SMALLER HAEMOPHILIA CENTRES PRESENTATION
ROYAL LIVERPOOL HOSPITAL

The directors

1. Liverpool's main haemophilia centre for adults, UKHCDO number 064, was based at the Royal Liverpool Hospital ("RLH" or "the Centre") from the late 1970s. Prior to that, it was housed in the Liverpool Royal Infirmary ("LRI"). The move to RLH appears to have taken place in 1979: see, for example, the reference to "*moving into the new hospital*" in an October 1979 letter [HCDO0001275 p.7], as well as the Centre's description in its 1976-1979 annual returns [HCDO0001093, HCDO0001178, HCDO0001275 and HCDO0001344].

2. RLH had several directors in the 1970s and 1980s. Dr T Black appears to have held this role in the first half of the 1970s [NHBT0085908, BPLL0008115_002, HCDO0001014, HCDO0001017 and OXUH0003735].

3. The director in the second half of the 1970s is sometimes identified in the Centre's returns as Professor Alastair Bellingham, sometimes as Dr Frank Boulton and sometimes as both [HCDO0001093, HCDO0001178, HCDO0001275 and HCDO0001344]. In an Inquiry statement [WITN3456001], and in written and oral evidence to the Penrose Inquiry [PRSE0000106 and PRSE0006024 pp.1-2], Dr Boulton has stated that he was a consultant and Centre director at RLH from 1975-1980. Dr Bernard McVerry has stated that, when he arrived in Liverpool in 1980, the Centre director "*would have been Professor Bellingham*", though his evidence is also that when he arrived he "*was appointed as centre director replacing Dr F E Boulton*" [WITN3502007]. Dr McVerry's recollection is that Professor Bellingham left RLH around the end of 1984/beginning of 1985.

4. Dr McVerry was director between 1980 and 1985, when he moved to St James's Hospital in Leeds. He has provided a number of statements to the Inquiry. Two

of these cover a range of issues across his career [WITN3502004 and WITN3502007]. Others respond to criticisms made by Inquiry witnesses, one of which relates to RLH [WITN3502002] (the others concern Dr McVerry's time in Leeds).

5. Following Dr McVerry's departure from RLH in 1985, there appears to have been a short period of time during which the Centre did not have a formal director [BAYP0000007_113]. However, for at least part of 1985-1987, Dr Michael Mackie took on this role (see Dr McVerry's evidence [WITN3502007], as well as various documents referred to below).

6. Professor Charles Hay was then director between May 1987 and November 1994. Professor Hay has provided a number of statements to the Inquiry, including one covering a range of issues across his career [WITN3289039] and another responding to criticism from a patient treated in Liverpool and the patient's family [WITN3289001]. Professor Hay gave oral evidence to the Inquiry on 4 and 5 November 2020 (transcripts available on the Inquiry website). He also prepared a document in the context of the HIV litigation which covers a number of issues relevant to the Centre [NHBT0085908].[1]

Status and relationship with other haemophilia centres

7. Despite treating a significant number of patients, RLH was not a reference centre in the 1970s and 1980s. It became a comprehensive care centre, jointly with Alder Hey Children's Hospital ("Alder Hey"), in 1994 [WITN4160001].[2]

[1] The document is unsigned and undated but it is clear from its contents that it was prepared by Professor Hay. It was most likely written in very late 1989 or early 1990: the introduction records Professor Hay's agreement with an equivalent document prepared by Dr Vanessa Martlew, which is dated November/December 1989 [NHBT0018153].

[2] Note that its successor, the Roald Dahl Haemostatis and Thrombosis Centre, continues to be a Comprehensive Care Centre [https://www.rlbuht.nhs.uk/departments/medical-specialisms/blood-haematology/the-roald-dahl-centre/].

8. During the 1970s and 1980s, there were two other haemophilia centres in Liverpool: one at Alder Hey[3], the other based at the Walton Hospital ("Walton").

9. There is some inconsistency in the evidence as to the relationship between RLH and Alder Hey. Dr McVerry's evidence is that he did not treat any child patients (whether at Alder Hey or anywhere else) and that, although he cannot now recall, he thinks it "*highly unlikely that we* [i.e. RLH] *would have supplied either cryoprecipitate or Factor 8 to Alder Hay* [sic]*, it would have had its own arrangements for supply*" [WITN3502007]. Dr McVerry gave this evidence after having considered a February 1985 letter from Dr John Martin, then director of Alder Hey, in which Dr Martin stated: "*we normally receive our factor VIII via the adult centre at the Royal Liverpool Hospital, whose director is Dr. A.McVerry*" [BPLL0010612]. Additional evidence on this issue is set out in the note on Alder Hey.

10. It seems clear that RLH had important links with haemophilia centres and hospitals treating bleeding disorder patients in North Wales. Dr Boulton addressed this point in a July 1977 letter to Dr Kirk at Treloar's, in relation to a patient who had been treated with cryo at home in Wrexham during the holidays [TREL0000311_027]. Dr Boulton noted that the patient required Lister (i.e. BPL) concentrate, and that the Wrexham haematology department had had some success in obtaining it from the Manchester supra-regional centre. He added that the patient was "*not on the list of haemophiliacs registered at the Liverpool Royal Infirmary and we do in fact cover the North/Welsh area. ... in future we will do our best to supply him with whatever materials are necessary from the Liverpool Haemophiliac Centre.*"

11. Further evidence of the Liverpool/North Wales relationship can be found in the statement of Dr David Edwards, a consultant haematologist at Glan Clwyd Hospital from 1982 [WITN5491001], as well as in the evidence of individuals

[3] Note that Alder Hey appears to have been one of two branches of the Royal Liverpool Children's Hospital, with the other on Myrtle Street. See the section on Alder Hey for more detail on their relationship.

and family members who lived in North Wales and were treated partly or exclusively in Liverpool (for example, [WITN2441001 and WITN1654001]). In his HIV litigation document, Professor Hay wrote that patients from North Wales "*were joint-managed by Liverpool and local haematologists in Wrexham (Dr Watson), Bodelwyddlan (Dr Edwards) and Bangor (Dr Korn)*" [NHBT0085908].

12. Manchester Royal Infirmary ("MRI") is said to have acted as RLH's reference centre in the 1970s and 1980s (see, for example, [NHBT0085908]). However, other than occasional supra-regional meetings and sending HTLV-III tests to Manchester – described below – direct links between the two centres appear to have been limited. For example, patients do not seem to have been referred from RLH to Manchester, and MRI seems to have had limited, if any, involvement in the choice of blood products and formulation of treatment policies at RLH.

Relationship with Regional Transfusion Centre

13. The Regional Transfusion Centre ("RTC") supplying RLH was based in Liverpool. It is sometimes referred to as the Liverpool RTC [WITN3456001] and sometimes as the Mersey RTC [NHBT0006273_001]. A December 1989 document, prepared by Dr Vanessa Martlew and Dr Shepherd in the context of the HIV litigation, refers to the Mersey and North Wales Regional Transfusion Service [NHBT0018153].

14. In the 1970s and 1980s, Mersey RTC appears primarily to have supplied RLH with blood and cryo, with the Centre purchasing commercial concentrates itself. In a document prepared for the Penrose Inquiry, Dr Boulton stated that, at RLH, he "*had an annual budget of £40,000 from the RHA for commercial blood products (at about 10p a clotting factor unit)*" [PRSE0000106]. In oral evidence, he described his relationship with the RTC as follows: "*I remember in Liverpool I was given a budget of £40,000 to buy commercial Factor VIII and I was praised, amazingly, by the finance director, for keeping more or less within budget. But I also kept the transfusion centre, under Dermot Lehane in*

Liverpool at that time, aware of what was going on. So there was a sharing of information. We used whatever we could from Elstree. We used whatever we could from the transfusion centre in the way of cryoprecipitate, but we had to buy extra, and I'm pretty sure that we kept all parties informed" [PRSE0006024].

15. According to Professor Hay's HIV litigation document (prepared around 1989-1990), from 1975 "*needs for Factor VIII and IX*" had been "*determined on enquiry from the Director of The Haemophilia Service*", based at RLH [NHBT0085908]. Drs Martlew and Shepherd's document adds that these assessments were "*usually made at the time of planning for the annual budget. In the past these were revised according to deliveries received from the Blood Products Laboratory, there often being a need to embark on commercial purchases to make up the balance for therapeutic use. Details of blood products supplied, both NHS and commercial should be available in the Hospitals where patients were treated*" [NHBT0018153].

16. In a July 1981 letter concerning factor VIII, Mersey RTC's director wrote that it did "*not hold the region's supply. As soon as Factor VIII is received from B.P.L. it is despatched to the Royal Liverpool Hospital under the care of the Haemophilia Director*" [DHSC0004176_015]. The letter added that individual hospital pharmacies bought in "*the commercial products needed to supplement B.T.S. supplies, therefore commercial material comes out of Area/District budgets, not B.T.S. budget*".

17. A report from February 1983 described the operation of the Mersey Blood Transfusion Service ("BTS"), including its arrangements for the supply of blood and blood products regionally, as well as setting out proposals to achieve self-sufficiency in blood products by the end of the decade [DHSC0001146]. The report recorded that demand for factor VIII had "*increased sharply during the last few years*" and that the increase was expected to continue. Aside from "*ethical considerations*" relating to self-sufficiency, it was noted that the cost to the region of continuing to obtain products such as factor VIII from commercial sources would be substantial. At the time, the BTS supplied "*less than 20% of the Factor VIII demand, the remainder cost some £150,000 p.a.*".

Appendix E to the report records that the amount of cryo issued to haemophilia centres increased from 1978 to 1980 before dropping significantly in 1981 and 1982.[4]

Regional or supra regional networks

18. RLH appears to have belonged to two regional networks, at least in the 1980s. The first, the "*Regional Haematologists Group*", met at Mersey RTC and seems to have been made up of clinicians and blood service representatives from Mersey and North Wales. Dr McVerry, Professor Bellingham and Dr Mackie attended a meeting of this group in November 1983 [NHBT0100235_002]. Drs McVerry and Mackie attended a further meeting in March 1985, during which it was agreed that membership should be expanded to included consultant haematologists from North Wales hospitals who were associated with Liverpool-based haematology services [NHBT0100234]. The minutes for a November 1985 meeting, attended by Dr Mackie, recorded the following with respect to regional control of haemophilia services: "*Nowadays, expertise in management of Haemophilia is fairly widespread so it was agreed that the present arrangements should continue, by which Haemophiliacs attend their local Haematologist for treatment and follow up. In any case, most patients would prefer to attend their local hospital for all but the most specialised treatment. It should be noted that Manchester, and not Liverpool, is still the Haemophilia Reference Centre for the North West*" [NHBT0100233].

19. The second network, the "*North Western ... Supra Regional*" haemophilia group, was attended by representatives of the Mersey and North West regions (including Manchester clinicians, such as Drs Delamore and Wensley). Drs McVerry and Mackie attended a meeting of this group, at Manchester RTC, on what would appear to have been 7 May 1985 [NHBT0096599_043; the date has been crossed out]. The minutes record that "*[a]t Liverpool, all patients from the region are registered there, although not necessarily to treat the patients.*" Dr

[4] See also an August 1990 prospectus for the Mersey and North Wales Blood Transfusion Service [BCUH0000050].

Mackie attended a further meeting in April 1986 at RLH [NHBT0094580]. During a discussion on supplies of factor VIII and IX, the minutes note that "*Liverpool order their own commercial concentrate but this comes off a district budget*". With respect to meeting BPL requirements for plasm production, it was stated "*Liverpool are not being allowed any expansion next year and will have to purchase supplies*". The group also agreed that haemophilia care should be organised on a regional basis.

20. Drs Martlew and Shepherd made reference to this supra-regional group in their December 1989 HIV litigation document [NHBT0018153]. Professor Hay also referred to "*[r]egular meetings of the haemophilia directors from Mersey and North West region*" [NHBT0085908]. See further two lists of haemophilia centres, recording that RLH was part of the Manchester supra-region [HCDO0000602 and CBLA0000699].

Facilities and staffing in 1970s and 1980s

21. Relatively little evidence is available on the Centre's facilities and staffing in the 1970s. It appears that, until the move to RLH, patients were treated on the Tropical/Tropics Ward of LRI: see, for example, an August 1971 letter from Dr Lowe at LRI, reporting that a patient had "*recently attended the Tropical Ward of this hospital*" and had been treated with cryo [TREL0000430_001]. Professor Hay has told the Inquiry that the *"Royal Liverpool Hospital had looked after patients with Haemophilia for decades. Originally they went to the "Tropics Ward of the old Royal Liverpool Infirmary (RLI), which also served the Liverpool School of Tropical Medicine, until the RLI closed in the 1970s*" [WITN3289039]. A document indicates that, in 1979, an RLH hospital social worker attended a seminar on "*Living with Haemophilia*" at the Queen Elizabeth Hospital, Birmingham [HSOC0002962].

22. Dr McVerry has addressed his recollection of staffing in the first half of the 1980s in his evidence to the Inquiry. He explains that he did not have a nurse or a dedicated junior member of staff at RLH [WITN3502007]. "*If a patient came*

in sick, they would be admitted to the general haematology ward. I could be called in on call if needed." If a patient came in for factor VIII, one of the Centre's "*experienced technicians*" would give it to them.

23. Dr McVerry describes multi-disciplinary clinics being held for a period of time with, for example, an orthopaedic surgeon. He believes that these were "*held once every couple of months. However, patients did not turn up for these clinics so they only ran for a limited time.*" Otherwise, Dr McVerry continued with Dr Boulton's practice of "*offering an informal service directed from the Haematology Lab.*" The only staff he had was the on-call haematology registrar "*who assisted when necessary. Patients would be reviewed by a registrar or myself.*"

24. An Inquiry witness, whose late son was treated at RLH, has described the conditions on the haematology ward around 1980 as "*horrific and wholly unsuitable for children. The policy at RLUH was to put boys with Haemophilia into the same ward as Geriatric old men*" [WITN1743001].

25. In the mid-1980s, money was raised by the Merseyside Haemophilia Society group for work to improve facilities on the RLH ward treating haemophilia patients [HSOC0029476_033 and HSOC0019923_008].[5] In his HIV litigation response, Professor Hay wrote that, in 1986, regular review clinics were organised which he improved and developed [NHBT0085908].

26. Professor Hay has described the facilities and staffing at RLH at the time of his arrival in May 1987 in two of his written statements [WITN3289001 and WITN3289039] and in his 4 November 2020 oral evidence. In doing so, he relied partly on an article he wrote in the March 1990 edition of the Haemophilia Society's Bulletin, which described the facilities and staffing then in place [HCDO0000276_001]. Professor Hay's evidence includes the following:

[5] References to "haemophilia ward FY" at LRI in the Society's minutes would seem to be intended to refer to haematology ward 7Y at RLH, described in Professor Hay's evidence.

a. At the time of his arrival, the Centre was an examination room in the middle of a laboratory at RLH. Patients could also attend the haematology ward (7Y) on the 7th floor.
b. Professor Hay was supported by clerical staff, laboratory staff and a rotating senior registrar, but no comprehensive care system was in place. There were no haemophilia nurse specialists, no physiotherapy input, no social worker, and no joint clinics or multidisciplinary care.
c. The availability of "AIDS Money" enabled the Centre to acquire a haemophilia nurse specialist (Alison Jones), a full-time social worker (Miriam Waite) and a nurse counsellor (Helen Rogers). A joint orthopaedic service was also established (in addition to collaboration with HIV and hepatitis C specialists, described below).

27. In a 1991 letter, Professor Hay described further changes at RLH, including the arrival of a new full-time haemophilia nurse (to work alongside Alice Jones), a new full-time social worker and administrative assistance [HSOC0011048].

28. Other staff at RLH in the 1970s and 1980s included the following:

a. Dr Robert Carr, rotating senior registrar in haematology in Liverpool from August 1983 to July 1991 [WITN4677001]. This included a rotation at RLH from April 1985, though Dr Carr states that his focus was not on bleeding disorder patients.
b. Dr J Davies, consultant haematologist, described by a witness as having treated her father from the late 1970s until 2000 [WITN3381001].[6]
c. Dr Paula Bolton-Maggs, part-time rotating senior registrar in Liverpool from February 1987 to October 1991, including a 1988-1991 rotation at RLH [WITN4160001].
d. Dr Jonathan Wilde, a rotating senior registrar from November 1988 to November 1992 (though Dr Wilde only attended the haemophilia clinic at RLH at the end of his rotation) [WITN3086011].

Numbers of patients registered and numbers of patients treated

[6] See also a 1986 letter from Cutter to Dr Davies [BAYP0000009_097].

Annual returns 1976-1986

29. The numbers of patients treated and registered at RLH in 1976-1986 were as follows:

    a. 1976: 46 patients with haemophilia A, 7 with Christmas disease and 6 with von Willebrand's were treated [HCDO0001093].
    b. 1977: the Centre treated 56 patients with haemophilia A, 8 with Christmas disease and 3 with von Willebrand's [HCDO0001178].
    c. 1978: 58 patients with haemophilia A, 4 with Christmas disease and one with von Willebrand's were treated [HCDO0001275].
    d. 1979: RLH treated 49 patients with haemophilia A, 5 with Christmas disease and one with von Willebrand's [HCDO0001344].
    e. 1980: 54 patients with haemophilia A, 6 with haemophilia B and 2 with von Willebrand's were treated [HCDO0001440]. The number of registered patients appears to have been: 101 with haemophilia A; 12 with haemophilia B; and 7 with von Willebrand's.
    f. 1981: RLH treated 50 patients with haemophilia A, 5 with haemophilia B and one with von Willebrand's [HCDO0001542]. The number of registered patients appears to have been: 119 with haemophilia A; 15 with haemophilia B; and 7 with von Willebrand's.
    g. 1982: 48 patients with haemophilia A and 3 with haemophilia B were treated [HCDO0001640]. The number of registered patients appears to have been: 118 with haemophilia A; 15 with haemophilia B; and 17 with von Willebrand's.
    h. 1983: the Centre treated 48 patients with haemophilia A, 3 with haemophilia B and one with von Willebrand's [HCDO0000145_003]. The number of registered patients appears to have been: an unclear number of haemophilia A patients[7]; 15 with haemophilia B; and 17 with von Willebrand's [HCDO0000145_002].

[7] The list includes 68 haemophilia A patients but seems to be incomplete: the figure is significantly lower than other years and the list of names begin part-way through the alphabet.

i. 1984: 45 patients with haemophilia A and 4 with haemophilia B were treated [HCDO0001832]. The number of registered patients appears to have been: 119 with haemophilia A; 15 with haemophilia B; and 17 with von Willebrand's.

j. 1985: RLH treated 4 patients with haemophilia A and 4 with haemophilia B [HCDO0001925]. The number of registered patients seems to have been: 119 with haemophilia A; 15 with haemophilia B; and 17 with von Willebrand's.

k. 1986: 43 patients with haemophilia A and 5 with haemophilia B were treated [HCDO0002022]. The number of registered patients appears to have been: 127 with haemophilia A; 17 with haemophilia B; and 17 with von Willebrand's.

30. In a May 1987 letter to Rosemary Spooner, Dr Hay (as he then was) wrote that he had just taken over as director of the Centre and "*on reviewing the patients records I am left with the impression that many of our bleeders have not been registered with Oxford*" [HCDO0000342_011].[8] In oral evidence to the Inquiry on 4 November 2020, Professor Hay described his impression as being that over 50% of patients had not been registered prior to his arrival in 1987.

31. Based on data from the National Haemophilia Database, Professor Hay has told the Inquiry that 162 patients were registered at RLH in 1987 (though he caveats the reliability of the data) [WITN3289039].

Treatment policies and blood product usage

Annual returns 1976-1986 and stock records

32. In 1976 the Centre treated its haemophilia A patients with slightly more cryo than concentrate, with nearly all of the concentrate being commercial [HCDO0001093]. It used:

[8] During subsequent correspondence, Miss Spooner provided the names of patients registered at other centres [HCDO0000342_007] and Dr Hay explained that the Liverpool Royal Infirmary had closed several years earlier [HCDO0000342_006].

a. Approximately 460,000 units of cryo.
b. 12,532 units of NHS concentrate.
c. 387,665 units commercial concentrate, split across Profilate (11,826 units), Factorate (1,485 units), Hemofil (8,809 units) and Kryobulin (365,545).

33. Haemophilia B patients were treated with exclusively with NHS factor IX (49,201 units). Patients with von Willebrand's were treated with cryo (8,000 units).[9]

34. In 1977 the Centre treated its haemophilia A patients with more cryo than concentrate [HCDO0001178]. It used:

a. 800,000 units of cryo.
b. 13,060 units of NHS factor VIII.
c. 444,260 units of commercial concentrate, made up of Factorate (58,723 units), Koate (207,330 units), Hemofil (83,800 units) and Kryobulin (94,407 units).

35. The Centre's haemophilia B patients were treated exclusively with NHS factor IX concentrate (244,350 units). Its von Willebrand's patients received mainly cryo (520,000 units), as well as a small amount of commercial factor VIII (1,164 units of Immuno).

36. The 1977 return also includes information on material supplied for home treatment, though it is not entirely clear whether the figures are in addition or part of those set out above. For haemophilia A patients, the returns adds that the "*figures include all patients from Merseyside including children who are normally treated by Dr J Martin either at Alder Children's Hospital or at the Royal Liverpool Children's Hospital. There is also one patient included from N. Wales, under the routine management of Dr Korn.*" Nearly all of this home

[9] Note that Oxford factor IX was also used on a von Willebrand's patient before his condition had been correctly diagnosed.

treatment material was commercial factor VIII (across four brands), in addition to a small amount of NHS concentrate and a relatively small amount of cryo (23,100 units). The return further records that 10,775 units of NHS factor IX were supplied to haemophilia B patients on home treatment.

37. In 1978 RLH again treated its haemophilia A patients with more cryo than concentrate [HCDO0001275]. It used:

    a. 9,500 packs/bags cryo, representing around 760,000 units (assuming 80 units per pack, as in RLH's 1977 return).
    b. 76,015 units of NHS concentrate.
    c. 589,436 units of commercial factor VIII, split between Factorate (487,544 units) and Koate (101,892 units).

38. The Centre's haemophilia B patients were treated with NHS factor IX (165,250 units). Its von Willebrand's patient was treated exclusively with cryo.

39. In 1979 RLH's haemophilia A patients were treated with more concentrate than cryo [HCDO0001344]. They received:

    a. 630,000 units of cryo.
    b. 220,000 units of NHS factor VIII.
    c. 700,750 units of commercial concentrate, divided between Factorate (550,000 units), a nominal amount of Hemofil (750 units) and Kryobulin (150,000 units).
    d. An unspecified amount of DDAVP.

40. The Centre's haemophilia B patients were treated with Oxford factor IX (115,000 units). A patient with von Willebrand's was treated with cryo.

41. In 1980 RLH treated its haemophilia A patients with significantly more concentrate than cryo, and the concentrate was almost exclusively commercial [HCDO0001440]. It used:

    a. 1,010,000 units of cryo, all of which was in hospital.

b. 80,605 units of NHS factor VIII, all in hospital.
c. 1,710,086 units of commercial concentrate, divided between Factorate (761,698 units in hospital and 459,442 units at home), Koate (50,490 units in hospital and the same amount at home), Kryobulin (192,287 units in hospital and 187,679 units at home) and Humanate (4,000 units in hospital and the same amount at home).

42. The Centre's von Willebrand's patients were treated with cryo in hospital (8,300 units). Its haemophilia B patients were treated with NHS factor IX (78,400 units in hospital and 18,629 units at home).

43. In 1981 RLH mainly treated its haemophilia A patients with concentrate [HCDO0001542]. While the return is at times only faintly legible, the Centre would appear to have used:

a. 331,100 units or thereabouts of cryo, all of which was in hospital.
b. 368,820 units of NHS factor VIII in hospital.
c. 2,208,320 units of commercial concentrate, divided between Factorate (755,354 units in hospital and 463,756 units at home), Koate (45,460), Kryobulin (around 460,877 units in hospital and 454,873 units at home) and Humanate (28,000 units at home).

44. The Centre's haemophilia B patients were treated exclusively with NHS factor IX (174,750 units in hospital and 26,475 units at home).

45. In 1982 RLH treated its haemophilia A patients almost exclusively with concentrate [HCDO0001640]. Significantly more NHS factor VIII was used than previous years, though the amount was still less than half of the figure for commercial product. It used:

a. 29,260 units of cryo in hospital.
b. 1,156,349 units of NHS factor VIII (861,120 units in hospital and 295,220 units at home).

c. 2,704,134 units of commercial concentrate, divided between Factorate (1,091,830 units in hospital and 749,990 units at home), Koate (106,800 units in hospital and 94,500 units at home) and Kryobulin (333,377 units in hospital and 327,637 at home).

46. The Centre's haemophilia B patients were treated exclusively with NHS factor IX (119,900 units in hospital and 33,840 units at home).

47. In 1983 RLH's patients were again treated almost exclusively with concentrate, which was evenly divided between NHS and commercial material [HCDO0000145_003]. They received:

    a. 17,780 units of cryo, all of which was in hospital.
    b. 1,945,060 units of NHS factor VIII (1,222,260 units in hospital and 722,800 units at home).
    c. 1,976,520 units of commercial concentrate, split between Factorate (945,880 units in hospital and 667,160 units at home) and Koate (181,740 units in hospital and the same amount at home).

48. A patient with von Willebrand's was treated with NHS factor VIII (6,000 units) in hospital. The Centre's haemophilia B patients were treated only with NHS factor IX (69,600 units in hospital and the same amount at home).

49. In 1984 RLH again treated its clients almost exclusively with concentrate, and for the first time used more NHS material than commercial [HCDO0001832]. It used:

    a. 6,090 units of cryo, all of which was in hospital.
    b. 2,302,140 units of NHS factor VIII (1,387,740 units in hospital and 914,400 units at home).
    c. 1,788,280 units of commercial concentrate, divided between Profilate (8,000 units in hospital and the same amount at home), Factorate (760,000 units in hospital and 711,600 units at home) and Koate (150,340 units in hospital and the same amount at home).

50. The Centre's haemophilia B patients received only NHS factor IX (155,400 units in hospital and 107,100 units at home).

51. RLH's 1985 annual return is difficult to follow [HCDO0001925]. The Centre appears to have treated its haemophilia A patients with similar amounts of NHS and commercial factor VIII, and does not seem to have used any cryo. Haemophilia B patients appear to have been treated with NHS factor IX.

52. In 1986 RLH treated its haemophilia A patients almost exclusively with concentrate, with more commercial than NHS material [HCDO0002022]. It used:

    a. 10,740 units of cryo, all of which was in hospital.
    b. 1,045,645 units of NHS factor VIII (571,135 units in hospital and 474,510 units at home).
    c. 1,531,156 units of commercial factor VIII, divided between Profilate (87,920 units in hospital and the same amount at home), Factorate (116,700 units in hospital and 82,380 at home), Koate (612,680 units in hospital and 503,600 units at home) and porcine factor VIII (34,716 units in hospital and 5,240 units at home).

53. The Centre treated its haemophilia B patients with NHS factor IX (248,480 units in hospital and 27,950 units at home).

54. A number of stock record cards for RLH, showing the use of particular blood products, are also available. These indicate, for example, that in 1980 commercial factor VIII – mainly Factorate, but also Kryobulin and Koate – was used principally for home treatment [LUHT0000002]. They also show that monthly records were kept (for example, for example [LUHT00000027, LUHT00000030, LUHT00000025 and LUHT0000011 and LUHT00000029]).

55. Additional stock records appear to be from 1986: while the date is unclear from the documents, they refer to standard and "*HP*" (i.e. high purity) factor VIII, as

well as porcine factor VIII (which the annuals returns first record in 1986): see, for example, [LUHT0000007, LUHT0000014, LUHT0000020 and LUHT0000019].

Other documents: *1975-1980*

56. In his Inquiry statement, Dr Boulton states that commercial blood products "*were available at Liverpool from at least 1976*" [WITN3456001]. Having explained his understanding at the time of hepatitis risks in commercial and NHS concentrates as against cryo, he comments that cryo "*was less standardised, its clinical efficacy less predictable, and it was not risk-free even if reacting negatively in the most thorough screening tests then available; it was also much more cumbersome to administer to the patient, and therefore potentially more detrimental.*"

57. Dr Boulton also addressed aspects of RLH's treatment policies in his evidence to the Penrose Inquiry. In a written document, he stated: "*At Liverpool and the London Hospital (in pre-AIDS days) I worked with haemophilics on their comprehensive care and developed, especially for boys, prophylactic use of plasma-derived clotting factors*" [PRSE0000106]. In oral evidence, Dr Boulton described cryo as "*messy to deal with*" and commented: "*So I had every sympathy with doctors whose became a daily infusion of cryoprecipitate. Nevertheless, when I was in Liverpool as a consultant, I regularly did such stuff myself...*" [PRSE0006024 pp.15-16]. He added that cryo was "*[v]ery difficult for home therapy. It was not totally unsuitable. It could be used. But the patients, and if they were a young boy, the patient's family, the parents, would need quite careful and specific training and monitoring so to do. And so it was only really practical in families (a), who were relatively well trained and (b), probably in fairly close proximity to the hospital in case things went wrong*"

58. The minutes of a December 1976 meeting of the Haemophilia Society's Council, attended by Dr Boulton, record the following [HSOC0019918_013]: "*Dr. Boulton spoke of a 12p to 8p per unit reduction in the price of commercial*

material. Dr. David Owen at the European Congress had said the U.K. was to become self supporting in the production of Blood Products".

59. There is some evidence of pharmaceutical companies promoting their products directly to Dr Boulton at RLH: for example, a September 1979 letter from Speywood regarding porcine material [IPSN0000337_014].

1980-1987

60. Two statements contain most of Dr McVerry's evidence on RLH's treatment policies during his time as director [WITN3502004 and WITN3502007], with some additional material in [WITN3502002]. The following is a summary of his evidence, and unless noted otherwise refers to the statement at [WITN3502007].

    a. There were written policies for bleeding disorder patients, kept in Dr McVerry's room and on the ward.
    b. Dr McVerry consulted Dr Jones in Newcastle before choosing which products to prescribe. As far as he can recall, Dr Jones had transferred his patients to commercial factor VIII to address the lack of NHS material [WITN3502004]. They had "*occasional joint meetings*" which Dr McVerry believes may been in 1982.
    c. Severe or moderately severe patients would be encouraged to join the Centre's home treatment programme, and would come in for a training session with a nurse over a three day period.
    d. As for whether there was a policy only to use commercial products for home treatment, Dr McVerry states: "*Based on Dr Jones's experience I was encouraged to switch to commercial F8 for two reasons, the first related availability* [sic] *and reliability of supply, and second there was a mood at that time to continue using a particular product in an individual patient as this may reduce the prevalence of factor antibodies arising (although this later proved not to be the case). If it was a new patient diagnosis the patient would be a mild suffer* [sic] *and so would*

not need much Factor 8 and so DDAVP would be prescribed unless this proved unsuitable."

e. Dr McVerry believes, though he "*cannot be sure*", that *"UKHCDO thought that a number of commercial companies should be used for commercial factors rather than relying on only one preferred supplier.*" [WITN3502004]

f. Cryo therapy "*could not be safely undertaken at home and therefore would have required patients to have been treated in hospital which patients were reluctant to do*" [WITN3502004].

g. In response to criticism from a patient, Dr McVerry has stated that it "*was the received wisdom at that time that home treatment programs for Haemophiliacs were, for the appropriate patients, beneficial and preferable, which was reflected in their general popularity with patients*" [WITN3502002].

h. For patients with mild haemophilia, the "*general approach*" was that DDAVP would be used in the absence of severe bleeds. If the patient did not respond adequately or tachyphylaxis occurred, they "*would need a Factor 8 product, preferably NHS Factor 8*". For inhibitor patients he would have tried products such as FEIBA or Autoplex.

i. As far as Dr McVerry can recall, previously untreated patients ("PUPS") "*were very rare. The general approach for PUPs would probably have been that if treatment was required to first treat with DDAVP, if this was not viable, then Cryoprecipitate and F8 only in the case of an emergency*" [WITN3502004].

j. Dr McVerry does not recall giving cryo to a patient in Liverpool.

k. DDAVP may not have been recorded in the Centre's annual returns as it was not a blood product, though Rosemary Spooner encouraged such reporting.

l. As for ordering commercial material, Dr McVerry's evidence is that he "*personally did not contract for F8 supplies. It is likely that the companies would have supplied us for some time and had offered a good service and reliability of supply was important. If there had been any problems with supply I would have thought this would have been dealt with the hospital purchasing manager. I did not deal directly with such*

matters." Dr McVerry would "*alert the purchasing manager what products the patients were on and say this ... is what we needed for the following year.*"

m. Dr McVerry has difficulty in recalling how frequently on average patients with severe bleeding disorders were seen at the Centre. He believes that, early on, the Centre had a regular clinic and patients probably attended every six months, though he cannot now recall the interval. Regular clinics declined as "*patients did not always come for these reviews*" and the service become "*more of a reactive service*", though patients were aware that Dr McVerry was there if they needed him.

n. As for whether patients were offered a choice between treatments in the early 1980s, Dr McVerry's evidence is that "*in general if the patient had mild haemophilia the patient could be prescribed DDAVP or cryoprecipitate although due to the complications associated with the use of cryoprecipitate I would be surprised if I had used it. If the patient had severe haemophilia, then the patient would already have been on Factor 8. My first approach would have been to try a non-severe patient on DDAVP and if the patient responded well this would be used. In that sense the patient would not be given a choice. DDAVP was readily available and its use would be encouraged as this is a synthetic product. Following treatment their Factor 8 levels would be assessed. If DDAVP did not work, I would consider trying Factor 8 or Cryoprecipitate (although again due to the complications associated with the use of cryoprecipitate I would be surprised if I had used it). I would advise the patient of these treatment options.*"

o. RLH changed to heat-treated product when it became available, which "*would have been from around early 1985*". Dr McVerry does not recall any difficulty in obtaining heat-treated supplies and states that RLH "*would have asked the patients to bring the unused (unheated) products back to the Centre.*"

61. Dr McVerry's account can be considered alongside the following contemporaneous material, which also refers to Dr Mackie's brief directorship.

62. There is evidence that pharmaceutical company representatives met and corresponded with Dr McVerry in order to promote their products: see, for example, a May 1980 from David Williams, Speywood director, regarding Humanate [IPSN0000337_008].

63. In a 19 February 1985 letter to BPL, Dr McVerry supplied the names of 82 patients who were "*likely to be treated by heat treated Factor VIII concentrates in the future*" [CBLA0002051]. An internal Cutter report for February 1985 recorded that all centres in the North and Wales region had converted from regular to heat-treated commercial material, and that, although opinion was "*still divided on the use of non heat-treated NHS material, more centres have now decided to use heat-treated commercial material in preference to regular NHS material*" [BAYP0000024_149]. As for Liverpool: "*They have now decided to exchange regular commercial material for heat-treated commercial. Regular NHS material is still being used.*" Note that Dr McVerry considered both of these documents before when providing the witness evidence outlined above.

64. The minutes of a 5 March 1985 meeting of the Regional Haematologists Group in Liverpool, attended by Drs McVerry and Mackie, noted that only a "*limited amount of fresh plasma*" was available for the production of cryo and it had been decided "*to issue frozen cryo-supernatant as an alternative to fresh frozen plamsa*" [NHBT0100234].

65. The minutes of a May 1985 North Western Supra Regional meeting, attended by Drs McVerry and Mackie, include the following: "*Liverpool centre is not anxious to use heat treated F IX. It was pointed out that 3 out of 9 Hph B patients at MRI were HLTV-3 positive*" [NHBT0096599_043]. Dr McVerry's response to these minutes is that RLH used very little factor IX so he cannot say when a heat-treated product was first used, but that RLH "*would have wanted to move to it as soon as possible*" if it was required [WITN3502007]. He comments that the document "*is not a transcript it is a note that someone made of a meeting that took place over 35 years ago – these are not my notes. The interpretation*

that I would put upon "not anxious to use it" is that we had no anxiety or concern with its use, not that we were reluctant to use it."

66. In early 1986, having taken over as Centre director, Dr Mackie corresponded with Cutter regarding an order of Koate HT. The correspondence includes reference to units being provided free of charge in an introductory offer [BAYP0000008_122, BAYP0000008_129 and BAYP0000008_151]. Dr Mackie's interest in Koate HT was reflected in an internal Cutter report for March 1986 [BAYP0000008_150]. Meetings and correspondence continued during the year, and included the Cutter representative thanking Dr Mackie for his "*advice on the other smaller centres within the Mersey region and on which people you feel it would be worthwhile seeing*" [BAYP0000008_172 and BAYP0000008_325].

67. Two non-contemporaneous documents, prepared during the HIV litigation, set out two clinicians' views of RLH's treatment policies in the first half of the 1980s.

68. The first is the HIV litigation document prepared by Professor Hay, likely written between two and three years after he joined RLH in 1987. It includes the following [NHBT0085908]:

    a. "*In my opinion, insufficient use of cryo was made in this centre* [RLH]. *Children and mild haemophiliacs should have been treated preferentially with cryo and possibly domestic concentrate.*"
    b. "*In many centres children are treated with cryo for as long as possible to delay the onset of NANB hepatitis. I can find no documentation of advice from my predecessor regarding the use of blood products. I do know that DDAVP was used less here than in other centres.*"
    c. Heat-treated factor VIII "*was used only from December 1984 in Sheffield but from mid 1985 in Liverpool.*" The use of heat-treated factor "*did not happen in Liverpool until Autumn 1985 when UK heat treated VIIIc became available.*"

69. The second is a draft report, dated April 1992, by Dr (now Professor) Ludlam, providing his opinion on a claim by a patient with mild haemophilia who had been infected with HIV following treatment at RLH [DHSC0043164_074]. The report includes the following:

    a. The patient was treated with cryo on a number of occasions until January 1981, which was "*entirely appropriate and the treatment of choice.*"
    b. He was then treated with concentrate. The report comments: "*It is not clear why the decision was made to treat him with factor VIII concentrate on the 1st January 1981. Had the supply of cryoprecipitate run out over the Christmas period? To defend the use of commercial factor VIII concentrate in January 1981 it would be necessary to demonstrate that cryoprecipitate was ineffective therapy or unavailable despite repeated requests to the Regional Blood Transfusion Centre and in this instance NHS factor VIII concentrate would be the next preferred option. Again it would be necessary to demonstrate that NHS concentrate was unavailable. Therefore it would only be justified to use commercial concentrate if the other two forms of treatment were unavailable.*"
    c. Dr Ludlam noted that "*Dr. McVerry, in his evidence, states that cryoprecipitate was not available after 1980*", before commenting: "*It would really be very useful to know what attempts he had made to secure a reasonable supply of it. Although he does not distinguish between the perceived side effects of NHS, compared to commercial, factor VIII concentrates there were many in the UK in the early 1980's who considered NHS factor VIII to be safer than that supplied by commercial manufacturers with respect to hepatitis. His view may in part have been due to working in the United States where only commercial concentrates were available.*"

70. Two other HIV litigation documents, reporting on negligence claims on behalf of patients infected with HIV against Mersey Regional Health Authority, also address RLH's treatment policies in the first half of the 1980s.

71. The first, dated 15 July 1991, includes an assessment of a claim on behalf of "*JKP 086*", a pharmacist with haemophilia B who died in 1991 [DHSC0045373_118], and who would appear to be the late husband of a witness referred to below [WITN5520001].[10] It was noted that the patient was treated with fresh frozen plasma until April 1975, and thereafter with factor IX concentrate. He was on home treatment from 1979 or earlier. Dr McVerry was said to have told the patient in January 1985 that "*the NHS Factor IX which he was receiving was not heat-treated (in contrast to Factor VIII) because it was "perfectly safe"*." If that was correct, the author considered that it "*must be accepted that this was an unjustified prediction in the then state of knowledge*". Although the risks appeared to be lower than for factor IX, "*it was certainly not justifiable to state that no risk attached to the use of unheated NHS Factor IX concentrate*". The patient was said to have been moved onto heat-treated material when it became available in October 1985. Had he "*been warned of even a slight risk from the use of unheated material in January 1985, he might well have opted to revert to the use of fresh frozen plasma (although this could not have been used for home treatment), or of heat-treated imported concentrate (though it could be argued that the safety of this material was no more than that of unheat-treated NHS concentrate).*"

72. The second document, dated September 1991, includes assessments of claims on behalf of several RLH patients [DHSC0045721_051]. For example:

    a. "*JKP 014*", who described himself as a mild haemophilic but "*according to Dr McVerry*" was a "*severe haemophiliac who had been treated in the past*". The patient was treated with cryo until 1982 and "*then had a knee operation under cover of NHS concentrate followed by home treatment in April 1983*", which Dr McVerry considered to be "*necessary on clinical grounds*".
    b. "*JKP 43*", a mild haemophiliac who received cryo until the beginning of 1981. The patient had "*a fractured right humerus and received concentrate on that occasion probably because there was insufficient*

[10] Note that there is a difference in the accounts provided by the witness and recorded in the report as to whether Dr McVerry stated that the concentrate in question was heat-treated.

supplies of cryoprecipitate available on the ward at that time." He had a "*prolonged stay in hospital in January/February 1983 following an accident where there was extensive bleeding into the left thigh and knee and also the abdominal cavity which required Factor VIII concentrate to be administered. Thereafter he was put on home treatment because he required active physiotherapy which necessitated this.*" Dr McVerry had commented that "*no specific priority was given to mild haemophiliacs for treatment with NHS product at the time.*"

73. The Inquiry has received several statements from patients with mild haemophilia A who were treated with concentrate at RLH in the first half of the 1980s. The National Haemophilia Database for one of these witnesses, who was infected with HIV and hepatitis C, records that he was first treated with factor VIII in 1981 [WITN1341001 and WITN1341002]. Though information is missing for 1983-1987, the witness points to an extract from his medical notes as evidence that he received further concentrate during that time [WITN1341003].

74. Another witness with "*mild haemophilia A (clotting factor 5%)*", who was infected with hepatitis B and hepatitis C, has described being introduced to concentrate in the early 1980s [WITN1425001]. He refers to an entry in his medical notes in March 1980, when his recorded treatment plan was "*to avoid blood products (Factor VIII too low for DDAVP). Give tubi grip and rest in bed for 3 days.*" He was subsequently given factor VIII, for the first time, in February 1982 as part of a training session, when he says there was "*a complete failure by RLH to mention any risk factors in relation to the use of blood products... we were told Factor VIII was safer, less bulky, easier to store and easier to use than Cryoprecipitate. We were also told it could be used for home treatment and taken on our holidays so that it was, overall, a much more convenient way to be treated. Finally, we were told that everyone's treatment was being switched to Factor VIII. I was then invited to 3 different training sessions to ensure that I knew how to inject at home if required.*" This patient addressed these issues further when he gave oral evidence alongside his wife [WITN2786001], on 13 June 2019 [INQY1000019].

75. Note that Dr McVerry has provided a statement in response to this second patient's written evidence [WITN3502002]. He explains that he cannot recall any conversations with the patient but that he "*may have said at that time that this was generally a safe and effective way to treat bleeding episodes. I note that* [the patient] *had had a serious bleed shortly before I arrived in Liverpool and this could probably have influenced my judgement*". As to whether the patient should have been treated with concentrate in early 1982, Dr McVerry comments that he "*was a mild/moderate affected Haemophiliac with documented base line Factor VIII levels of 3-5%. Unfortunately he had not responded adequately to previous DDavp* [sic] *treatment, which was the treatment of choice, and so the alternative Factor VIIIs infusions were thought to be the next level of appropriate treatment.*" He adds that the patient "*required protection from further bleeding episodes ideally with treatment that could be administered at home by the patient (to avoid unnecessary attendance at hospital with the additional risks that this could attract).*"

76. The Inquiry has also received a statement from the widow of a patient with haemophilia B, who was infected with HIV following treatment at RLH [WITN5520001]. The witness describes how her husband (who was a pharmacist), "*asked several times if the FIX treatment was heat treated and was told that it was. In early 1985, he was specifically told by the nurse, under instruction from Dr McVerry, that Factor IX unlike Factor VIII was from the UK, not the USA, and had been heat-treated and was, therefore, safe to inject without fear of infection*".

77. In oral evidence on 4 November 2020, Professor Hay told the Inquiry that he did not think there had been much use of cryo at Liverpool. He added that, when he arrived in 1987, "*all the products in use in the centre were virally attenuated to an acceptable degree.*"

78. Professor Hay has described RLH's treatment policies during his time as director in his statement [WITN3289039] and in oral evidence on 4 November 2020. His written evidence is that RLH "*did not have a written policy. My policy was to treat the patient with a product that was virologically safe and to use the best product that I had available to me. Within those constraints, I also ensured that the patient was always supplied with their designated brand and not treated on occasion with some other brand. If it was necessary or desirable to change brands, this would be discussed with the patient.*" When high purity products later became available, "*I was able to switch my HIV positive patients to high-purity immunopurified concentrates, despite the considerable increase in cost...I also maintained 2-3 different suppliers at all times to maintain security of supply, so that I would never be too dependent on a single supplier.*"

79. In oral evidence, Professor Hay explained that the policy of using a single brand of concentrate per patient "*just seemed generally good practice. It made it easier to trace back if there was a problem with a specific batch of a product. It made it easier to handle any product recalls that might occur and also made it much easier to discuss with patients if there needed to be a change.*"

Knowledge of risk of hepatitis and response to risk

80. Dr Black attended UKHCDO meetings on behalf of the Centre, during which hepatitis risks were discussed, in April 1971 [HCDO0001014], November 1974 [HCDO0001017] and September 1975 [OXUH0003735]. Dr Boulton was a regular attender during his time as director in 1975-1980, as was Dr McVerry in 1980-1985. Dr Mackie attended several meetings in 1985-1986. As well as attending on behalf of the Sheffield haemophilia centre in 1984, Professor Hay regularly attended UKHCDO meetings regularly on behalf of RLH from 1987. All of these directors can therefore be taken to have been aware of the information regarding hepatitis risks (whether hepatitis B, NANB or hepatitis C) presented at UKHCDO meetings during their time at RLH.

81. A range of other material is also available in relation to hepatitis risks.

82. While not directly related to bleeding disorders or blood transfusions, the notes of a December 1970 symposium on hepatitis are noteworthy [DHSC0103394_095]. The presentations given at the symposium included one relating to haemodialysis associated hepatitis in Liverpool: 57 such cases had been reported in 1966-1970. Measures advocated by the speaker included screening of new patients, reducing transfusion to a minimum and "*using only biologically safe blood ie from a doner* [sic] *whose blood had been used on at least five occasions without causing complications as well as being antigen tested before use.*"

83. In a September 1977 letter to Rosemary Spooner, Dr Boulton explained that he had been unable "*to take part in Dr. Kirk's jaundice survey*", but provided details of two patients who had had "*some form of hepatitis during 1976-1977* [HCDO0001093 pp.3-4]. One of the patients had developed hepatitis following treatment with Kryobulin (and had also contracted a "*very mild form of hepatitis*" the previous year). The other appears to have been infected following treatment with cryo; Dr Boulton wrote that all of the units involved had been identified and Dr Lehane at the RTC notified.

84. In a further, October 1979 letter to Miss Spooner, Dr Boulton reported that there had been no more cases in 1978 or 1979 of hepatitis or jaundice following treatment with factor VIII or factor IX, though he referred to RLH's "*1977 returns regarding the outbreak of hepatitis resulting from the infusion of Factor VIII concentrates around December 1977 and January 1978*" [HCDO0001275 p.7].

85. In addition, Dr Boulton has outlined his understanding of hepatitis risks during his RLH directorship, both for hepatitis B and NANB, in his Inquiry statement [WITN3456001]. He states that in "*1980 I was as aware as any of my colleagues responsible for the care of people with bleeding disorders such as haemophilia that transfusion of human-derived blood products carries a risk of transmitting viral hepatitis to any recipient although in early 1980 the degree*

of that risk was uncertain". His evidence is that it was "*suspected that blood products obtained commercially ... carried a greater risk than products produced by the NHS laboratories ... which in turn carried a greater risk of transmission by cryoprecipitate from Regional Transfusion Centres such as Liverpool.*"

86. Dr Boulton also addressed a number of issues relating to hepatitis in his oral evidence to the Penrose Inquiry.

    a. He recalled being aware of the World in Action documentary on the preparation of plasma products in late 1975, and it being discussed at the Centre, though by the time he had settled into his new position in Liverpool he described the programme as being *"already in the past"* [PRSE0006024 pp.8-9].
    b. He described his pre-Liverpool experience of a patient infected with hepatitis B and NANB by commercial factor VIII and stated: "*one of the naïve reactions that I had in Liverpool was when we bought commercial Factor VIII it was not American, it was European. It came from Austria. So clearly there had been a concern that American products were to be avoided*" [p.10; see also pp.91-92].[11]
    c. Having described his involvement with the local Haemophilia Society in Liverpool, Dr Boulton stated that, as far as he could recollect, he was "*quite upfront*" with its members "*about the hepatitis risk*" of blood products in the late 1980s [p.90].

87. Dr McVerry has addressed his understanding of hepatitis risks in statements to the Inquiry, including studies he was involved in before he moved to Liverpool (see [WITN3502007] in particular). His evidence is that, in the late 1970s and early 1980s, he did not know that NANB hepatitis "*could be serious*". As for whether patients were informed about NANB risks, Dr McVerry states: "*NANB was something that we did not understand and it was something where I did not think that here* [sic] *was a risk from factor concentrates in relation to NANBH.*"

[11] This statement should be considered against the evidence from RLH's annual returns while Dr Boulton was director, which record commercial factor VIII from both American (e.g. Armour) and Austrian (Immuno) companies.

His *"general recollection is that at the time this was unknown entity* [sic] *and was thought to be of minor significance. Whilst I can no longer recall what was said it may have been that I would have avoided causing potential anxiety and so not informed them about a condition that I thought was benign."* His evidence is that, as the cause of NANB hepatitis was not known, it "*was difficult to know how to avoid it*".

88. Professor Hay has addressed his understanding of and response to hepatitis risks in detail in his written and oral evidence to the Inquiry [WITN3289039 and 4-5 November 2020]. Rather than seek to summarise his lengthy evidence on this this issue, a small number of points are highlighted:

    a. Professor Hay had developed a significant interest in viral liver disease, which was the subject of his MD thesis and a number of articles he co-authored, by the time he moved from Sheffield to Liverpool in 1987.
    b. This included an article published in The Lancet in June 1985, entitled "*Progressive Liver Disease in Haemophilia: An Understated Problem?*" [PRSE0004229], as well as another published in the journal Blood in 1987: "*Predictive markers of chronic liver disease in hemophilia*" [WITN3289050]. Professor Hay's understanding of the severity of NANB/hepatitis C in the 1980s and during his time at RLH was explored in some detail in oral evidence.
    c. Professor Hay has explained that, by the time he joined RLH in 1987, he did not have the confidence to describe the heat-treated products in use as completely safe for hepatitis risks, but that this confidence grew during his time as director.

Knowledge of risk of AIDS and response to risk

89. Dr McVerry's evidence to the Inquiry regarding his understanding of AIDS risks includes the following [WITN3502007]:

    a. He had no awareness of AIDS before he attended a UKHCDO meeting at which it was discussed on 13 September 1982.

b. Dr McVerry refers to Professor Bloom having said "*even up to mid-1984 that there was no proven association between HIV and the use of blood products. HIV was not seen as a complication associated with the treatment of Haemophilia.*" He adds that it was reasonably clear that there was a real risk that AIDS was transmitted through blood and blood products at the "*end of 1983 or beginning 1984 but it is difficult to say with any certainty.*"

c. Dr McVerry believes that he would have read the 1983 article by Dr Desforges in the New England Journal on AIDS and haemophilia, as he had worked with her in Boston.

d. RLH did not change its processes in response to the 24 June 1983 letter from Professor Bloom and Dr Rizza with recommendations on product choices [HCDO0000270_004], but he states that it "*broadly followed those*" set out in the letter.

e. Dr McVerry is not sure what would have been said and when to his patients about the risk of being infected with AIDS from factor concentrates, due to uncertainties around the issue.

f. As for whether he changed any of his treatment policies in response to the risk of AIDS, Dr McVerry does not recall using cryo in Liverpool "*as patients did not like this and there were practical concerns with its use. We changed to heat treated Factor 8 in 1985 when this became available. I may have increased the use of NHS factor 8 in 1983-85, but I cannot now recall.*"

90. While not involving Dr McVerry directly, a contemporaneous document on AIDS risks is worth highlighting. In April 1983 The Lancet published a letter from a number of RLH clinicians, including Professor Bellingham, regarding a patient with myeloma[12] and T-lymphocite abnormalities who had developed Kaposi's sarcoma [RLIT0000567]. The letter recorded that the patient had "*received multiple blood transfusions, also thought to be associated with the development of AIDS*", with a footnote reference to a 1982 MMWR update:

[12] A blood cancer.

"*Centers for Disease Control. Possible transfusion-associated acquired immunodeficiency syndrome (AIDS) – California. MMWR 1982; 31:652-54.*"

91. A discussion regarding high risk donations took place at the 5 March 1985 meeting of the Regional Haematologists Group in Liverpool, attended by Drs McVerry and Mackie [NHBT0100234]. The minutes record that the Mersey RTC's policy with regard to "*blood and blood products discovered to have come from high risk donors (ie suspect HTLV III, in addition to Malaria and Hepatitis B) is to notify the Consultant Haematologist at the hospital where the blood or blood product was transfused. No precipitate action is to be taken about follow up of such recipients pending the introduction of a reliable screening test for HTLV III and, also, a policy laid down by the RAAG.*" The issue was revisited at a 26 November 1985 meeting, when it was noted that "*[s]ince the introduction of HTLV-III antibody screening on Mersey, no positive tests have been found in more than 2 x 10* [to the power of 5] *donor samples*" [NHBT0100233].

Arrangements for testing patients for HTLV III and informing them of their diagnosis

92. The arrangements for testing patients for HTLV-III and informing them of their diagnosis is a particularly significant issue in relation to Liverpool patients.

93. In February 1985, The Lancet published a letter signed by Dr McVerry (as well as Drs Machin, Cheingsong-Popov and Tedder at Middlesex Hospital) on HTLV-III seroconversion [PRSE0001758]. The letter described the results of tests on 20 severe haemophiliacs using sera collected in 1980-81, September 1982 and September 1984. All of the patients had received regular prophylactic home therapy with factor VIII, including both NHS and commercial non heat-treated concentrate (with 44-80% of the material being commercial). The results showed that 60% of patients had seroconverted between 1982 and 1984. Testing had also been carried out on sera collected in September 1984 from a separate

group of 13 moderate and mild haemophiliacs. These patients had received only cryo and/or NHS factor VIII. All 13 remained seronegative for HTLV-III.

94. In 1986[13] the British Journal of Haematology published a longer article by Dr McVerry and a number of others (including Dr Machin) on this issue: "*HTLV-III antibody and their T-cell subset ratios in haemophiliacs and their spouses*" [RLIT0000127]. The article reported that 44% of 63 patients with either haemophilia A or B had tested positive for HTLV-III antibody. It was noted that a cohort of 21 Liverpool haemophiliacs – of whom 19 had haemophilia A, two had haemophilia B, and all but two of the haemophilia A patients were severely affected – had been "*studied retrospectively since 1980/81 for HLTV-III antibody and in 1984 for T4/T8 subset ratios.*" The results showed that, by 1984, 13 of the 21 patients were HTLV-III positive. In addition, the wives of 14 HLTV-III positive patients had been investigated for HTLV-III antibody (8 of them had also had T-cell subset ratios performed). The wives of all 14 were HTLV-III negative.[14]

95. Dr McVerry considered both of these documents when addressing the issue of HTLV-III testing in his Inquiry statement [WITN3502007]. His evidence includes the following:

    a. As far as he can recall, stored sera were not tested before 1984.
    b. He does not now recall the process for testing patients for HLTV-III. He anticipates that "*when the patients came in the nurses would take a sample of blood and the test would come back in 4 to 5 days.*" He does "*not recall any testing in Liverpool outside the Machin study.*"
    c. Dr McVerry cannot recall what discussion took place with the patients. However, "*as can be seen from*" from the British Journal of Haematology article, "*spouses are referred to as being tested and so this would suggest that there were discussions with patients and spouses.*"

[13] Note that the article was received by the BJH on 5 June 1985 and accepted for publication on 5 October 1985.
[14] The article is not clear on the number of spouses who were married to members of the Liverpool cohort. Given that 14 spouses of HTLV-III positive haemophiliacs were tested, and only 13 Liverpool patients were positive, at least one of them must have been from another centre.

d. Dr McVerry cannot say whether patients knew that samples of their sera were being stored and understood the purpose of the storage. He adds that RLH "*would have obtained verbal permission to obtain the original samples for tests performed at the time that test was taken.*"

96. Note that HTLV-III and AIDS were addressed at 7 May 1985 North Western Supra Regional Haemophilia meeting, attended by Drs McVerry and Mackie [NHBT0096599_043]. A discussion of AIDS cases began with a report from Dr Craske. It was recorded that HTLV-III tests were "*available on an open basis for all Hphs*" and that "*[o]pen wards for AIDS patients should be encouraged.*" The minutes add that "*[c]ounselling of patients was discussed*" and that, as "*one of the 6 Reference centres to have a kit for testing for HTLV-3 antibody, tests in Manchester should be available by mid-June.*"

97. In oral evidence on 4 November 2020, Professor Hay described the medical records when he arrived at RLH as "*poor and uninformative*". He stated that he had been unable to obtain the results of the HTLV-III tests which had apparently been carried out. His evidence is that he made enquiries with Dr McVerry about apparent HLTV-III testing on stored samples, but that there was no answer to his letters. Dr McVerry's evidence is that he does not recall receiving such letters from Professor Hay [WITN3502007].

98. Also on 4 November 2020, Professor Hay described being told by RLH patients that they had been informed they were HTLV-III positive by post. Dr McVerry has disputed this account. His evidence is that he cannot recall the actual arrangements for informing patients of their HTLV-III results, but that "*[u]sual practice would be for a patient to be contacted to make an appointment for a consultation at which it could be explained that their result was positive for HIV. If the result was negative the patient would have been informed at the next review. Results would not have been conveyed by telephone or letter.*"

99. In addition to his evidence to the Inquiry, Professor Hay addressed HTLV-III testing at RLH in his HIV litigation document (most likely prepared in late 1989 or early 1990) [NHBT0085908]. He wrote:

a. "*Both in Liverpool and in Sheffield, samples were sent to Dr R Tedder, Middlesex Hospital for HIV testing in early 1985. This was very incomplete in Liverpool and Dr McVerry left no record of his results even though he published them. Many Liverpool patients were not tested until late 1985 early 1986*".

b. As for communicating results, "*[s]ome of the patients were informed of their HIV status by post. Parents of children were informed by Alder Hey in a similar way. Not all patients were informed with results until later in 1986.*"

c. As for counselling, "*[m]ost patients were not adequately counselled until Dr Mackie took over the centre in 1986... Most untested individuals were summoned by Dr Mackie in 1986 and most seen with their spouses. He counselled them and generally documented the counselling. This took place in his room or in OPD.*" Professor Hay added that he did not know what was done to provide counselling for HIV negative results but that he suspected nothing was done.

d. As for testing partners of patients, "*[f]ew intimates were and have been tested (despite efforts to persuade them). There were undoubted delays in counselling some of these and arranging testing during which one or perhaps two, seronegative on the first occasion seroconverted.*"

100. The Inquiry has also received several statements from patients and family members about HTLV-III testing at RLH. They include:

a. The widow of a haemophilia B patient who was infected with HIV following treatment with factor IX [WITN5520001]. She describes her husband attending the Centre and asking "*for an HIV test. He had the test and we received a letter in the post in the Summer of 1985 stating that he was positive. I remember the letter.* [He] *read it and passed it to me. It was a short letter of no more than two or three sentences.*" The witness adds that her husband "*should have been told in person and we weren't given any information to help us to understand and/or manage the infection.*"

b. The widow of a haemophilia A patient who was told during a routine appointment that a stored sample of blood had tested positive for HIV, despite the patient not knowing that his blood would be stored or tested for HIV [WITN0487001]. The witness adds: "*We were told by the doctor not to worry about anything and that the hospital would look after us.*"

c. The widow of a haemophilia A patient who describes her husband learning that he had HIV during a routine appointment [WITN2783001]: "*This consultant was flicking through my husband's medical records and came to a page which was marked with the words "HIV". The consultant just said the words "HIV" in a very matter of fact way and then continued to flick through the notes. My husband stopped him and said "HIV, what is that? I did not know anything about that." The consultant basically said words to the effect of "yes you have this".*" She states that her husband was given no information or advice about the virus or the risks of transmission.

d. A haemophilia A patient, who describes being told that he was going to be tested for HIV before being told in person that he was positive [WITN1341001].[15]

e. The widow of a haemophilia A patient who was infected with HIV following treatment at RLH [WITN1403001]. The witness describes her late husband being moved to a side room following surgery in 1984 and being told that he had a virus that was suspected to be salmonella. She states that she suspected her husband had been infected and repeatedly asked RLH to test him, but that Dr McVerry dismissed her concerns (in contrast to a junior doctor). The witness herself had blood taken twice to be tested. She states that she "*was never informed this was due to any risk of HIV but was told this was to test for Salmonella.*" She describes raising concerns that her husband's symptoms indicated AIDS but states that Dr McVerry advised that they "*could be explained by numerous viruses or infections. He denied it was AIDS and he told me not to be*

[15] The witness describes the clinician as Dr Hay. If it was Dr Hay, it would have been sometime from 1987. If earlier, it may have been Dr McVerry or Dr Mackie.

neurotic. In one such meeting with Dr McVerry, when I was frantically explaining how concerned I was for my husband's health, he was swinging around in a swivel chair while eating a KitKat. This shows the kind of treatment I received from Dr McVerry." The witness adds that, from January 1985, her husband's medical records "*show that his sample bags sent for testing were labelled as 'high risk'. They also show that he was first tested for HTLV III in January 1985. There were also tests sent in June 1985 to the hospital for tropical diseases in London where he was tested for pneumocystis. Again, neither of us was warned that* [he] *may be suffering from HIV or any potentially infectious disease.*" The patient died in 1985. The "*first official confirmation*" seen by the witness that her husband had contracted "*AIDS/HIV was after his death when I saw it listed on the death certificate.*"

101. A number of other statements describe patients being tested or informed of their diagnosis in 1986 or later. These include a witness who states that he was tested for HTLV-III in 1986 without his consent [WITN1425001].

102. Another witness, whose father was infected with HIV and hepatitis C following treatment at RLH, exhibits a 1 July 1986 letter from Dr Davies which includes the following: "*We now have your final HLTV 3 results from Manchester and unfortunately they are positive. They do add the rider that we should repeat this test when next we see you but I think you should now assume that you are HLTV positive and take the precautions which we discussed the last time we met. I am sorry this is not good news, if you do want to discuss this further then of course I will see you in the department anytime*" [WITN3381001 and WITN3381002].

103. A further witness with haemophilia A, who was a patient at RLH in 1976-1987, has described being at work "*in around 1986 when my telephone at work rang. I had recently been tested to see if I had been infected by blood products. Repeated testing between 1986 and 19888 eventually confirmed that I did not have HIV. My wife had to be tested and was also negative of any HIV*

infection" [WITN0010001]. The witness exhibits a number of letters from RLH concerning testing [WITN0010006].

a. The first, from March 1986, begins with: "*This is just to apologise for the delay of your HLTV III result and to confirm that it was reported to me as negative. As I have discussed over the telephone this is good news. I would obviously like to keep an eye on things and re-check your results.*"
b. Another, dated 29 October 1986, records that both of the patient's antibody tests were negative.
c. A third letter, also dated 29 October 1986 and addressed to another clinician, records a discussion with the patient about having children and continued testing of him and his wife.
d. In a further, November 1986 letter, the patient and his wife were advised to wait a year or two before attempting to conceive in the hope that "*more sensitive tests will become routinely available to see whether or not you carry the virus*."
e. A final, July 1988 letter, records that the patient's "*HIV and Hepatitis tests*" were negative.

104. A press report shows that the impact of delays in RLH diagnosing patients was highlighted at the time: an October 1986 article reported that a haemophiliac "*who was found in hospital tests to be infected with the Aids virus was not told of the result for several months. He has now passed on the infection to his wife*" [HSOC0015592].

105. Another witness, who is "*deaf and not able to read very well*, and who was treated at RLH, has described attending a consultation, during which he was asked to leave while Dr McVerry spoke to his foster father [WITN0375001]. The witness states that he did find out he was HIV positive until October 1991, by which time he had left his foster family. He says that Dr Hay asked him to attend an appointment with his social worker and "*explained that I had a disease called HIV ... I understand that, when Dr Hay looked through my medical records, he found out the foster family knew I had HIV. The*

records said that Dr McVerry had told my foster father but my foster father did not tell me that I had HIV. The records said that the hospital knew that I did not know that I had HIV. I was angry and very upset, especially with my foster family."

Numbers infected with HIV

106. Professor Hay has told the Inquiry, based on the National Haemophilia Database, that 43 RLH patients were infected with HIV, of whom 4 were under the age of 18 [WITN3289039 and 4 November 2020 oral evidence].

107. In a February 1987 letter to Rosemary Spooner, Dr Davies wrote that it was "*unfortunately going to take us some time to get the forms relating to AIDS-related illness back to you. The reason for this is that we are presently seeing a significant number of HIV-related problems in our patients such that we are currently having to undertake an intensive review of all our HIV positive patients*" [HCDO0000342_005]. Dr Davies asked that Miss Spooner for another 15 AIDS/3 forms (i.e. the UKHCDO forms used to record suspected AIDS cases).

108. A list of AIDS/3 forms received by UKHCDO by 22 April 1991 includes 24 RLH patients (including one where a death had been reported but a form not yet received) [OXUH0002217].

Testing for hepatitis C

109. Dr McVerry's evidence is that liver function tests were performed at RLH, though he cannot say on how regular a basis they were carried out [WITN3502007]. If a patient "*came in for a review then an LFT would be done as this was one of the blood tests that were done at the review.*" He cannot recall if "*specific patients knew their liver function was being checked, but the LFT was just one of the range of tests that were carried out at the patient review*". Similarly, Dr McVerry cannot recall what was said to patients about their LFT

results, and comments that "*we were unsure what caused these abnormal results.*"

110. Professor Hay has explained that testing for NANB hepatitis at RLH involved liver function tests [WITN3289039 and 4 November 2020 oral evidence]. If these were "*were intermittently or persistently abnormal the patients would be informed and told that they probably had NANB. They were examined for signs of severe liver disease.*"

111. Professor Hay's written evidence is that hepatitis C testing began at RLH after a second generation test became available in 1992: "*Bearing in mind that these patients had already been monitored for NANB from about 1980, the patients were tested for HCV when they attended for their routine Haemophilia Clinic review, mostly during the course of 1992/3. It was my practice to tell them that I was testing for this and they would be informed of the result face to face at the next review appointment. We wrote to the GP after every clinic appointment.*" Orally, Professor Hay suggested that the second generation test became available in 1991, and that testing began then. He also stated that he did not use any of the first generation tests at RLH. As for patients who were infrequent bleeders and did not attend regular appointments, Professor Hay told the Inquiry that they were "*brought up to clinic once a year at that time...so it would take longer to test them.*"

112. On the question of delays in informing patients of their results, Professor Hay's written evidence is that "*[a]s a generality, patients were tested for HCV when they came to clinic and the result would be discussed at the next clinic visit. Testing and/or communicating the result was delayed in some individuals because they were uncompliant with follow-up i.e. did not keep appointments. They were tested at the first opportunity.*"

113. The Inquiry has also received a number of statements from patients regarding hepatitis C testing. They include a haemophilia A patient who was informed that he was hepatitis C positive during a standard 6 month review at RLH on 11 July 1994, when attending with his long term girlfriend

[WITN1425001]. He describes entering a consulting room with a senior registrar, a haemophilia nurse and a third person (but not his consultant, Professor Hay). After a routine introduction, he states that the "*registrar then told me that I had tested positive for Hepatitis C. This took me aback as I had no idea that I was at risk of any infection other than HIV for which I had been tested and informed of my negative status ... I was also told that the hospital had liver function test ... results which showed that there were issues with my liver for years before my HCV diagnosis. These results were not discussed with me at any stage prior to 1994.*" The patient's medical records indicate that he tested positive for hepatitis C in April 1992 [WITN3289003 and WITN1425007].

114. Note that Professor Hay has responded to this patient's evidence [WITN3289001]. Having referred to the April 1992 test, Professor Hay's evidence is that "*[t]his test was positive with full confirmation on 12.07.1994. He would previously have been assumed to have non-A, non-B hepatitis, his liver function tests having been intermittently abnormal. His HCV positivity was confirmed on 31/3/93 and 12/7/94. I could find no written evidence that it was specifically discussed with him prior to 11/7/94.*" As for testing without consent, Professor Hay's response is that "*[s]pecific consent would not normally have been obtained for such blood analyses and we would not expect consent to be withheld. Liver function tests and Hep A and B were routine tests in haemophilia patients and HCV testing would have been regarded as an extension of the investigation of all patients with a bleeding disorder who had been treated with blood products.*"

115. The brother of the this patient, a mild haemophiliac, has described scheduling a meeting at RLH for the first time in around ten years after hearing of his brother's diagnosis [WITN2785001]. His evidence is that, after what "*appeared to be a very normal consultation*", one of the doctors attempted to tell him in passing, as he was leaving, that he had hepatitis C, but that he insisted that the meeting continue.

116. Another patient, a haemophiliac who was infected with HIV and hepatitis C, has described learning that he had hepatitis C during a consultation in 1995 [WITN0375001].

Treatment arrangements for HIV and HCV patients

117. Dr McVerry recalls very little about treatment for HIV positive patients at RLH [WITN3502007].

118. A number of witnesses have commented critically on the treatment provided by Dr McVerry and RLH to such patients in the mid-1980s.

119. One witness, whose late husband was infected with HIV, recalls that they "*attended a couple of group meetings at the Royal Liverpool University Hospital in the 1980s. This was some sort of help group and I recall that one of the doctors there, Dr McVerry, made the most derogatory comment to those attending to seek "some so called support" that my husband never went back. The words used by Dr McVerry were "Homo Haemo you can all start wearing handbags now". This comment was so horrific and sufficiently so for me to recall the doctor's name after all this time*" [WITN2783001].

120. Another witness, whose son was infected with HIV, describes his son's "*numerous hospital admissions in the Royal Liverpool Hospital where he was treated very badly and received extremely poor standards or care. It was horrendous. It was as if the nurses had had nothing but contempt for the patients. It was necessary for me to visit him every day to ensure he was eating properly, he was washed properly and that he was receiving and taking his medication. There were many times his medication was strewn all over the floor and I would have to make arrangements to get it replaced. I would shower him when he was too weak to do it for himself and change his bed sheets after he had soiled himself and was lying in the dirt for hours at a time*" [WITN1147001].

121. A further witness, whose husband died of HIV/AIDS in 1985, has stated that he "*was treated terribly whilst he was in the Royal Liverpool Hospital receiving treatment. It was largely left to me to change his clothing and bedding as the nurses appeared to not want to go in his room. On occasions when I was not present, food and drink was left on a trolley outside his room and* [he] *was left unchanged lying in a dirty bed in his own faeces and bodily fluids with blood all over the floor*" [WITN1403001]. The witness describes her husband being sent home with no visiting health care in October 1985, when he "*was rapidly declining and he was in acute mental and physical distress.*" She was not told that her husband was HIV positive, and was "*given no information in relation to risks of infection for me or our children*".

122. Very brief reference is made to the treatment of AIDS patients in the 8 April 1986 North West Supra Regional meeting minutes, under the heading "*Aids – The Liverpool and Manchester experience*" [NHBT0094580]: "*Problems of identifying and treating AIDS patients was* [sic] *discussed.*"

123. Professor Hay has described the arrangements for treating HIV and hepatitis C positive patients in some detail, for his time as director at RLH, in his written and oral evidence [WITN3289039 and 4 November 2020]. His evidence is that what he would tell patients about the risks of chronic and/or serious liver disease depended on an assessment of their liver disease, including whether they had cleared the hepatitis C virus and whether their liver function tests were normal. He has also described links with hepatologists when treating patients. In RLH, "*the Liver clinic was adjacent to the Haemophilia clinic and patients would often come on the same afternoon to see both Haematology and Hepatology and many joint consultations, some ad-hoc, were conducted. Throughout that time, we (Haematology and Hepatology) would consult to determine which patients Hepatology should see and treat.*" Professor Ian Gilmore, the RLH hepatologist, would take over the management of severe liver disease. Professor Hay used Interferon on RLH patients when it was licensed, and not on a named patient basis or in clinical trials [4 November 2020 oral evidence].

124. Professor Hay's evidence is that, during his time at RLH, he largely managed HIV positive patients himself. He consulted increasingly with an STD colleague and occasionally with infectious diseases consultants, but they were based at a hospital on the other side of Liverpool [4 November 2020 oral evidence]. Initially, only he was available for counselling and other support, though this changed from 1988 when funding became available from the Department of Health for additional staff. Professor Hay's evidence is that he would see HIV positive patients in clinic at least every three months between 1987 and the early 1990s.

Other issues

125. In 1976 Dr Boulton agreed to act as chair of the newly formed Merseyside and District Haemophilia Society Group for its first year [HSOC0022692].

126. In his HIV litigation document, Professor Hay wrote that the American "*Skid-Row blood banks closed in the sixties and seventies and although the Americans still pay donors, high risk patients are excluded. In contrast, UK transfusion centres were taking blood in prisons up until the early eighties, certainly in Trent and Mersey!!*" [NHBT0085908].

127. A December 1990 article in the Liverpool Echo – "*Mersey victims split on AIDS pay-out* – reported that the majority of 133 Merseyside haemophiliacs who had contracted HIV had yet to decide whether to accept the government's settlement offer [HSOC0019468_030]. The father of a schoolboy who had been infected was reported to have "*immediately denounced it as an insult.*"

128. A number of documents record RLH's involvement in the hepatitis C lookback scheme in the mid-1990s: see, for example, a letter concerning a patient infected by a November 1988 blood transfusion [NHBT0099187_030]; another concerning a May 1990 transfusion [NHBT0092955_078]; and a third concerning a July 1990 transfusion [NHBT0092955_017].

129. An Inquiry witness has provided a statement concerning her late mother, who was infected with HIV in 1996 following a transfusion of blood supplied by Liverpool [WITN3323001].

130. As well as the HTLV-III seroconversion study highlighted above, a number of other research studies co-authored by Dr McVerry are highlighted in his statement [WITN3502007]. Professor Hay's statement addresses his involvement in various studies and publications, including during his time at RLH [WITN3289039].

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