

National Register Of Blood Donors Found Positive  
For HBsAg In The UK: Analysis For 1987; Preliminary Report

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Ref: TTD 11/89

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1. INTRODUCTION

Each Regional Blood Transfusion Centre in the UK has been invited to return annual data on blood donors found HBsAg-positive, for central analysis at NLBTC, Colindale. This situation~~x~~ should be analagous to the central returns of anti-HIV data for blood donors, analyzed at the Manchester Transfusion Centre. However, compilation of a hepatitis B register suffers from the following disadvantages.

- a Lack of an integrated approach at the onset of donor HBsAg screening in 1971/2.
- b. Incomplete returns of data.

It has the following advantages:

- a. Easier confirmation of reactivity since the specificity of HBsAg results can be readily determined.
- b. Good understanding of the serological markers defining the clinical status of donors found positive for HBsAg.
- c. Theoretically, access to several years accumulated historical data on donors found HBsAg-positive. Unfortunately the extent of additional testing, and of reporting, varies making overall analyses harder to collate.

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The following analysis is preliminary and will be refined in the light of comment and suggestions which we hope to receive from participants in the Register. Because of the variation in the extent of information provided, certain aspects cannot be analysed extensively. For future returns, Mrs Mortimer has offered to visit any Centres where she could help to retrieve data.

2. VARIATIONS IN THE EXTENT TO WHICH ARCHIVED DATA WAS REPORTED BY DIFFERENT CENTRES:

The extent to which recorded data from previous years was made available to the Register is shown in figure 1

3. TABLE OF NUMBERS OF HBsAg-POSITIVE DONORS REPORTED PER YEAR FROM EACH CENTRE (figure 2)

Each Centre is listed in alphabetical order.

For each, column A = total no. of donations for a given year.

column B = <sup>total</sup>no. of ~~established~~ donors found HBsAg-positive

column C = no. of 'new' donors found HBsAg-positive.

4. HBsAg-POSITIVITY RATE IN EACH CENTRE PER 100,000 DONATIONS OVERALL TAKEN BY YEAR

This data is presented in figure 3a in tabular form. It is also represented graphically in figure(s) 3b, c, d, e, .

5. HBsAg-POSITIVITY RATE IN 'NEW' DONORS

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(Using an estimate of 1/6 of donations coming from 'new' donors, in the absence of more exact data from all Centres).  
see figure 4.

## 6. ANALYSIS OF OTHER PARAMETERS REPORTED FOR 1987

Where relevant data is available for 1987, the following parameters could be examined, from the overall returns.

- 6.1 Tentative ethnic breakdown (high, medium and low hepatitis prevalence areas).
- 6.2 Male/female proportion; figure 5 (and with respect to ethnic origin).
- 6.3 HBsAg vs anti-HBc (overall, and with respect to gender and ethnic origin).
- 6.4 Acute vs chronic infection - ? data too sparse.
- 6.5 Previously untested vs established donors.

This analysis is not yet complete partly due to late returns of data.

## 7. COMMENT

The parameters cited in items 6.1 to 6.4 could be more usefully analysed if data was available from all Centres. Furthermore, if data from previous years was available, the influence of anti-HIV screening and donor education could be more accurately assessed. There is some evidence of a decline in the rate of detection of HBsAg (and in the proportion of acutely-infected donors) from 1984 onwards but baseline data for previous years is sparse.

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There are striking differences between Centres in the proportion of HBsAg-positive donors detected in the 'new donor' category (figure 6). Presumably the majority of 'previously tested' donors found HBsAg-positive are undergoing acute HBV infection. This point merits further investigation.

8. ADDENDUM

For comparison, we append the D of H statistics for national returns of established and 'new' donors found positive for HBsAg during donor screening.

ADDENDUM

Number of new and existing HBSAg positive donors reported to DHSS 1982-1987

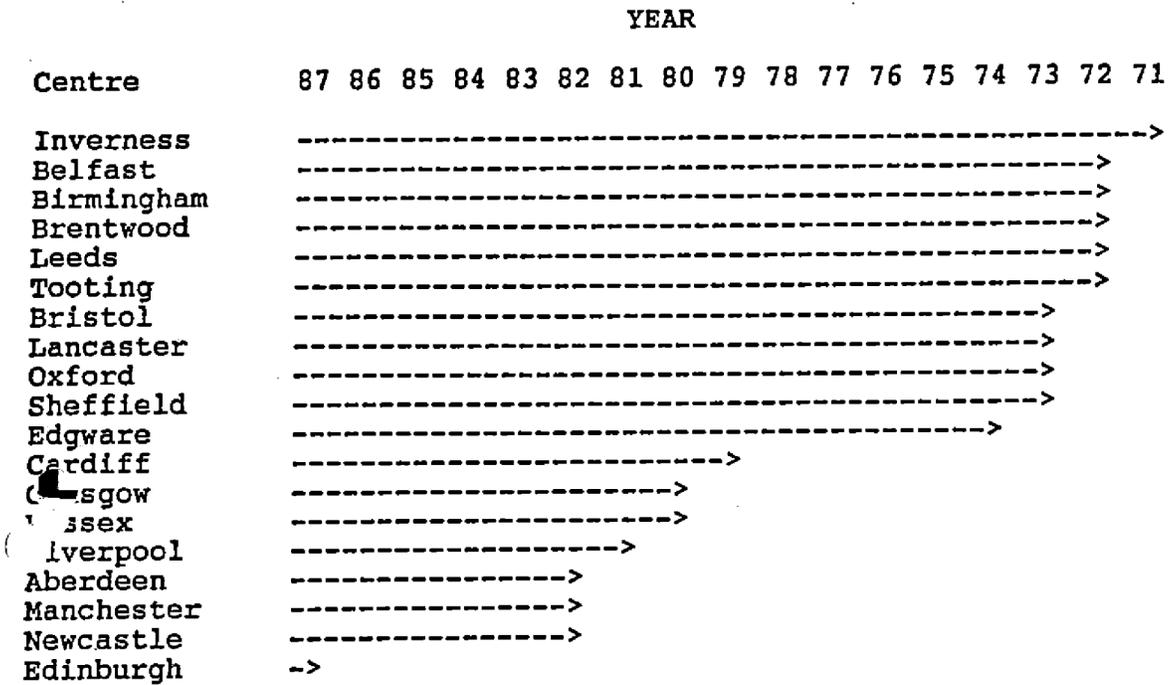
RTC	1982		1983		1984		1985		1986		1987	
	New	Old										
Newcastle	6	1	7	1	6	0	9	0	5	1	2	3
Leeds	18	1	22	4	15	3	8	3	9	1	11	2
Sheffield	14	5	19	1	8	1	8	1	11	2	10	1
Cambridge	3	0	5	2	9	5	5	0	4	3	4	1
Edgware	36	8	37	5	30	9	24	2	24	3	30	0
Brentwood	30	2	19	1	25	1	22	0	10	1	11	0
Notting & Lewisham	39	10	25	11	33	9	25	9	18	7	22	8
Wessex	7	0	13	2	9	0	9	4	9	1	5	1
Oxford	10	4	6	0	10	2	1	2	2	0	7	1
Bristol	16	12	22	18	26	0	10	1	2	0	16	0
Birmingham	26	10	28	13	13	1	9	2	6	4	10	3
Liverpool	20	24	16	12	17	9	12	6	6	3	4	2
Manchester & Lancaster	27	11	13	13	25	8	21	7	14	3	15	3
Cardiff	6	2	6	2	6	0	1	1	0	0	13	0
Belfast	3	0	4	0	1	0	4	1	2	0	1	0
Total (exc Scotland)	261	90	242	85	233	48	168	39	122	29	161	25

J Mortimer PHLS CDSC April 1989

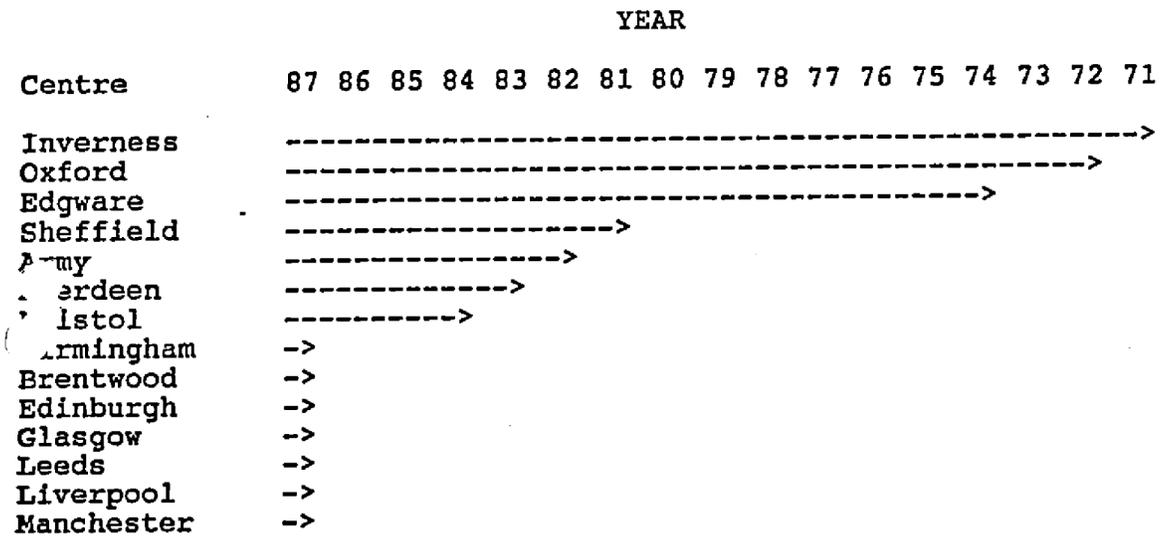
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Figure 1 Years for which data has been supplied by Transfusion Centres

a) Total number HBsAg positive and number of new donors HBsAg positive.



b) Epidemiological and laboratory data on HBsAg positive donors.



Since preparing this report epidemiological and laboratory data on >700 HBsAg positive donors has been received from Tooting.

No information has been received from Dundee or Cambridge.

FIGURE 2.

	Aberdeen			Army		
	A	B	C	A	B	C
1971						
72						
73						
74						
75						
76						
77						
78						
79						
80						
81						
82						
83	34733	6	4	10778	6	3
84	33863	5	3	11641	4	2
85	31183	4	2	10295	3	3
86	31733	2	2	14014	4	2
87	31027	1	1	14035	1	1

	Belfast			Birmingham		
	A	B	C	A	B	C
1971						
72	4231	2	2	150992	69	31
73	51848	15	15	151418	35	27
74	50006	7	7	159849	29	27
75	58429	13	8	161470	42	34
76	61734	12	11	179087	33	28
77	64438	7	4	186252	36	33
78	66327	10	10	185851	25	22
79	66309	10	10	185499	25	24
80	65237	10	8	199051	35	33
81	61679	10	8	200019	21	19
82	63265	3	3	220078	36	26
83	62285	4	4	216047	41	33
84	64665	1	1	225899	19	19
85	64607	5	5	214713	11	10
86	66614	2	2	199290	12	9
87	62979	1	1	199651	11	8

Fig 2a

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	Brentwood			Bristol		
	A	B	C	A	B	C
1971						
72						
73	133448	43	26	125815	35	13
74	139627	31	23	137080	29	16
75	143095	28	22	146623	34	16
76	141680	38	28	158994	49	26
77	112230	41	39	165811	28	19
78	144249	37	33	160200	23	14
79	140011	32	31	163216	30	12
80	141830	36	34	172311	32	12
81	150400	26	24	173495	17	8
82	148214	33	31	172402	27	10
83	150526	20	19	171618	32	14
84	140103	26	25	171218	11	8
85	141562	24	23	167351	12	10
86	138611	9	8	173710	9	1
87	135919	10	10	179468	16	13

	Cardiff			Edinburgh		
	A	B	C	A	B	C
1971						
72						
73						
74						
75						
76						
77						
78						
79	83729	14	9			
80	85302	10	7			
81	87432	8	6			
82	82763	8	6			
83	91102	6	6			
84	96087	6	5			
85	91301	3	3			
86	96637	3	3			
87	88785	13	13	80000	8	8

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Fig 2b

	Glasgow			I.Ness		
	A	B	C	A	B	C
1971				8500	7	1
72				9000	0	0
73				9500	3	1
74				10000	4	1
75				10482	3	0
76				10632	1	0
77				11505	2	2
78				12697	3	2
79				13701	1	1
80	135008	38	32	14033	3	3
81	139546	22	17	14388	2	1
82	142056	38	20	15256	2	1
83	145944	32	18	16226	1	1
84	148909	30	12	14539	0	0
85	147955	23	13	15274	0	0
86	148791	14	12	16163	0	0
87	136477	7	6	15322	1	1

	Lancaster			Leeds		
	A	B	C	A	B	C
1971						
72				111852	39	0
73	46669	24	7	113336	21	4
74	44698	9	5	123178	20	6
75	45654	17	7	123400	16	4
76	50202	27	17	126403	40	13
77	51537	31	7	133047	17	13
78	52297	22	16	129755	19	12
79	54963	14	9	129406	12	11
80	55870	22	11	136987	17	13
81	58745	19	8	137983	13	13
82	56778	15	6	143626	19	18
83	58197	8	1	152874	26	22
84	58565	11	3	154905	18	15
85	59311	15	8	149497	11	8
86	62896	5	3	146119	10	9
87	63610	9	6	154706	13	10

Fig 2c

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	Liverpool			NLBTC		
	A	B	C	A	B	C
1971						
72						
73						
74				159698	43	34
75				166109	67	57
76				167367	56	48
77				167544	53	47
78				167384	63	58
79				168025	65	60
80				173875	50	47
81	106160	36	18	180692	49	44
82	114865	44	22	180644	47	45
83	120316	26	14	183033	40	36
84	121400	27	12	189246	39	31
85	126376	24	14	190048	25	24
86	128643	9	6	208128	27	24
87	121976	7	5	193737	31	31

	Newcastle			Sheffield		
	A	B	C	A	B	C
1971						
72						
73				110289	17	0
74				119567	22	75
75				120 62	20	14
76				126349	37	26
77				135775	19	17
78				134791	13	12
79				141757	12	11
80				148569	28	20
81				156570	14	11
82	134392	6	6	156311	18	14
83	133039	8	7	164076	17	16
84	131947	6	5	168706	7	6
85	133544	10	10	169916	9	8
86	128321	6	5	174903	12	11
87	120878	5	1	175398	13	12

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Fig 2d

## Wessex

## Tooting

	A	B	C	A	B	C
1971						
72				180677	99	33
73				216688	80	45
74				226176	45	27
75				229841	43	30
76				234790	57	37
77				259319	48	44
78				263786	50	42
79				251078	42	42
80	85941	19	14	260714	31	24
81	88750	9	7	264482	33	31
82	89338	9	9	263774	48	38
83	93002	15	13	266330	30	21
84	92923	10	8	259774	34	26
85	92551	9	7	242214	27	19
86	94227	10	9	232748	21	14
87	95594	7	6	228796	29	21

## Oxford

## Manchester

	A	B	C	A	B	C
1971						
72						
73	78351	30	16			
74	81714	10	9			
75	87715	15	11			
76	93314	15	12			
77	104411	25	20			
78	113153	15	13			
79	111367	21	20			
80	116589	14	11			
81	119009	13	8			
82	115996	12	10	121068	24	21
83	118715	6	6	122295	20	12
84	119689	14	10	123467	25	21
85	111124	4	2	121445	15	13
86	105836	2	2	123477	12	11
87	104537	10	9	118307	13	12

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Fig 2e

FIGURE 3.

Figure 3a RATE OF HBsAg PER 100000 DONATIONS (overall figures)

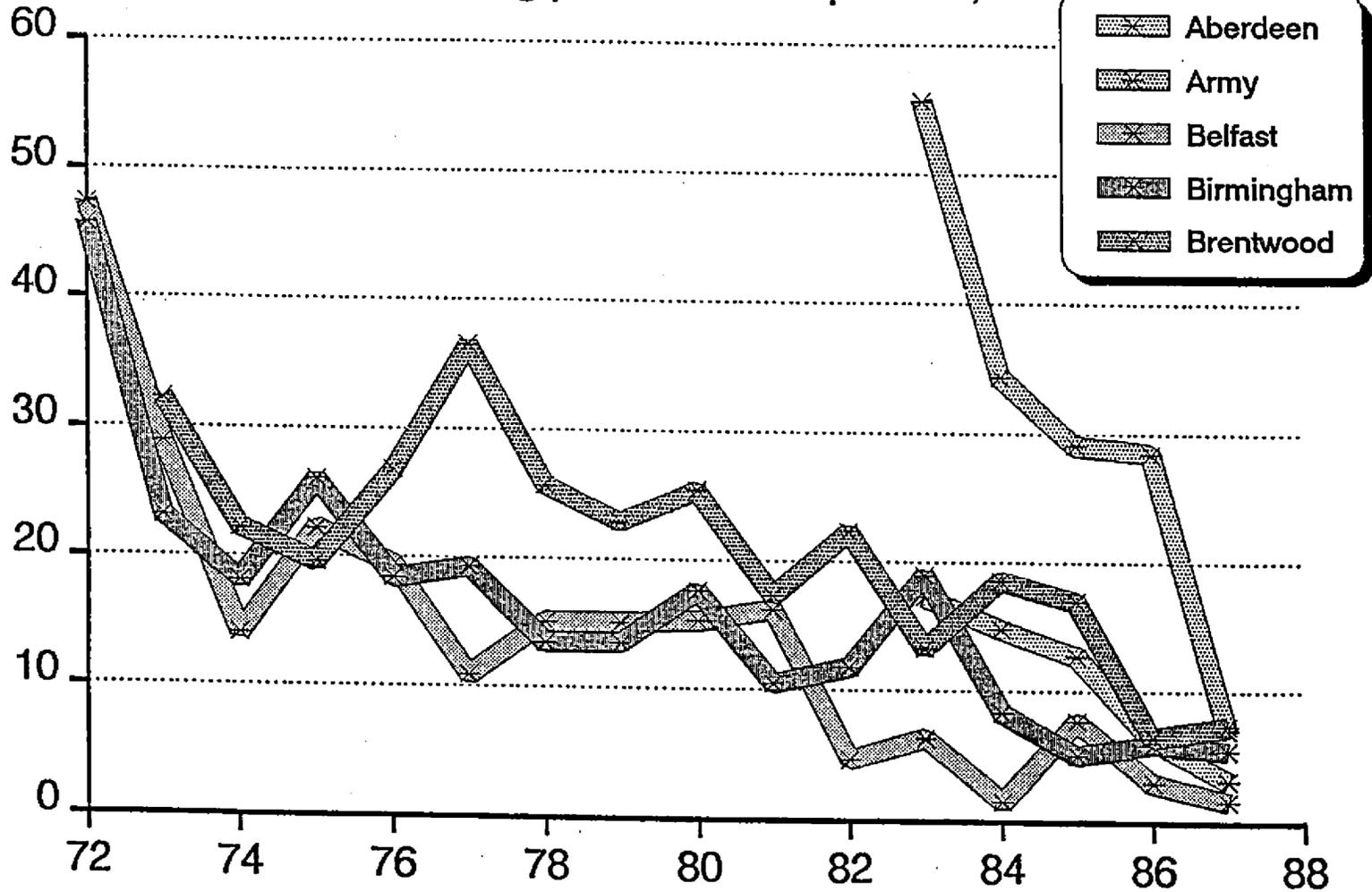
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Aberdeen													17	15	13	6	3		
Army													55	34	29	28	7		
Belfast		47	29	14	22	19	11	15	15	15	16	5	6	1	8	3	2		
Birmingham		46	23	18	26	18	19	13	13	18	10	16	19	8	5	6	5		
Brentwood			32	22	20	27	36	26	23	25	17	22	13	19	17	6	7		
Bristol			29	21	23	31	17	14	18	19	10	16	19	6	7	5	9		
Cardiff									17	12	9	10	7	6	3	3	15		
Edinburgh																	10		
Glasgow										28	16	27	22	20	15	9	5		
I.Ness	82	0	32	40	29	19	17	24	7	21	14	13	6	0	0	0	6		
Lancaster			51	20	37	54	60	42	25	39	32	26	14	19	25	8	14		
Leeds		35	18	16	13	32	13	15	9	12	9	13	17	12	7	7	8		
Liverpool											34	38	22	22	19	7	6		
NLBTC				27	40	33	32	38	39	29	27	26	22	21	13	13	16		
Newcastle												4	6	4	7	5	4		
Sheffield			15	18	17	29	14	10	8	19	9	11	10	4	5	7	7		
Vessex										22	10	10	16	11	10	11	7		
Tooting		54	37	20	19	24	18	19	17	12	12	18	11	13	11	9	12		
Oxford			38	12	17	16	24	13	19	12	11	10	5	12	4	2	10		
Manchester												20	16	20	12	10	11		

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Fig 3b.

# HBsAg positives by Centre by Year

Total HBsAg positives: rate per 100,000

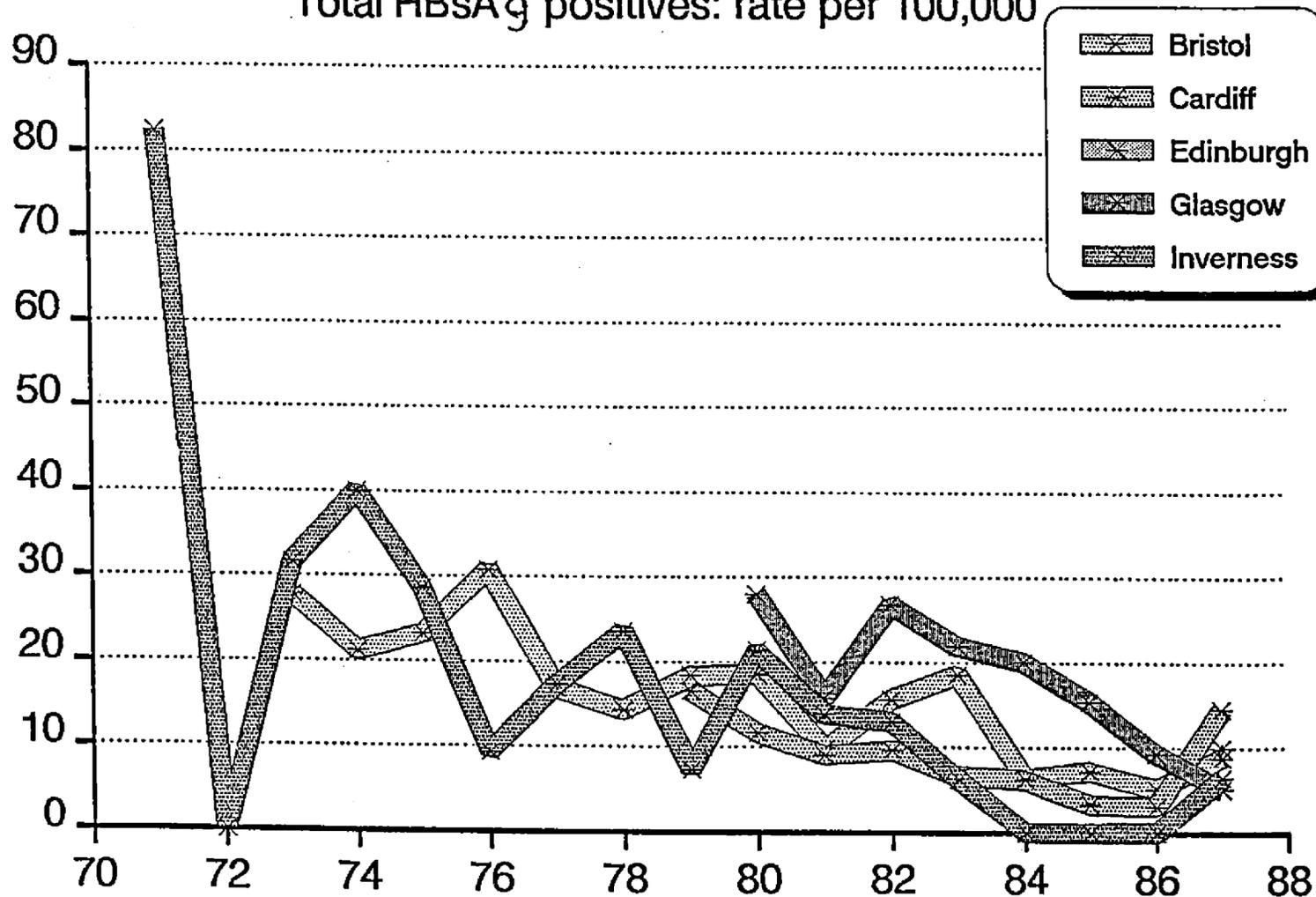


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Fig 3c

# HBsAg positives by Centre by Year

Total HBsAg positives: rate per 100,000

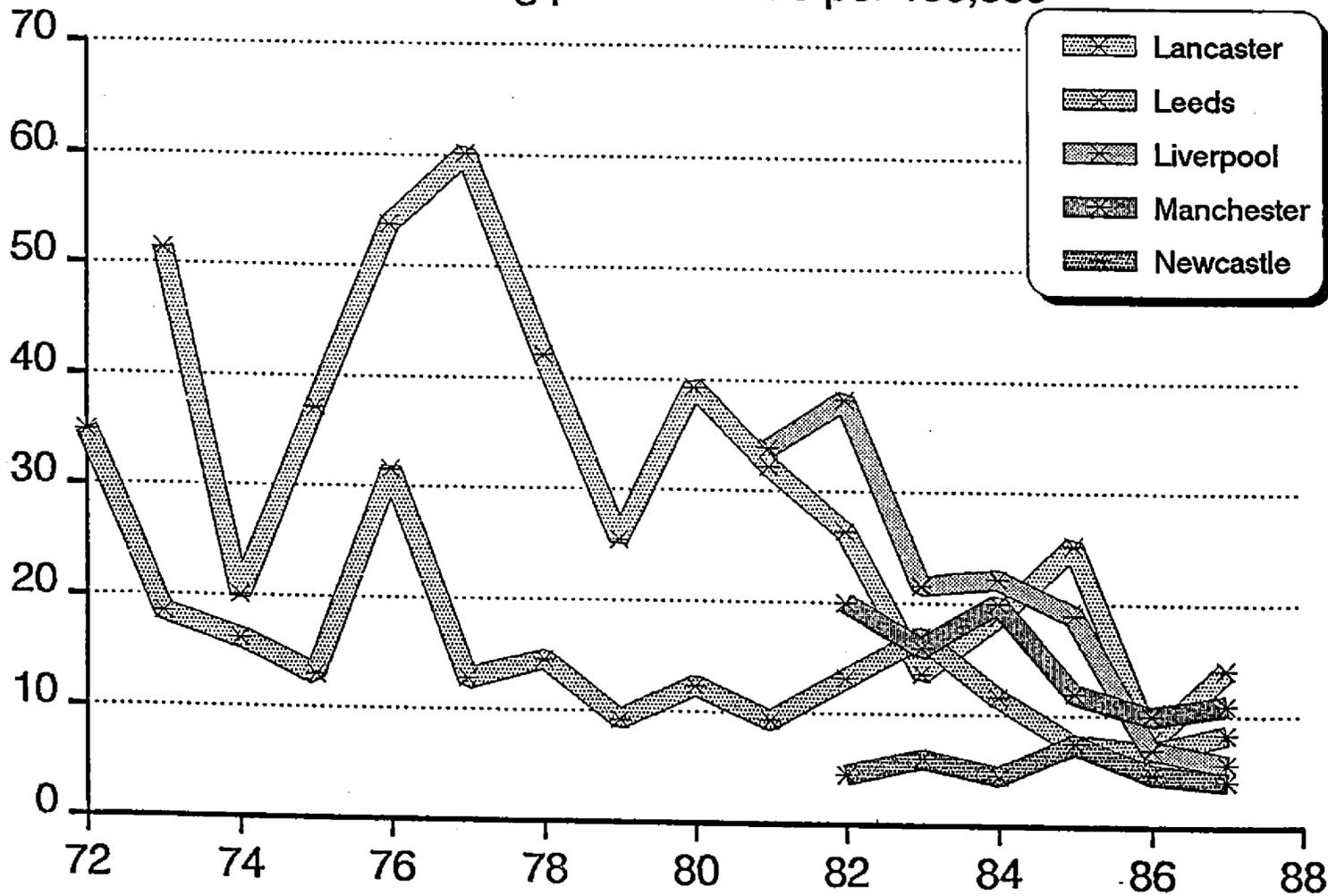


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Fig 3d

# HBsAg positives by Centre by Year

Total HBsAg positives: rate per 100,000

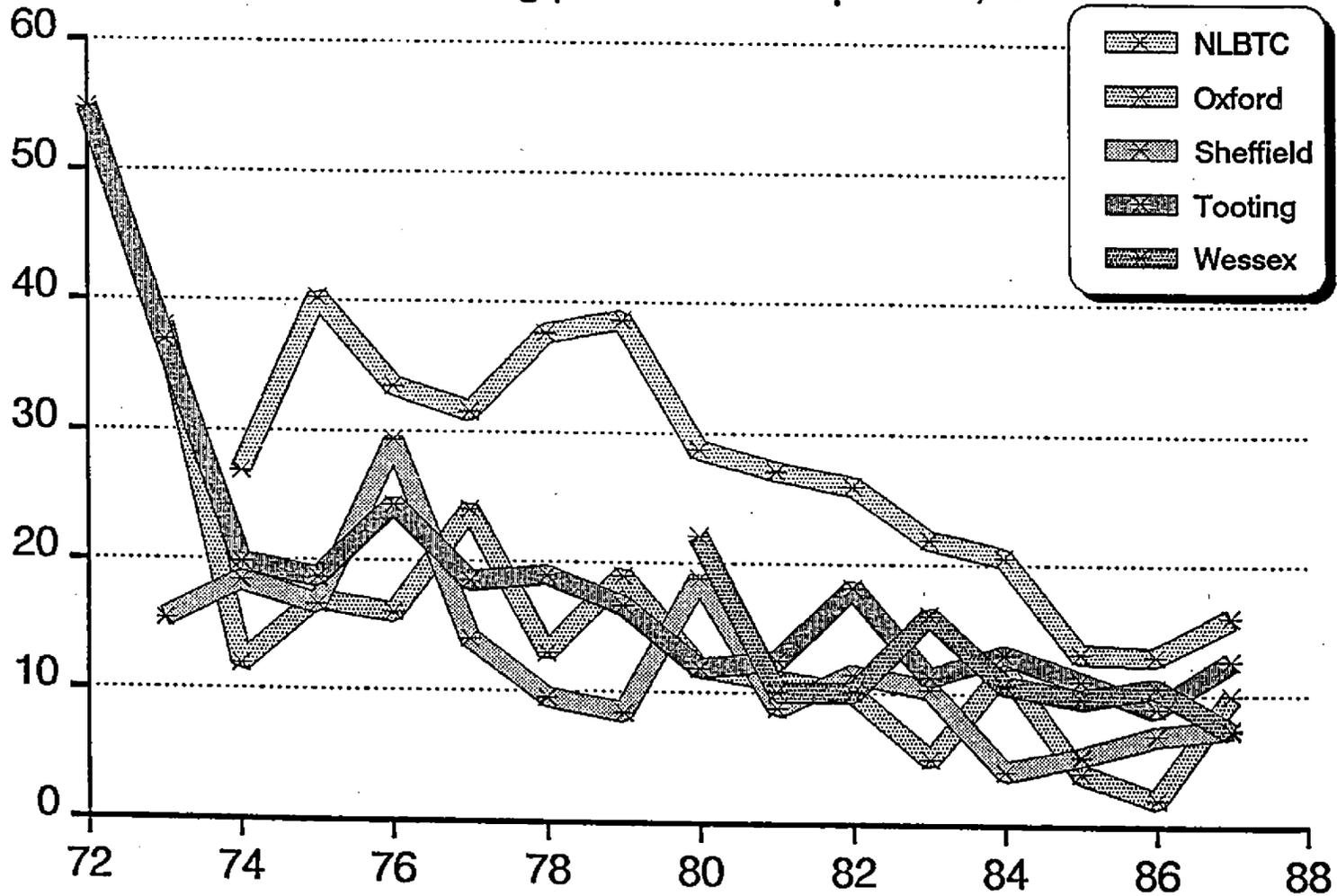


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Fig 3e

# HBsAg positives by Centre by Year

Total HBsAg positives: rate per 100,000



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Fig 4

## RATE OF HBsAg PER 100000 FIRST-TIME DONORS\*

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Aberdeen.													69	53	38	38	19		
Army													167	103	175	56	43		
Belfast		283	174	84	82	107	37	90	90	17	78	28	38	9	46	18	9		
Birmingham		123	107	101	126	94	106	71	78	99	57	71	92	50	28	27	24		
Brentwood			117	99	92	119	208	137	133	144	96	125	76	107	98	35	44		
Bristol			62	70	65	98	69	52	44	42	28	35	49	28	36	3	43		
Cardiff									64	49	49	41	439	31	20	19	87		
Edinburgh																	60		
Glasgow										142	73	84	74	48	53	48	26		
I.Ness	71	0	63	60	0	0	104	94	44	128	42	39	37	0	0	0	39		
Lancaster			90	67	92	203	81	184	98	118	82	63	10	31	81	29	57		
Leeds			21	29	19	62	59	55	51	57	56	75	86	58	32	37	39		
Liverpool											102	115	70	60	66	28	25		
NLBTC				128	206	172	168	208	21	162	146	149	118	98	76	69	96		
Newcastle												27	32	23	45	23	5		
Sheffield				65	70	123	75	53	47	51	42	54	58	21	28	38	41		
Wessex										98	47	60	84	52	45	57	38		
Tooting		110	124	72	78	95	102	95	100	55	70	86	47	60	47	36	55		
Oxford			122	66	75	77	115	69	108	57	45	52	30	50	11	11	52		
Manchester												104	59	102	64	53	61		

\*Assuming that first-time donors  
are one-sixth of total numbers bled

	GENDER %			ALL
	F %	M %	U %	
1972	0	100	0	100
1973	25	75	0	100
1974	33	67	0	100
1975	28	72	0	100
1976	19	80	1	100
1977	23	77	0	100
1979	32	68	0	100
1980	27	73	0	100
1981	29	69	3	100
1982	34	65	1	100
1983	24	76	0	100
1984	26	74	0	100
1985	30	70	0	100
1986	30	70	0	100
1987	32	68	0	100
ALL	28	72	0	100

Fig 5: Analysis of gender of HBsAg positive donors from various centres (depending on availability of reports)

(U = unknown).

Fig 6. HBsAg-POSITIVE FIRST-TIME DONORS AS A PERCENTAGE OF TOTAL HBsAg-POSITIVE DONORS

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Aberdeen													67	60	50	100	100		
Army													50	50	100	50	100		
Belfast		100	100	100	61	91	57	100	100	80	80	100	100	100	100	100	100		
Birmingham		45	77	93	81	85	92	88	96	94	90	72	80	100	91	75	73		
Brentwood			60	74	77	74	95	89	97	94	92	94	95	96	96	89	100		
Bristol			37	55	47	53	68	61	40	37	47	37	43	73	83	11	81		
Cardiff									64	70	75	75	100	83	100	100	100		
Edinburgh																	100		
Glasgow										84	77	52	56	40	56	86	86		
I.Ness	14	-	33	25	-	-	100	67	100	100	50	50	100	-	-	-	100		
Lancaster			29	55	41	63	23	73	64	50	42	40	12	27	53	60	67		
Leeds			19	30	25	32	76	63	91	76	100	95	85	53	73	90	77		
Liverpool											50	50	54	44	58	67	71		
NLBTC				79	85	86	89	92	92	94	90	96	90	79	96	89	100		
Newcastle												100	87	83	100	83	20		
Sheffield				59	70	70	90	92	92	71	79	78	94	86	90	92	92		
Wessex										74	78	100	87	80	78	90	86		
Tooting		33	56	60	70	65	92	84	100	77	94	79	70	76	70	67	72		
Oxford			53	90	73	80	80	87	95	79	61	83	100	71	50	100	90		
Manchester												87	60	84	87	91	92		

Fig 3"  
3D HISTOGRAM  
ANALYSIS OPTION:  
(6 CENTRES).

# HBsAg positives by centre by year

HBsAg positives - rate/10 000

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