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Hepatitis in clinical laboratories 1977-78

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SUMMARY The low incidence of hepatitis in the staff of clinical laboratories in Britain was sustained in 1977-78. The attack rate was 29 per 100 000 person years, calculated from eight cases (six of hepatitis B).

The eighth and ninth years of this ongoing investigation were surveyed by questionnaire and methods of analysis as used in previous years.[1]

Results

Complete information was received from 240 laboratories for 1977 and from 242 for 1978. A few laboratories had closed and others had opened during the period.

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Table 1 shows that the low attack rates of the previous two years[2] were maintained, overall 29 per 100 000 person-years as compared with 34 in 1975-76. Once again most cases involved biochemistry technicians in whom, however, the attack rate was the lowest since the surveys began. Individual cases involved haematologists (one medical, one technician), and two occurred in office staff.

Table 1 *Hepatitis cases and attack rates in laboratory staff*

*Employment category and discipline**	*Hepatitis cases reported*			*Average No. at risk†*	*Attack rate per 100 000 person-years*
	1977	*1978*	*Total*		
Medical					
Morbid anatomy	0	0	0	962	0
Haematology	0	1	1	705	142
Biochemistry	0	0	0	515	0
Microbiology	0	0	0	577	0
Immunology	0	0	0	58	0
Others	0	0	0	9	0
Science					
Morbid anatomy	0	0	0	87	0
Haematology	0	0	0	116	0
Biochemistry	0	0	0	903	0
Microbiology	0	0	0	264	0
Immunology	0	0	0	66	0
Others	0	0	0	37	0
Technicians (MLSO)					
Morbid anatomy	0	0	0	2 686	0
Haematology	1	0	1	4 882	20
Biochemistry	2	2	4	4 100	98
Microbiology	0	0	0	4 561	0
Immunology	0	0	0	185	0
Others	0	0	0	167	0
Porters, assistants etc.	0	0	0	928	0
Domestics, washers, etc.	0	0	0	1 307	0
Office and administrative staff	1	1	2	2 838	70
Phlebotomists, donor attendants, nurse cadets	0	0	0	1 069	0
Others	0	0	0	153	0
Total	4	4	8	27 175	29

*Morbid anatomy includes cytology, cytogenetics, and mortuary technicians; haematology includes blood transfusion; microbiology includes virology and parasitology.
†Person-years = 2/3 Σ (full-time + part-time/2) as at 1 January 1977, 1978, 1979.

Details of these cases are shown in Table 2. Two, negative in tests for hepatitis B, were presumed cases of hepatitis A involving an office/receptionist and a biochemistry technician. In neither case was there a definite history suggesting that infection had been acquired at work. Of the six hepatitis B cases, three involved biochemistry: one victim had a clear history of exposure by infected needle-prick, but the sources of infection of the others remained unknown. Hepatitis B infected two haematology workers (one by probable medical contact with a patient) and one office worker whose hepatitis was thought to have been acquired abroad. There were no deaths.

Table 3 summarises the characteristics and work of the laboratories. Only one laboratory reported more than a single case: hepatitis B in 1977 and non-B hepatitis in 1978.

Discussion

The improvement recorded in the previous survey has been maintained, supporting the suggestions that safety standards have improved since 1974.[2] No case has been reported from the disciplines of morbid anatomy (including postmortem staff) or microbiology since 1974. The small residual problem concerns biochemistry and haematology, possibly related to the much larger number of specimens of blood and serum dealt with in these disciplines or to the lower awareness of infection by these workers. Once again no case involved blood transfusion workers.

The precise significance of the very low levels of infection now found is difficult to evaluate. How many infections may have been acquired from exposures away from work is uncertain. The only data for comparison reflecting hepatitis incidence in the general community are provided by national notifications of 'infective jaundice' or 'viral hepatitis', both inaccurate and subject to severe underreporting.

Another method of assessing the prevalence of hepatitis B infection in laboratory staff would be serological testing for antibody as evidence of past infection. It would be interesting to explore this

Table 2 *Details of hepatitis cases*

Year	*Category and discipline*	*Age and sex*	*HBsAg test*	*Severity indices*	*Other information (suspected sources)*
1977	Technician, haematology	27 M	Positive	J H	Negative
	Technician, biochemistry	28 M	Positive	J H	Needle-prick after taking HBsAg positive blood from jaundiced patient
	Technician, biochemistry	19 M	Positive	J H	Contact with jaundiced person and haemodialysis specimens
	Office/receptionist	55 F	Negative		'Specimens?'
1978	Medical, haematology	31 M	Positive	J H	'Probable patient contact'
	Technician, biochemistry	24 F	Positive	H	Source unknown
	Technician, biochemistry	36 M	Negative	J	Negative
	Clerical officer	42 F	Positive	J H	Holiday abroad

J = jaundiced; H = admitted to hospital.

Table 3 *Numbers of laboratories with different work characteristics with and without hepatitis cases*

Specimen sources and type of testing	*1977*		*1978*	
	4 labs with hepatitis	*236 labs with no hepatitis*	*4 labs with hepatitis*	*238 labs with no hepatitis*
Haemodialysis unit				
Tested	2 (1 HBsAg neg)	80	3	82
Not tested	2	154	1 (HBsAg neg)	154
NK	0	2	0	2
Transplant unit				
Tested	0	56	2	58
Not tested	4	178	2 (1 HBsAg neg)	178
NK	0	2	0	2
Haemophilia centre				
Tested	1 (HBsAg neg)	77	3	84
Not tested	3	151	1 (HBsAg neg)	146
NK	0	8	0	8
Drug addict centre				
Tested	0	39	0	40
Not tested	4	188	4	189
NK	0	9	0	9
HBsAg testing				
Done	2	61	2	66
Not done	2 (1 HBsAg neg)	175	2 (1 HBsAg neg)	172

NK = not known.

approach with the staff of some large laboratories. Testing for hepatitis B antigen, which the 'Howie' Working Party[3] recommended should be offered, would provide little useful information except for unmasking carriers of little significance or relevance and who would not welcome the discovery. No such rational objection by staff should apply to antibody tests: those found 'negative' would be confirmed as members of the average majority 'normal' population; those 'positive' could consider themselves lucky members of the non-susceptible minority, about 2-3% of some normal British population groups.[4]

Meantime, in the absence of any other source of current, systematic surveillance data, the present surveys of hepatitis illness will be continued. It is planned to simplify the questionnaire and to provide for the collection of information about tuberculosis and any other infections suspected of having been acquired in laboratories during the single year 1979. The results of this pilot study should help in the planning of any future monitoring schemes for infections known, or suspected, to be of special risk for laboratory staff, both to direct attention to problems needing special attention and to provide a factual basis to justify expensive control measures currently proposed. Continued co-operation by members of the Association of Clinical Pathologists (ACP) is sought to make these returns as complete and accurate as possible.

Preliminary results of a follow-up enquiry into the 17 cases reported in 1975-78 shows that true attack rates are lower than those published from the crude data. Four categories are distinguishable:
Altered diagnosis, two cases (not hepatitis);
Hepatitis B confirmed (HBsAg positively reverted to negative), six cases, four with histories suggesting non-occupational (eg, social) sources of infection;
Hepatitis B probable (HBsAg positive but no data to exclude non-B hepatitis in established carriers), three cases including one with antecedent needle-prick;
Hepatitis non-B (HBsAg negative; group includes possible hepatitis A and non-A, non-B cases), six cases, one a haemophiliac and two without follow-up data.

Details of this enquiry will be published.

This investigation was carried out with the assistance of the ACP. I thank members of the Association for their continued co-operation in this unique survey, and the Committees on Microbiology and Safety for their interest and suggestions.

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References

[1] Grist NR. Hepatitis in clinical laboratories 1973-74. *J Clin Pathol* 1976;**29**:480-3.
[2] Grist NR. Hepatitis in clinical laboratories 1975-76. *J Clin Pathol* 1978;**31**:415-7.
[3] Code of practice for the prevention of infection in clinical laboratories and post-mortem rooms. (DHSS, Working Party. Howie JW, Chairman.) London: HMSO, 1978.
[4] Follett EAC, Barr A, Crawford RJ, Mitchell R. Viral hepatitis markers in blood donors and patients with a history of jaundice. *Lancet* 1980;**1**:246-9.

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