

PAPERS AND SHORT REPORTS

Treatment of haemophilia and related disorders in Britain and Northern Ireland during 1976-80: report on behalf of the directors of haemophilia centres in the United Kingdom

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Abstract

A five year survey of the treatment of patients in the United Kingdom suffering from haemophilia and related disorders was carried out on behalf of the directors of haemophilia centres. The survey showed an increase in the number of patients receiving treatment from the centres, a substantial increase in the total amount of therapeutic materials used, and an increase in the average amount of factor VIII or factor IX used yearly per patient. Home treatment became established for severely affected patients and accounted for roughly half of the total amount of material used. Study of the acquisition of factor VIII or factor IX antibodies (inhibitors) in patients with haemophilia A or haemophilia B showed no increase in antibodies during the survey period, despite the increased use of factor VIII and factor IX concentrates. The occurrence of acute hepatitis in treated patients was also studied and no increased incidence was observed. A near normal median expectation of life in patients with severe haemophilia A was found.

Introduction

ORGANISATION OF TREATMENT

The care of haemophiliacs in the United Kingdom is organised through recognised haemophilia centres situated in National Health Service hospitals throughout the country. The concept of these centres was established in Britain in 1954 to provide specialist diagnostic, registration, and treatment services for haemophilic patients. The present system, which incorporates three types of centres—haemophilia reference centres, haemophilia centres, and associate haemophilia centres—was defined

in 1976 by the Department of Health and Social Security in a memorandum (HC(76)4) to regional health authorities and family practitioners. The number of centres gradually increased over the years, and by 1980 there were 10 centres acting as reference centres and nearly 100 other centres.

Each reference centre is responsible for the provision of an advisory clinical and laboratory service to individual haemophilia centres in a wide area (referred to as a "supraregion"). Some centres have staff, laboratory and clinical facilities, and funds specifically allocated for the haemophilia work, but most centres are run by the staff of haematology departments, medical departments, or blood transfusion centres as part of their routine service commitment. All haemophilia centres, irrespective of category, are expected to provide 24 hour emergency treatment for haemophilic patients. The number of patients treated each year by centres varies considerably (fig 1). One third of all

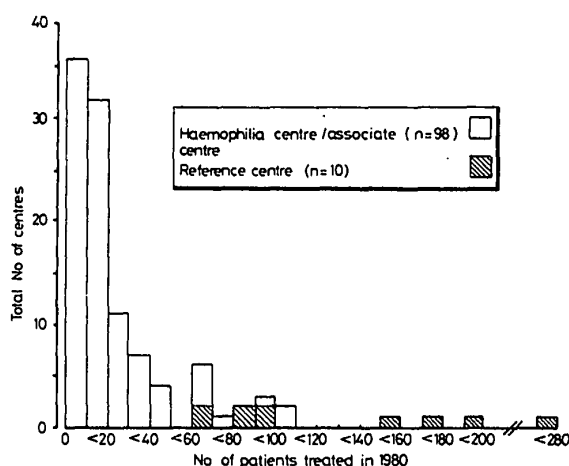


FIG 1—Numbers of patients treated during 1980 at haemophilia centres in United Kingdom.

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centres treated fewer than 10 patients in 1980 and two thirds treated fewer than 20.

Since 1969 the directors of the haemophilia centres have collected information about the amount and types of therapeutic materials used to treat patients who have haemophilia A (classical haemophilia: factor VIII deficiency) or haemophilia B (Christmas disease: factor IX deficiency) and about the complications of treatment. In 1976 the directors decided to extend their survey to obtain information on all known patients with haemophilia A or B, including those who had not received treatment, so that more accurate information would be available regarding the total number of patients with the two types of haemophilia in Britain and Northern Ireland. The directors also decided that from 1976 onwards they would collect information on patients receiving home treatment and details about carriers of haemophilia A or B and patients with von Willebrand's disease who required treatment at centres. Reports for the years 1969-75 have been published.¹⁻⁴ This report is concerned mainly with the treatment of patients during the five years 1976-80, but information from previous years is included where long term trends are being considered.

Report

NUMBERS OF PATIENTS WITH HAEMOPHILIA A AND B

During the study period there was a yearly increase in the numbers of patients known to have haemophilia A and B, and by December 1980 there were 4321 patients with haemophilia A and 777 with haemophilia

B known to the directors of the centres (table 1m (miniprint)). The incidences of antibody against factors VIII and IX were 6.0% and 0.9% respectively and had changed little during the period or indeed during the past 11 years^{1,3} despite more intensive treatment with concentrated preparations of clotting factors in later years.

Tables 11m and 111m show the age and severity groupings of the patients. To facilitate comparison with other reports these tables also show the total number of haemophiliacs in each age group in December 1974 and the percentage of male subjects in each age group in the normal male population (1971 Census). Of the 4321 known patients with haemophilia A and the 777 with haemophilia B, 1903 (44%) and 276 (36%) were severely affected. There was a preponderance of patients aged 10-40 when compared with normal males but a relative deficiency in patients aged less than 10 years or more than 40. When the severely affected patients (factor VIII value <2% of average normal) and mildly affected patients (factor VIII value >2% of average normal) were considered as separate groups there was, as expected, a much smaller proportion of severely affected patients aged above 50 compared with mildly affected patients. On the other hand, there seemed to be proportionately fewer patients aged less than 20 in the mildly affected group than in the severely affected group. This latter difference may have been due to delay in the diagnosis of the mild form of the condition. Compared to 1974 a larger proportion of haemophiliacs seemed to be reaching middle and old age; a quarter of the patients with haemophilia A in 1980 were more than 40 years of age compared with one fifth in 1974.

AGE AT DEATH AND CAUSES OF DEATH

Eighty nine patients with haemophilia A and 18 with haemophilia B died during 1976-80. Table IVm shows the age at death and severity of the haemophilia and table Vm lists the causes of death. Sixty six of the 107 deaths reported (62%) were in patients suffering from severe haemophilia A or B. Twenty of the patients with haemophilia A who died (22%) had factor VIII antibodies in their blood, and one of the patients with haemophilia B who died had factor IX antibodies. The average ages of the patients who died were 46.7 years in the haemophilia A group and 48.3 years in the haemophilia B group. Comparable figures for 1969-74 were 42.3 years and 33.6 years, respectively.

A more useful statistic was the median expectation of life. This was calculated from life tables derived from the information on the number of deaths in each age and severity group and total numbers at risk in each age and severity group during the five years of the survey. Surprisingly the calculations yielded a median life expectancy of 69.1 years for severely affected haemophiliacs as compared with 72.8 years for normal males (appendix 1m (miniprint)). Those figures must clearly be viewed with caution, since the numbers in the calculations were relatively small and also because of the possibility that deaths in haemophiliacs may not all be reported to haemophilia centre directors. Median expectation of life for the group of patients with factor VIII values greater than 10% of average normal were not calculated because of the small number of deaths which had occurred. Also many such patients probably go undetected owing to the mildness of their clinical symptoms. It is therefore difficult to be sure of the total number in the group "at risk" for the purpose of calculating "probability of death" rates.

Cerebral haemorrhage was the commonest cause of death in haemophilia A and accounted for 26 of the 89 deaths (29%). Two thirds of the cerebral haemorrhages occurred in severely affected patients. Other types of haemorrhage accounted for 11 deaths (12%). Hepatitis was recorded as the cause of death in one patient with haemophilia A and one with haemophilia B, and there were five suicides. In 11 cases (12%) the cause of death was not known. As expected, there was a greater incidence of death from haemorrhage in patients with antibodies than in those without antibodies: bleeding accounted for 55% of deaths in patients with antibody and 38% of deaths in patients without antibody.

AMOUNT AND TYPES OF THERAPEUTIC MATERIAL USED

Figures 2 and 3 show the long term changes in usage of the different blood products, and tables VIIm and VIIm show in more detail the type and amount of the various therapeutic materials used in the management of haemophilia A and B during 1976-80. The total amount of factor VIII used steadily increased each year from 33.716 x 10⁶ units in 1976 to 57.0 x 10⁶ units in 1980. In 1976 nearly

MINIPRINT TABLES 1m-IVm

1m

TABLE 1m—Numbers of patients with haemophilia A and haemophilia B and numbers with factor VIII or IX antibodies detected. Patients known to have died before year specified excluded.

Year	Haemophilia A			Haemophilia B		
	Complete Factor VIII with antibody positive	Complete Factor VIII with antibody negative	No. of Factor VIII values detected	Complete Factor IX with antibody positive	Complete Factor IX with antibody negative	No. of Factor IX values detected
1971	101	101	101	0	0	0
1972	102	102	102	0	0	0
1973	103	103	103	0	0	0
1974	104	104	104	0	0	0
1975	105	105	105	0	0	0
1976	106	106	106	0	0	0
1977	107	107	107	0	0	0
1978	108	108	108	0	0	0
1979	109	109	109	0	0	0
1980	110	110	110	0	0	0

11m

TABLE 11m—Age distribution and severity of complications defect in patients with haemophilia A known to haemophilia centre directors on 31 December 1980

Age (years)	Factor VIII value (% average normal)				Total	Total No.	Normal males in UK population (%)
	<2	2-10	10	>10			
0-9	11	11	11	11	44	1.1	1.1
10-19	12	12	12	12	48	1.2	1.2
20-29	13	13	13	13	52	1.3	1.3
30-39	14	14	14	14	56	1.4	1.4
40-49	15	15	15	15	60	1.5	1.5
50-59	16	16	16	16	64	1.6	1.6
60-69	17	17	17	17	68	1.7	1.7
70-79	18	18	18	18	72	1.8	1.8
80-89	19	19	19	19	76	1.9	1.9
90-99	20	20	20	20	80	2.0	2.0
Total (%)	170 (44.0)	170 (44.0)	170 (44.0)	170 (44.0)	680	100.0	100.0

111m

TABLE 111m—Age distribution and severity of complications defect in patients with haemophilia B known to haemophilia centre directors on 31 December 1980

Age (years)	Factor IX value (% average normal)				Total	Total No.	Normal males in UK population (%)
	<2	2-10	10	>10			
0-9	1	1	1	1	4	0.1	0.1
10-19	2	2	2	2	8	0.2	0.2
20-29	3	3	3	3	12	0.3	0.3
30-39	4	4	4	4	16	0.4	0.4
40-49	5	5	5	5	20	0.5	0.5
50-59	6	6	6	6	24	0.6	0.6
60-69	7	7	7	7	28	0.7	0.7
70-79	8	8	8	8	32	0.8	0.8
80-89	9	9	9	9	36	0.9	0.9
90-99	10	10	10	10	40	1.0	1.0
Total (%)	57 (14.6)	57 (14.6)	57 (14.6)	57 (14.6)	228	100.0	100.0

IVm

TABLE IVm—Age at death of patients with haemophilia A and haemophilia B and severity of complications defect

Factor VIII value (%)	Age (years)							Total	Total at risk in group (%)
	<10	10-19	20-29	30-39	40-49	50-59	60-69		
<2	1	1	1	1	1	1	1	7	100
2-10	1	1	1	1	1	1	1	7	100
10	1	1	1	1	1	1	1	7	100
>10	1	1	1	1	1	1	1	7	100
Total	4	4	4	4	4	4	4	28	100
Total at risk in age groups	120	96	84	72	60	48	36	432	100

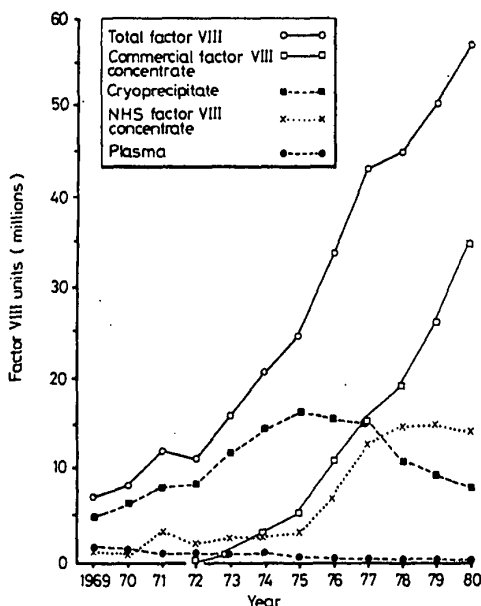


FIG 2—Amount of different types of materials containing factor VIII and total amount of factor VIII activity units used each year during 1969-80 by haemophilia centres in United Kingdom to treat patients for haemophilia A.

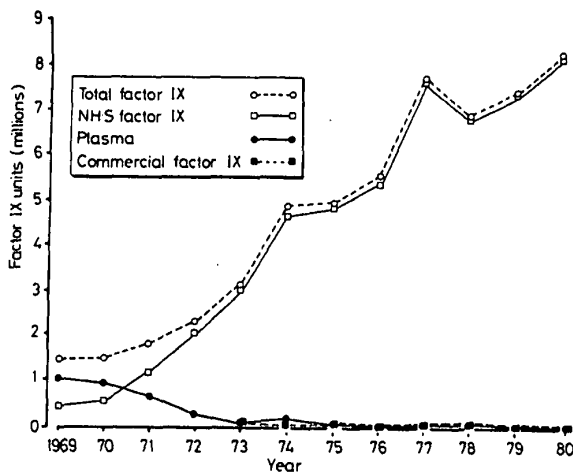


FIG 3—Amount of different types of materials containing factor IX and total amount of factor IX activity units used each year during 1969-80 by haemophilia centres in United Kingdom to treat patients for haemophilia B.

half of the factor VIII used was in the form of cryoprecipitate. Usage of this material decreased during the survey period and in 1980 accounted for only 14% of the total number of factor VIII units given. The use of commercial factor VIII concentrate, on the other hand, showed a steady increase each year and in 1980 represented 60% of the total factor VIII used.

Usage of factor VIII manufactured by NHS laboratories doubled from 1976 to 1977 but the amount used each year then changed very little and in 1980 represented a quarter of all factor VIII used. This low usage almost certainly reflected the relatively low output from the NHS fractionation laboratories and not a preference for commercially prepared concentrates. The average amount of factor VIII used yearly per patient increased each year and in 1980 was 27 181 units. In

1977-80 some centres reported that desmopressin (DDAVP) had been used to treat mild haemophilia A. The numbers of patients treated with this drug were 8, 10, 20, and 12 in successive years from and including 1977.

With regard to amounts of factor IX used in the treatment of haemophilia B this also showed a trend upwards, rising from 5.563×10^6 units in 1976 to 8.272×10^6 units in 1980 (table VIIIm). This increase was accounted for in part by the increase in number of patients treated but also by an increase in the yearly amount received per patient. Some 99% of the factor IX concentrate used was prepared by NHS fractionation laboratories. Enough factor IX is made by those laboratories to meet the needs of patients with haemophilia B in Britain and there seems little if any need to purchase factor IX from commercial companies.

MATERIALS USED FOR TREATMENT OF PATIENTS WITH ANTIBODY AGAINST FACTOR VIII OR FACTOR IX

Information on the use of factor VIII or IX replacement was available only for 1977, 1978, 1979, and 1980 (table VIIIIm). The therapeutic material used included human factor VIII concentrate, activated and non-activated human prothrombin complex concen-

MINIPRINT TABLES Vm-IXm

Vm

TABLE Vm—Causes of death in patients with haemophilia A and haemophilia B (1978-80). Figures are numbers of patients (standard unit antibodies given in parentheses)

Causes	Haemophilia A	Haemophilia B
Controlled haemorrhage*	26 (1)	1 (11)
Other types of bleeding	1 (1)	1 (1)
Postoperative complications	1 (1)	1 (1)
Septicemia	1 (1)	1 (1)
Pneumonia	1 (1)	1 (1)
Myocardial infarction	1 (1)	1 (1)
Stroke	1 (1)	1 (1)
Renal failure	1 (1)	1 (1)
Diabetes	1 (1)	1 (1)
Cardiac arrhythmia	1 (1)	1 (1)
Myocarditis	1 (1)	1 (1)
Myocardial infarction	1 (1)	1 (1)
Myocardial infarction	1 (1)	1 (1)
Myocardial infarction	1 (1)	1 (1)
Total	34 (20)	10 (11)

VIm

TABLE VIm—Human factor VIII preparations used by haemophilia centres during 1978-80 to treat patients with haemophilia A and number of patients treated each year with these products

Material	1978		1979		1980	
	Amount	% Total	Amount	% Total	Amount	% Total
Plasma	1 000	0.1	1 000	0.1	12 000	0.1
Cryoprecipitate	13 211 000	86.5	15 229 000	95.2	6 841 000	50.7
NHS factor VIII concentrate	8 603 000	53.2	12 042 000	74.8	12 072 000	89.0
Commercial factor VIII concentrate	4 608 000	28.3	3 187 000	19.9	4 769 000	35.3
Total	23 182 000	100.0	16 158 000	100.0	16 512 000	100.0
No. of patients treated	1 300		1 411		1 811	
Average amount of factor VIII used per patient	17 833		11 458		9 118	

VIIIm

TABLE VIIIm—Factor IX preparations used by haemophilia centres in 1978-80 to treat patients with haemophilia B and number of patients treated each year with these products

Material	1978		1979		1980	
	Amount	% Total	Amount	% Total	Amount	% Total
Plasma	14 000	0.2	21 000	0.4	1 000	0.01
NHS factor IX concentrate	1 111 000	98.7	2 822 000	99.6	6 999 000	99.9
Commercial factor IX concentrate	1 111 000	98.7	11 070 000	99.2	17 000 000	99.9
Total	2 236 000	100.0	2 843 000	100.0	7 999 000	100.0
No. of patients treated	70		112		156	
Average amount of factor IX used per patient	32 100		25 384		51 276	

VIIIIm

TABLE VIIIIm—Type and amount (activity units) of material used to treat patients with antibodies against factor VIII or IX

	1977		1978		1979		1980	
	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total
No. of patients with antibodies treated	114		171		114		121	
Human factor VIII	2 194 000	92.0	2 149 000	91.0	4 011 000	92.0	4 011 000	92.0
Factorial factor VIII	148 000	6.3	148 000	6.3	219 000	5.0	219 000	5.0
Commercial factor IX (Prothromplex*)	16 000	0.7	16 000	0.7	16 000	0.4	16 000	0.4
Activated prothrombin (Prothrombin*)	1 225 000	51.0	1 225 000	51.0	612 000	13.6	612 000	13.6
Plasma*	1 225 000	51.0	1 225 000	51.0	612 000	13.6	612 000	13.6
Total	3 528 000	100.0	2 363 000	100.0	4 660 000	100.0	4 660 000	100.0
No. of patients with antibodies treated	77		102		102		102	
Average amount of factor VIII used per patient	45 169		23 167		45 687		45 687	

IXm

TABLE IXm—Numbers of patients with haemophilia A treated by haemophilia centres during 1980, showing severity of complications, deaths, sex, and proportion receiving home treatment (N7)

Age	Factor VIII units (10 ⁶ , average annual)				Not known		Total
	No. treated	No. (10 ⁶)	No. treated	No. (10 ⁶)	No. treated	No. (10 ⁶)	
1-4	98	1 100	21	2 120	0	0	119
5-9	126	1 015	11	1 120	0	0	137
10-14	122	1 000	10	1 120	0	0	132
15-19	122	1 000	11	1 120	0	0	133
20-24	122	1 000	11	1 120	0	0	133
25-29	122	1 000	11	1 120	0	0	133
30-34	122	1 000	11	1 120	0	0	133
35-39	122	1 000	11	1 120	0	0	133
40-44	122	1 000	11	1 120	0	0	133
45-49	122	1 000	11	1 120	0	0	133
50-54	122	1 000	11	1 120	0	0	133
55-59	122	1 000	11	1 120	0	0	133
60-64	122	1 000	11	1 120	0	0	133
65-69	122	1 000	11	1 120	0	0	133
70-74	122	1 000	11	1 120	0	0	133
75-79	122	1 000	11	1 120	0	0	133
80-84	122	1 000	11	1 120	0	0	133
85-89	122	1 000	11	1 120	0	0	133
90-94	122	1 000	11	1 120	0	0	133
95-99	122	1 000	11	1 120	0	0	133
Total	10 110	84 110	106	94 110	0	0	10 216
Total received by home treatment (N7)	10 110	84 110	106	94 110	0	0	10 216

trates, and porcine factor VIII. Prothrombin complex concentrates were on the whole used less in 1980 than in 1977.

The few patients with antibody against factor IX who were treated all received human factor IX concentrates prepared by NHS fractionation laboratories.

HOME TREATMENT

Home treatment programmes have been introduced by most haemophilia centres in Britain and in 1980, 44% of all haemophiliacs treated and 60% of severely affected haemophiliacs treated were receiving home treatment (table IXm). Slightly less than half of all the factor VIII used in 1980 was used for home treatment; some 26×10^6 units of factor VIII was used to treat 938 patients. Four per cent of the material was in the form of cryoprecipitate, 28% was NHS factor VIII, and 67% was commercial factor VIII. Roughly 28 000 units per patient per year was used in home treatment (table Xn).

Tables XIIm and XIIm give data on home treatment of patients with haemophilia B in 1980. Of the 208 patients severely affected by the disease, 116 (56%) were receiving home treatment and roughly half of all the material used to treat haemophilia B was used for home treatment. The amount of factor IX used per patient per year for treatment at home was 30 000 units. This is similar to the amount of factor VIII used in home treatment by patients with haemophilia A.

CARRIERS OF HAEMOPHILIA A OR B AND PATIENTS WITH VON WILLEBRAND'S DISEASE

Information about carriers and patients with von Willebrand's disease treated by haemophilia centres has been collected since 1976. Table XIIIIm gives the total numbers of carriers of haemophilia A and patients with von Willebrand's disease treated during 1976-80 and the amounts and types of blood products used. With regard to types of material used to treat carriers of haemophilia A, the use of cryoprecipitate and NHS factor VIII fluctuated greatly from year to year but there was a steady increase in the use of commercial factor VIII. In addition to the patients treated with blood products, four mildly affected carriers of haemophilia A were treated with desmopressin only. The total amount of factor VIII used in any one year for the treatment of carriers of haemophilia A accounted for less than 1% of the total factor VIII used in Britain. Throughout the period of the survey cryoprecipitate was the therapeutic material most used for the treatment of von Willebrand's disease, accounting for 75-90% of the factor VIII given to those patients. Besides preparations containing factor VIII other materials were infrequently used: in 1977 a patient with von Willebrand's disease and antibodies against factor VIII was treated with an activated prothrombin complex concentrate (FEIBA; "factor eight inhibitor bypassing activity") and porcine factor VIII, and in 1977, 1978, 1979, and 1980 desmopressin was given to two, four, nine, and nine patients, respectively. The total amount of factor VIII used in any one year to treat carriers of haemophilia A and patients with von Willebrand's disease accounted for only 3-4% of the total factor VIII used in Britain.

Very few carriers of haemophilia B required treatment during the survey period, the numbers fluctuating between five and 12 a year. Those patients were mainly treated with NHS factor IX concentrates, though fresh frozen plasma was occasionally used. The total amount of factor IX used in any one year ranged from 7000 to 115 000 units and accounted for 0.1-1.4% of the total amount of factor IX used in Britain in that year.

HEPATITIS

Table XIVm shows the number of patients treated each year and the number and percentage of those treated who developed acute hepatitis. The diagnosis was based on clinical and laboratory data and did not include patients known previously to have had persistent abnormalities in liver function values. In the five years 1976-80 the incidence in patients with haemophilia A varied between 1.7% and 3.5% of those treated in any year and was very little different from that seen in the period 1969-74. In 1974-5, however, with the first use of US commercial factor VIII concentrates on a wide scale in British haemophilia centres, the overall incidence of hepatitis in patients with haemophilia A rose from 2.3% to 5.2% in 1974, and then declined to 3.1% in 1976. The yearly attack rate has remained about the same since then.

At the time of reporting there had been remarkably few sequelae of acute hepatitis. Over the six years only two patients had died from illness related to the complications of acute hepatitis. The problem of chronic hepatitis remains unresolved. Several patients have been seen with symptomatic evidence of chronic liver disease, but only further studies of these patients as a whole over the next 10 years will disclose the true incidence.

A working party of haemophilia centre directors has been set up to look into the incidence of both acute and chronic post-transfusion hepatitis. A separate report on the incidence of acute hepatitis in haemophiliacs in Britain is in preparation.

Discussion

The number of haemophiliacs known and treated at haemophilia centres in Britain continues to rise, as does the amount of factor VIII used in their treatment.

If the amount of factor VIII used continues to increase at the present rate some 120×10^6 units of the factor will be required by 1990. Should there be any major change in treatment policy

MINIPRINT TABLES Xn-XIVm

Xn

TABLE 2—Material used for home treatment of patients with haemophilia A during 1980

Material	Total factor VIII units used for all patients	Factor VIII units used for home treatment	% of total factor VIII units used for home treatment
Plasma	1 131 000	101 000	9
NHS factor VIII concentrates	14 548 000	174 000	1.2
Commercial factor VIII concentrates	26 361 000	17 140 000	64.7
Total units	32 040 000	17 915 000	55.9
No. of patients treated	2 181	938	43.0
Average amount used per patient	14 700	19 000	—

In addition 11 000 units factor eight inhibitor bypassing activity (1% of total FEIBA used) was supplied for home treatment.

XIm

TABLE 3—Number of patients with haemophilia B treated by haemophilia centres during 1980, showing severity of coagulation defect, age, and proportion receiving home treatment

Age (years)	Factor IX units (% average normal)				Von Willebrand factor				Total
	≤ 10		> 10		No. treated		No. untreated		
0-4	10	1 (10%)	0	0	0	0	0	0	10
5-9	20	12 (60%)	12	12 (60%)	0	0	0	0	32
10-14	11	11 (100%)	11	11 (100%)	0	0	0	0	22
15-19	11	11 (100%)	11	11 (100%)	0	0	0	0	22
20-24	11	11 (100%)	11	11 (100%)	0	0	0	0	22
25-29	11	11 (100%)	11	11 (100%)	0	0	0	0	22
30-34	11	11 (100%)	11	11 (100%)	0	0	0	0	22
35-39	11	11 (100%)	11	11 (100%)	0	0	0	0	22
40-44	11	11 (100%)	11	11 (100%)	0	0	0	0	22
45-49	11	11 (100%)	11	11 (100%)	0	0	0	0	22
50-54	11	11 (100%)	11	11 (100%)	0	0	0	0	22
55-59	11	11 (100%)	11	11 (100%)	0	0	0	0	22
60-64	11	11 (100%)	11	11 (100%)	0	0	0	0	22
65-69	11	11 (100%)	11	11 (100%)	0	0	0	0	22
70-74	11	11 (100%)	11	11 (100%)	0	0	0	0	22
75-79	11	11 (100%)	11	11 (100%)	0	0	0	0	22
80-84	11	11 (100%)	11	11 (100%)	0	0	0	0	22
85-89	11	11 (100%)	11	11 (100%)	0	0	0	0	22
90-94	11	11 (100%)	11	11 (100%)	0	0	0	0	22
95-99	11	11 (100%)	11	11 (100%)	0	0	0	0	22
Total	208	188 (90%)	120	120 (100%)	10	10 (10%)	13	13 (10%)	211
Total treated as % of total	71.4	86.4	100	100	100	100	100	100	43.9

NR = Not known * See table 11m

XIIIm

TABLE 4—Material used for home treatment of patients with haemophilia B during 1980

Material	Total factor IX units used for all patients	Factor IX units used for home treatment	% of total factor IX units used for home treatment
Plasma	1 131 000	101 000	9
NHS factor IX concentrates	14 548 000	174 000	1.2
Commercial factor IX concentrates	26 361 000	17 140 000	64.7
Total units	32 040 000	17 915 000	55.9
No. of patients treated	2 181	103	47.2
Average amount used per patient	14 700	174 000	—

XIIIm

TABLE 5—Type and amount of material used by haemophilia centres in 1976-80 to treat patients with von Willebrand's disease and carriers of haemophilia A

Human blood products used	Factor VIII units			
	1976	1977	1978	1979
Total used	1 131 000	1 410 000	1 690 000	1 970 000
Plasma	4 800	11	10	10
NHS factor VIII concentrates	141 000	141 000	141 000	141 000
Commercial factor VIII concentrates	1 085 200	1 258 000	1 539 000	1 818 000
Total	1 130 000	1 410 000	1 690 000	1 970 000
No. of patients treated	126	121	120	124
Average amount used per patient	9 000	11 650	14 080	15 880

XIVm

TABLE 6—Frequency of acute hepatitis in patients treated by haemophilia centres in 1976-80

Coagulation defect	1976		1977		1978		1979		1980	
	Total No. of patients	% of patients	Total No. of patients	% of patients	Total No. of patients	% of patients	Total No. of patients	% of patients	Total No. of patients	% of patients
Haemophilia A	186	1.7	177	2.8	200	2.5	201	3.5	217	3.2
Haemophilia B	12	0.1	12	0.1	12	0.1	12	0.1	12	0.1
Haemophilia B carrier	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
Total	199	1.8	190	3.0	213	2.6	214	3.6	230	3.3

