Witness Name: Dr David Bogod

Statement No.: WITN6975001

Exhibits: WITN6975002 - WITN6975004

Dated: 31 January 2022

INFECTED BLOOD INQUIRY

WRITTEN STATEMENT OF DR DAVID BOGOD

I provide this statement in response to a request under Rule 9 of the Inquiry Rules 2006 dated 9 December 2021

I, Dr David Bogod, will say as follows: -

Preamble

Having retired from my clinical role at Nottingham University Hospital NHS Trust over a year ago, I no longer have access to any departmental or individual patient records. I am therefore relying on memory, supported by reference to textbooks and peer-review journals (identified wherever cited), for my testimony to the Inquiry.

Throughout this statement, I will be referring to Nottingham City Hospital ("**NCH**") and Queen's Medical Centre ("**QMC**), the two hospitals which merged to form Nottingham University Hospital NHS Trust ("**NUH**") in 2006.

Section 1: Introduction

Please see attached document [CV – Nov 2021]. Exhibit WITN6973002.

1. Please set out your full name, address, date of birth andprofessional qualifications.

Name: David Bogod

Address: GRO-C, Nottingham GRO-C
Date of birth: GRO-C 57
Professional qualifications: MB BS FRCA LLM

2. Please set out your employment history including the various rolesand responsibilities that you have held throughout your career, as well as the dates.

I qualified in 1980 and, after practicing as a House Officer and Casualty Officer, began my training in anaesthesia. I was an SHO and registrar on the Leicester training programme from 1982-1985. I then moved to the University Hospital of Wales, first as a research fellow and then as a senior registrar. During this time, I spent a year as a Senior Medical Officer in the Chinese University of Hong Kong. In 1989, I was appointed as a consultant anaesthetist at Queens Medical Centre and City Hospital in Nottingham, later combined as University Hospitals of Nottingham NHS Trust. I retired from clinical practice in July 2020, but maintain an active medicolegal practice.

My roles and responsibilities are detailed in my attached curriculum vitae (CV – Nov 2021), in the sections titled "Summary of Career Highlights", "Management Posts at NUH", "National Posts", and "International Posts".

3. Please set out your membership, past or present, of any committees, associations, parties, societies or groups relevant to the Inquiry's Terms of Reference, including the dates of your membership and the nature of your involvement.

I am a member of and have held office in the following relevant organisations:

Association of Anaesthetists of Great Britain and Ireland (Member 1983 – present. Vice-President 2009 - 2011).
Royal College of Anaesthetists (Member and Fellow 1985 – present. Council Member 2017 – 2020).
Obstetric Anaesthetists' Association (Member 1986 – present. President 2011 – 2014).

My wider involvement in committee work and international organisations are detailed, as described above, in my curriculum vitae. None, to the best of my recollection, are relevant to the Terms of Reference.

4. Please confirm whether you have provided evidence to, or have been involved in, any other inquiries, investigations, criminal or civil litigation in

relation to HIV, HBV and/or HCV in blood transfusions. Please provide details of your involvement and copies of any statements or reports which you provided.

I have not provided evidence or been involved in any such investigations, inquiries, criminal or civil litigation.

Section 2: Nottingham City Hospital

General

5. Please describe:
a. Your role and responsibilities at the Nottingham City Hospital ("the Hospital") and how these changed over time.

During my consultant career from 1989 to 2020, I worked 2-4 sessions per week in obstetric anaesthetic practice, caring for women in labour and also providing ante and post-natal care for high-risk patients. I was lead obstetric anaesthetist for a period of approximately 13 years, remitting this role in around 2005. I was Clinical Director of Anaesthesia at NCH between 1998 and 2001.

I also provided regular anaesthetic care at different times during my career as a consultant for patients undergoing gynaecological, urological, general, plastic and ENT surgery at NCH and QMC.

b. Your work at the Hospital insofar as it involves treating patients with blood transfusions.

I regularly cared for obstetric patients who required blood transfusion as a result of excessive blood loss in the peri-partum period.

c. Your work insofar as it involved the care of patients who were infected with HIV, Hepatitis C ("HCV"), Hepatitis B ("HBV") viruses and/or other diseases patients may have been exposed to as a result of receiving a blood transfusion.

I was not responsible for provision of care for any such patients, unless they were coincidentally undergoing surgery or childbirth.

6. Please:

a. Describe the roles, functions and responsibilities of the Anaesthesia Department ("the Department") within the Hospital during the time you worked there. Please also explain how the Department worked with other departments within the Hospital, such as critical care, emergency, obstetrics/gynaecology, or surgical units in so far as it related to blood transfusions. In particular, please explain which Department took primary responsibility for deciding whether or not to transfuse a patient and/or the type of transfusion to give.

When I arrived in 1989, the Department at NCH was responsible for provision of anaesthetic services to ten operating theatres, including two dedicated to obstetric procedures. We provided obstetric anaesthetic services to the maternity unit, delivering approximately 5600 women per year with a Caesarean section rate of around 16-18%. We also ran a six-bedded Intensive Care Unit (ICU) and a chronic pain service. At this time, our sister hospital at QMC was delivering around 3500 women per year.

Since that time, work has expanded at NCH to encompass 17 operating theatres, a much-enlarged ICU, high-dependency unit (HDU) and cardiac ICU. An acute pain service has been established, and a pre-operative assessment clinic. The number of obstetric deliveries has fallen to around 4500 per year as the rate at QMC has increased to a similar number. The Caesarean section rate has steadily risen, and now stands at around 33-35%.

Blood transfusion in surgical, gynaecological and obstetric patients was always largely led by anaesthetists during and immediately after surgery, and was usually prompted by intra-operative blood loss. Decisions as to which components to administer were made according to degree of blood loss, platelets count, coagulation assays and clinical picture. Increasingly in recent years, point-of-care coagulation tests based on thrombo-elastography (TEG) technology were used to determine the type of transfusion to be administered. Longer-term transfusion – after the first few post-operative hours – was largely managed by the relevant surgical or obstetric team.

b. Outline the facilities and staffing arrangements for the care of patients in relation to the use of, and treatment with, a blood transfusion.

Most transfusions managed by anaesthetists were commenced in the operating theatre itself or in the recovery unit (post-anaesthesia care unit). In such cases, the patients were directly supervised by an anaesthetist (in theatre) or indirectly by an anaesthetist with appropriate nursing care (recovery unit). Some transfusions would be started or continued on the surgical ward after transfer from the recovery unit.

Women receiving a blood transfusion for postpartum haemorrhage (the usual indication for transfusion in obstetric practice) would normally be managed on labour ward, but would sometimes be transferred to the postnatal ward while the transfusion was still in progress.

c. Identify senior colleagues within the Department and their roles and responsibilities during the time that you have worked there, insofar as they were involved with the care of patients undergoing blood transfusions and/or patients infected with hepatitis and/or HIV in consequence of a blood transfusion.

Every anaesthetist within the Department would be involved with transfusing individual patients, some (those involved in obstetrics, trauma, orthopaedic, spinal, thoracic and cardiac surgery more frequently than others). The Clinical Director of Anaesthesia or equivalent (the title changed over the years) would have overall responsibility for delivery of anaesthesia service, including transfusions. To the best of my recollection, there would always be a consultant anaesthetist who acted as a link with the haematology department, sitting on the transfusion committee.

The Department did not have a role with respect to patients infected with hepatitis and/or HIV in consequence of a blood transfusion.

7. Please describe the practical steps that were taken when you decided that apatient required a blood transfusion, including:

a. How blood was requested from the hospital blood bank;

In my field of obstetric practice, patients had their blood groups checked and their blood screened for antibodies ('type and screen') in the antenatal period. Screening would be re-checked close to delivery if there was a significant possibility that they would need transfusion, typically if delivery was to be by Caesarean section. If blood was required, usually at relatively short notice in the obstetric arena, it would be requested by phone call to the duty blood bank technician, and followed up with a written request form delivered by hand. If time was critical, the form would sometimes be delivered at the same time as the blood was collected from the blood bank. Other blood components, such as FFP, platelets etc, were ordered after discussion with the duty haematologist. Once blood or blood products arrived, they would either be administered immediately, returned to the blood bank if no longer needed, or kept in a temperature-controlled box (for short periods) or our blood fridge (for longer periods) until required.

Along with the vast majority of maternity units in the UK, we always had two units of O-negative blood (universal donor) available in our blood fridge, available to transfuse in extreme emergency. In practice this was only ever used in cases of torrential haemorrhage when the wait for cross-matched blood would have led to the patient's death.

b. What the record keeping requirements were; and

Records were kept to ensure that the blood bank would have full details of patients who had received blood or blood products. The individual patient record would also carry details uniquely identifying every unit of blood or blood products which they had been given.

Later in my career, the concept of the 'cold chain' became increasingly important, by which every unit could be tracked between blood bank and administration to the patient, along with key timing points.

All of these processes, from request to record-keeping and cold chain management, became less paper-based and increasingly electronic in nature during my career.

c. What the patient was told before the transfusion.

For an anaesthetist working in a maternity unit, the majority of our transfusions were (a) unanticipated, (b) prompted by rapid and high-volume blood loss and (c) administered to a patient in the operating theatre, often while under general anaesthesia. In these circumstances, no information whatsoever would be given to the patient prior to the transfusion, although they would of course be made aware after the event that a transfusion had been administered.

If general anaesthesia was not being used when a transfusion was recognised as being needed, then patients would be told something along the lines of "You are losing blood very rapidly and we are going to have to give you a blood transfusion". It would be unusual to offer any information about risk at all in these circumstances, although any patient queries would be addressed.

If it was anticipated antenatally that a patient would probably need a blood transfusion – for example, in a woman with abnormal placentation such as placenta accreta – then a more detailed discussion would take place prior to Caesarean section. Even in these circumstances, I would not normally mention a risk of transmission of disease. Discussion would centre around ensuring that we would only transfuse if it became

necessary due to excessive blood loss. Certainly, formal consent was never sought by me or, to the best of my knowledge, anyone else. If a patient refused transfusion – usually but not always on religious grounds – then the refusal would be explored in relation to whether they would accept other blood products, and whether they would continue to refuse transfusion if the alternative
was death. Key elements of this discussion would be recorded in the patient record.

In general, throughout my career, it would be fair to say that transfusion was regarded as a rarely-used but valuable resource, to be employed sparingly because of relative scarcity of supply and expense of provision. Anaesthetists would be no more likely to seek specific consent from a patient for its use than for the use of any of the multitude of potentially hazardous drugs, fluids and other substances which we administered in the course of our clinical duties.

8. Did you have, on behalf of the Department, a relationship with the Regional Blood Transfusion Centre?

I did not have such a relationship. Related questions 9-11 have therefore not been addressed.

Research

12. Was any research undertaken within the Department regarding blood transfusion patients?

To the best of my knowledge, no such research was conducted in our Department.

13. Please list all research studies that you were involved with in any other relevant positions of employment (including any of the committees listed in your answer to question 3) insofar as relevant to the Inquiry's Terms of Reference, ensuring your answer addresses:

a. What the research entailed, what the aims of the research were,whether patients were informed of their involvement in the research and consent was obtained;
b. Your involvement in this research; and
c. Details of any publications relating to the research.

All of my research publications are listed in my curriculum vitae. In all cases, studies were approved by the relevant research ethics bodies, patients were informed of their

proposed involvement and their consent sought and obtained. I do not believe that any of my research was relevant to the Terms of Reference of the Inquiry.

Section 3: Policies and practices regarding blood transfusions

14. To the best of your knowledge, was guidance provided to you and/or other medical professionals by the Hospital as regards transfusion policies and practices during your employment?

If so, please outline in as much detail as possible the policies in place which would prompt you to transfuse in the course of surgery or critical care, and how those policies changed over time.

If possible, please refer to how many units of blood would be used, alternative treatments, autologous transfusions for planned major surgery, applicable haemoglobin threshold levels for transfusion, as well as any other considerations, such as when not to transfuse, the risk of infection or adverse reactions, or resource and cost considerations.

As I recall, we were guided in our use of transfusions by our professional training and by advice from textbooks, scientific studies etc, rather than by guidance from the Hospital. The latter was probably available, but it would have been more concerned with correct communication with the blood bank, its technicians and haematologists, along with record-keeping, paperwork and ensuring that no blood products were wasted by being requested unnecessarily or by breaking the cold chain. Appropriate use of a valuable resource and cost implications were always to the fore in such guidance.

Other points in this question are dealt with in the respective responses below.

15. Please outline the types of blood and blood products that were most commonly transfused to patients under your care, the circumstances in which they were used, and how this changed over time.

To the best of my recollection, whole blood was rarely used even when I arrived in 1989, and its use was gradually completely phased out in favour of packed red cells. These would be the standard product supplied when blood was requested for transfusion.

Other blood products in common use were platelets, fresh frozen plasma (FFP) and cryoprecipitate. Recombinant Factor VII was available for a period (early 2000s) but was withdrawn because of the risk of thrombosis.

In general, blood transfusions initiated by obstetric anaesthetists were and still are given for massive postpartum/intraoperative haemorrhage based on rapid assessment of blood loss. Other blood products were, in my early career, given largely on clinical grounds, especially continuing bleeding in the presence of good surgical haemostasis. As time progressed, these were driven more by the total volume of blood lost, with higher volumes increasing the likelihood of us using FFP or platelets in particular. Increasingly, laboratory testing of coagulation parameters became more important, with high prothrombin times (PTT) or activated partial thromboplastin times (APTT) regarded as indications for FFP, and low platelet counts as an indication for platelets. Later, fibrinogen levels came to be regarded as an important indicator for administration of cryoprecipitate.

In some other centres (not NCH), point-of-care testing was taken up in the 2010s, and this in turn drove decisions as to which components should be administered in response to continuing maternal haemorrhage.

In around 2005, intra-operative cell salvage was introduced into many obstetric units in the UK, including at NCH. This technique captured blood lost during surgery and processed it, allowing it to be returned to the patient. The use of cell salvage reduced the need for donated homologous blood but, as only a proportion of lost blood could be retrieved in this way, it did not do away with the need for homologous transfusion.

Finally, there was a development at NCH and some other centres, also in the 2010s to the best of my recollection, whereby 'shock packs' comprising a fixed ratio of FFP to blood, were provided by blood bank as a first response to initiation of a massive obstetric haemorrhage alert. This arose from an extrapolation of lessons learnt in the field of military trauma.

16. Please outline at which level generally a patient's haemoglobin count would be considered low and thus require a blood transfusion.

I must stress that by far the most common indication for an obstetric anaesthetist (or any other anaesthetist for that matter) to order a blood transfusion would be excessive blood loss during surgery. In these circumstances, the haemoglobin level was largely irrelevant. As a simple example, if a patient were to lose half of her blood volume over a few minutes (a not atypical scenario in obstetric practice), the remaining blood in her

circulation would still have the same haemoglobin level as before she started to bleed, but she would still urgently need a transfusion. Haemoglobin level only falls in response to blood loss when the circulation has been fully or partially restored by non-blood ('clear') fluid entering the circulation, either from the patient's own extravascular compartment or via intravenous administration of large volumes of crystalloid or colloid fluids.

In the more controlled but less common ante-natal or post-natal scenario, then standard transfusion 'trigger' levels consistently fell over the time that I was in practice. As an example, a textbook from 1982 (A Synopsis of Anaesthesia, Atkinson, Rushman, Lee) and another from 1996 both cite a level of 10 g/dl as indicating a need for transfusion. A later edition of the 1996 textbook (Textbook of Anaesthesia, Aitkenhead and Smith) published in 2007 suggests a trigger level in otherwise healthy individuals of 8 g/dl. The 7th edition, published in 2019, lowered this threshold to 7 g/dl (70 g/l). My own practice, and that of my colleagues, would have mirrored this guidance.

17. Please also explain how the level at which transfusion was deemednecessary may have changed over time.

See my response to Q16.

18. With respect to your experience at Nottingham City Hospital, please explain the process of measuring a patient's haemoglobin count, including the frequency with which it was monitored.

On the occasions when a transfusion was predicated on haemoglobin level rather than acute blood loss, the haemoglobin level would be formally checked in the haematology laboratory. Bed-side haemoglobinometers such as HemoCue were used but were not generally relied upon to trigger transfusion. An appropriate volume of red cells would then be given, often relying on a simple formula of 'one unit of red cells = one gram of haemoglobin'. The haemoglobin level would then be checked after the transfusion and more blood given if the target level had not been reached.

19. The enclosed guidelines for autologous transfusion state that 'in pregnancy, the haemoglobin should exceed 10g/dl' [page 3 of NHBT0110350]. Please comment on how considerations of a patient's haemoglobin level in the context may have differed for antenatal or postnatal patients.

This undated document relates to autologous transfusion, so is not necessarily relevant to the situation involving homologous (donated) blood. However, the determination of an appropriate haemoglobin level in pregnancy would be a matter for consideration by the midwife and obstetrician, and anaesthetists would only be involved in this discussion if (a) a patient were to deliver by Caesarean section, or (b) if a patient remained anaemic after losing a large volume of blood intraoperatively despite what had seemed at the time to be an appropriate volume of blood transfused. I would expect a haemoglobin level of 10 g/dl or above in an antenatal patient if major blood loss at delivery was anticipated, e.g. due to abnormal placentation, and would consider antenatal transfusion in such a patient if the haemoglobin was below this level and there was no time to boost it with iron therapy.

20. The enclosed guidelines for the use of blood components in obstetrics state that 'In the absence of acute blood loss, antenatal and postnatal patients should only be transfused in exceptional circumstances, where the haemoglobin is low and associated with symptoms' [page 61 of DHNI0000013_065]. Other than acute blood loss, please explain the circumstances in which it would be considered necessary to administer blood transfusions to obstetric patients. Please also explain which 'symptoms' would indicate the need for blood transfusion.

The reference is to Northern Ireland guidelines from 2001, apparently intended to promote clinical efficiency in the use of blood and blood products.

The possible indication for anaesthetists to advise transfusion of antenatal patients is discussed at Q19. Postnatally, the haemoglobin limits described at Q16 would be regarded as appropriate triggers for transfusion, so tending to fall throughout my career. Latterly, transfusion would only be considered in a non-bleeding postpartum patient if she had significant symptoms such as – but not limited to – breathlessness, inability to mobilise that was interfering with her ability to care for the baby, or extreme exhaustion. Even in these circumstances, patients would nowadays be offered a choice of parenteral iron therapy, which would bring the haemoglobin up slowly, or transfusion, which would bring it up quickly.

21. Please consider the enclosed document on the use of single unit transfusions of blood in the UK [DHSC0035471], which discusses concerns about unnecessary single unit transfusions of blood in the UK.

a. With reference to your experience at Nottingham City Hospital and in any other relevant roles, please outline in what circumstances single-unit and two-unit transfusions were administered to patients.

The reference is to a single-page, undated document which appears to be a DOH proposal to survey the frequency of administration of single-unit transfusions in the UK.

We always tried to avoid initiating single-unit transfusions, on the grounds that, if only a single unit was needed to restore a satisfactory haemoglobin concentration, then this could be achieved without the risks of transfusion by using simple iron therapy or just by waiting for natural processes to reverse anaemia. I do not recall any such concerns about volumes greater than a single unit (e.g. two-unit transfusions).

b. What did you understand to be the risks and benefits of single-unit transfusions and two-unit transfusions? How, if at all, did this understanding change over time?

The underlying risks were, of course, present no matter how small or large the transfusion, although the more units transfused, the greater the risks. The key issue against us routinely using single-unit transfusions was whether the risks were outweighed by the benefits. As can be seen from my response at 21(a), this was not usually the case.

c. With regard to all types of blood transfusions, do you recall any instances or

periods of time in which you or others raised concerns about unnecessary or excessive blood transfusions? If so, please explain in as much detail as you are able to recall, including why this may have occurred and how, if at all, this changed over time.

I cannot recall any specific instances, and I certainly had no overall concerns about this. There may have been the occasional case where I felt that a colleague had given a transfusion unnecessarily. There were certainly a small number of maternity patients through my career in whom transfusion was appropriately initiated but, on checking haemoglobin post-transfusion, had in retrospect been given an excessive number of units, usually because blood loss had been overestimated in the acute situation. In general, this became less of a problem as we got better at measuring blood loss accurately and as we allowed haemoglobin levels to drop further before transfusing.

22. The enclosed document reports on a study conducted by Mallet et al (2000) titled 'Reducing red blood cell transfusion in elective surgical patients: the role of audit and practice guidelines', published in Anaesthesia [NHBT0086594_003]. The study found that 'haemoglobin was measured infrequently prior to transfusion' (p1). With respect to your experience at

Nottingham City Hospital, please explain the process of measuring a patient's haemoglobin count, including the frequency with which it was monitored.

This paper relates to elective surgery, so has limited reference to emergency obstetric surgery, the area in which most of my blood transfusions were administered during my career. In the field of obstetrics, most patients have a recent haemoglobin estimation at the time of delivery, so there was usually a reliable 'baseline' value. As explained elsewhere, most obstetric transfusions are initiated in response to rapid and large-volume blood loss during delivery, rather than to a low haemoglobin level. Once a transfusion had been commenced and while the patient was being stabilised, then very frequent estimations of haemoglobin would be included in the repeated sample sent to the haematology laboratory. Thereafter, haemoglobin estimations would be made at intervals, usually after every 1-2 further units, to establish whether more blood was needed.

As explained above, bedside haemoglobinometers were not relied upon as a trigger to initiate a transfusion. However, they might be used during a transfusion as an immediate indicator of whether more blood was needed.

23. The enclosed document contains guidance on red cell transfusion published by the Association of Anaesthetists of Great Britain and Ireland in 2001 [DHSC0020813_059]. Page 5 of the booklet (page 6 of DHSC0020813_059) notes that 'patients should not be transfused to achieve a normal haemoglobin concentration'. Please comment on this in light of your experience of practising during your tenure at Nottingham City Hospital, ensuring your answer addresses the considerations that are taken into account when deciding to transfuse a patient other than haemoglobin concentration.

As explained in Q16, in most obstetric cases transfusion was being used as a treatment for acute massive blood loss, in which case the volume transfused would be determined largely by the volume of blood lost. This was intended to treat the patient's haemorrhagic shock, rather than to restore normal haemoglobin levels, and would also help to reverse the inevitable haemodilution caused by administration of large volumes of clear fluids to restore cardiovascular stability.

In patients where blood was being given in order to correct significant anaemia, usually in the postpartum period following excessive blood loss during delivery, regular haemoglobin checks were made, as explained above, to determine whether further blood was required. The target haemoglobin was not always formally stated but, in keeping with the transfusion triggers described in Q16, would certainly have fallen over

the duration of my career. My recollection of my early years as a consultant is that we would try to achieve a target of around 11 g/dl.

24. In light of Question 14, where applicable, were any alternative treatments made available to patients under the care of the Hospital throughout the time of your employment?

There were (and are now) no suitable alternative treatments other than blood transfusion for the patient who is experiencing a massive obstetric haemorrhage. In these cases, transfusion is an immediate life-saving intervention. In conjunction with replacement of blood, of course, all measures will be used to minimise blood loss and these have certainly changed and developed over time, although a detailed discussion of these techniques is beyond the remit of this statement.
In patients being treated for acute anaemia following childbirth, iron therapy was always an alternative. Oral iron was often poorly tolerated and only had a slow impact on haemoglobin. In recent years, FerInject (ferric caboxymaltose) infusions have been increasingly used. Nowadays, FerInject is offered in my unit as an alternative to transfusion, with risks and benefits of the two approaches discussed with the patient.

a. In your view, were the advantages and disadvantages of alternative treatments adequately explained to patients where possible?

These discussions, in relation to postpartum transfusion vs FerInject, would usually be initiated by obstetricians rather than anaesthetists. In the more usual situation where an anaesthetist initiates transfusion – acute haemorrhage during delivery – there would usually be no discussion at all with the patient, who would be unconscious or severely compromised. If the patient were conscious and able to participate meaningfully during such an event, the information would be limited to something along the lines of "You have lost a lot of blood and we are going to give you a transfusion". With (a) the lack of any alternative, (b) the imminent prospect of cardiac arrest or death without immediate correction, and (c) the massive outweighing of risk by benefit of a transfusion in this situation, I would regard this as an appropriate explanation.

b. Did the doctor/patient relationship have an effect on the way in which an agreement would be reached in selecting a treatment? If so, please explain.

See above. This is a question better put to an obstetrician, who will (a) have a more long-term relationship with a maternity patient than an anaesthetist, and (b) be in the situation where a selection of alternative therapies was available.

c. Referencing your answer to 23(b), did any aspect of this change over time?

I assume that this should be a reference to 24(b), not 23(b). Again, a question best put to an obstetrician but, in general and in keeping with the evolution of consent over the course of my career, there would have been increasingly more detailed discussions with patients during my time in post.

d. Generally, how were transfusions regarded within the Department?

Donated blood and blood products were always regarded by anaesthetists – and, I would imagine, other doctors and health care workers – as a valuable and sometimes scarce resource. Blood bank was perceived very much as the 'guardian' of the product, and would often require substantial persuasion before they would release it. The risks of administering blood products were known to all involved in transfusion, although there was much more emphasis on incompatibility and acute reactions than on risk of infection. As a result, there was always a reluctance amongst anaesthetists to use blood unless necessary, coupled with a strong emphasis on using it appropriately and in a timely manner when required.

e. Do you consider that alternatives could have been used in preference to blood transfusions so as to reduce the risk of infection? If not, why?

See my response to the first part of Q24. In my practice, as explained, there were no realistic alternatives other than taking all appropriate steps to minimise blood loss to the point where transfusion would not be required. The introduction of cell salvage did enable some sparing of homologous blood, but this was a relatively modest effect.

If applicable, please ensure your answers include treatment throughout the 1970s and 1980s at any institutions at which you have worked.

25. The enclosed paper titled 'Lack of haematological and biochemical consequences following autologous blood transfusion' states that a primary benefit of autologous transfusion is it may 'diminish the risk of viral cross infection' [NHBT0040771_001]. Please explain:

a. The circumstances in which autologous transfusions were considerednecessary or beneficial;

We never used autologous transfusion in obstetric practice in Nottingham other than via cell salvage (see above). There was a short period, I think in the 1990's, when pre-donation was used for some elective non-obstetric procedures, but this was later abandoned because, as I recall, there were storage issues in the blood bank.

b. Approximately how often this practice occurred;

See 25(a)

c. The perceived benefits and risks of autologoustransfusions; See 25(a)

d. The process of informing patients or their relatives of the risks associated with autologous transfusions.
See 25(a)

26. In your experience at Nottingham City Hospital, did any particular bloodproducts or transfusion methods carry a higher risk of viral infection?

We were aware that 'pooled' products, using fractions of blood from multiple donors, would carry a greater risk than products from single donors.

27. Please consider the enclosed letter from Dr F. A. Ala of the National Blood Transfusion Service dated 19 January 1987 [NHBT0045785].

a. Did you/the Department at the Hospital ever receive guidance from the NBTSregarding autologous transfusions, or any other type of transfusions?

Not in the Department to the best of my recollection.

b. Please comment on the concerns raised regarding the risks associatedwith first and third trimester pre-deposit of autologous blood. What did you understand the risks to be?

See 25(a)

c. Did you/the Department at the Hospital ever receive guidance from the NBTS regarding the risks associated with first and third trimester pre-deposit of autologous blood?

Not to the best of my recollection

d. Did any patients under your care raise concerns about first and third trimester pre-deposit of autologous blood? If so, what steps, if any, were taken to address these concerns?

See 25(a)

28. Were there any circumstances where red blood cell concentrate transfusions would be used instead of whole blood? Please explain:

a. The circumstances in which red blood cell concentrate transfusions wereconsidered necessary, and preferable to other types of transfusion;

See my response to Q15. Red cell concentrates were by far the commonest blood product used during my time as a trainee and a consultant. I can only recall seeing the occasional unit of whole blood in the early part of my career, and none thereafter. Anaesthetists transfusing bleeding patients would generally prefer red cell concentrate to whole blood anyway, preferring to give plasma substitutes to replace non-cellular volume.

b. Approximately how often this practice occurred; See my response to Q15.

c. The perceived benefits and/or risks of red blood cell transfusions;

Essentially the same as transfusion of whole blood, with respect to acute reactions, incompatibility etc. There would be a reduced risk of adverse reactions and circulatory overload, and faster restoration of haemoglobin with a given volume of transfusion; this would be balanced against a possibly increased risk of disturbance of electrolytes and acid-base balance.

d. Any measures taken to minimise the risk of infection, including post transfusion testing; and

No measures other than minimising the time between release from blood bank and administration, and ensuring compliance with the cold chain process.

e. The process for obtaining informed consent and informing patientsor their relatives of the risks associated with red blood cell concentrate transfusions.

See response to 24(a) regarding consent.

29. Were there any circumstances where platelet transfusions would be used instead of whole blood? Please explain:

a. The circumstances in which platelet transfusions were considerednecessary, and preferable to other types of transfusion;

Targeted replacement of platelets when platelet level was low, usually as a result of massive haemorrhage, but also in some specific conditions affecting platelet levels.

b. Approximately how often this practice occurred;

This can only be a rough estimate, but probably around 10% of transfusions for massive haemorrhage would involve the administration of platelets. In NUH as a whole – with approximately 9000-10000 deliveries per year – around 5-10 maternity patients are transfused each month.

c. The perceived benefits and/or risks of platelet transfusions;

As with red blood cells. Benefit is specific replacement of platelets to enable effective coagulation and haemostasis.

d. Any measures taken to minimise the risk of infection, including post transfusion testing; and

No measures other than minimising the time between release from blood bank and administration, and ensuring compliance with the cold chain process.

e. The process for obtaining informed consent and informing patients or their
relatives of the risks associated with platelet transfusions.

See response to 24(a) regarding consent.

30. Were there any circumstances where Fresh Frozen Plasma ("FFP") transfusions would be used instead of whole blood? Please explain:

a. The circumstances in which FFP transfusions were considered necessary, and preferable to other types of transfusion; and whether the position changed over time;

Targeted replacement of coagulation factors, almost invariably as a result of massive haemorrhage.

b. Approximately how often this practice occurred;

This can only be a rough estimate, but probably around 25% of transfusions for massive haemorrhage would involve the administration of FFP. In NUH as a whole – with approximately 9000-10000 deliveries per year – around 5-10 maternity patients are transfused each month.

c. The perceived benefits and/or risks of FFP transfusions;

As with red blood cells. Benefits are obviously specific restoration of coagulation factors not present in packed red cells or bank blood.

d. Any measures taken to minimise the risk of infection, including post transfusion testing; and

No measures other than minimising the time between release from blood bank and administration, and ensuring compliance with the cold chain process.

e. The process for obtaining informed consent and informing patients or their relatives of the risks associated with FFP transfusions.

See response to 24(a) regarding consent.

31. Please consider the enclosed minutes of a meeting of the CRAG (Clinical Resource and Audit Group) Blood Transfusion Working Party held on 1 July 1992 [SBTS0003883_090]. Page 3 of the minutes contains discussion about the use of whole blood to treat paediatric patients.

a. With reference to your experience and the considerations mentioned in the meeting minutes, please explain why treatment policies regarding whole blood transfusion may differ in the context of paediatric patients.

I have never been involved in transfusing paediatric patients, but this document appears to be recommending the use of whole blood rather than red cell concentrate in paediatrics due to a lack of safety data in children relating to the solution used to suspend blood cells.

b. The minutes state that anaesthetic staff had expressed concerns 'regarding the difficulties of administering OAS and standard RCC through paediatric cannulae'. Please explain the difficulties referred to in this statement.

As above, I have no direct experience. However, this seems to relate to the problem of getting a relatively high viscosity solution of concentrated red cells to flow through the small-bore venous cannulae used to access small diameter paediatric veins. Whole blood, carrying as it does a lower concentration of cells, would flow more readily.

32. How, if at all, did policies for blood transfusion differ for paediatric patients? Please explain in as much detail as you are able to, and with respect to different types of blood transfusion.

I have no experience of practical transfusion in paediatric patients, so am not able to comment.

33. The Inquiry has received evidence that on some occasions when a blood transfusion was needed urgently, fresh warm blood donated by hospital staff or other local authorities was administered to patients. To your knowledge, did this practice occur at the Hospital? If so, please explain in as much detail as you are able to, ensuring your answer addresses:

a. The circumstances in which fresh warm blood transfusions were considered necessary;

I am very sure that this practice was never employed during my time in Nottingham, nor indeed at any other hospital where I worked during my training. I have never heard of such a practice before, so cannot comment further.

b. Approximately how often this practice occurred; See above.

c. The perceived benefits and risks of fresh warm bloodtransfusions.

See above.

d. Any measures taken to minimise the risk of infection, including assessing donor suitability and post transfusion testing; and See above.

e. The process for obtaining informed consent and informing patients or their

relatives of the risks associated with fresh warm blood transfusions.

See above.

In answering this question you may wish to consider the enclosed guidelines on transfusion for massive blood loss by the British Committee for Standardization in Haematology Blood Transfusion Task Force [NHBT0000037_013].

34. With reference to any of the groups outlined in question 3, please identify any significant policies created by those groups in which you were involved, insofar as relevant to the Inquiry's Terms of Reference. Please describe the reason for and impact of the policies, and the extent of your involvement.

I was involved with three major organisations during my consultant career, as detailed in my response to Q3 and my accompanying CV. These were the Association of Anaesthetists of Great Britain and Ireland (AAGBI), the Obstetric Anaesthetists' Association (OAA), and the Royal College of Anaesthetists (RCOA). In general, the first two produce a limited number of clinical guidelines and the third sets standards against which Departments are assessed. I was involved with the production of the OAA guidance as President and as a member of the Working Party, but had no specific involvement with any others.

The guidance that I have detailed (see below) largely deals with the provision and availability of blood and blood products, primarily for the purpose of supporting anaesthetists in their care of patients who are bleeding. There are recommendations relating to early provision of FFP in the case of massive maternal haemorrhage, the use of rapid transfusion devices, cell salvage equipment and near-patient coagulation and haemoglobin testing.

The AAGBI guidance on the use of blood components and their alternatives from 2016 includes a recommendation relating to discussion of transfusion with patients in whom transfusion is anticipated. It also specifically recommends checking haemoglobin levels after each unit of blood transfused.

The RCOA standards documents include specific guidance for obstetrics, trauma and orthopaedics, and emergency surgery.

There is also specific guidance from the AAGBI related to the peri-operative management of patients with sickle cell disease.

Little in these documents relates to the topics listed in Q35 (a)-(j), but I have still summarised them and referenced them in an appended paper, entitled 'Extracts from Guidelines' (WITN6973003).

35. With reference to all of the committees named in your answer to question 3, please outline the extent to which any of those committees were involved in the following matters:

a. Awareness of national guidelines for promotion of good transfusion practices

b. Development of local hospital guidelines in relation to transfusionpractice

c. Transfusion policy induction procedure for new staff

d. Review of nursing procedures for administration of blood and blood products

e. Promotion of new information regarding transfusion matters f.Ensuring patients are adequately informed of matters relating to blood transfusions, such as availability or alternative treatments g. Blood transfusion record keeping and documentation

h. Review and notification of post transfusion complications (includedadverse reactions and transfusion associated infections)

i. Assessment of transfusion practices in light of product usage

j. Consent for blood transfusion

Please ensure your answer includes any significant policies, guidelines, decisions relevant to blood transfusion practices or blood safety that were proposed, created, implemented and/or overseen by the group.

See my response to Q34 and the appended paper.

36. With reference to all of the committees named in your answer to question 3, please outline any specific transfusion policies created by those committees in relation to:

a. Obstetrics;

b. Trauma and emergency care;

c. Surgery;

d. Haematological cancer treatment;

e. Thalassaemia;

f. Sickle Cell Anemia;

g. Bleeding disorders (Haemophilia A, Haemophilia B, or von Willebrand's disease)

See my response to Q34 and the appended paper.

37. Was there a Hospital Transfusion Committee at Nottingham City Hospital? If so:

> ***a. Please provide a brief overview of the Committee, including when theCommittee was created, its roles and responsibilities at the Hospital, and its relationship with the Anaesthesia Department at the Hospital. b. With reference to any of the matters identified in Questions 34 and 35 of this request, please outline any significant policies or practices established by the Committee.***
> ***c. Please explain the relationship between the Hospital Transfusion Committee and the Regional Transfusion Centre.***

There was a Hospital Transfusion Committee, and a member of the Department was seconded to this group. However, I never served on this committee and therefore have no relevant information for the Enquiry.

38. Please consider the enclosed letter dated 17 September 1987 from Dr Harold Gunson to Professor V R Tindall regarding the viral safety of blood transfusions. Dr Gunson states that the advent of testing and improved quality assurance measures means that 'the risk involved with the transfusion is far less than the dangers associated with the clinical risks of the condition for which the transfusion is given' which he believed applied was particularly applicable to obstetric and gynaecology patients [NHBT0203709].
Please explain how the need to balance the risks of not transfusing against the risks of infection has influenced your approach to transfusing patients and how, if at all, this changed over time.

I would agree with Professor Gunson and say that, in the field of obstetric anaesthesia in particular, the risks of not transfusing hugely outweighed the risks of transfusing throughout the period of my clinical practice. It should be borne in mind that haemorrhage is the third commonest cause of maternal mortality in the UK, and the commonest cause worldwide, accounting for 25% of global maternal deaths. In some studies, patients who refuse transfusion – usually Jehovah's Witnesses – have a six times increased risk of maternal death.

Looking back on my career as an obstetric anaesthetist, as a trainee from 1982-1989 and a consultant from 1989-2020, I cannot think of a single patient who, on reflection and knowing what I know now, I would not have initiated a transfusion in response to maternal haemorrhage. On a few occasions, I have overestimated blood loss and

consequently given too many units of blood, and there would also now be some patients for whom I would have prescribed fewer units, aiming for a lower target haemoglobin. My increasing appreciation of the ability of healthy patients to tolerate chronically low haemoglobin levels – as reflected in the gradual lowering of the 'trigger' haemoglobin level for transfusion of the severely anaemic patient – means that I would not have transfused as many postpartum patients, but this was very largely the role of my obstetric colleagues rather than the anaesthetists.

It should also be borne in mind that haemorrhage is much more common in relation to Caesarean section than vaginal delivery, and the Caesarean section rate is increasing year on year in the UK. While this is not necessarily a cause and effect relationship, it is likely to result in an increasing transfusion rate in obstetric practice.

Against this, and a major change during my career, have been the many interventions aimed at reducing blood loss. These include: use of procoagulant drugs such as tranexamic acid; active management of the third stage of labour; routine infusions of uterotonic drugs following Caesarean delivery; improved surgical techniques; radiological intervention; and well-targeted multidisciplinary guidelines. At the same time, techniques such as cell salvage, which allow for collection and recycling of autologous blood, have been introduced. Targeted and pro-active use of blood components such as FFP, platelets and cryoprecipitate, aided by near-patient coagulation testing, have also meant that bleeding can often be stopped earlier.

39. During Parliamentary questions on 10th December 1985, Mr Hayhoe stated that 'supplies of whole blood are not imported since the United Kingdom is self sufficient in its needs for blood for transfusions; it is only certain blood products which are imported' [HSOC0018830]. During your tenure at the Hospital, were you aware of patients being given blood transfusions with red blood cells imported from the USA? If so, was there any concern about its use?

I have never, to the best of my knowledge, encountered whole blood or red cells imported from the USA.

Section 4: Knowledge of risk

General

40. When you began working as an anaesthetist, what did you know and understand about the risks of infection associated with blood transfusions?

What were the sources of your knowledge? How did your knowledge and understanding develop over time?

My learning came primarily from textbooks and direct teaching from my mentors. An analysis of the standard textbooks of the time shows the following: **1982: A Synopsis of Anaesthesia 9th edn - Auth: Atkinson, Rushman, Lee**. A detailed six-page exposition on blood transfusion lists 15 complications. 'Transmission of disease' is at number 7, and lists Hepatitis B, malaria, syphilis, yaws, relapsing fever, kala-azar, bacteraemia, cytomegalovirus, and Epstein-Barr virus. Advice is given on prevention of malaria transfer. No indications of incidence. **1996: Textbook of Anaesthesia 3rd edn – Auth: Aitkenhead, Smith.** Here, transmission of disease is the first item in a 13-item table of 'complications of blood transfusion'. The accompanying text confirms that donated blood in the UK has been tested for HIV since 1985 and Hep C since 1991, in addition to Hep B and syphilis. Apart from this brief paragraph, considerable emphasis is placed on incompatibility and acute transfusion reactions.

2007: Textbook of Anaesthesia 5th edn. Similar to the 3rd edition from 1996. Text now states that blood is now routinely screened for Hep B, C, HIV1, HIV2 and syphilis and, since August 2002, HTLV. Next sentence reads: "These measures have resulted in almost negligible risk of transfusion-transmitted disease". There is then mention of the risk of prion-transmitted disease in plasma components, and the measures to protect children born after the date of the offal ban in Dec 1996 by using plasma from countries thought to be free of variant CJD. Again, major emphasis is on incompatibility and transfusion reactions.

2019: Textbook of Anaesthesia 7th edn. 'Infection transmitted by infusion' is the last item on a table of 'risks and complications of blood transfusion'. A paragraph starts: "The transfusion of blood products is not without risk and, wherever possible, informed consent should be obtained from the recipient first. Of particular note are the risks associated with the transfusion of incompatible blood products which are considered to be Never Events within the UK. A zero-tolerance approach to pre-transfusion sampling, blood product checking and administration is recommended." Please see exhibit WITN6973003.

This sequence from standard texts from 1982 to 2019 reflects my own understanding over time. We were always aware of the potential risks of transmission of disease, knew that these risks were small, and were aware that the blood transfusion service was continually taking steps to recognise new risks and to mitigate them. We were far more concerned about the acute risks such as incompatibility, acute reactions, overload, coagulopathy, citrate toxicity and acid-base / electrolyte imbalance.

Hepatitis

41. What was your knowledge and understanding of the risks and transmission of hepatitis, including HBV and HCV from blood transfusion? What were the sources of your knowledge? How did that knowledge and understanding develop over time?

See response to Q40. I was aware of a small risk of transmission of Hep B and then of Hep C, that screening had been introduced for Hep B by the time that I qualified and that screening for Hep C was introduced in the early 1990s.

HIV and AIDS

42. When you began work as an anaesthetist, what was your knowledge and understanding of HIV and AIDS and in particular of the risks of transmission through blood transfusions? How did that knowledge and understanding develop over time?

I became aware of HIV/AIDS in the early 1980's. From the outset, it caused considerable personal concern to those of us involved with vascular procedures such as cannulation. We were also aware that there would be a potential risk for donated blood to transmit the virus, and I recollect that this made us more wary of transfusing in those situations where the benefit was questionable – this obviously did not include the patient experiencing a major haemorrhage. After blood screening for HIV was introduced, this risk was, to the best of my understanding, greatly diminished.

Other

43. If you were responsible for making decisions and actions on behalf of the Anaesthesiology department or any other departments in response to any known or suspected risks of infection, please explain what decisions were involved. If applicable, do you consider that those decisions were adequate and appropriate? If so, why? If not, please explain what you believe could or should have been done differently.

I was not involved in any such decision-making. As part of our training and learning, we were all aware of the potential but very small risk of transfusion-transmitted infections. As anaesthetists, the risk-benefit balance of acute transfusion was nearly always hugely weighted toward benefit, often being a life-saving intervention, so the small risk of infection posed no significant barrier to our use of blood or blood products.

I would, looking back, still regard this as entirely reasonable and would not have done things differently.

44. Were any audits or surveillance programmes regarding the use of blood transfusions by the Anaesthesia Department conducted at the Hospital? If so, please explain these processes and the impact they had on blood transfusion standards and practice.

We had a regular audit programme in the anaesthetic department, but I do not recall any audits of this topic. However, in recent years, the monthly 'dashboard' data available to those managing the maternity unit included details of all patients who had received a blood transfusion. This fed back to the quality-control programme, where inappropriate or excessive use of blood or blood products could be highlighted and learning developed.

45. At Nottingham City Hospital, were any efforts made to monitor the incidence of transfusion-transmitted infections in patients? If so, please explain these processes, the findings, and the impact they had on blood transfusion standards and practice.

I am not aware of any such efforts, although a programme such as this would probably be run by the haematology service, rather than anaesthesia.

46. Did the Hospital have any procedures in place to ensure patients reported any adverse reactions or symptoms? If so, please explain:

a. What procedure did the Hospital have in place?

Patients receiving infusions were monitored more intensively than others, with vital signs recorded more frequently. However, this was for the purpose of detecting acute reactions, along with blood testing to check for adequacy of transfusion, electrolyte disturbance and coagulopathy. These procedures were not intended to monitor for transmission of disease.

b. Did this procedure extend to after a patient had been discharged fromHospital?

No.

c. Were patients asked to report any adverse reactions or symptoms within a certain timeframe?

I do not believe so, but this would have been somewhat outside the scope of the anaesthetic department.

d. If clinicians were informed and/or became aware of a patient having suffered any adverse reactions or symptoms, who were they required to report this to?

Acute reactions would have been dealt with by the relevant medical staff and also

reported back to the haematology department.

e. Was there any mechanism for the Hospital to report any adverse reactions or symptoms to the Regional Transfusion Centre?

I do not know but, if so, this would have been solely the responsibility of the haematology department.

f. In the event of a patient's death after receiving a blood transfusion, what process was followed? Specifically, in relation to the registration of the death and/or any consideration of what was recorded on the death certificate.

I am not aware of a specific procedure in relation to deaths involving a blood transfusion but, in keeping with usual practice, deaths would be reported to the Coroner and any relevant details made known to them.

47. At Nottingham City Hospital, were you involved in any efforts made to trace potentially infected donors or recipients of infected blood transfusions? If so, please explain these processes, the findings, and the impact they had on blood transfusion standards and practice.

No.

Section 5: Treatment of patients

Provision of information to patients

48. Were you involved in discussions with patients regarding risks of infection by blood transfusion? If so, what information did you provide or cause to be provided to patients under your care at the Hospital about those risks prior to treatment commencing?

On the rare occasions where I discussed transfusion with patients in advance of treatment – as opposed to administering a transfusion to an anaesthetised patient who was actively bleeding – I would only address the issue of infection risk if it was raised by the patient. I do not recall that it ever was raised. The normal discussion with a patient who was likely to need a transfusion during upcoming surgery, e.g. because of abnormal placentation, would be simply to say that a transfusion of blood and/or blood products might be needed if they lost a lot of blood. They would be told that blood transfusions carried a small risk and that they would only be used if necessary.

49. If the nature of provision of information changed over time during your employment as an anaesthetist at the Hospital, please explain what changes occurred, and the reasons for any such change/s.

I recall that, towards the end of my career, elective blood transfusion warranted a more detailed explanation to the patient, particularly if they were alternatives, such as a Ferrinject infusion. This was more the province of the obstetricians, since anaesthetic involvement was mostly confined to intra-operative transfusions for major haemorrhage.

Response to risk

50. How, if at all, did a patient's infectious status (including HIV, HBV and HCV) affect their treatment and care as regards blood transfusion?

Not at all, other than that a patient with experience of the sort of infections that could be transmitted by blood might be more likely to enquire about such risks. I do not recall ever encountering this situation in practice.

Consent

51. Are you aware if patients under the care of the Hospital were treated with blood transfusions without their express or informed consent? If so, how and why did this occur?

As detailed above, most transfusions administered by obstetric anaesthetists are started when the patient is not in a position to provide consent, either because they are under general anaesthesia or because their condition is too parlous to allow for an effective consent process. In the majority of these cases, the need for transfusion could not have been predicted, and many would have been Caesarean section procedures carried out at very short notice in order to deliver the baby safely.

The only way to ensure informed consent from this group of patients would be to go through a consent process with all women in the antenatal period, for the benefit of the fewer than 1% who would eventually need a transfusion. In practice, I believe (but am not certain) that women are asked antenatally if they would accept a transfusion, primarily to identify Jehovah's Witnesses and others who might refuse blood or blood products. Such patients are then usually seen by one of the anaesthetists in the antenatal period to explore the limits of their refusal with respect to different blood products and the acceptability or otherwise of cell salvage techniques.

Section 6: vCJD

52. When and in what circumstances did you become aware of the risks of transmission of vCJD associated with the use of blood transfusions? Please explain how your knowledge developed over time.

To the best of my recollection, this would have been in the late 1990s. I was aware that, even at this time, the risk was considered to be very low. I was also aware that in the early part of the following decade, steps were taken regarding eligibility of donors and importation of plasma products from overseas to further limit the risk.

53. What measures were put in place from a public health perspective at theHospital in relation to the care and treatment of patients in light of the risk associated with vCJD transmission by blood transfusion?

I am not aware of any such measures. If there were any put in place, however, this would presumably have been the remit of the haematology department rather than the anaesthetic department.

54. With reference to all of the committees named in your answer to question 3, please outline the extent to which any of those committees were involved in assessing and managing the risk of vCJD transmission by blood transfusion.

None of these committees were involved in assessing or managing the risk of vCJD transmission by blood transfusion.

Section 7: Other issues

55. Please provide details of any complaints made about you (insofar as relevant to the Inquiry's Terms of Reference) to your employer, to the General Medical Council, to the Health Service Ombudsman or to any other body or organisation which has a responsibility to investigate complaints.

I am not aware of any such complaints made about me.

56. Please provide any further comment that you wish to provide about

matters of relevance to the Inquiry's Terms of Reference.

I would like to stress again that the vast majority of transfusions initiated or managed by anaesthetists take place in the context of surgical procedures, normally starting during the operation, or sometimes immediately afterwards in the recovery unit, in response to excessive blood loss. In the field of obstetrics in particular, such blood loss can be completely unexpected and unpredictable, massive in volume and extremely rapid. As stated earlier, haemorrhage represents the third most common cause of maternal death in the UK and the commonest cause worldwide, accounting for 25% of all maternal deaths.

With regard to consent, it might be helpful for the Inquiry to consider the current state of affairs in relation to consent for anaesthesia. Even a relatively straightforward general anaesthetic for Caesarean section is likely to need the administration of 12-15 different drugs, mostly given when the patient is already anaesthetised. Many of these drugs carry major risks, which would be life-threatening if not in the hands of an expert. Some, while essential, have effects that are highly technical in nature;
one, for example it is given to minimise the side-effects of a second drug, which in turn is given to reverse the effects of a third drug used to paralyse the muscles during surgery.

It is, clearly, impossible (and almost certainly unhelpful to the patient) to seek consent for the use of each of these drugs, and current guidelines on the subject of consent for anaesthesia do not envisage this kind of approach (See: Consent for Anaesthesia 2017, Association of Anaesthetists, WITN6973004).

In comparison to these drugs, the risk:benefit ratio of transfusing blood and blood products to combat haemorrhagic shock is far more weighted towards benefit, so it would be surprising if anaesthetists were to pick this specific therapy out of all others

to explain in detail to patient pre-operatively, particularly with respect to the extremely rare risk of transmission of infection.

57. In addition to any documents exhibited in support of your statement, the Inquiry would be grateful to receive copies of any potentially relevant documents you possess relating to the issues addressed in this letter.

See attached.

Statement of Truth

I believe that the facts stated in this witness statement are true.

Signed GRO-C

David Bogod

Dated: 31 January 2022 **Table of exhibits:**

Date	Notes/ Description	Exhibit number
Nov 2021	Curriculum Vitae of Dr Bogod	WITN6975002
11 March 2016	Extracts from guidelines (ref Q34-Q36)	WITN6975003
22 October 2016	AAGBI: Consent for anaesthesia 2017	WITN6975004