI 4th week	None
43. Jarke (93,93)	Germany	F Nurse	AIDS	Mucocutaneous exposure; blood in and on mouth. Herpetic lesion on lip. Given AZT (Table 8 case 18)	3+	42+	5th week	Yes (AZT)
44. Lot (96,99)	France	F Doctor	HIV+ asymptomatic untreated	Deep needlestick while recapping after obtaining arterial sample for blood gases	0	97+	Day 45	Yes (AZT+DDI)
45. Lot (97,99)	France	F Nurse	AIDS treated with AZT+3TC+IDV	Deep needlestick with a blood-filled needle (large gauge) incorrectly discarded in a waste plastic bag.	4+	55+	Day 40	Yes (AZT+3TC+IDV)
46. Hawkins (99,99)	UK	M Nurse	AIDS treated	Needlestick in finger web. Initial triple therapy changed after first dose.	0	~90+	Day 26	Yes (AZT + 3TC + IDV initially then d4T,ddI + nevirapine; ddI discont. after 8 days, rest of drugs cont. for the 4 wks.)
47. Anon (93,96)	Australia	M Doctor	NR	Needlestick injury – no other details available.	NR	NR	NR	NR
48-104. CDC (01,02)	USA	57 HCWs	NR	As reported to CDC Surveillance system, up to December 2002. 48 were percutaneous exposures; 5 mucocutaneous; 2 both percutaneous and mucocutaneous, and 2 of unknown route of exposure. No other detail.	NR	NR	NR	NR
105. Seabra Santos (94,02)	Brazil	Nurse Aide	AIDS	Assisting colleague with venepuncture; venous catheter punctured right forearm.	3+, 76+	180+	Fever, cervical ganglia between $2^{nd}/6^{th}$ week	None

NR = not reported

Continued…………

Table 3 (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
106. Salzberger (96,00)	Germany	M Doctor	HIV+ve	Needlestick injury during phlebotomy. Source and HCW virus strains matched.	No baseline HIV test	8th week	None	
107. Eberle (99,00)	Germany	M Student Clinical Laboratory Worker	AIDS (Subtype 1E)	'Heavy splash of serum into eye'. HCW had moderate conjunctivitis. Sequenced: subtype HIV-1E. Source and HCW virus strains matched.	NR	~35+	NR	NR
108. McDonald (02,03)	Australia	F Phlebotomist	AIDS	'Moderate (below dermis)' needlestick injury to thumb (21G needle). 'Accidentally inoculated small volume of blood from syringe'.	0	80+	Day 79	Yes (Combivir +Indinavir)
Total number of cases = 106 [As 2 cases (cases 23 and 24) have now been reclassified from Table 3 to Table 4.]								

NR = not reported

Documented seroconversions have also been reported in a prison officer after stabbing (Jones PD. Lancet 1991; 338:884) and two non-hospital sanitation workers in France, after needlestick injuries, which occurred during trash collection and transportation respectively (Lot F, Abiteboul D, Bull Epid Hebdo 1994; 25:111-113).

Continued…………

Table 3 Appendix **Details of US cases published in literature**

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
A(1) Stricof (86,86)	USA	F Nurse	AIDS	'Deep' IM needlestick with large bore needle (1.67mmd) inflicted by co-worker during emergency resuscitation procedure.	9+	184+	Fever, erythematous macular rash, 3rd week	None
A(2) CDC (NR,87)	USA	F HCW	AIDS	Index finger pressure for 20 minutes to arterial bleeding point. Chapped hands, no gloves.	240-	112+ (16 weeks)	Fever, vomiting, lymphadenopathy, 3rd week	None
A(3) CDC (86,87)	USA	F Phlebotomist	HIV+ve	Vacuum tube accident (venepuncture), blood on face and in mouth. Needle scratch on hand 2 months later from IDU of unknown HIV status.	1+, 8 weeks	270+	None	None
A(4) CDC (86,87)	USA	F Med technologist	HIV+ve	Apheresis machine accident, blood covered most of ungloved hands + forearms - several minutes. Ear with dermatitis.	5+	90+	Fever, hives, erythematous macular rash, 8th week	None
A(5) CDC (87,88)	USA	F HCW	AIDS	Deep 21G needlestick inflicted by co-worker during resuscitation procedure.	1+	88+	Fever, chills, night sweats, lymphadenopathy, 5th week	None
A(6). CDC (87,88)	USA	F HCW	AIDS	Two self-inflicted needlesticks in 10-day period. One (21G) while recapping, second (25G) during venepuncture.	21+ after 1st exp	121+ after 1st exp (42+ culture +ve)	Fever, chills, lymphadenopathy, weight loss, 5th week after 1st exposure	None
A(7)Gerberding(87,87)	USA	Nurse	AIDS	Deep needlestick hollowbore needle used to flush a heparin lock.	3 months before	28+ (14+ Ag+ve)	Fever, pharyngitis, lymphadenopathy & fatigue 2 weeks after exposure	None

NR = not reported

Continued……….

Table 3 Appendix (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Acute illness	PEP
A(8) Weiss (NR,88)	USA	M Research lab worker	Concentrated HIV	Injury with potentially contaminated needle while cleaning needle of elutriator used to concentrate virus.	NR	180+	NR	None
A(9) Ramsey (NR,88)	USA	HCW	AIDS	Needlestick injury.	90+	288+	None	None
A(10) CDC (NR,88)	USA	F HCW	AIDS	"Injection" needlestick filling vacuum collection tube (venepuncture).	NR	NR	NR	NR
A(11) Wallace (85,88)	USA	M Hospital Corpsman	AIDS	Puncture while disposing of a phlebotomy needle.	14+, 90+	180+	Swollen neck glands fever, myalgia, 5th month	NR
A(12)Henderson(NR,89)	USA	M Clin lab worker	AIDS	Vial containing infected blood broke, and cut through glove & skin.	1+	63+	Fever, weight loss, 5th week	NR
A(13) CDC (92,93)	USA	F Phlebotomist/ Clin lab worker	AIDS	21G syringe needlestick during venepuncture. Given AZT (Table 8, case 6).	0, 6 weeks+	121+	Day 38	Yes (AZT)
A(14) CDC/Ciesielski (91,93)	USA	F Phlebotomist	HIV+ve	Percutaneous exposure, 22G phlebotomy needle. AZT failure (Table 8, case 7).	NR	90+	Day 14	Yes (AZT)
A(15) CDC/Ciesielski (90,93)	USA	M HCW	HIV+ve on AZT	Percutaneous exposure, 16G IV cannula. AZT failure (Table 8, case 8).	NR	94+	Day 36	Yes (AZT)
A(16) Pincus (90,94)	USA	Lab worker	Concentrated HIV	Exposure of skin and mucous membranes to highly concentrated virus. Positive molecular match.	NR	NR	NR	NR
A(17) Ridzon (90,95)	USA	HCW	HIV+, HCV+ 7/12 AZT	Deep needlestick injury, HCV infection acquired also while performing phlebotomy	0, 1, 5, 7, 8 months+	9.5 months+	Acute onset hepatitis, 8th month	None
A(18) Anon (90,95)	USA	M Anaesthesia technician	HIV+ve	Hand punctured by IV cannula protruding from opening of sharps box.	0	2 months+	NR	NR
A(19) Floyd (91,92)	USA	F Doctor	HIV+ve	Percutaneous exposure after venepuncture.	0	3 months+	NR	NR

NR = not reported

Continued……….

Table 3 Appendix (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure		Acute illness	PEP
					Negative(s)	First pos.		
A(20) Verhovek(88,93)	USA	F Nurse	HIV+ve	Needlestick injury caused by blood filled "intermittent IV needle", incident occurred during management of epileptic fit.	0	?3 months+	NR	NR
A(21) CDC (85,94)	USA	M Research lab worker	Concentrated HIV	Inapparent exposure by unknown route. Virus found to match laboratory strain.	Not applicable		None recalled	None
A(22) Favero (NR,93)	USA	Dialysis technician	HIV+ve haemodialysis	Puncture injury from a blood contaminated trochar (15G).	0, 5 months+	8 months+	5 ½ months	None
A(23). Pratt (NR,95)	USA	HCW	AIDS, CMV retinitis CD4 <10/mm^3	Needlestick while drawing and transferring blood from central venous catheter. Given AZT (Table 8, case 15).	0	20+ (17+Ag+ve)	3rd week	Yes (AZT)
A(24)Johnson (92,97)	USA	M Pathologist	AIDS	Scalpel cut 1 cm deep during autopsy while reflecting scalp from head. Two pairs of gloves worn.	1+	42+	None	None
A(25) Many (NR,97)	USA	F Nurse	Unknown source patient	Deep palmar injury from contaminated orthopaedic pin.	0, 210+	AIDS at 18 months	No, rapid progression to AIDS.	No, declined
A(26) Jochimsen/CDC (92,97)	USA	HCW	AIDS terminally ill	Biopsy needle injury. Given AZT (Table 8, case 12).	0	23+	Day 23	Yes (AZT & ddI)
A(27) Jochimsen/CDC (93,97)	USA	HCW	HIV+ve on AZT	Cut with broken glass vacuum tube. Given AZT (Table 8, case 13).	0	73+	3rd week	Yes (AZT)
A(28) Jochimsen/CDC (92/97)	USA	Nurse	HIV+ve	Mucocutaneous exposure to blood. Given AZT (Table 8, case 14).	0	134+	11th week	Yes (AZT)

NR = not reported
The Centers for Disease Control and Prevention's (CDC's) surveillance for occupational HIV infection relies primarily on the voluntary reporting of individual cases in the US. Regarding documented occupational HIV infection, the total reported to CDC are the 57 cases given in the main part of Table 3. Case reports in the literature are included in table 3 appendix most of which are also among the 57 cases in CDC's surveillance system. **Continued……………**

Table 3 Appendix (continued)

Case number, Author of first report (Year of exposure, Year of report)	Country	Case	Source patient	Details of exposure	HIV antibody test results Days before(-)/after(+) exposure		Acute illness	PEP
					Negative(s)	First pos.		
A(29) Ciesielski/CDC (NR,96)	USA	HCW	HIV+ve	25G "moderate" needlestick injury, gloves worn.	0, 182+	310+	None	None
A(30) Ridzon (90,97)	USA	Phlebotomist	AIDS	A deep needlestick injury while drawing blood from a patient with AIDS.	14+	28+	3rd week	None
A(31) Perdue (98,99)	USA	F Nurse	HIV+ve	21G Butterfly needlestick injury.	-	83+	Day 70	Yes (4 drugs)
A(32) Beltrami (NR,01)	USA	Nursing home HCW	HIV+ve (with dementia)	Worked in a nursing home and cared for source patient. HCW wore gloves, but 'tore easily'; 'numerous exposures to patient's emesis, faeces and urine' (not known if contained blood). HCW had 'chapped and abraded hands'. No exposure to other body fluids reported.	HIV+ve by ELISA + W. Blot; HCV+ve PCR, results from American Red Cross. 5-weeks earlier HIV-ve HCV-ve. HIV virus genetically linked.		NR	NR
A(33) Beltrami (NR,02)	USA	M Environmental Service Aide	AIDS	'Forcibly manipulating lid of sharps container.' 'Moderately deep percutaneous injury'; 'probable hollow-bore needle (sharp not identified).' HCW wearing gloves.	0, 14+	42+	6th week	Yes AZT+3TC initially, then ddI, d4T, nevirapine + hydroxyurea after 6 hrs. ddI discontinued after 3 days.

NR = not reported

Continued…………

Table 4 POSSIBLE OCCUPATIONALLY ACQUIRED HIV INFECTIONS IN HEALTHCARE WORKERS WITHOUT OTHER RISK FACTORS

Case number, Author of first report (Year of report)	Country	Case	Details of exposure and outcome
1. Bygbjerg (83)	Denmark	F Surgeon	Surgical practice in rural Zaire. Presumptive AIDS 1976.
2. Anon (84)	France	F Doctor	Worked in various intensive care units in France, newly qualified resident. AIDS 1984.
3. Houweling (87)	Holland	M Surgeon	European, worked in Africa for 3 years: 1984-86. Undertook emergency manual removal of placenta without gloves on several occasions. HIV+ve 1986.
4. Ponce de Leon (88)	Mexico	M Blood bank technician	Many puncture accidents including one gross plasma contamination of a deep hand cut. AIDS 1987.
5. Schmidt (88)	Germany	F Nurse	Developed M. tuberculosis lymphadenopathy and found to be HIV+ve in 1987, 5 years after needlestick exposure (1982) to a patient who died from AIDS 3 years after the exposure.
6. Bonneux (88)	Belgium	Surgeon	European who experienced multiple needlestick injuries and cuts while working in Africa. HIV+ve between 1985 and 1987.
7. Porter (90)	UK	M Surgeon	"Most probably" infected during work as a surgeon in Africa in 1983-86. AIDS 1988.
8. Houweling (91)	Holland	M Doctor	Two needlesticks – one was a deep stick with solid needle while treating patient with suspected HIV disease in Africa in 1983-86. AIDS 1988.
9. Tait (92)	S Africa	M Surgeon	No particular incident. HIV negative 1990, positive June 1991. Worked with patients likely to be HIV-infected in Natal, South Africa.
10. Lot (92-95*)	France	F Nurse	Needlestick injury 1986 with exposure to blood after injection, no baseline test. HIV+ve 3rd month.
11. Lot (92-95*)	France	M Nurse-aid	Severe needlestick injury to thumb in 1992 while collecting used instruments prior to sterilisation. HIV+ve 7th month (HIV negative day 1 and day 90).
12. Lot (92-95*)	France	F Nurse	Two needlestick injuries in 1991; one with used lumbar puncture needle; other with IV needle. AIDS patient. No baseline test. HIV+ve 2nd month, AIDS 1995.
13. Lot (92-95*)	France	M Doctor	Cut L index finger with scalpel during tracheotomy, 1983. HIV+ve patient. HIV+ve 1987, AIDS 1991.
14. Lot (92-95*)	France	F Clin lab worker	Cur while manipulating broken blood specimen tube, 1986. HIV+ve patient. No baseline test on HCW. HIV+ve 8th month, AIDS 1989.
15. Lot (92-95*)	France	F Nurse	Needlestick injury with blood filled IV needle 1984, during recapping after removal post transfusion. HIV+ve 1988, AIDS 1989.
16. Lot (92-95*)	France	F Nurse-aid	Prolonged blood contact with non-intact skin 1989. HIV+ve patient. HIV+ve 1992, AIDS 1992.

Continued……….

Table 4 (continued)

Case number, Author of first report (Year of report)	Country	Case	Details of exposure and outcome
17. Lot (92*)	France	F Dental Assistant	Needlestick injury to finger (resulting in paronychia) by dental instruments for sterilisation 1988. No baseline test. HIV+ve 7th month, AIDS 1991.
18.Lot (92*)	France	M Nurse	Needlestick injury while collecting blood for culture, 1988. AIDS patient terminally ill. No baseline test. HIV+ve 1991.
19.Lot (88,92*)	France	F Nurse	Lancet injury while obtaining sample for blood glucose estimation. HIV+ve 11th month, (HIV negative day 4, day 52).
20. Lot (92*)	France	M Nurse-aid	Needlestick injury while collecting used instruments for sterilisation, 1989. HIV+ve 9th month (HIV negative day 0 and day 37).
21. Lot (92*)	France	M Nurse	Needlestick injury while attempting to obtain arterial sample for blood gases, 1990. AIDS patient terminally ill. HIV+ve 8th month, (HIV negative day 0 and day 92).
22. Lot (92*)	France	F Nurse	Prolonged blood contact with non-intact skin, 1992. AIDS patient. No baseline test. HIV+ve 6th month.
23. Lot (89,92*)	France	F Nurse	Needlestick injury while disposing of needle used for IV infusion into sharps container.HIV+ve 7th month (HIV negative day 7)
24. Lot (92*)	France	F Lab worker	Cut to index finger with sharp object contaminated with live HIV, 1985. HIV+ve 1991, AIDS 1995.
25. Lot (92*)	France	M Orthopaedic surgeon	Penetrating cut to index finger caused by used surgical instrument, 1983. HIV+ve 1994, AIDS 1994.
26. Lot (92*)	France	M Dentist	Needlestick injury with exposure to blood, 1988. HIV+ve 1991, AIDS 1994.
27. Lot (92*)	France	M Lab worker	Injury involving exposure to concentrated HIV infected lymphocytes, 1987. HIV+ve 1989, AIDS 1994.
28. Lot (89,92*)	France	F Operating Department Assistant	Cut with contaminated blade used to lay open abscess of HIV+ve patient, 1989. HIV+ve 1994, AIDS 1995 (HIV negative day 0).
29. Lot (93*)	France	Medical student	Details not available.
30. Lot (93*)	France	Medical student	Details not available.
31. Lot (93-95*)	France	F Nurse	HIV+ve in 1989, AIDS in 1990.
32. Lot (93-95*)	France	F Doctor	Cut with scalpel in 1985. The doctor was diagnosed with AIDS in 1991.
33. Lot (93-95*)	France	HCW	“ “ “
34. Lot (93-95*)	France	HCW	“ “ “
35. Meyohas (95)	France	F Clinic cleaner	Unknown source patient. Needle pierced bin liner in operating room. Seroconversion 8 months after exposure (previously table 3, case 33). Injury occurred in 1993.

*Details from Dr F. Lot, Infectious Disease Department, Institut de Veille Sanitaire, France. Personal communication. Updated 2002. **Continued……………**

Table 4 (continued)

Case number, Author of first report (Year of report)	Country	Case	Details of exposure and outcome
36. Gurtler (93)	Germany	F Nurse	Emergency AIDS case, glove ruptured. Blood contact with eczematous lesion. HIV-ve 1984, HIV+ve 1989.
37. Fernando (92)	UK	F Nurse	Never had sexual intercourse; worked in Africa for many years in general nursing and midwifery. Died AIDS 1995.
38. Fernando (92)	UK	F Nurse	Worked in Accident & Emergency in Africa.
39. Fernando (92)	UK	F Nurse	Worked as midwife in Africa.
40. Eves (92)	Canada	F Biochemist	Exposures to HIV contaminated blood in Canada. AIDS 1990.
41. Heptonstall/CDSC (93)	UK	F HCW	Worked in adverse conditions in Africa, known HIV-infected patients.
42. Heptonstall/CDSC (93)	UK	F Nurse	Worked with HIV+ve patients in USA and Italy, recalled several unreported percutaneous exposures.
43. Siegel-Itchkovitch (94)	Israel	M Surgeon	HIV+ve at insurance medical 1993, suspects he became infected from patient in Israel while performing surgery.
44. Logie (96)	UK	M Doctor	1 needlestick and 2 mucocutaneous splashes (in close succession) to HIV+ve patients in Zambia. Non-specific pyrexial illness followed 6 weeks later.
45. LCDC/Robillard (95)	Canada	M Research lab worker	Exposed to inadequately inactivated HIV, repeated exposures of non intact skin. HIV+ve at blood donation.
46-53. Ponce de Léon (96)	Mexico	8 HCWs (4M, 4F)	Details not reported.
54. CDSC/Evans (98)	UK	M Doctor	Worked in S. Africa. Needlestick with known, HIV+ve patient. Seroconversion illness 4 weeks later.
55. Jarke (95)**	Germany	M Surgeon	Worked as aid volunteer, specific exposure from blood filled butterfly needle from child with AIDS. Seroconversion like illness 8 weeks later, HIV+ve 4 months later.
56. Jarke (95)**	Germany	F Nurse dialysis unit	Blood from arterial shunt into glove, contaminating wound on HCW's hand. Seroconversion like illness 11 weeks post-exposure. HIV-ve 6 weeks before incident, HIV+ve 10 months later, diagnosed by blood transfusion service.
57. Jarke (95)**	Germany	M Nurse	Extensive blood contact on hands and forearms in 1983 with two patients who died soon afterwards. Seroconversion like illness 3 weeks later. Not HIV tested till 5 years later.
58. Jarke (95)**	Germany	F Lab asst	Exposure to blood and body fluids. Tested when her child became ill and found to be HIV+ve.
59. Jarke (95)**	Germany	F Med student	Exposed to blood, often cuts on hands, some patients were HIV+ve. HIV-ve 1986, HIV+ve mid-1988.
60. Jarke (95)	Germany	M Nurse	Regular contact with AIDS patients, chronic skin disease. HIV-ve mid 1987, HIV+ve mid-1988.

**Published as part of a review of those who applied for compensation via accident insurance for occupationally acquired HIV infection.

Continued………

Table 4 (continued)

Case Number, Author of first report (Year of report)	Country	Case	Details of exposure and outcome
61. Jarke (95)	Germany	M Autopsy Asst	Deep cut sustained by saw during autopsy, serostatus of patient not known. HIV+ve 1991.
62. Jarke (95)	Germany	M Nurse	Cared for HIV-infected patients. No specific exposure.
63. Jarke (95)**	Germany	M Nurse	Needlestick injury in 1988 to two HIV positive patients.
64. Jarke (95)	Germany	M Nurse	Multiple needlestick injuries to several HIV positive patients.
65. Jarke (95)	Germany	M Doctor	Exposure in dialysis unit. Source unknown.
66. Jarke (95)	Germany	F Clinical Lab Worker	Exposure in clinical laboratory. Source unknown.
67. Jarke (95)	Germany	M Nurse	Exposure in intensive care unit. Source unknown.
68. Jarke (97)	Germany	F Medical Secretary	Exposure occurred in outpatient clinic for HIV/AIDS. Several patients with HIV/AIDS
69. Jarke (97)	Germany	F Clinical Lab Worker	Exposure occurred in clinical laboratory. Several patients HIV positive.
70. Jarke (97)	Germany	F Nurse	Exposure in intensive care unit. Source unknown.
71. Jarke (97)	Germany	M Medical Secretary	No details.
72. Jarke (97)	Germany	M Nurse	Exposure in endoscopy/university clinic. Several patients with AIDS.
73. Jarke (97)	Germany	M Nurse	No details.
74. Lot (98)	France	F Nurse	Needlestick injury after taking blood in 1992. HIV+ve 1995, AIDS 1995.
75. Lot (98)	France	F Nurse	HIV+ve 1996, AIDS 1996.
76. Jarke (99)	Germany	M Rescue Worker	Massive exposure to blood. HCW has paronychia. Patient serostatus unknown in 1995.
77. Jarke (99)	Germany	M Doctor	Exposure details and patient's details unknown.
78. Jarke (99)	Germany	M Doctor	Needlestick injury and sharp cut with contaminated glass in 1996. African patients (AIDS).
79. Jarke (99)	Germany	M Nurse	Blood splash to left eye in 1996. Patient had AIDS.
80. Heese (98)	Germany	M Nurse	Nurse working in intensive care. Source patient's details unknown.
81. OFSP/Jost (NR)	Switzerland	M Student Pharmacist	Exposure occurred in 1996. Source patient unknown. Needlestick injury from an already disposed needle, which penetrated the sharps container. HIV test on HCW not done on day of exposure. HIV positive first occurred in 1997, 3 months after exposure. Acute illness not reported. Not on PEP.

**Published as part of a review of those who applied for compensation via accident insurance for occupationally acquired HIV infection.

Continued…………..

Table 4 (continued)

Case Number, Author of first report (Year of report)	Country	Case	Details of exposure and outcome
82-220. CDC (02)	USA	139 HCWs	Insufficient detail on each case to report individually. Reported to CDC Surveillance system, up to December 2002.
221. Lot (02)*	France	M Housekeeper	Needlestick injury whilst transporting rubbish, 1985. No baseline test. HIV+ve 1999, AIDS.
222. Lot (02)*	France	F Nurse Aide	HIV+ve 2001. No other details.
223 Jarke (02)	Germany	M Surgeon	'Multiple injuries & sharp cuts during civil war surgery'. Subtype HIV-1A. Source patient's details unknown – but HCW worked in East Africa (high HIV prevalence).
224. Jarke (02)	Germany	M Nurse	'Needlestick injury with filled butterfly needle, HIV ambulance'. Source patient had AIDS.
225. Jarke (02)	Germany	F Doctor	Needlestick injury. Source patient had AIDS.
226. Jarke (02)	Germany	F Nurse	Needlestick injury in Intensive Care. Source patient had AIDS.
227. Jarke (02)	Germany	F Nurse	Needlestick injury. Source patient was HIV+ve.
228. Jarke (02)	Germany	F Nurse	'Needlestick injury with filled butterfly needle' – paediatric unit, 1995. No PEP. Subtype HIV-1A. Source patient was East African child.
229. RKI (01)	Germany	M Nurse	Needlestick injury. No PEP. Source patient's details unknown. HIV patients were on ward.
230. Chadee (99)	Trinidad & Tobago	HCW	Identified as HIV+ve following inoculation injury, during follow-up. Negative ELISA 'immediately following the needlestick injury'. Source patient was HIV+ve.
231. HPA (98) ‡	UK	F Nurse	Midwife in Uganda.
232. HPA (00) ‡	UK	F Surgeon	Percutaneous needlestick injury in India.
233. HPA (00) ‡	UK	F Nurse	Percutaneous needlestick injury in South Africa. Had PEP course. No baseline negative test.
234. HPA (00) ‡	UK	M Doctor	Worked in Malawi. No specific details of exposure.
235. HPA (02) ‡	UK	M Doctor	Worked in South Africa 1990-1996. 'Probably infected via blood exposures.'
236. HPA (02) ‡	UK	M surgeon	Percutaneous needlestick injuries in Indian Subcontinent. No baseline negative test.
237. Perez (93) [Formerly Table 3, case 23]	Belgium	Nurse	Needlestick injury. No acute illness reported; no PEP administered. No other details.
238. Perez (93) [Formerly Table 3, case 24]	Belgium	M HCW	Cut with sharp object. No acute illness reported; no PEP administered. No other details.
Total number of cases = 238 [Including 2 cases reclassified from Table 3 to Table 4.]			

‡ Information provided by HIV/AIDS Reporting Section, Health Protection Agency Centre for Infections.

Continued…………

Table 4 Appendix **Details of US cases published in literature**

Case number, Author of first report (Year of report)	Country	Case	Details of exposure and outcome
A1. Belani (84)	USA	M Porter	Palm pricked on hospital waste in USA. AIDS 1983.
A2. Weiss (85)	USA	F HCW	2 needlesticks to hand in 1983 & 1984 in USA, involving 2 different AIDS patients (Table 1, subject A, study 2 – please see 1999 Report). HIV+ve 1984.
A3. Weiss (85)	USA	M Lab worker	2 occupational exposures involving blood of unknown status. Cut hand while handling blood from multiple-transfused leukaemic patient in first exposure. Second exposure involved injury to palm with capillary tube containing platelets pooled from 16 donors (Table 1, subject C, study 2 – please see 1999 Report). HIV+ve 1985.
A4. Weiss (85)	USA	F HCW	Punctured finger with colonic biopsy forceps used on AIDS patient. Serum tested 10 months post-exposure. Heterosexual transmission could not be ruled out. (Table 1, subject 1, study 3, Table 1, subject B, study 2 – please see 1999 Report). HIV+ve 1983.
A5. Klein (88)	USA	M Dentist	History of sustaining needlestick injuries and having ungloved hands whilst providing dental care. HIV+ve 1987.
A6. Haley (89)	USA	F Lab Technologist	Scratch from blood contaminated needle, October 1984. Weeping lesions on hands - occasional contamination with blood. AIDS 1988.
A7. Aoun (89)	USA	M House Officer	Lacerated finger in 1983 in USA while performing a hematocrit when capillary tube containing HIV+ve blood shattered. AIDS 1986.
A8. Rotheram (94)	USA	M Surgeon	HIV+ve at insurance medical 1989, died AIDS 1993. Rewired sternum of patient in USA with acute transfusion acquired HIV in 1985, seroconversion like illness 3 weeks later.

The Centers for Disease Control and Prevention's (CDC's) surveillance for occupational HIV infection relies primarily on the voluntary reporting of individual cases in the US. Regarding possible occupational HIV infection, the total reported to CDC are the 139 cases given in the main part of Table 4. Case reports in the literature are included in Table 4 Appendix, some of which may also be among the 139 cases in CDC's surveillance system.

Continued…………………

Table 5 REPORTED OCCUPATIONALLY ACQUIRED HIV INFECTIONS IN HEALTHCARE WORKERS AND ESTIMATED HIV/AIDS PREVALENCE BY COUNTRY

REGION	Estimated current HIV/AIDS Prevalence*	Documented OAI	Possible OAI	Total
EUROPE				
France	100 000	13	31	44
Spain	130 000	5	-	5
Italy	100 000	5	-	5
Germany	41 000	5	33	38
United Kingdom	49 500†	5	14	19
Belgium	8100	-	3	3
Switzerland	19 000	2	1	3
Netherlands	17 000	-	2	2
Denmark	3800	-	1	1
Sub Total		35	85	120
REST OF WORLD				
Australia	12 000	6	-	6
Canada	55 000	1	2	3
South Africa	4 700 000	4	1	5
Argentina	130 000	1	-	1
Zambia	1 000 000	1	-	1
Mexico	150 000	-	9	9
Israel	2700	-	1	1
Brazil	600 000	1	-	1
Trinidad & Tobago	17 000	-	1	1
Sub Total		14	14	28
USA	890 000	57	139	196
TOTAL		106	238	344

* UNAIDS/WHO Report on HIV/AIDS Global Epidemic 2002 Update; up until end of 2001.
† Health Protection Agency, SCIEH, ISD, National Public Service for Wales, CDSC Northern Ireland and the UASSG. Renewing the focus. HIV and other Sexually Transmitted Infections in the United Kingdom in 2002. London: Health Protection Agency, November 2003.

Table 6 DOCUMENTED AND POSSIBLE OCCUPATIONALLY ACQUIRED HIV INFECTION (OAI): ALL REPORTS, BY OCCUPATION

OCCUPATION	Documented OAI	Possible OAI	Total
Nurse/midwife**	56	72	128
Doctor/medical students	14	28	42
Surgeon	1	17	18
Dentist/dental worker	-	8	8
Clinical lab worker*	17	22	39
Ambulanceman/paramedic	-	13	13
Non-clinical lab worker	3	4	7
Embalmer/morgue technician	1	3	4
Surgical technician/ODA	2	3	5
Dialysis technician	1	3	4
Respiratory therapist	1	2	3
Health aide/attendant/nurse aide	2	19	21
Housekeeper/porter/maintenance	3	15	18
Other/unspecified HCW**	5	29	34
Total	106	238	344

* In the US phlebotomists are classified as clinical laboratory workers, and in France Italy and Spain nurses are usually responsible for phlebotomy. All other cases involving phlebotomists have been classed under nurses.
** 1 nurse and 1 unspecified HCW that were previously as documented cases for the 1999 Report have now been reclassified as possible cases.

Table 8 **REPORTED FAILURES OF POST-EXPOSURE PROPHYLAXIS IN HEALTHCARE WORKERS**

Report	See also Table/case( )	Year	Exposure	Time to 1st dose	HIV antibody test results Days before(-)/after(+) exposure		Onset of retroviral illness	ART drugs prescribed for HCW	Source patient on PEP
					Negative(s)	First pos.			
1	T3*(9)	1990	phlebotomy needle	6 hours	0	42+	5th week	AZT	yes
2	T3(10)	1990	lancet	6-12 hours	0	24+	3rd week	AZT	no
3	T3(13)	1992	IV cannula	30 minutes	0	42+	none	AZT	no
4	T3(15)	1990	phlebotomy needle	90 minutes	0	52+	day 16	AZT	yes
5	T3(22)	1992	18-20G IV cannula	1 hour	0, 42+	56+ (42+ Ag+ve)	week 2	AZT	yes
6	T3(App A13)	1992	21G syringe needle	2 hours	0, 6 weeks+	121+	day 38	AZT	no
7	T3(App A14)	1991	22G phlebotomy needle	45 minutes	NR	90+	day 14	AZT	yes
8	T3(App A15)	1990	16G IV cannula	3-7 hours	NR	94+	day 36	AZT	yes
9	T3(34)	1994	phlebotomy needle	1 hour	0	87+	none	AZT	yes
10	T3(37)	1991	winged steel needle	2 hours	0	131+	jaundice day 55	AZT	NR
11	T3(39)	NR	mucocutaneous exposure	3 hours	0	53+	4th week	AZT	NR
12	T3(App A19)	1992	biopsy needle	30 minutes	0	23+	day 23	AZT + ddI	yes
13	T3(App A20)	1993	broken glass vacuum tube	90 minutes	0	73+	day 21	AZT	yes
14	T3(App A28)	1992	mucocutaneous exposure	192 hours	0	134+	day 75	AZT	NR
15†	T3(App A23)	NR	phlebotomy needle	<1 hour	0	20+	3rd week	AZT	yes
16†	T3(17)	1991	phlebotomy needle	30 minutes	0	112+	3rd week	AZT	yes
17†	T3(18)	1992	phlebotomy needle	2 hours	0	69+	4th week	AZT	no

* = Table number NR = not reported † = partial AZT post-exposure prophylaxis

Continued ....

Table 8 (continued)

Report	See also Table/case( )	Year	Exposure	Time to 1st dose	HIV antibody test results Days before(-)/after(+) exposure Negative(s)	First pos.	Onset of retroviral illness	ART drugs prescribed for HCW	Source patient on PEP
18†	T3(43)	1993	mucocutaneous splash	NR	3+	42+	5th week	AZT	NR
19	T3(44)	1996	deep needlestick while recapping after obtaining arterial sample for blood gases	90 minutes	0	97+	day 45	AZT + ddI for 48 hours then AZT only	no
20	T3(45)	1997	deep needlestick with a blood-filled needle (large gauge) incorrectly discarded in waste plastic bag	90 minutes	4+	55+	day 40	AZT + 3TC + IDV for 48 hours then D4T+3TC+IDV	yes
21	T3(App A31)	1998	21G Butterfly	40 minutes	0	83+	~10 weeks post-exposure	AZT + 3TC + IDV + ddI	yes
22†	T3(46)	1999	needlestick in finger web while clearing up. Needle hidden beneath some swabs	95 minutes	0	~90+	day 26	AZT + 3TC + IDV initially then d4T,ddI + nevirapine; ddI discont. after 8 days, rest of drugs cont. for the 4 wks.	yes
23†	T3(App A33)	NR	'probable hollowbore needle' (sharp not identified)	2 hours	0,14+	42+	6th week	AZT + 3TC initially, then ddI, d4T, nevirapine + hydroxyurea after 6 hrs. ddI discont. after 3 days, rest of drugs cont. for the 4wks.	yes
24	T3(108)	2002	21G phlebotomy needle	2 hours	0	80+	~11th week	AZT + 3TC (Combivir) + IDV	yes

* = Table number NR = not reported † = partial AZT post-exposure prophylaxis

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See Tables 3 and 4 for references (pages 7-23).

Table 6: SUMMARY OF OCCUPATIONALLY ACQUIRED HIV INFECTION: ALL REPORTS, BY OCCUPATION

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