# Chapter 13 – Pre-operative Care

# The transfer of children from referring hospitals

**1** The detail of the way in which children came to be referred and transferred to Bristol from outreach clinics and generally is set out earlier in Chapter 10 and Chapter 11.

**2** Dr Hyam Joffe and Dr Stephen Jordan, consultant cardiologists, explained that during the period of the Inquiry's Terms of Reference, children would be transferred from referring hospitals to the BRHSC where they were admitted and evaluated.[1]

**3** Dr Jordan told the Inquiry:

> 'Occasionally, where it proved quite impossible to admit the infant to BRHSC a cardiologist would go (with an echo-machine if necessary), to an outlying hospital to see the infant and start the process of diagnosis and treatment.'[2]

**4** However, the general procedure was that, prior to the transfer, the referring clinician would discuss the child's condition by telephone with one of the Bristol cardiologists who were available on a 24-hour basis[3] and would explain the practicalities of the transfer. Dr Jordan told the Inquiry:

> 'The usual procedure throughout this time was that the referring paediatrician and the cardiologist would discuss the patient's condition by phone and a decision would be made as to the best method of transfer. (In addition, any other treatment, such as the start of prostaglandin infusion or a dopamine infusion, could be considered.) In most cases transfer was with the infant being accompanied by one of the referring paediatric team, usually a senior registrar, and an experienced nurse. If the infant was already on a ventilator it could be that this team, plus one of the local anaesthetists, would bring the infant, but more usually the BRHSC would send a team, usually with a consultant anaesthetist and a senior nurse and a transport incubator with a ventilator would go from Bristol to collect the infant (sometimes described as a "scoop"). In addition, the neonatal unit at St Michael's Hospital across the road also had a "scoop" facility and in case of difficulty they would send their team for new born infants ...
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> 'In most instances the transfer was by ambulance, which was reasonably quick as most of the referring hospitals were very close to the M5/M4 network. Patients from Truro more commonly came by air ambulance … to be met by an ambulance. The sophistication of this transfer service increased over the years concerned. In particular we gave increasing attention to stabilising the infant as far as possible

1 Although Dr Joffe explained: 'Prior to the opening of the BCH cardiac catheterisation laboratory in 1987, a few babies were initially examined by a paediatric cardiologist in the Bristol maternity units, i.e. Southmead or Bristol Maternity hospitals, and then transferred …' See WIT 0097 0295 Dr Joffe
2 WIT 0099 0039 Dr Jordan
3 WIT 0097 0295 Dr Joffe

before transfer. Occasionally a cardiologist went with the "scoop" team, but this potentially left a period of several hours without cover in Bristol and the cardiologist probably had less to contribute than an anaesthetist.'[4] [5]

**5** Dr John Laband, a junior doctor at the BRHSC from November 1994 to January 1995, confirmed in a letter to the Inquiry:

'We were the first contact with medical staff for parents of babies undergoing heart surgery, the patients first being admitted to the Children's Hospital before being transferred to the Bristol Royal Infirmary usually over the weekend.'[6]

# Pre-operative management of care

## Where children were managed pre-operatively

**6** Dr Joffe explained:

'Children who were acutely ill were managed pre-operatively in the Children's Hospital … ill children who required open-heart surgery were transferred from the BCH to the BRI the previous evening or on the morning of the operation … those children who were not unduly ill, and were at home, were called off the waiting list for elective surgery. They were admitted directly to the BCH for closed-heart operations and to the BRI for open-heart operations, about three days before the date of surgery.'[7]

## Under which specialty children were managed pre-operatively at the BRHSC

**7** Mr Wisheart told the Inquiry that those children who were waiting for closed-heart operations at the BRHSC '… were admitted to and managed in the BRHSC by the cardiologists and the surgeons jointly'.[8]

**8** Dr Joffe told the Inquiry that BRHSC patients for elective surgery '… were admitted under the paediatric cardiac surgeons'; and children who were acutely ill '… were managed pre-operatively in the Children's Hospital under the paediatric cardiology department. Those who required closed-heart surgery at BCH remained under the

4 WIT 0099 0039 Dr Jordan
5 Dr Joffe explained: 'A specialised intensive care ambulance based at the paediatric intensive care unit … at BCH, and staffed by intensivists, only became available after 1995'. See WIT 0097 0295 – 0296 Dr Joffe
6 INQ 0042 0004; letter from Dr Laband
7 WIT 0097 0296 Dr Joffe
8 WIT 0120 0126 Mr Wisheart

paediatric cardiologists until the day of the operation, although the cardiac surgeons liaised with us regarding treatment and the timing of surgery.'[9]

**9** Dr Jordan told the Inquiry:

> 'Although sometime earlier it was traditional for all patients at the Children's Hospital to be admitted formally under a paediatrician, during the period in question the cardiac patients were admitted under the care of a cardiologist. The clerking and immediate care was by paediatric SHO [senior house officer], of which two or three had duties with one of the cardiologists. We also used the consultants and senior registrars in paediatrics to help with any non-cardiological problems.'[10]

**10** Mr Wisheart told the Inquiry that emergency or urgent patients were generally admitted to and cared for pre-operatively at the Children's Hospital: '… their pre-operative management was by the cardiologists but became joint care once the referral to surgery had been made'.[11]

## Under which specialty children were managed pre-operatively at the BRI

**11** Mr Wisheart explained that elective patients were admitted to and cared for pre-operatively in the BRI under the joint care of cardiologists and surgeons: '… but there was a greater surgical contribution due to the fact that the paediatric cardiologists did most of their work at the BRHSC'.[12]

**12** Julia Thomas, Clinical Nurse Manager of the Cardiac Unit,[13] told the Inquiry that on arrival at the BRI, if a child was very ill, he would either go straight to theatre or to the ICU, but otherwise would be admitted to the nursery for pre-operative care: '… once at the BRI, the children were under the care of the consultant paediatric cardiac surgeon, but care was also the responsibility of the multi-disciplinary team involving relevant medical specialties and nursing staff'.[14]

## The management of pre-operative care at the BRHSC

**13** In relation to the pre-operative care of children at the BRHSC, Dr Jordan explained that sick infants would be nursed in the paediatric ICU established in 1985:

> 'The unit was managed medically by a group consisting of the paediatric cardiologists, anaesthetists and Dr [Professor] Fleming from St Michael's Hospital, acting as a paediatric intensivist. The paediatric senior registrars ("SRs") and SHOs

9 WIT 0097 0296 Dr Joffe
10 WIT 0099 0039 – 0040 Dr Jordan
11 WIT 0120 0126 Mr Wisheart
12 WIT 0120 0126 Mr Wisheart
13 From 1988–1992, now a G grade Sister
14 WIT 0213 0028 Julia Thomas

also contributed. Latterly specific parts of paediatric SHO posts were devoted to the ITU but prior to that one or more SHOs at any one time combined work there with other duties. For the last few years, I believe that Dr Hughes, one of the anaesthetists, was in administrative charge.

'The main amount of regular attendance was at two fixed rounds each day, 8:30 and 17:30 (including Saturdays, Sundays and Bank Holidays) at which we made every effort to see that at least one cardiologist was present. There was usually a consultant and SR anaesthetists and the paediatric SR on call for that day. Dr Fleming also came regularly. In addition there were the SHOs with responsibility on the unit. The paediatric consultants did not usually come on these rounds but attended later, fitting in with their other duties, as did the paediatric surgeons. Obviously, if there was a cardiological problem at other times the cardiologist would be called and we were able almost always to ensure that the duty cardiologist was in the hospital or available from home.

'Although they operated at the BRHSC on a regular basis (every Monday morning and some Wednesdays, all day) and saw their patients on return to the ITU from theatre, the cardiac surgeons were less often available than the cardiologists. Initially some decisions such as when to remove chest drains were left to the surgeons, but increasingly were taken by cardiologists or other staff (there were no cardiac surgical junior staff at BRHSC) … We also, from an early stage, had echo-cardiography available and this was useful not only for diagnostic purposes but also to guide treatment for example by assessing left ventricular performance or pulmonary hypertension. This of course also applied to non-cardiac patients nursed on the unit to whose management the cardiologists also made a contribution.'[15]

**14** Dr Jordan told the Inquiry about the equipment and staff available to the cardiologists to enable them to care for patients, including the management of pre-operative care:

'From 1987 onwards we had proper diagnostic equipment for angiography and echo-cardiography.'[16]

**15** Dr Joffe told the Inquiry:

'In the early 1980s, children were catheterised in the BRI which, apart from having to transfer a child from BCH and back, was inappropriate for children. The angiography equipment was uniplane which meant that twice the number of contrast injections was required to obtain all the necessary views. The cardiac catheterisation suite which opened in the BCH in 1987 was "state of the art" at that stage, and functioned well until 1995.

'We struggled to acquire suitable echo-cardiography equipment during the early 1980s and it was only through the financial support of charitable organisations that

15 WIT 0099 0040 Dr Jordan
16 WIT 0099 0043 Dr Jordan

we were able to purchase a 2D echo-cardiography machine in about 1984, and a second in about 1989. The situation improved after Trust status, when we acquired our third machine, in lieu of the outmoded first apparatus. We were always short of cardiac technological staff and, throughout 1984 to 1995, we shared technicians with the adult cardiac catheterisation service at the BRI. It was only in this way that we could ensure that, for emergency catheterisation after hours, there would be someone on call who was familiar with the BCH equipment.

'The paediatric cardiologists performed all echo-cardiography procedures themselves until the late 1980s, when we were able to appoint our first echo-cardiographic technician with financial help from the paediatric oncology department for whom we provided a regular service. In the early 1980s, the paediatric cardiologists reported on all angiograms as part of the cardiac catheterisation reports. This was taken over by Dr Wilde, consultant cardiac radiologist in the mid-1980s and his overall advice and assistance was most welcome. By the early 1990s he became overwhelmed by the demands of adult cardiology and was no longer able to participate in the angiographic procedures himself, but still reported on the angiograms.'[17]

## Further assessment of the clinical condition of children admitted for elective surgery following admission to the BRHSC

**16** Dr Joffe told the Inquiry that children admitted to the BRHSC for elective closed-heart surgery:

'… would be under the care of Mr Wisheart or Mr Dhasmana. However, these patients would be assessed by one or other of the consultant paediatric cardiologists during their twice daily ward round, which reviewed medical and pre- and post-operative surgical patients as a routine.'[18]

**17** Mr Dhasmana said:

'These patients were admitted by the paediatric SHO attached to the cardiology team, and were also examined by the paediatric cardiologists during their ward round and, of course, I would be seeing patients and parents again before surgery … anaesthetists also saw patients as part of their pre-operative check-up.'[19]

**18** Mr Wisheart explained:

'The pre-operative assessment is usually done to confirm the original diagnosis and the absence of any intercurrent illness in an elective patient. One was always conscious of the possibility of the development and evolution of sequelae of the congenital abnormality in elective patients. Between 1984–1995 this possibility

17 WIT 0097 0306 – 0307 Dr Joffe
18 WIT 0097 0296 – 0297 Dr Joffe
19 WIT 0084 0066 Mr Dhasmana

was generally of decreasing significance which I believe is due to the fact that children were being operated on at an increasingly early age.'[20]

**19** Mr Wisheart said that these patients admitted to the BRHSC:

'… were reassessed both by the consultants and the junior doctors within paediatric cardiology and also by the consultant and the registrar in paediatric cardiac surgery. The child was assessed by the anaesthetists, but this would probably be for the first time.'[21]

## The management of pre-operative care at the BRI

**20** Children were generally admitted to Ward 5A at the BRI for elective surgery two days prior to their operation, having been transferred from the BRHSC. If the case was an emergency, children were admitted to the ward more quickly, or in some cases directly to theatre, depending on their condition and availability of ICU beds.[22]

**21** The usual routine once on the ward was for the children to be clerked on admission by the SHO, who would examine the child and take a full medical history, request tests such as X-rays and bloods. The surgeon and the anaesthetist saw the child and parents pre-operatively, usually a day before surgery, when they would assess the clinical state of the child.[23]

**22** Sister Julia Thomas told the Inquiry:

'The admitting nurse was responsible for welcoming the child and family to the unit. The pre-operative screening for infection was carried out by the nurse on admission. This included nose/throat swabs, urine samples and observations of temperature.'[24]

Observations of blood pressure and heart rate were taken and the child was measured and weighed.[25]

**23** Julia Thomas said that the parents of the child were always involved in the pre-operative care and encouraged to stay with the child at all times before the operation. The child was prepared for theatre by the parents, who gave them two baths using anti-bacterial soap, and a hair wash.[26]

**24** She continued in her evidence to say that pre-operative talks were given to the parents and to the child. A book was produced by the nursery staff for the parents to read, with

20 WIT 0120 0149 Mr Wisheart
21 WIT 0120 0127 Mr Wisheart
22 WIT 0114 0075 Fiona Thomas
23 WIT 0114 0075 Fiona Thomas
24 WIT 0213 0032 Julia Thomas
25 WIT 0213 0033 Julia Thomas
26 WIT 0213 0033 Julia Thomas

their child if appropriate, written in simple language with illustrative pictures.[27] The admission paperwork included a full discussion with the family about the child's likes, dislikes, fears, interests, etc.[28]

**25** The parents were taken to see the ICU and the equipment was explained to them. They were encouraged to stay with their child at all times pre-operatively, and accompany them on their visits to other departments for electrocardiograms (ECGs) and X-rays, etc.[29] The family was always seen by a physiotherapist pre-operatively to explain treatment, and they were also seen by one of the nurse counsellors, Miss Helen Stratton or Mrs Helen Vegoda.[30]

**26** An oral pre-medication was given to the child prior to surgery. The children painted their own operation gown with the play leader.[31] A nurse who knew the family accompanied the child to theatre. The parents were also able to accompany their child to theatre, although some consultant anaesthetists did not encourage the parents to go into the anaesthetic room.[32]

**27** Mr Wisheart told the Inquiry:

> 'The nurses cared for the patients from the moment of their admission and made their own assessment in the period to surgery. If they found anything that they considered could be of importance to us they would always let the medical staff know. They had their own discussions with the parents and the families about the operation, about intensive care and other aspects of the patient's likely course.'[33]

**28** Mr Wisheart went on:

> 'The physiotherapists play a very important role in the post-operative care of the patient. In order to do so they always saw the patients prior to surgery and made their own assessment at that time. They also undertook pre-operative physiotherapy and would have their own conversations with parents and families.'[34]

27 WIT 0213 0033 Julia Thomas
28 WIT 0213 0033 Julia Thomas
29 WIT 0213 0033 Julia Thomas
30 WIT 0213 0033 Julia Thomas
31 WIT 0213 0033 Julia Thomas
32 WIT 0213 0033 Julia Thomas
33 WIT 0120 0150 Mr Wisheart
34 WIT 0120 0150 Mr Wisheart

## Further assessment of the clinical condition of children admitted for elective surgery following admission to the BRI

**29** In relation to children admitted for elective surgery to the BRI, Mr Wisheart confirmed that these patients would be reassessed following admission:

> '… the consultant surgeon had always seen the patients before and their status would be reassessed by the senior house officer, by the registrar and by the consultant. They were reassessed by the consultant paediatric cardiologist when he visited Ward 5. The anaesthetic registrar and the consultant would assess them; this would be for the first time and would not be a reassessment.'[35]

**30** Mr Dhasmana explained:

> 'The pre-operative preparation included a clinical examination of the child as a whole and heart and lungs in particular. Blood tests included haematology, biochemistry, clotting study and for X-matching. The bacteriology tests included swabs taken from nose, throat or any other suspicious areas … ECG and chest X-rays were taken and patch tests for allergy to tapes and antiseptic solution were performed. A 2-D echo examination was repeated, if indicated. Suitability of the child for surgery was examined by at least three members of the medical team, admitting doctor, myself in all cases and a member of the anaesthetic team, during the pre-operative check-up and also by the nursing staff. Common causes for the postponement of routine operations were evidence of cold and other chest infections. Paediatric Cardiologists also used to see these patients. I would definitely ask for a Cardiologist's opinion if I felt that there was some change in the child's condition that required cardiological reassessment.'[36]

**31** However, Dr Jordan and Dr Joffe told the Inquiry of the limitations on the cardiologists' involvement in pre-operative assessment or re-assessment at the BRI. Dr Joffe told the Inquiry:

> 'Because of their heavy workload with limited junior staff support … and the difficulties imposed by the split site … it was not possible for the consultant paediatric cardiologists to play much of a role in the immediate pre-operative assessment and post-operative care in the BRI.'[37]

35 WIT 0120 0127 Mr Wisheart
36 WIT 0084 0066 Mr Dhasmana
37 WIT 0097 0297 Dr Joffe

**32** This was confirmed by Dr Jordan who told the Inquiry that reassessment following admission:

> '… was not always easy as far as the cardiologists were concerned as the children were admitted direct to Ward 5 at the BRI. Operation lists were produced at the end of the previous month but were subject to change according to the need to deal with emergencies and the availability of post-operative ITU beds in the BRI ward 5. I tried to see admissions of all patients the day before operation, but since there was no formal arrangement for this I often got to Ward 5 to find that the child had been sent off with his parents into town, having had his routine tests done. I was not encouraged to write anything in the notes to say that I had seen the patient. Clearly, if there was anything which I noted which suggested that the decision to operate should be reviewed, I would make every effort to contact the surgeon concerned. In practice this was unusual, but did occur on a few occasions. It should also be noted that the pre-op catheters … and echo results … would be at the Children's Hospital. It was possible for me or one of the radiologists (particularly Dr Wilde) to carry out a further echo-cardiogram if this was indicated. This became easier once the Heart Circle had provided money for an echo machine to be kept on the ward.'[38]

**33** Dr Joffe stated:

> 'The majority of patients admitted to BRI for non-urgent open-heart surgery (a) would have been assessed fully, with echo-cardiography if necessary, either at BCH outpatients department or at a peripheral clinic, prior to the operation; and/or (b) would not have required further assessment of the cardiac status following comprehensive diagnostic investigations even a year before surgery, if the condition was known not to deteriorate in the medium term … an exception would be those patients without symptoms but with potentially progressive pulmonary vascular obstructive disease, who comprised a small minority of all open-heart operations. However, repeat clinical, radiological, electro-cardiographic and even echo-cardiographic examination in these cases would have been unlikely to establish whether a patient had changed from an operable to an inoperable state. I believe the only way to confirm the then current haemodynamic situation would have been to repeat the cardiac catheterisation study – or perform a lung biopsy. Even these investigations, of course, as is widely recognised in the field, are by no means infallible.'[39]

[38] WIT 0099 0040 – 0041 Dr Jordan
[39] WIT 0097 0297 – 0298 Dr Joffe

**34** Dr Jordan told the Inquiry:

> 'We did set out originally to look at the next weeks' operations in terms of reviewing the catheter and echo data at one of the combined (Monday or Wednesday) meetings with the surgeons, but since they did not manage to get to more than 50% of these at best, and there was often a backlog of recent investigations to discuss with them, this soon fell by the wayside.'[40]

## Shortage of cardiologists with paediatric experience

**35** In 1988 a joint working party of the British Cardiac Society (BCS) and the Royal College of Physicians of London (RCP) was set up as a result of what they called 'a perceived crisis in consultant staffing in paediatric cardiology in the United Kingdom' to look at the causes of the problems and make recommendations for the future. Their report[41] described the situation which confronted the profession in 1987 and 1988 as 'very worrying'.

**36** Asked why it was that this particular crisis had arisen at that time, Dr Robert Swanton, President of the BCS, commented:

> 'I cannot tell you very much about it. I was aware there was a shortage of Senior Registrars in paediatric cardiology at that time. The paper goes on to point out that they will not be able to fill further consultant posts and suggests making proleptic appointments to allow continuing training in the consultant grade.
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> 'Why that shortage of Senior Registrars occurred, I do not know. I think it was obviously manpower planning problems. We were dealing at that time with a very small specialty in its own right, anyway, and I think manpower planning obviously was a big problem at that stage.'[42]

**37** Specifically concerning the situation in the South West, Dr Swanton said:

> 'I think part of the problem was the shortage of large hospitals in this part of the country. I mean, I do not know the area terribly well, but as it stands at the moment, in Cornwall there is one large unit in Truro and then, coming more in this direction, we have Plymouth. There are just those two units. Until recently, Plymouth did not have cardiac surgery and this city was the only centre for cardiac surgery in the whole of the South West of the country.
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> 'The population is certainly big enough to justify it, but for some reason the development did not occur. Whether that was a local issue amongst the physicians, I just do not know, but it is still a problem, as I said earlier, in other parts of the country at the moment. There are big geographical holes in cardiac service

40 WIT 0099 0041 Dr Jordan
41 BPCA 0001 0001 – 0004; *'British Heart Journal'* 1992; 68: 630–3
42 T7 p. 7–8 Dr Swanton

provision in the country. I do not want you to feel that the South West is alone by any means. There are huge black holes still.'[43]

**38** The *'British Heart Journal'* published its fifth biennial survey, *'Staffing in cardiology in the United Kingdom 1988'*,[44] which stated that:

'The United Kingdom, with Ireland, has fewer cardiologists than all other European countries with reliable figures.'[45]

**39** This shortage was reflected in Bristol, where the situation up to 1987 was that only two cardiologists, Dr Joffe and Dr Jordan, were carrying out the whole of the cardiological workload between them. The appointment of Dr Martin to consultant cardiologist at that time was proleptic. He was appointed to the position with six months of his training in paediatrics to complete before he could become a paediatric cardiologist.[46]

**40** Mr Wisheart commented on the situation:

'Q. So we have difficulty in attracting a paediatric cardiologist in the 1980s — there may have been a shortage of them nationally, we have been told.

'A. I would not be able to say off-the-cuff when there were shortages, but I think they would be able to recognise that in a very small specialty, there can be problems of attracting trainees into it and having trainees ready for consultant posts at the irregular intervals when they become available. It is quite difficult. I think that was a problem for paediatric cardiology.'[47]

## Further assessment by other specialties

**41** Dr Stephen Pryn, consultant anaesthetist at the UBHT, told the Inquiry about the involvement of anaesthetists in pre-operative care:

'I always visited the patient on the afternoon or evening prior to surgery. I attempted to coincide my visit with the child's parents or guardians, although this was not always possible. I did not see it as my role, nor did I have the experience, to reassess the patient's cardiac condition with a view to determining whether the proposed operation was still indicated, nor whether this was the optimum time for the surgical intervention … during the visit I assessed the general medical fitness of the patient, reviewed the medication being taken, and assessed any specific anaesthetic problems. I developed an anaesthetic care plan in my mind and

43 T7 p. 52 Dr Swanton
44 *'British Heart Journal'* 1989; 62: 482–7
45 BCS 0001 0018; *'British Heart Journal'* 1989; 62: 482–7
46 T84 p. 100–1 Mr Dhasmana
47 T40 p. 82 Mr Wisheart

explained to the parents the basics of my plan for pre-operative starvation, pre-medication, anaesthetic induction, invasive monitoring and intensive care.'[48]

**42** Dr Pryn said:

> 'As an anaesthetist, I respected the experience and authority of the surgeons. If I saw a child pre-operatively and I thought that the child was not optimally fit for anaesthesia and surgery because, for example, of a chest infection, I would go and discuss the case with the consultant surgeon concerned. Having expressed concerns that I had, I appreciated that the surgeon had to balance the risks of delaying surgery with the risk of proceeding, and that the final decision had to be made by him.'[49]

**43** Mr Eamonn Nicholson, clinical perfusionist, told the Inquiry:

> 'Perfusionists generally were not involved pre-operatively, save to visit the wards pre-operatively to review the patient's history from the records and to identify anything unusual which might affect the choice of equipment for perfusion … the pre-operative assessment and preparation did not involve perfusionists at the relevant time, but this has changed since Mr Pawade [consultant paediatric surgeon] came.'[50]

**44** Mrs Mona Herborn, Sister in Cardiac Theatres at the BRI, explained that: 'Theatre staff had no input into pre-operative assessment of patients.'[51]

## The decision to recommend surgery

**45** The Inquiry heard that decisions about the type and timing of surgery and which surgeon was to operate were generally made following discussion in the joint cardiology/cardiac surgery meetings which were held twice weekly at the BRHSC catheterisation laboratory (Mondays at 8:00 am and Wednesday lunchtimes).

**46** Mr Wisheart explained:

> 'These were essentially meetings between the cardiologists, the cardiac surgeons and the cardiac radiologist, but which frequently included the paediatric counsellor together with nurses and radiographers who worked in the catheterisation laboratory. From time to time an anaesthetist attended but this was not common. Where consultants were present, as far as possible, their juniors

48 WIT 0341 0016 Dr Pryn
49 WIT 0341 0010 Dr Pryn
50 WIT 0489 0053 Mr Nicholson
51 WIT 0255 0031 Mrs Herborn

would attend also … The paediatric cardiologist responsible for [the] child would indicate to which surgeon the referral was being made. He would then present the case, giving an account of the clinical history, the findings on examination …'[52]

**47** Mr Wisheart said:

'In order to reach a decision there would then be a discussion which might primarily be between the referring cardiologist and the surgeon to whom the patient is referred but which would actively include all the others attending the meeting … the anaesthetists were not usually involved in this initial decision-making process and I think they would generally not regard it as being within their area of specialised expertise.'[53]

**48** Mr Wisheart commented that the joint meetings:

'… sought to make plans for the operation and also to foresee any additional features that would need to be taken into account during the procedure. This was recorded in the note of the meeting. If any additional features or developments came to light between the investigation and the operation, then the cardiologist would of course inform the surgeon.

'It was important that the anaesthetists, the nurses and the perfusionists should know what procedure was likely to be undertaken and what special features would be associated with any particular patient. I would expect our colleagues to be familiar with the patient's notes and all the expected details of the operation. If there were any special points affecting anaesthesia, perfusion or scrub nurses, then the surgeon would draw their attention to it prior to the operation. Having said that, it was relatively rare that such a discussion would be needed because all parties were used to working together and were familiar with each others' practice.

'Immediately prior to surgery, the patient was reviewed clinically, from the point of view of their present condition and the possibility of there being any intercurrent illness. The investigations were also reviewed. If such a review led to any new questions or any possible new interpretations of the data, then that would be discussed by the cardiologists, and/or cardiac radiologist and the paediatric cardiac surgeon as appropriate. The management of medication prior to surgery was agreed between us. There was not a meeting in the days or the week prior to surgery when all members of the team met together to discuss the details. However, the surgeon's team of registrar and SHO would discuss the details of all of these patients immediately prior to surgery.'[54]

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52 WIT 0120 0128 Mr Wisheart. However, of the decision to refer to one surgeon or the other, Dr Jordan said that this '… was largely a function of which surgeon happened to be present, although there were some procedures, particularly the arterial switch, where it had been decided that only one surgeon (i.e. Mr Dhasmana) would carry out all operations.' See WIT 0099 0041 Dr Jordan

53 WIT 0120 0129 – 0130 Mr Wisheart

54 WIT 0120 0148 – 0149 Mr Wisheart

**49** Mr Dhasmana stated:

> '… that it was the cardiologist's responsibility to refer their patients for the type of surgery and for the choice of a particular surgeon. However, it could have been influenced at the joint meeting …'[55]

**50** Dr Jordan said that the decision whether or not to operate and when:

> '… was the final decision of the surgeon, but it was very unusual for there to be any disagreement on the treatment. More commonly discussions centred on whether other investigations were necessary and the exact timing of the operation. While we could together agree on the optimum timing the surgeon was the only one who controlled the waiting lists.'[56]

**51** However, Mr Wisheart's view was that:

> '… to assign any "ultimate" responsibility to an individual is not appropriate to this process, which is based on discussion, debate and the agreement of a minimum of two people, before the referral can proceed. The answer to the question who carries ultimate responsibility therefore, cannot be one individual but must be at least two, namely the cardiologist and the surgeon, but it could be argued that it actually lies with the larger team.'[57]

**52** If differences of opinion between the clinicians could not be resolved after discussion or it was agreed that further advice was required or that the patient should be referred to another centre, the cardiologist or the cardiac surgeon would make a referral.

**53** In the case of urgent patients where decisions could not wait until the next Monday or Wednesday meeting, Mr Wisheart explained:

> 'The cardiologist will call the surgeon receiving paediatric cardiac emergencies on that day, and they would meet, possibly with the radiologist, see the patient and review the investigations. They would then decide what in their view was the appropriate course of action.'[58]

## The decision on the timing of operations/the operating theatre list

**54** The Inquiry heard that the joint meetings would discuss the category to which each patient should be assigned: elective, urgent or emergency.[59] The timing of surgery was then dependent on the theatre lists.

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55 WIT 0084 0067 Mr Dhasmana
56 WIT 0099 0041 Dr Jordan
57 WIT 0120 0132 – 0133 Mr Wisheart
58 WIT 0120 0130 – 0131 Mr Wisheart
59 WIT 0120 0134 Mr Wisheart

**55** Dr Jordan felt that the timing of the surgery was in the hands of the surgeons, although:

> 'The cardiologists did continue to see patients on the surgical waiting list and would remind the surgeons of patients who appeared to be waiting too long.'[60]

**56** Dr Jordan told the Inquiry that the timing of operations:

> '… was entirely dependent on the waiting lists and the surgeon's assessment of urgency … in addition, it did also relate to the availability of paediatric trained nurses and the length of stay of children and infants already operated, some of whom stayed for over two weeks in ITU … certainly some patients, particularly those with AVSD [Atrio-Ventricular Septal Defect] and pulmonary hypertension in whom it was intended that operation should take place within one to two weeks, had to wait that number of months, or even longer.'[61]

**57** Dr Jordan stated that the organisation and management of theatre lists was the responsibility of the surgeons at both the BRI and BRHSC.[62]

**58** Dr Joffe agreed with Dr Jordan that the organisation and management of theatre lists was entirely in the hands of the surgeons.

**59** Dr Joffe told the Inquiry that at the joint meetings:

> 'The paediatric cardiologists would … always give their perception of the urgency of the required intervention … The surgeons made the decisions about the timing of surgery.'[63]

**60** Dr Joffe added:

> '… the patients are discussed in detail at joint meetings of cardiac surgeons and paediatric cardiologists and others and decisions are jointly come to in the vast majority of cases. Then the patient is either accepted or not, usually accepted, by one or other surgeon and then the patient's name goes on to a surgeon's list, not on the waiting list yet but an acceptance that the surgeon will see the family in outpatients and it is at that time, once the surgeon has had an opportunity to discuss the details of the risks with the families, that they effectively go on to the waiting list.
>
> 'So there would be a time period between the joint meeting which itself usually occurred within two to three weeks or so of the cardiac catheter study, if one is done or otherwise on the basis of the echo-cardiographic findings, the paediatric

60 WIT 0099 0042 Dr Jordan
61 WIT 0099 0042 Dr Jordan
62 WIT 0099 0042 Dr Jordan
63 WIT 0097 0301 Dr Joffe

cardiologists would put that patient into the list for discussion, so there is a short period of delay there inevitably in the system and then once the surgeon has accepted the patient after seeing the family, [the patient] goes on to their waiting list.'[64]

**61** Mr Wisheart commented on the organisation and management of the theatre lists:

'Mr Dhasmana and I operated on children according to a consistent programme, and on days when cardiac anaesthetists were present … The operating plan for each month was made in the previous month; some gaps would be left so that emergencies could be accommodated … in selecting patients from the waiting lists for each month's operating programme I normally reviewed all the children on the waiting list. I would then select six or seven children for the operating programme. The selection would be based on the urgency which had been assigned to the patient and the length of time they had been waiting already. Any other features of note would be taken into account …'[65]

**62** Mr Wisheart explained:

'If it is either urgent or emergency, then arrangements will be made at that point for the operation to be carried out.'[66]

### Timing of emergency operations

**63** In relation to emergency cases, Dr Joffe said:

'There were rarely problems with regard to the timing of an operation for patients requiring an emergency procedure … a theatre slot could always be arranged at the BRI for these patients, even if it meant cancelling a previously booked adult case. Quite often, these operations would be fitted in over the weekends.'[67]

**64** Mr Dhasmana confirmed that emergency patients would be operated on:

'Whenever required, out of hours, in the night or over weekends.'[68]

### Timing of urgent operations

**65** Mr Wisheart provided a 'working definition' of the urgent category, namely:

'… that the patient had to be operated on before they left hospital. Occasionally it would have included patients who were well enough to leave hospital, but nevertheless needed to be operated on within the next week or two.'[69]

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64 T90 p. 81 Dr Joffe
65 WIT 0120 0135 Mr Wisheart
66 WIT 0120 0134 Mr Wisheart
67 WIT 0097 299–300 Dr Joffe
68 WIT 0084 0067 Mr Dhasmana
69 WIT 0120 0137 Mr Wisheart

**66** Mr Dhasmana told the Inquiry:

> 'I would also tell parents, in the group of patients which were categorised as urgent/semi urgent, when to expect surgery. They could ring nearer the time to find out if the operation was on schedule or not. This would also serve as a reminder regarding the state of urgency … I would also tell parents to take the child to their doctor or referring clinician if there were any changes in the patient's clinical condition. The GP and/or cardiologist would also remind me of the urgency. I used to leave a slot empty each week to accommodate an urgent case or any other patient, I had been informed of deteriorating while waiting for surgery.'[70]

### Timing of elective operations

**67** Mr Wisheart said:

> 'If the operation is an elective one then a view is needed as to whether the operation should be in one month, three months, six months, one year or whenever. The arrangements will be made to see the family in the outpatients, and if the family accepts the advice which is offered to them, then the patient's name is placed on the surgeon's waiting list. The parents were informed in a broad way of when the operation was expected to take place. In practice, these estimates were not always accurate. The paediatric cardiologist continued to see the patient in his outpatient clinic … he would keep the surgeon informed of any new development or change in the patient's condition that might influence the timing of surgery. The surgeon, when he made his monthly operating programme, determined the exact date of the proposed operation for each patient.'[71]

## Delays in surgery

**68** Dr Joffe said: 'We were aware that there were constraints at times due to insufficient beds or nurses'[72] in carrying out operations at the BRI. However, he stated that emergency cases were normally dealt with within 24 hours.[73]

**69** Dr Jordan said:

> 'There were certainly continuing and important delays. For example, from about 1990 onwards we were trying to investigate all babies with Down syndrome [*sic*] and AVSD or large VSD [Ventricular Septal Defect] by three to four months in the expectation that they would then get their surgery within four to six weeks, but they often had to wait that number of months before an operation could actually take place. How much this affected the outcome, is a matter for speculation, but the general view for pulmonary hypertensive patients was that any delay would increase the risks.'[74]

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70 WIT 0084 0067 Mr Dhasmana
71 WIT 0120 0134 Mr Wisheart
72 WIT 0097 0302 Dr Joffe
73 WIT 0097 0301 Dr Joffe
74 WIT 0099 0042 Dr Jordan

**70** Dr Joffe commented on the delays in the urgent group of patients. He told the Inquiry that these were patients:

> '… for whom surgery was not so critical as to need an operation within about 24 hours, but who could deteriorate in the course of weeks or months. This group included patients who became increasingly cyanosed; and infants with large communicating defects and left to right shunts, causing high pulmonary blood flows and severe heart failure. Despite intensive treatment with appropriate medication, these babies remained breathless, could not feed adequately, and failed to thrive. They were often hospitalised at BCH for many weeks while awaiting surgery. Also in this group were infants with pulmonary hypertension, as occurs particularly with complete atrio-ventricular septal defects, typically in babies with Down's syndrome.'[75]

**71** Dr Joffe continued:

> 'The concern about those who were deeply cyanosed or in persistent heart failure was that they might not be in optimal general condition for surgery. This could lead to difficulties at operation and in the immediate post-operative phase.'[76]

**72** Of the urgent patients Mr Wisheart said:

> 'In many ways these patients offered us the greatest problem because they neither had the emergency status that clearly took priority over everybody else nor could they simply wait. We would normally seek to schedule them in the next gap in our operating programme (we did leave gaps for urgent and emergency cases). Of course the gaps were not usually available at the right time. In that event, either the urgent patient had to wait a little longer or else he had to replace a patient who was expecting surgery with all the disappointment for that family.'[77]

**73** Mr Wisheart said:

> 'We did our best within the facilities available to us to ensure that children were operated on at the appropriate time. It should be remembered that for the many patients the "appropriate time" would have spanned quite a long period … we were not in the position where we had a facility with sufficient spare capacity to be able to deal with every child when he or she presented.'[78]

75 WIT 0097 0300 Dr Joffe
76 WIT 0097 0302 Dr Joffe
77 WIT 0120 0137 Mr Wisheart
78 WIT 0120 0138 Mr Wisheart

**74** Mr Wisheart explained:

> 'It was my practice to give a broad indication when we would like to do the operation so that the parents and families can plan ahead … We tried to operate at the predicted time, but certainly did not always succeed.'[79]

**75** He explained that operations would have to be postponed if there was no ICU bed available, there was a shortage of nurses, and there was an emergency or, rarely, a shortage of blood for transfusion. Every effort would be made by members of the team to overcome these problems. If they could be overcome then the work would be done and the patient would be operated on. If they could not be overcome safely, then it would be dangerous and not in the patient's best interests to proceed.[80]

**76** Dr Joffe, commenting on delays in respect of non-urgent cases, said that such cases:

> '… would often be delayed beyond the anticipated date for surgery because of competition with the long adult waiting list. On the other hand, the long-term outcome for these patients would usually not be any different, even after delays of several months.'[81]

**77** Dr Laband, a junior doctor at the BRHSC from November 1994 to January 1995, stated in a letter to the Inquiry:

> 'It was a generally held view among the medical staff that these babies were held in the waiting list for far too long and were in a much weaker condition than they need have been.'[82]

**78** Mr Wisheart said:

> '… patients having elective operations sometimes had to wait a considerable time for surgery, perhaps longer than predicted at the outset. For the great majority this was not of critical importance, but for some it may have been of significance.'[83]

**79** Mr Dhasmana estimated that elective surgery patients could wait for eight to nine months before surgery and sometimes longer if they were moved in order to accommodate more urgent cases.[84]

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79 WIT 0120 0139 Mr Wisheart
80 WIT 0120 0140 Mr Wisheart
81 WIT 0097 0300 Dr Joffe
82 INQ 0042 0004; letter from Dr Laband
83 WIT 0120 0142 Mr Wisheart
84 WIT 0084 0067 Mr Dhasmana

**80** Mr Dhasmana commented on whether operations were carried out at the appropriate time. He told the Inquiry:

> '… every clinician worries about the waiting list and the known fact that a patient may deteriorate over this period. Ideally there should not be a waiting list for any patient, but resources are limited and the clinician has to prioritise amongst his patients on the basis of clinical criterion … there were targets to be attained for the number of Coronary Arterial Surgery so there was unwritten competition between adults and paediatrics. Some of our colleagues, practising with adults only, used to get unhappy with the prospect of ITU beds getting "clogged" by paediatric patients. Mr Wisheart and myself used to make some adjustments to our operating programme so that not more than three major paediatric operations were carried out in one week … The availability of beds in ITU also played an important role in the scheduling of both adult and paediatric operations. Similarly, the availability of anaesthetists was a factor in my scheduling of paediatric operations. During the mid to late 80s Dr Masey and Dr Burton were the main anaesthetists dealing with infants and neonates. The situation improved in the 1990s with the appointment of Dr Underwood and Dr Pryn enabling us to operate on infants more frequently. Additionally, the availability of nurses capable of dealing with children was also a known factor … the situation could get worse if there was leave of absence due to sickness amongst this small core of nurses in the ITU or in the operating theatres.'[85]

**81** Mr Dhasmana felt that the operations were at a time 'that was not ideal, but most probably appropriate in the circumstances, with limitations in the resources.'[86]

**82** Mr Wisheart commented on the waiting lists:

> 'In the situation in which we found ourselves where most months we would have liked to operate on twice as many patients as we were able to do, it was unfortunately essential to establish priorities amongst patients who were ready for surgery.'[87]

85 WIT 0084 0067 – 0068 Mr Dhasmana
86 WIT 0084 0068 Mr Dhasmana
87 WIT 0120 0137 Mr Wisheart

**83** Julia Thomas said:

> 'There were occasions when the intensive care beds were occupied by seriously ill patients and other cases had to be cancelled … this situation was improved by the expansion of the intensive care beds to eight, and the provision of seven high dependency beds, in 1988. This allowed the less complicated of the adult cases to be "fast tracked" in the high dependency unit, thus leaving the ITU beds available for more seriously ill patients. Occasionally, nursing staff shortages, mainly due to sickness, caused the closure of an ITU bed. There were also occasions when theatre staff sickness caused cases to be cancelled. This also happened when theatre staff had been working during the night on emergency cases, as the first morning case was then postponed. This had a knock-on effect on the theatre list for the rest of the day.'[88]

**84** Mrs Herborn explained the organisation and management of theatre lists:

> 'A monthly meeting would take place between surgeons where the monthly theatre list would be made. This was passed to the theatre sister who would arrange the theatre staff duty roster around the theatre list. However, each list would invariably undergo a multitude of alterations. These may have been due to a shortage of beds in the ITU, a more urgent/emergency case being presented, or the fact that because an operation had overrun the previous day, there was no scrub nurse or anaesthetic assistant available to assist that morning's operation. Daily theatre lists were compiled by the Senior House Officer in cardiac surgery and sent to us the afternoon before. These were more detailed than the monthly lists so that theatre staff were able to prepare the theatres according to the type of operation to be undertaken.'[89]

**85** Mr Wisheart also explained that late referral for surgery, whether by a general practitioner, paediatrician or paediatric cardiologist, would be a reason for the operation taking place later than might have been desirable.[90]

88 WIT 0213 0031 Julia Thomas
89 WIT 0255 0029 – 0030 Mrs Herborn
90 WIT 0120 0142 Mr Wisheart

# Chapter 14 – Care in the Operating Theatre and the 'Learning Curve'

# Introduction

**1** This chapter is in two separate but connected parts, 'Care in the operating theatre' and 'The "learning curve"'.

**2** The first part deals with the full operating team in theatre and focuses on the roles of the various contributors to patient care in the operating environment.

**3** The second part considers the 'learning curve' that surgeons have to manage in order to carry out new procedures and improve techniques and skills for the benefit of patients. It also specifically considers the Arterial Switch procedure.

# Care in the operating theatre

## The operating theatre team

**4** Mr James Wisheart, consultant cardiac surgeon, explained:

> '… the team in the operating theatre is made up of:
>
> '(i) the anaesthetists, who normally include consultants, either senior registrars or registrars and the anaesthetic nurse;
>
> '(ii) the surgeon, together with his senior registrar or registrar and senior house officer;
>
> '(iii) the nurses who scrub to assist the surgeon and to be the "runner"[1] in the operating theatre (and the anaesthetic nurse);
>
> '(iv) the perfusionists who operate the cardio-pulmonary bypass equipment.'[2]

1 Or 'circulating nurse'
2 WIT 0120 0165 Mr Wisheart

**5** Mr Janardan Dhasmana, consultant cardiac surgeon, identified the members of the operating theatre team as being the surgeons, anaesthetists, nurses, perfusionists, supporting laboratory staff and technicians.[3]

**6** Mr Wisheart explained how a particular team would be brought together for an operation. He said that the patient was referred to a surgeon and placed on his waiting list and would then be scheduled for an operation on a day when it was known that a paediatric cardiac anaesthetist would be working:

> 'When the nursing team sees the operating programme it plans the allocation of its members to particular operations, and a nurse who is experienced in the work for children will be allocated to this paediatric procedure.
>
> 'Similarly an anaesthetic nurse who has experience with children will be allocated to assist the anaesthetist.
>
> 'The perfusionists will similarly allocate one of their members to carry out this perfusion and one to assist them. The assistant may be either more junior or more senior than the person who is actually undertaking the perfusion.'[4]

3 WIT 0084 0070 Mr Dhasmana
4 WIT 0120 0166 Mr Wisheart

**7** Mr Wisheart explained the involvement of the various teams in the various phases of an operation in the form of a table:[5]

| **Phase of the Operation** | **Anaesthetic Team** | **Surgical Team** | **Nursing Team** | | **Perfusionists** |
|---|---|---|---|---|---|
| | | | Anaesthetic Nurse | Scrub Nurse | |
| 1) In the Anaesthetic Room | + | Standby | + | Preparing | Preparing |
| 2) Moving into Operating Theatre | + | Registrar present in Theatre, Consultant on standby | + | Preparation complete, ready to Begin | Preparing |
| 3) Preparing for Cardio Pulmonary Bypass | + | Usually done by Registrar, sometimes the Consultant & Registrar | + | + | Standing by |
| 4) On Cardio Pulmonary bypass | Consultant may take break for coffee, Registrar stays | + | + or – | + | + |
| 5) Coming off Cardio Pulmonary Bypass | Consultant returns + | + | + | + | + |
| 6) Closing the chest | The Consultant and/or the Registrar | The Consultant and/ or the Registrar | + or – | + | Initially standing by then tidying up |

Note: + indicates that the whole team is actively participating in this phase of the operation.
+ or – indicates this person or group in the team need be less fully committed during this phase of operation.
29/06/99

**8** Mr Dhasmana commented on Mr Wisheart's table:

> 'I have nothing more to add, except for supporting his statement that every team was an integral part of the whole service and communication and co-ordination between different teams was essential in order to achieve successful outcomes.'[6]

5 WIT 0120 0168 Mr Wisheart. The table does not refer to the actual conduct of the surgery
6 WIT 0084 0070 Mr Dhasmana

**9** Mr Wisheart also set out those factors that he thought affected the performance of the team in the operating theatre. These included:

> 'Mundane issues such as the absolute necessity for punctuality, openness and honesty … Each individual member of the Team must have prepared for the operation and should anticipate the problems and needs that could arise.'[7]

**10** Mr Wisheart commented on the hours of work. He said:

> 'The theatre nurses contracts provided for a stated number of hours per week. In cardiac surgery the nurses also provided on call cover at nights and weekends. If they worked extra hours attempts were made to "give back" those hours.
>
> 'Perfusionists worked in a similar way, but were paid for overtime hours.
>
> 'Junior doctors contractual arrangements evolved during the period 1984–1995. Initially there was no specified number of hours of work; later it was limited to 80 hours a week and still further on to 56 hours a week as a target. In cardiac surgery vigorous efforts were made to comply with these regulations but we did not always succeed.
>
> 'Consultants contracts do not specify any particular number of hours per week.[8]
>
> 'There were occasions when personnel were tired but I believe their performance in the operating theatre remained at a high level.'[9]

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7 WIT 0120 0171 Mr Wisheart

8 This may convey a misleading impression. The Inquiry has received advice that from 1984 until 1st April 1991, the National Health Service (Remuneration and Conditions of Service) Regulations 1974 provided for the remuneration and conditions of service of officers employed by a Health Authority or Special Health Authority. These 'officers' included doctors**.** Forty-four hours were contracted for (11 sessions of four hours' notional duration). With effect from 1st April 1991, the National Health Service (Remuneration and Conditions of Service) Regulations 1991 were made, which, amended only in respect of the definition of authority, to take account of changes made by the Health Authorities Act 1995, and in respect of the power of Authorities to determine remuneration where there was no recognised negotiating body, continue to the present.
Where a full-time consultant or Associate Specialist appointment is made, it may be held on one of two bases: whole time or 'maximum part-time'. Both are '… expected to devote substantially the whole of their professional time to their duties in the NHS'. A maximum part-time practitioner is paid ten-elevenths of the whole time salary, and has a minimum work commitment equivalent to ten notional half-days.
It appears to follow that a consultant contracts for 11 sessions per week, each session being of a notional four hours' duration.
'Employing authorities' (i.e. Trusts) may offer part-time appointments to be held by consultants and associate specialists.
A staff grade of hospital practitioner contracts for a minimum average work commitment of 10 sessions a week, each session being equivalent to four hours' work *plus* a liability to deputise for absent colleagues who are on annual and study leave, or for no more than two weeks where other forms of leave have been taken or a vacancy has been unfilled. In addition, the staff grade practitioner commits to undertake 'such exceptional irregular commitments outside normally rostered duties as are essential for continuity of patient care; and … exceptionally, duty in occasional emergencies and unforeseen circumstances.' Junior doctors (SR, R, SHO and HO grades) contract for 40 standard hours per week, plus 'such further hours … as are agreed with the employing authority' subject to certain controls. Those controls in the 1995 edition introduced a provision that 'as soon as practicable the maximum average contracted hours of duty for practitioners working on on-call rotas' should not exceed 83 per week, including handovers at the start and finish of duty periods. There are other provisions restraining the average contracted hours 'in hard-pressed posts', and preventing any period of continuous duty being longer than 32 hours during the week and 56 at weekends, and for a minimum period of time off every three weeks.

9 WIT 0120 0173 Mr Wisheart

## The role of the surgeons

**11** Mr Wisheart told the Inquiry:

> 'In the operating theatre the surgeon is the lead figure and has the ability to determine the prevailing atmosphere.'[10]

**12** Mr Wisheart stated:

> 'The anaesthetic team will consist normally of a consultant, a Senior Registrar or Registrar and a nurse. In addition to their own internal communications they need to maintain a good level of communication with the surgeons and with the perfusionists and finally with the laboratory. As the surgeons, perfusionists and anaesthetists know each other, these communications do not need to involve lengthy conversations …
>
> 'The surgeons need to maintain a good level of communication with the anaesthetist, with the scrub nurse and with the perfusionists. Again, because the parties know each other, many of these communications may be unspoken. This is particularly the case with an experienced and efficient scrub nurse, who anticipates the needs of the surgeon …
>
> '[The anaesthetic nurse's] work is chiefly with the anaesthetic doctors, but he or she will frequently have a role of keeping the Ward informed of the progress of the operation and from time to time will interact with the nurse who is the "runner"…
>
> '[The scrub nurse] relates most closely and importantly to the operating surgeon and his team, but she also interacts frequently and importantly with the nurse who is the "runner" who provides the scrub nurse with any instruments, disposables, implants or other equipment, which she may need. The scrub nurse has some interactions with the perfusion team with regard to the provision of disposables which the surgeon uses in establishing cardio pulmonary bypass.'[11]

**13** Dr Stephen Pryn, consultant in anaesthesia and intensive care, said of Mr Wisheart and Mr Dhasmana in the following exchange:

> 'A. They were never in theatre scrubbed ready to go when we came in from the anaesthetic room. Quite often, especially with Mr Wisheart's cases, the child would be anaesthetised on the operating table, the case would be started by his Senior Registrar, and the Senior Registrar would then get ready to place the lines to go on to bypass and the operation would then stop, as the nurses madly phoned around to try and find where Mr Wisheart was and ask him to come down, and we would basically be twiddling our thumbs for quite a long time before we could progress.

10 WIT 0120 0170 Mr Wisheart
11 WIT 0120 0169 – 0170 Mr Wisheart

'Q. Quite a long time?

'A. Maybe half an hour. That never happened with Mr Pawade.[12]

'Q. What about Mr Dhasmana? Had that been a problem with him?

'A. He was not present when we brought the cases into theatres, but he was often present at the start or shortly after the start of surgery, so not so much a problem waiting to go on bypass with him.'[13]

**14** Mrs Kay Armstrong, Cardiac Theatre Sister at the BRI, stated in her written evidence to the Inquiry:

'Weekly meetings also took place between theatre sister, manager, surgeon, anaesthetist and perfusionist to discuss day to day problems, including the punctuality of surgeons. This was a big issue because we would bring a patient into theatre, anaesthetised. They would then be prepared for surgery by the registrar ready for the consultant surgeon to put them on bypass. However, there would sometimes be a long wait before the Consultant arrived which I felt was dangerous. Mr Wisheart was the main offender. Mr Dhasmana would usually come when he was asked.'[14]

She later continued:

'We were often kept waiting for a surgeon to appear in theatre despite several attempts to inform him that the registrar had the patient ready to go on bypass.'[15]

**15** Mr Wisheart commented in his written reply:

'There is a practical problem in that the time taken to anaesthetise and place the patient on by-pass was extremely variable, and could range from a little over one hour up to three hours. I was always in the hospital at or immediately after 0800, but did not feel that I could simply spend the time waiting in the theatre suite. Therefore I sought to do something useful waiting to be called when needed.'[16]

He also stated:

'In order to be in theatre when needed I expected to be called a sufficient time ahead to enable me to get to theatre, change and scrub. This did not always happen and I do recall asking to be called earlier on quite a number of occasions …

12 Consultant paediatric surgeon from 1995
13 T72 p. 113 Dr Pryn
14 WIT 0132 0009 Mrs Armstong
15 WIT 0132 0014 Mrs Armstrong
16 WIT 0132 0067 Mr Wisheart

'If this was perceived to be a major issue, it was not drawn to my attention at the time in those terms by either the nursing or anaesthetic staff.'[17]

**16** This issue was further explored with Mrs Armstrong in the following exchange:

'A. The variability in time should have nothing to do with it. The point is that we would never send for the surgeons until we were ready for them to come. When we sent, it was how quickly they responded to us sending for them.

'Q. But the variability, the length of time it took to put the patient on bypass is completely irrelevant because the surgeon would always be there before the patient began to go on bypass?

'A. Yes, but not before – when I say "put the patient on bypass", there is a good half an hour's surgery that takes place before that.

'Q. I do not think we are at odds.

'A. (To the Panel): You understand, yes? So someone else opens the patient up. Someone else may well put the "purse strings" in. When we are at the point when the heparin is being given and we are putting the "purse strings" into the patient, then we would call for Mr Wisheart or Mr Dhasmana to come to theatre to put the patient on bypass.

'Mr Dhasmana would always come straightaway, but Mr Wisheart would take some time to come and we would often need to call him two, maybe three times.

'Q. Who would call the surgeon?

'A. Whoever was the circulating nurse on that day.

'Q. How much warning would a surgeon reasonably need, do you think, to be told and able to get to the theatre and change and get himself ready?

'A. I would think they would need 10 to 15 minutes.

'Q. So do you understand Mr Wisheart's comment …?

'A. No. I do not feel that the time taken in the anaesthetic room is relevant because we would not send for him until we were ready for him.

[17] WIT 0132 0067 – 0068 Mr Wisheart

'Q. He does say ... that if this was perceived to be a major issue, nobody told him that it was a major issue?

'A. It was brought up frequently at the meetings. We used to have meetings where there was myself or Sister Herborn, the theatre manager. There would be the chief perfusionist and Mr Wisheart and punctuality was often on the agenda.

'Q. So he is wrong about that?

'A. I believe him to be wrong about that.'[18]

**17** Mr Dhasmana commented in writing on Mrs Armstrong's statement that he 'would usually come when he was asked':

'I feel that this is a vague statement and may impart unfairly on me. In cases of complex and other major paediatric operations and in all emergency operations, I would always be waiting for the patient to arrive in the theatre from the anaesthetic room ... However, during many routine adult operations, some paediatrics like ASD and isolated VSD and [a] few other paediatric operations in older children the senior or experienced Registrar would start the case and I would then be called in when it was ready to go on bypass. I would like to add that this is a common practice in adult cardiac surgery amongst cardiac units in the UK.'[19]

**18** Mrs Armstrong commented further in the following exchange:

'A. He [Mr Dhasmana] was always present in theatre if we had an emergency such as a dissection or something like a TAVPD … Our instructions were to bleep him when the patient was brought into theatre. Those were always our instructions. We would bleep him. He would respond to his bleep, and then he would come to theatre. That process would probably take between 15 and 20 minutes.

'Q. Just a little longer than the time-frame you mentioned a moment ago?[20]

'A. That is correct. I did say that Mr Dhasmana would usually come when asked.

'Q. You say Mr Wisheart was the chief offender?

'A. That is correct.'[21]

18 T59 p. 62–4 Mrs Armstrong
19 WIT 0132 0024 Mr Dhasmana; see Chapter 3 for an explanation of clinical terms
20 '10 to 15 minutes'; T59 p. 63 Mrs Armstrong
21 T59 p. 64–5 Mrs Armstrong; see Chapter 3 for an explanation of clinical terms

**19** Mr Wisheart told the Inquiry subsequently that there were occasions when a surgeon was late arriving in theatre.[22] He explained his approach:

> 'So I, in general, sought to use the time some other way and asked the theatre to inform me in good time so I could stop what I was doing, change, scrub and join the operation.
>
> 'The problem that seemed to arise is that when they informed me they really wanted me in 10 minutes rather than in 20, if I may put it that way. I am not saying I was never at fault myself in any other way, but that was a common issue and it arises directly out of this sort of background; how long does it take to get going, and one never knew.'[23]

**20** Mr Wisheart was asked by Counsel to the Inquiry in the following exchange:

> 'Q. ... if it is the case that it was a late call by the theatre to you when you were quite appropriately doing something else, can you help with why the comment should be directed more at you than at him [Mr Dhasmana] because one would have thought that it ought to have been equal?
>
> 'A. I cannot comment. I mean I cannot contribute anything to that, I am sorry.'[24]

**21** Dr Sally Masey, consultant anaesthetist, told the Inquiry about the organisation of the theatre in the following exchange:

> 'Q. In the theatre there was a change, was there not, in 1994 in the organisation of the theatre in that surgical assistants were appointed?
>
> 'A. Two part-time surgical assistants were appointed, but I do not know the date.
>
> 'Q. Why was that change made?
>
> 'A. I do not know the reason why the change was made.
>
> 'Q. What was the professed reason for it?
>
> 'A. I cannot recollect professed reasons — reasons given for it, but I can think of reasons why this move was made.

22 T93 p. 125–6 Mr Wisheart
23 T93 p. 126 Mr Wisheart
24 T93 p. 127 Mr Wisheart

'Q. What would they be?

'A. The reason would be that the surgical assistants would be able to perform operative tasks that at that time were being performed by surgical Senior House Officers. This would free up those SHOs for other duties, if these duties could be performed by surgeons' assistants.

'Q. What was your attitude to this change …?

'A. I felt it was a positive move.'[25]

## The role of the theatre nurses

**22** The theatre staff were made up of Registered General Nurses (RGNs), State Enrolled Nurses (SENs) or Operation Department Practitioners (ODPs). In 1994 it was decided to have separate teams of anaesthetic and scrub nurses so that the anaesthetists were working with the same staff to provide continuity.[26] Prior to this the staff were multi-skilled and worked on the scrub side and also in the anaesthetic room.[27]

## Performance of the team: a surgeon's perspective

**23** Mr Dhasmana discussed teamwork in the operating theatre and the way in which operations at Bristol were conducted as compared with those he had witnessed in Birmingham when he went to observe the consultant paediatric cardiac surgeon, Mr Brawn, in the following exchange:

'Q. What was it about his team that was better than your team?

'A. Well, he had a dedicated paediatric cardiac surgical assistant in a way. My assistant, even though he could be a Senior Registrar, may not be a dedicated paediatric cardiac surgical assistant, may not have seen that many paediatric cardiac surgical cases and I have no other option but to take his assistance at that time to help me.

'So in a way he would not automatically move in the same way or anticipate my move as it was being done in Birmingham. Similarly, nurses in Birmingham, they had almost everything ready on the table. They knew when he was going to require a suture, it was almost as if he is not looking, he is just doing that, he is getting it.

'I used to really say in theatre that "we are not running a relay service here" because that is what I was noticing. Most of the time I am saying "4 O" then somebody else is in 4 O then somebody is getting from there and obviously by that time I would look at what is happening and this is all distracting.

25 T74 p. 33 Dr Masey
26 WIT 0132 0006; Mrs Armstrong stated that she enrolled on the anaesthetic course in 1993 in preparation for this split
27 WIT 0132 0006 Mrs Armstrong

'That was one of the problems, that sometimes some of the nurses in theatre were very uncomfortable with me because I did not like that type of — it is not service to me, I thought it is service to the patient, and that was lacking and I think it was lacking because these nurses were on the same day dealing with an elderly gentleman, another person where probably such things do not matter that much at the time, but here it did.

'Q. Again you are picking up I think on two or three factors there: one is that the consequence of having a "relay" operation, one person turning to another to another to another, is a further delay in the time it would take you to complete your operation?

'A. That is correct, sir.

'Q. Secondly, it indicates that if you needed something very quickly you might have to wait for it and that is not a good thing?

'A. That is correct, sir.

'Q. Thirdly, it indicates, does it, that you reacted to the nurses, telling them off for running a relay operation for the reasons you have explained, which I think you have told us sometimes affected the atmosphere in the theatre?

'A. I am aware of that.

'Q. If you have an atmosphere in an operating theatre I suppose that the whole team does not function quite so well; it is inevitable, is it not?

'A. By "atmosphere" I do not really mean it should be pleasant with music going and all these things. I feel it should be professional and I felt it is not professional that, you know, things are not there. I mean the list is already out, you know what we are going to do. In a way it should be professionally ready for you and that is where my in a way criticism was.

'As far as the pleasantness is concerned, I was very pleasant outside operating time, but during the operating time, I did not want chit-chat, I wanted things done and that somehow was not popular with many nurses.

'Q. So for the reasons you have given, you could be cross and irritable in the operating theatre, could you?

'A. I never realised that I could be, but yes, it would be seen that way.

'Q. If you were telling nurses off for a relay operation as you have described it, your need to do that would be a distraction, would it, of you from focusing upon the particular job that you had to do with the patient?

'A. I think when one uses the word "telling off", it sounds harsher than what it really was. I do not think I was "telling off" because when you are telling off that means you had stopped doing things, what you were really doing. I was not stopped from doing anything really, I was just in a way hurrying up, if you like. It could be seen that way, or it could be interpreted, but I did not realise I was telling anybody off.

'Q. But you said you found it distracting?

'A. To me, yes, because I am operating here, looking at this, and then I ask for a suture and it is not there. So it is not there. I look this way and you have got magnification on all those things, all focused. Then you go back on there, it takes a little time, a millisecond, but you have gone out from there. To me, especially when you are doing a very minute vessel, I think it is a little bit — you know.

'But I did have actually a few nurses who were very good and mostly they used to work with me and I had no problem with that.'[28]

**24** Mrs Armstrong commented in the following exchange:

'Q. Did you ever have the impression that excessive work was taking its toll on the surgeons?

'A. I think occasionally, particularly with Mr Dhasmana, I would know when he was tired because his temper would deteriorate.'[29]

**25** The nursing establishment in the operating theatre for each case comprised three nurses: an anaesthetic nurse-assistant, a scrub nurse and a circulating nurse. In addition there was an allocated Sister-in-charge, although the Sister ordinarily filled one of these roles and was rarely supernumerary.[30] Each member of the team had their own specific tasks to perform in assisting the medical staff, although each was also aware of what the other members of the team were doing so that they were able to cover for each other.[31]

**26** Mrs Mona Herborn, a cardiac theatre sister at the BRI, explained each of the three nursing roles as follows in her written evidence to the Inquiry:

'As a scrub nurse one stands next to the main surgeon performing the operation, to anticipate what equipment the surgeon will need at the various stages in the

28 T85 p. 12–15 Mr Dhasmana
29 T59 p. 31 Mrs Armstrong
30 WIT 0132 0041 Mrs Armstrong
31 WIT 0132 0042 Mrs Armstrong

procedure, and hands it to him. As scrub nurse one needs to have a thorough knowledge of the operation being performed and be able to anticipate what equipment will be required. There is no time limit on the training to become a scrub nurse, which is carried out on the job and under the close supervision of an experienced scrub nurse.

'As an anaesthetic assistant one prepares the anaesthetics room which involves checking all equipment, laying out the required drugs and monitoring equipment. When ready, one calls for the patient, checks the patient's identity etc. The patient has usually been given a pre-med on the ward. An anaesthetic assistant's main role is concerned with the general safe keeping of the patient on the operating table.

'Once the operation starts the anaesthetic assistant has time to return to the anaesthetic room and tidy up, to get ready for the next patient. The patient is left in the care of the anaesthetist who stays with the patient at all times. The anaesthetic assistant is at the call of the anaesthetist if he needs any further equipment, for example syringe pumps or drugs. If there are any problems with the equipment during the operation it is the anaesthetics assistant who sorts it out or calls the necessary help to sort it out. At the end of the operation the anaesthetic assistant informs the ICU that the patient is about to arrive and ensures that the patient's notes, blood form, blood bags and all things that have come with the patient or been acquired during the operation go to the ICU with them ...

'As a "runner" one has to know all the aspects of what is going on and is usually interchangeable with the scrub nurse in terms of skills and experience. The runner's role is to give the scrub nurse anything extra required that is not on the trolley, for example more sutures. The circulating nurse has to be quick on her feet.'[32]

## Management of the theatre nurses

**27** Mrs Armstrong[33] was Staff Nurse in the cardiac theatre at the BRI from October 1984, being promoted to Sister in 1986. The Cardiac Theatre Sisters[34] managed the day-to-day running of the theatres and were responsible to the Theatre Nursing Officer, who in turn was responsible to the Director of Nursing Services.[35]

**28** In 1984, the Director of Nursing Services was Miss Janet Gerrish and the Theatre Nursing Officer was Miss L MacKenzie. Mrs Armstrong explained that in the following years leading up to 1995 the management structure changed frequently and often with little warning, and that the cardiac theatre had six different managers over this period.[36] After Miss Gerrish left in October 1991, Mrs Armstrong said that the nursing

32 WIT 0255 0001 – 0002 Mrs Herborn
33 Cardiac Theatre Sister at the BRHSC October 1984–1988
34 There were three G grade Cardiac Theatre Sisters
35 WIT 0132 0003 Mrs Armstrong
36 Mrs Armstrong listed these managers in order as Alison Whiting, Gill Kelly, Lesley Salmon, Julia Thomas, Fiona Thomas and Rachel Ferris

staff felt that there was no one at management level specifically designated to take account of and be responsible for nurses' interests. Miss Gerrish's role was subsumed into a general management post and the post of Director of Nursing Services came to an end.[37]

**29** She explained further in her oral evidence:

> 'When Julia Thomas first took over the cardiac unit as Nurse Manager, she actually did not have theatre under her at that point, so for some time, we had Lesley Salmon. First we had Gill Kelly and then Lesley Salmon, then Julia was made responsible for us as well. So in that time I had to answer to all of those people.'[38]

She continued:

> 'On a daily basis, we would be answerable to the Nurse Manager. If there were any issues which we were not happy with or she was not happy with, that would be dealt with by the General Manager.'[39]

**30** In 1991, Lesley Salmon as Associate General Manager for Cardiac Surgery delegated the job of managing the cardiac theatres to one of the ICU Sisters. Mrs Armstrong stated that it was very difficult to run theatres at that time and to be managed by someone who did not understand how theatres worked. She gave the example that they were being asked to work shift patterns that were unworkable.[40] This had an effect on the staffing levels and on recruitment to theatres.[41]

**31** Mrs Armstrong said that as a Sister it was essentially her responsibility to run the cardiac theatres. This included staffing, both recruitment and training; daily organisation of the running of the theatre lists; maintenance and ordering of equipment and stores; health and safety, by, for example, providing a safe environment for the patients and everyone working in theatres.[42]

**32** The budget was managed by the Nursing Manager and was not the responsibility of the Theatre Sisters.[43]

**33** After the Directorate of Cardiac Services was set up in 1993, the structure of line-management became Clinical Director to Cardiac Services Manager to Cardiac Theatre Manager. The Cardiac Theatre Sisters still had no control over their theatre budget or staffing numbers.[44]

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37 WIT 0132 0004 Mrs Armstrong
38 T59 p. 5 Mrs Armstrong
39 T59 p. 5 Mrs Armstrong
40 The shift patterns would involve theatre continuing past the scheduled finishing time of 5.00 pm often until 7.00 or 8.00 pm
41 WIT 0132 0004 Mrs Armstrong
42 WIT 0132 0005 Mrs Armstrong
43 WIT 0132 0005 Mrs Armstrong
44 WIT 0132 0009 Mrs Armstrong

**34** The co-ordination of the staff team was the responsibility of the Sister in charge for that day. On rare occasions, if there was no Sister on duty, this responsibility fell to the most senior member of staff on duty, who would liaise with the Theatre Manager if there were any issues with which they felt unable to deal.[45]

**35** Mrs Armstrong stated that the nature of work in the theatre makes it essential to work well as a team. She said that this was often made difficult, however, by poor communication from members of the surgical staff. She gave as an example that:

> '… it was a regular occurrence to be told at the start of the day that we would be cancelling a case due to the lack of an ICU bed yet carry on and operate on that patient later in the day. This would cause confusion particularly if staff had been relocated to other duties'.[46]

## The role of the perfusionists

**36** Mr Edward Caddy was the Chief Clinical Perfusionist at the BRI until his retirement in June 1994. He told the Inquiry that he began working at the BRI as a Theatre Technician in 1964/65:

> 'I started by making various pieces of equipment including oxygenators for theatre as none of the equipment used in open heart surgery was made in the UK, everything was imported from the United States and Europe. My engineering training came in useful for this.'[47]

**37** Mr Caddy explained the role of the perfusionist:

> 'A perfusionist sets up and is responsible for the heart/lung machine in its complete assembly of sterile parts, together with its management during open heart surgery.
>
> 'Pre-operatively, the perfusionist will need to know the weight of the patient, this is especially critical in babies. The weight will determine the flow rates of the heart/lung machine thereby the size of the oxygenator to be selected for that operation. The perfusionist will also need to know the blood chemistry of the patient, so that the machine can be primed correctly … It is then the perfusionist's job to maintain circulation to the rest of the body and to keep the patient's body at a temperature decided by the surgeon.'[48]

45 WIT 0132 0011 Mrs Armstrong
46 WIT 0132 0014 Mrs Armstrong
47 WIT 0143 0001 Mr Caddy
48 WIT 0143 0003 Mr Caddy

> 'Once the surgeon has completed his repair work, he will de-air the heart, which is a very important procedure. I remember that James Wisheart was very good at this. I would say he was meticulous.
>
> 'The surgeon will then ask the perfusionist to rewarm the body to normal temperature, when the heart may restart on its own. Otherwise, the DC defibrillator[49] will be used to start the heart.'[50]

**38** Mr Caddy told the Inquiry:

> 'Throughout the period 1984–1995, my team would generally consist of 3 or 4 senior perfusionists and 1 student. In theatre, I would be working with the assistance of one of the perfusionists from my team; there would also be 2 anaesthetists (consultant and senior registrar) and 2 surgeons (consultant and senior registrar) present, together with a scrub nurse and nurse runner(s).'[51]

**39** Of the perfusionists, Mr Wisheart said:

> 'Perfusionists have as their chief role the operation of cardio pulmonary bypass (the heart lung machine). This is the equipment without which open heart surgery cannot be performed. It maintains life for the time necessary to do whatever surgical procedure is being done within the heart … It maintains life by doing the work of the lungs … adding oxygen to the blood and also by doing the work of the heart … by pumping the blood around the body. The delivery of oxygenated blood to all the organs of the body is essential to maintain life. Thus [it] will be seen that the role of the perfusionist is of vital importance.'[52]

**40** Mr Wisheart also explained the role of the perfusionists as members of the team:

> 'The perfusionists relate chiefly to the anaesthetists and the surgeons who both need to be aware of how the procedure of cardio pulmonary bypass is progressing. The perfusionist in turn needs to be aware of how the surgery is progressing so that he can take the appropriate steps in operating his equipment. He also needs to know if the anaesthetist is going to perform any manoeuvres, which might affect with [*sic*] the performance of cardio pulmonary bypass by influencing the vascular control of the circulation. The perfusionist will need frequent information from the laboratory. Finally the perfusionist will interact with the scrub nurse to a limited degree, in terms of the provision of disposables for cardio pulmonary bypass and possibly some of the implantable material which the surgeon will wish to use.'[53]

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49 A device used to apply an electrical shock via paddles to the chest wall
50 WIT 0143 0004 Mr Caddy
51 WIT 0143 0005 Mr Caddy
52 WIT 0120 0163 – 0164 Mr Wisheart
53 WIT 0120 0170 Mr Wisheart

**41** Of Mr Wisheart, Mr Caddy said:

> 'I had known Mr Wisheart since he came to Bristol in 1976. We had a very good professional working relationship. I saw Mr Wisheart frequently in theatre … I always felt that he was courteous and reasonable. For example, if I persuaded him that operating lists should be rearranged to accommodate absence of perfusion staff during a holiday period so as to avoid over-burdening the remaining staff, then he would … rearrange the lists.'[54]

**42** Mr Eamonn Nicholson, who started work at the BRI as a clinical perfusionist in 1988, told the Inquiry:

> 'The Perfusion Department remained very separate from the other theatre staff. The perfusionists had their own coffee-room, separate from other theatre staff …'[55]

**43** Mr Nicholson said:

> 'I joined Mr D Caddy and Mr L Lawrence, his deputy, in 1988. There were 4 other perfusionists in the team then, apart from myself. Mr Lawrence and 1 other are still with the Department … Since 1988, the number in the team has grown due to the increased workload. Two theatres require 3 perfusionists on duty.'[56]

**44** As to the way in which the various specialties worked together, Mr Nicholson said:

> '… I have no knowledge, on the extent of collaboration between the nurses and clinicians. The nursing staff appeared to work well with the cardiac surgeons, but in my view they had limited power in the overall running of the operating list. There was sometimes conflict over the length of the time some operations took and the consequence it had, of keeping staff working late. If the first operation took much longer than expected, a decision had to be made whether to cancel the second, which caused conflict between nursing staff and the cardiac surgeons.
>
> 'The working relationship between the perfusionists, surgeons and anaesthetists was similar to what I had been used to at Guy's. There is and has to be a cohesion between all three with good communication. My impression was that there was, and still is, good inter professional communication. The nursing staff (scrub team) does not really have a great deal of input with the duties of the perfusionists and anaesthetists, but is more concerned with assisting the surgeon. Having said this there was, and still is, good communication between the scrub nurse and perfusionist concerning the types of cannulae, connections, and other perfusion related equipment, which might be needed.'[57]

54 WIT 0143 0019 Mr Caddy
55 WIT 0489 0002 Mr Nicholson
56 WIT 0489 0004 Mr Nicholson
57 WIT 0489 0006 – 0007 Mr Nicholson

## The role of the anaesthetists

**45** Dr Duncan Macrae also referred to the collaboration necessary in the operating theatre between the anaesthetists, the perfusionists and the surgeon:

> 'I think it [perfusion] is a shared responsibility between the perfusion technician, who is usually a scientist who has been trained to look after the circuitry and to understand the physiology of the heart-lung machine; but also it is a shared responsibility between that technician, the surgeon who is doing the plumbing side of things, putting the pipes in the appropriate blood vessels, and the anaesthetist who has overall responsibility for the physiology of the rest of the body whilst the heart is being looked at and operated on by the surgeons.
>
> 'So all three team members have a role to play in the overall conduct of perfusion. I think the most important thing about perfusion is that there is a proper structure and protocol in place, which all of those three elements will bind to. You asked me specifically about the role of the anaesthetist, and I think that that, in particular, is to help the perfusionist to interpret the blood gas levels, particularly the levels of oxygen and so on, in the blood during the bypass and the level of acid that builds up, and help him to manage that; to help the perfusionist to control blood pressure so it is not too low and not too high, because we know that in both of those situations that if there is a lot of blood coming back because the perfusion is not good, the surgeon may not be able to do the operation as quickly and as efficiently as possible. So there is that aspect of making the surgeon's job easier and also protecting the patient.
>
> 'So it is very much a team effort. If the surgeon has not put the pipes in or has put in a tube that is too small, the bypass may not be adequate. The perfusionist will say, "I cannot get enough flow". The anaesthetist will say that the oxygen levels are low or the acid levels are high.
>
> 'So all three must interact. It is not possible, for that category, to say really perfusion equals perfusionist; perfusion equals all three of those elements.'[58]

**46** Dr Michael Scallan, consultant anaesthetist, commented further on the anaesthetist's role in the following exchange:

> 'Q. What is the responsibility of the anaesthetist if acidosis has occurred?
>
> 'A. There are two things. One is to try and prevent its development and that is to try and maintain an adequate perfusion, the need for circulatory arrest, the need for low flow may prevent that at a particular time. The other thing is to correct the acidosis when it develops, to give appropriate medication to reverse the acidosis.'[59]

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58 T71 p. 95–7 Dr Macrae
59 T75 p. 75–6 Dr Scallan

**47** Dr Scallan went on:

> 'A lot of the work of perfusionists is dedicated to [the anaesthetist], but he will work with the anaesthetist and will discuss difficulties such as acidosis and what to do about it. The ultimate responsibility must be with the anaesthetist and with the surgeon.'[60]

**48** Dr Scallan said that whether the perfusionist would make changes himself, for example, in order to correct acidosis, or wait for a prompt from the anaesthetist, would largely depend on the local arrangement.[61] Dr Underwood[62] commented that:

> 'In our department the perfusionists are fairly autonomous, although I agree with Dr Scallan they obviously work along with the anaesthetists in maintaining the perfusion of the patient during the operation.
>
> 'They also receive a lot of instruction from the surgeon who must have certain conditions in order to complete the operation, so that my perception is not that the perfusionist works for the anaesthetist in any sense, but would indeed work with the anaesthetist in many aspects.'[63]

**49** Dr Peter Hutton was appointed as a Clinical Lecturer in the Department of Anaesthesia at the University of Bristol in 1982. This post carried honorary Senior Registrar status. He recalled that:

> '… junior anaesthetists were well supervised by consultant anaesthetists. Towards the end of my training there were some non-bypass cases … which I did alone but all paediatric bypass cases had a consultant present throughout or at least in the next theatre. All those cases which I did undertake "solo" were first discussed with a consultant who was always present in the hospital during the procedure.
>
> 'I cannot ever remember having any difficulty contacting consultants when they were on call or getting them in when appropriate.'[64]

**50** Counsel to the Inquiry elicited the following information about the function of an anaesthetist from Dr Masey in the following exchange:

> 'A. In the anaesthetic room, when the child was brought into the anaesthetic room the child would be accompanied by a ward nurse and quite often by one or other or both parents. In the anaesthetic room would be a consultant anaesthetist, quite often a trainee anaesthetist and an anaesthetic assistant.

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60 T75 p. 78 Dr Scallan
61 T75 p. 78 Dr Scallan
62 Dr Susan Underwood, consultant anaesthetist at the BRI since 1991
63 T75 p. 79 Dr Underwood
64 INQ 0042 0002; letter to the Inquiry

'Q. Okay. The patient would be anaesthetised?

'A. The patient would be anaesthetised.

'Q. And then taken to theatre?

'A. The patient would be taken into the operating theatre.

'Q. Which would be next door?

'A. Which is next door.'[65]

**51** Dr Underwood commented in her oral evidence about the absence of the anaesthetist from the theatre during a period for which the patient is on bypass. She said:

> 'This is not ideal and in the climate of the time, meant a choice on the part of the anaesthetist between those patients upstairs [in the ITU] and downstairs [in the theatre]. On occasion, the ward round did not get done because the patient in theatre needed the anaesthetist, but it was more common, as I wrote in my statement,[66] to do the ward round at that time.'[67]

**52** Dr Scallan was asked whether, in his experience, the choice was a common one for an anaesthetist, to have to choose between doing a ward round or seeing a patient who required attention in the ICU, and remaining in theatre during bypass. He replied:

> 'Yes, this dilemma did certainly arise. I have certainly experienced it myself. During the course of cardio pulmonary bypass it is undoubtedly a period when the demands on the anaesthetist are less, because a lot of the responsibility is dedicated to the perfusionist, and the anaesthetist does not leave the patient unattended; if the senior is not there, a junior anaesthetist would be present.'[68]

**53** On this matter Dr Pryn said:

> 'I found it difficult and very stressful to look after sick patients on CICU[69] when I was at the same time anaesthetising for cardiac operations. Often I would have to leave my patient in theatre with a trainee anaesthetist while I went to CICU to assess patients. If I was the on call anaesthetist on a Monday, I would wait until my patient in theatre was safely established on cardiopulmonary bypass before visiting CICU for a complete ward round.'[70]

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65 T74 p. 35–6 Dr Masey
66 WIT 0318 0007 Dr Underwood
67 T75 p. 79–80 Dr Underwood
68 T75 p. 80 Dr Scallan
69 Cardiac intensive care unit
70 WIT 0341 0030 Dr Pryn

## The role of the cardiologists

**54** The cardiologists also had a role, albeit limited, in surgery at the BRI and were sometimes called to theatre. As in the case of pre- and post-operative care (dealt with in Chapter 13 and Chapter 15 their involvement was affected by the split site: the fact that they were based at the BRHSC, whilst open-heart surgery was performed at the BRI.

**55** Of the involvement of the cardiologists in theatre, Dr Underwood told the Inquiry that it was her impression that on occasion the surgeons were surprised by some of the anatomy that they found once surgery had begun. Her evidence included this exchange:

> 'Q. On occasion? How often can you remember that happening?
>
> 'A. I would put it in the "from time to time" rather than "regularly".
>
> 'Q. When that happened, was it ever a response to call for the cardiologist to come over and have a look?
>
> 'A. That was rarer; partly the physical problem of coming from one hospital to another, but certainly, cardiologists did come to theatre on occasion.'[71]

# The 'learning curve'

## Introduction

**56** The focus of this part of the chapter is the approach adopted by the surgical team, and particularly the surgeons, to new procedures, and how surgeons became competent at a procedure. Reference will be made to what in evidence to the Inquiry was described as the 'learning curve', the adverse effects of this and how this might be overcome.

**57** By way of illustration, we will focus on the Arterial Switch programme[72] in Bristol, as this was a new procedure introduced within the period of the Inquiry's Terms of Reference.

71 T75 p. 81–2 Dr Underwood
72 See Chapter 3 for an explanation of this term

## New procedures

**58** Referring to new procedures Mr Wisheart, in his written evidence to the Inquiry, stated:

> 'There is a constant stream of new or modified procedures being described in the literature and at the national and international surgical meetings. The great majority of these are simply an incremental change (a change of detail) and only a very small minority represent a major (or radical) change in technique, instrumentation or the methods of managing operations.'[73]

**59** Mr Wisheart went on:

> 'The vast majority of new techniques or modifications of techniques can be understood and carried out from knowledge acquired from journals, meetings or discussions.'[74]

**60** Mr Wisheart stated that 'a major or radical change' occurred when:

> '… an innovation is described which is radically different from anything that has gone before.'[75]

He cited keyhole surgery as an example of a major change.

**61** Mr Wisheart suggested a third category:

> 'There are new procedures which cannot really be described as representing an incremental change nor are they quite as radical as the ones I have described under the heading Major; they could be classified as Intermediate. The Fontan operation and its evolving modifications could be included under this heading.'[76]

**62** Dr Brian Williams, consultant anaesthetist, stated:

> 'When a new procedure was introduced the recognised process was to learn by reading about it, watching it be performed and then putting it into practice either with or without supervision depending on the complexity. Simulation was not available at the time. Ethical approval from the local research and ethics committee would be required to institute research of a new technique previously untried.'[77]

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73 WIT 0120 0313 Mr Wisheart
74 WIT 0120 0313 – 0314 Mr Wisheart
75 WIT 0120 0314 – 0315 Mr Wisheart
76 WIT 0120 0315 – 0316 Mr Wisheart; and see Chapter 3 for an explanation of this term
77 WIT 0352 0019 Dr Williams

## The approach to a new procedure

**63** In the course of his evidence, Dr Howard Swanton, President of the British Cardiac Society, was asked:

> 'Q. There is obviously a difference between the development of a new technique where previously there was no technique at all, where the surgeon or the cardiologist would say, "Until the development of this technique, there was nothing we could do, but now we can try this", on the one hand, and on the other hand, the development of a new technique where there is an existing technique, where it is thought that the new technique might provide better and longer life, but at least initially with a higher mortality.
>
> 'At the moment, as I understand it, there is no formal structure in which debate would take place as to when and in what respects the new technique would be developed in that second example; is that right?
>
> 'A. Well, not quite right. Every hospital has its ethical committee with lay members on the Board, certainly, if you were planning, for instance, to try a new drug or a new drug trial on the medical side, you would submit the protocol to the ethical committee.
>
> 'Q. So the surgeon who wanted to do a new operation would submit the proposal to the committee?
>
> 'A. That would be appropriate, yes.'[78]

**64** It was put to Dr Michael Godman, President of the British Paediatric Cardiac Association (BPCA), that often a new procedure 'may burst onto the world' and that following publication there was 'perhaps naturally a temptation, in the rest of the world, to wish to follow suit?'[79]

**65** Dr Godman agreed that there was, and added:

> 'I listened earlier this morning to some of the evidence that was produced on the ethics of the Arterial Switch procedure in the early 1980s and late 1970s, and I think many of the arguments and points raised in that ethical debate obviously hold true for any new technique that is introduced.'[80]

78 T7 p. 50–1 Dr Swanton
79 T7 p. 108–9 Dr Godman
80 T7 p. 109 Dr Godman

**66** Dr Godman was questioned about the approach urged by the BPCA:

> 'Q. When you are talking about the learning curve here, you are talking about somebody visiting from one centre to another centre?
>
> 'A. Yes.
>
> 'Q. That has funding implications?
>
> 'A. Yes, it does.
>
> 'Q. So the position of the BPCA would be that this is necessary in the protection of the patient, and necessary to divert a surgeon from his operating list in Birmingham so that he can go to – again, purely hypothetical – Newcastle? …
>
> 'A. Or Edinburgh.
>
> 'Q. And work there for a week, two weeks, hands-on, before he comes back to Birmingham?
>
> 'A. No, in practice it would not be a week or two weeks. We are talking about individual procedures. We are talking about small numbers in congenital heart surgery, so if we are talking about a particularly complex lesion a visiting surgeon was asked to come to help with or introduce, that might be a series of visits, four, five or six in the course of a year, rather than coming and spending a week or two weeks. It is more probable it would be a visit for a day.
>
> 'Q. If it is to be a learning curve, that has to be done before the surgeon actually operates himself for the first time?
>
> 'A. Yes.
>
> 'Q. That would mean your four or five visits would have to be sufficiently narrowly spaced so that —
>
> 'A. Ideally yes.'[81]

[81] T7 p. 111–12 Dr Godman

**67** He added:

> 'I know a number of centres where increasingly, for example, there are two paediatric cardiac surgeons in the centre, they are working together, particularly on more complicated cases, so they are not working in isolation, you have two assisting each other with the procedure. If one is a relatively new appointment, his senior colleague may at least help him in a significant number of cases, for example, in his first six or nine months in a post.'[82]

**68** He also illustrated his views by describing the steps that had been taken in respect of the 'progressive' introduction in the last two and a half/three years in the UK of:

> '… a new device, an occlusion device to close a hole in the partition between the two upper chambers of the heart, the Atrial Septal Defect. The practice there has been that a centre has to do a minimum of six procedures with an experienced investigator or clinician who has done the procedure in a substantial number of cases. He needs to be present for 6 procedures.'[83]

**69** Mr Wisheart stated:

> 'In terms of what was written in contracts or professional guidance no appraisal or training was required by a paediatric cardiac surgeon before embarking on a new operative procedure. I believe that most surgeons would acquaint themselves fully with the requirements, and details of any new procedure and be in a position to perform it competently.'[84]

**70** Mr Dhasmana stated:

> 'There was no professional guidance or contractual obligations at that time available for clinicians to follow any particular regimen or protocol when embarking on a new procedure. Decisions were made in regard to a clinicians training, confidence and skill. The support and advice of fellow clinicians was very important in deciding to do so, and in achieving a team spirit, essential for the success of any programme.'[85]

**71** Mr Wisheart stated:

> 'The practice has become widespread of inviting experts to visit one's own centre in connection with starting a new and complex operation. At the beginning of this period [the period of the Inquiry's Terms of Reference], however, it was not at all common, but it probably grew slowly during the period up to 1995.'[86]

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82 T7 p. 111 Dr Godman
83 T7 p. 110 Dr Godman
84 WIT 0120 0313 Mr Wisheart
85 WIT 0084 0111 Mr Dhasmana
86 WIT 0120 0316 Mr Wisheart

**72** Mr Wisheart explained the effects of introducing a new procedure:

> 'If any member of the Team introduces a new procedure or technique, that may alter what is expected from other members of the Team. For example, if the surgeon is doing something different, then he may expect the nurse to supply him with different instrumentation or equipment. Similarly, if the anaesthetists change their management of anaesthesia, it may well interact with what the perfusionist is doing in his management of the circulation on bypass.'[87]

**73** He went on:

> 'If the surgeon is going to undertake a radically new procedure in paediatric cardiac surgery, he would need to explain it to the nurse, the anaesthetist, and the perfusionist. To the nurse he would want to explain what will be done, and in what order, so that the nurse can have the appropriate instruments and equipment available. To the anaesthetists he will wish to explain the plan of the operation so that they can place the patient in the appropriate position, can provide for all appropriate monitoring needs and can tailor what they do to the plan and needs of the operation. Similarly the perfusionist will want to know how the operation is likely to proceed, what temperature the patient will need to be at, whether there will be periods of low flow or circulatory arrest and so forth.'[88]

**74** Professor Angelini, Professor of Cardiac Surgery, University of Bristol, stated:

> 'Every time a new procedure has been introduced I have been in lengthy discussions with the medical as well as the nursing and perfusion personnel, with a specific purpose to try to plan ahead what we wanted to do.'[89]

**75** Dr Underwood stated:

> 'For a brand new procedure the members of the cardiac surgery team would need to be trained. However, variations on operations already performed or operations performed on patients at a different age or size may not seem to be sufficiently new to warrant further training.'[90]

**76** Dr Williams referred to the anaesthetists':

> '… responsibility for ensuring that those who assist them, that is, operating department assistants, nurses and trainee anaesthetists were appropriately trained for the task delegated to them.'[91]

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87 WIT 0120 0321 Mr Wisheart
88 WIT 0120 0322 Mr Wisheart
89 WIT 0073 0008 Professor Angelini
90 WIT 0318 0008 Dr Underwood
91 WIT 0352 0021 Dr Williams

**77** Ms Barbara Sherriff, Assistant General Manager at the BRHSC since 1992, stated:

> 'If a surgeon introduced new surgical procedures and other members of staff needed to be aware of any implications, then the medical staff trained those who needed to know … For a procedure with clinical implications which was not purely a nursing matter … then liaison took place between medical staff and ward staff.'[92]

**78** The way in which managers were involved was addressed by Kathleen Orchard, General Manager of the Directorate of Surgery from 1991 to 1993, now a Senior Manager, Avon Health Authority, in her witness statement:

> 'Clinicians would ask their theatre managers for any new equipment and the first I would hear of it was when managers were concerned about costs or staff. This was something I would have to address, as it would affect the budget … Sometimes the ward manager or the theatre sister would come to me and say that Dr X wanted a new procedure, particularly if it would require extra resources. If this was the case, the Clinical Director and I would meet with the clinician and find out what the implications of this new procedure were.'[93]

**79** Kathryn Hale, a senior nurse at the BRHSC from 1983 to 1989, stated:

> '… the paediatric cardiologists (and indeed the paediatric cardiac surgeons) were excellent at appraising staff of the need to introduce new clinical procedures. They, along with the clinical manager, developed the written procedures. Unit meetings, open to all grades of staff, were fora at which staff would have the opportunity to discuss new procedures and their possible implications on practice. Nursing staff were involved in preparing documentation to support new care interventions.'[94]

## Defining the 'learning curve'

**80** Mr Julian Dussek, President of the Society of Cardiothoracic Surgeons, in his paper for the Society entitled *'Avoiding the Learning Curve'*, wrote:

> 'The inference to be drawn from the phrase "learning curve" in the context of cardio-thoracic surgery is that there is an expected and acceptable excess of patients who will die or be harmed in the early experience of a learner but who would have fared better if they were operated upon by a surgeon who is on the plateau of experience.'[95]

92 WIT 0234 0034 – 0035 Ms Sherriff
93 WIT 0170 0032 – 0033 Mrs Orchard
94 WIT 0180 0042 – 0043 Ms Hale
95 SCS 0003 0002; paper dated 13 September 1998

**81** Mr Wisheart stated:

> 'A "Learning Curve" is learning from experience about a new procedure, particularly in the initial phase, but also continuing beyond that.'[96]

**82** He went on:

> 'It is probably not inevitable, and in principle it is possible that a learning curve might not happen, but I believe that it will usually be present and measurable. My own experience indicates that the learning curve is a real phenomenon. Regardless of whether it is inevitable or not, the imperative is always to minimise the learning curve.'[97]

**83** Mr Dhasmana stated in his written evidence to the Inquiry:

> 'The learning curve in a clinical setting is very difficult to define and defend. In any technical field there are bound to be "failures", which improve with increased experience. In complex and technically demanding operations like Arterial Switch, failure usually means loss of life, which is totally unacceptable to any surgeon. Unfortunately it occurs. Though it is unacceptable, its inevitability is well recognised … there is no clear-cut definition of an acceptable length of time period for the completion of this learning curve, although there is some indication that the period could be less in "High Volume" centres.'[98]

**84** Dr Underwood commented:

> 'I believe that it is inevitable that anyone undertaking a new procedure will experience a "learning curve" during which results may fall below those of someone more experienced in the technique.
>
> 'It seems inevitable that learning curves must exist if new forms of treatment are ever to get started and advance medicine for patients. It is the minimising of the learning curve which is important in maintaining acceptable levels of performance.'[99]

**85** Professor Angelini stated:

> 'I accept that for every new procedure there is a *learning curve* during which the results may fall below standard. I think it is, however, important that any new surgical procedure is carried out with the support and with full discussion with all the rest of the surgical team members, and the complications which are bound to occur are equally openly discussed.'[100]

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96 WIT 0120 0336 Mr Wisheart
97 WIT 0120 0336 Mr Wisheart
98 WIT 0084 0115 Mr Dhasmana
99 WIT 0318 0009 Dr Underwood
100 WIT 0073 0008 Professor Angelini

**86** Mr Jaroslav Stark, consultant paediatric cardiothoracic surgeon and a member of the Inquiry's Expert Group, described 'the learning curve' as an experimental period in the development of a procedure:

> '… all the new operations you may in summary call "experiments" because you can not experiment on animals because you do not have the animal model, and even if you had the animal model we are not … allowed to try the operations on animals … So to some extent "experimenting" sounds a harsh word, but I think it was.'[101]

**87** Professor Sir Kenneth Calman, Chief Medical Officer for England 1991 to 1998, commented:

> 'If it is an entirely new procedure you are going to pioneer yourself, you are likely to have done some of that in some kind of experimental way beforehand to ensure the outcome is likely to be what you think it will be …'[102]

**88** Dr Robin Martin, consultant cardiologist, told the Inquiry:

> '… any time you make a treatment strategy there is a risk of a learning curve, a change in outcome for that group … What you are dealing with here still is a relatively small group of patients compared with [the] rest of our throughput … You see fluctuations in different groups at any one time. That makes it I think always difficult for us to analyse exactly what is happening with individual [small] groups of patients.'[103]

## Managing the 'learning curve'[104]

**89** Dr Underwood stated in her written evidence to the Inquiry:

> 'I believe it may be possible to shorten a learning curve by good theoretical knowledge of the new procedure, observing others with experience, training alongside others and then working with decreasing supervision by the experienced operator, in the same way that a trainee learns new skills.'[105]

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101 T50 p. 12 Mr Stark
102 T66 p. 64 Professor Sir Kenneth Calman
103 T76 p. 143–4 Dr Martin
104 Mr Barry Jackson, President of the Royal College of Surgeons of England, told the Inquiry that the Royal Colleges have since sought to respond to the issue of the 'learning curve' through a system called SERNIP, the Safety and Efficacy Register, New Interventional Procedures, introduced in 1996. Mr Jackson explained how SERNIP functioned: 'New techniques should be referred to this new body, SERNIP, for a careful assessment as to whether or not this was a technique that could be recommended to Trusts and purchasers for widespread implementation, or whether it needed further refinement, proper controlled trial assessment, or whether it was found wanting.' See T28 p. 104–5
105 WIT 0318 0009 Dr Underwood

**90** Mr Wisheart, in his written evidence to the Inquiry, suggested that the following steps could be taken:

- 'Private preparation which includes reading, attending meetings, courses etc.
- 'Visiting centres of "excellence" and observing there.
- 'Visiting centres of "excellence" and having an opportunity to assist the experienced surgeon at an operation.
- 'Attending workshops dedicated to promoting technical proficiency in specific procedures.
- 'Inviting experts to operate or assist the surgeon in his own centre.'[106]

**91** He went on:

> '… it will always be a different experience when a surgeon does an operation for himself for the first time.'[107]

**92** Professor Angelini explained, in his written evidence to the Inquiry, how he approached a new procedure:

> 'Any time I have embarked on a new surgical procedure, and this has happened on several occasions since 1992, I usually have gone to visit centres where those procedures were carried out, and subsequently have invited the expert(s) to Bristol to help me with the surgery. This has often been with regard to both surgical and anaesthetic expertise.'[108]

**93** Professor Sir Kenneth Calman told the Inquiry of his experience:

> 'I was involved surgically, for about eight years, mainly on transplantation and vascular surgery. During that process, the senior consultant I worked with took a year out to go and work in the United States on liver transplantation. He would not have done a liver transplant on his own in this country without a year's experience with one of the most outstanding liver transplant surgeons in the world. That would be the way he would deal with an entirely new procedure: he would normally go somewhere where they are doing it and learn how it is done, come back with the skills and expertise and build up a team.'[109]

106 WIT 0120 0341 Mr Wisheart
107 WIT 0120 0341 Mr Wisheart
108 WIT 0073 0008 Professor Angelini
109 T66 p. 63–4 Professor Sir Kenneth Calman

**94** Sir Barry Jackson discussed the extent to which there were formal requirements to be followed, in the following exchange:

> 'Q. … what would be the expectations as to the practical steps that had to be taken before a person could be confident or reasonably confident that actually they would not be harming their patient if they embarked on something relatively new?
>
> 'A. There was nothing laid down about this. It was not formalised. It was up to an individual surgeon to take what steps they considered necessary to enable them to carry out that operation with a clear conscience.
>
> 'Q. So perhaps there might be a range of steps available to them. The obvious one would be to review the literature to make sure they were familiar at least in theory with the steps that needed to be taken in performing this new technique. That presumably is something that everybody would have been aiming to do during the period with which we are concerned?
>
> 'A. Yes, well, without either reading the literature, reading the technique in an article … or seeing a video, and videos were widely used at this time, or having seen the operation in somebody else's operating theatre when visiting another surgeon, I do not think any surgeon would embark on a new operation without one or other of those steps being taken before they put, as we say in the trade, knife to skin.
>
> 'Q. If the first level would be reviewing the literature, the second might be viewing a video; the third step that one might perhaps take would be to visit another centre and watch a colleague perform the procedure.
>
> 'How common would that have been as a method of informing oneself across the …
>
> 'A. I think it would have been less common than reading and watching videos, but I cannot quantify it.'[110]



[110] T28 p. 112–14 Sir Barry Jackson

**95** In his paper *'Avoiding the Learning Curve'*, Mr Dussek recommended:

> 'Surgeons should not be performing operations until they are competent to do so at an accepted general level of risk.
>
> 'Every surgeon should feel confident that he has the necessary education and experience to perform a new operation skilfully and that this skill should extend where necessary to the peri-operative management.
>
> 'Funding must be available for surgeons to attend the necessary training courses …
>
> 'The best way of learning a new procedure is to be taught by an established expert. Therefore facilities must exist whereby visiting consultants can be given honorary contracts with the minimum of fuss. The arrangements for recognised experts from overseas need to be simplified so that they can come at short notice. Possibly the GMC should keep a computerised register of consultants who would be recognised to train in other hospitals.
>
> 'Consultants must relinquish a historical reluctance to ask other consultants to help. With the emergence of the new "Calman trainees"[111] with possibly less surgical experience than their predecessors this is going to be of increasing importance.'[112]

## Retraining

**96** Mr Wisheart stated in his written evidence to the Inquiry:

> 'The concept of "Re-training as routine" was not established during the period [of the Inquiry's Terms of Reference]. The routine was the continuous learning which was needed to maintain one's knowledge and skill and keep abreast of new thinking, understanding and development. This was done through the reading of journals, the attendance at meetings and courses and regular dialogue and interchange with colleagues both junior and senior. In the latter part of the period this would have become finalised under the label of Continuing Medical Education.'[113]

**97** He told the Inquiry that "retraining" carried connotations which were punitive in nature, although there is more acceptance now of the idea of undertaking retraining. Mr Wisheart went on to say that 'It was the philosophy of the team to consider together areas where there was room for improvement … Mr Dhasmana, on his own initiative, sought re-training in the neo-natal switch operation in 1992–1993.'[114]

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111 *'Hospital Doctors – Training for the Future, The Report of the Working Group on Specialist Medical Training'*, DoH 1993
112 SCS 0003 0005 Mr Dussek
113 WIT 0120 0327 Mr Wisheart
114 WIT 0120 0328 Mr Wisheart

**98** Professor Marc de Leval, consultant paediatric cardiac surgeon, Great Ormond Street, commented:

> 'I have never found the definition of retraining. I have used the word in my paper on the "Cluster of Failures", and I still do not know what it means. Obviously retraining may indicate training to understand or try to pick up some technical details of a procedure or the management of the perfusion, the bypass, so I think that if you are facing failures, by definition you do not know exactly where the figure arises from. I think as surgeons we have a tendency, at least most of us, to incriminate the skill or the actual technical performance of the procedure, which I think is very shortsighted. We all make the mistake. So I think when you have a problem, you are in the dark and it is very difficult to decide whether it is appropriate, not knowing exactly what the cause of the failure was, and, for example in my own experience, I decided to retrain by doing the same, going to see Bill Brawn and having him to help me to do one or two Switches, and I believed, when I started to do the Switches myself, that I had learned some technical tricks.
>
> 'Five years later, I had realised that the way I do the Switches is the way I did them before my "Cluster of Failures", not the way I learned it, and I am convinced that my retraining has given me back the confidence that I had lost and I think this is the most important point, to reach a state of mental readiness which is such that you cannot proceed with confidence and you have to regain it.'[115]

## The Arterial Switch procedure

### The 'learning curve' and the Arterial Switch procedure

**99** Mr Wisheart stated:

> 'I believe that the reality of the learning curve may be illustrated by the evolution of surgery for transposition of the Great Arteries in this country … in the late 80s and the very early 90s it was generally understood and accepted that when a unit introduced the Arterial Switch operation for neonates there would initially be a period of disappointing results.'[116]

**100** Professor de Leval told the Inquiry:

> 'In the early 1980s we were balancing the early and the late risks, and one of the questions was, what kind of lower [*sic*] risk can you afford, assuming that the long-term results will be better? I do not think that question has been answered. The acute problem was the decision to deal with the learning curve. When we started the Switch operation, those who had started before us started with a mortality of — I mean, the person I am quoting is Jan Quaegebeur, who has become a master of the Switch, who started with a mortality of 25 per cent.

115 T60 p. 50 Professor de Leval
116 WIT 0120 0337 – 0338 Mr Wisheart

'… which, within a few years, came down to below 10 [per cent] and now, in his results, is probably about 2 or 3 per cent.'[117]

**101** Mr Dhasmana told the Inquiry that his technique was derived:

'Mainly from Great Ormond Street but that was the same technique as you would be seeing in the books and by that time books had started really printing it out in the same way and also almost all publications at that time would come with techniques how to really do … this was also a similar technique with Mr [now Professor] Yacoub, published in 1980. A similar technique was by Dr Jatene from Brazil in 1977/1978. So technique was there, I just took it on. It is not a new technique, I did not use any new technique.'[118]

**102** Mr Dhasmana was asked about referring a patient elsewhere for a Switch operation rather than operating himself, in the following exchange:

'Q. If you had thought about it, you might have seen perhaps that because of the consequences of the learning curve … that someone who had experience in the operations might well succeed in a difficult condition in the case of a patient who in your hands at the start might not survive the operation because of the underlying problems that the child suffered from and because of the lack of experience of the Unit; did you think of that and express that at all?

'A. Again we had that problem. We are talking in 1999 about the problem as was being seen in 1986 to 1988. I have already mentioned … when you start as a consultant paediatric cardiac surgeon, a lot of operations you are doing for the first time.

'So you could really take that analogy to all those operations when you are starting, you know right in the beginning. You know if somebody else could have operated on, I wish that was possible and I wished nobody … has to operate on somebody for the first time but unfortunately that was the practice at that time and I was just keeping up with the practice.

'Q. Does it follow that, if you had thought about it, you might have said to yourself, "There is Mr Sethia in Birmingham (or whoever) by 1988; that there are experienced surgeons elsewhere in the country dealing with this sort of operation; that if I take the first ten cases that come to me and if they are operated on by him or by somebody else then more of those children will live than if I carry out the operation myself". If you had thought about that, one of the consequences nowadays might be to transfer the child to another centre so that the operation can take place for the benefit of the child in that other centre, might it not?

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117 T50 p. 10 Professor de Leval
118 T84 p. 64 Mr Dhasmana

'A. That is the case in the 1990s, yes, but that was not the case in 1988.

'Q. It is a consequence of what you are saying that a deliberate decision was taken within the unit by the unit as a whole to carry out or begin a series of operations which would lead to the death of children in Bristol who would not necessarily die elsewhere; that is the consequence of the decision that was taken, is it not?

'A. Whenever you are put on any complex case anywhere there is always that possibility that the child could survive elsewhere, how do you know whether he is going to survive here or there unless you have got very clear guidelines? Unfortunately at that time there were no clear guidelines so almost every surgeon was really doing the best available practice at that time and this is the reason you have a whole team to decide on.'[119]

**103** Mr Dhasmana told the Inquiry that when he commenced the Arterial Switch programme at Bristol he anticipated that:

'… mortality would be higher than what you could achieve a few years later.'[120]

## The Arterial Switch programme at Bristol

**104** The Arterial Switch programme for non-neonates was introduced at Bristol by Mr Dhasmana in 1988. He stated:

'By 1988 this was a well-established procedure for the treatment of Transposition of the Great Arteries in the USA, Australia and a few centres in Europe. I was aware that a few centres in the UK, like GOS [Great Ormond Street], Harefield and Brompton, were using this technique in older children with TGA and VSD.'[121]

**105** After discussion with colleagues in Bristol, Mr Dhasmana stated that he decided to start the Arterial Switch procedure given that:

- 'I was familiar with the operation as I had assisted and looked quite a few [*sic*] of these patients operated on at the GOS, London during my term as Senior Registrar during 1982–1983.
- 'I had kept myself well informed with developments in this field, having attended various courses, reviews of cine-films and read available published literature, giving details of techniques and various types of coronary arterial abnormality in this condition.
- 'I considered myself experienced enough to deal with major operation[s] in this condition.

119 T84 p. 58–60 Mr Dhasmana
120 T84 p. 51 Mr Dhasmana
121 WIT 0084 0110 Mr Dhasmana. See Chapter 3 for an explanation of these clinical terms

- 'I was already using micro-vascular surgical techniques in dealing with coronary artery anastomosis in adult patients.

- 'and, most importantly, I believed that anatomical repair by Arterial Switch was the right treatment for this condition in the long run, even though the conventional operation by Sennings repair carried lower mortality this procedure was only a physiological repair with uncertain long-term prognosis.'[122]

**106** Mr Dhasmana went on:

> 'Though there was a gap of about 5 years since the last operation, I had kept up to date on developments by attending courses and reading the literature available from various publications I was receiving. I believed that I followed the usual practice prevalent at that time, when embarking on a new procedure. I discussed the plan amongst colleagues … and appeared to have their support. Dr Martin joined the cardiology team during the early part of this programme, in 1988, and provided necessary advice and help, as he had been closely involved with the Arterial Switch programme at the Harefield hospital. He also gave me a copy of a section of Dr Quaegebeur's thesis on the subject, which proved very helpful.'[123]

**107** Mr Dhasmana stated that Dr Sally Masey:

> '… was the only anaesthetist capable of helping me with this programme … I believe she had experience of Arterial Switch operations during the period of her training at Brompton…'[124]

**108** Mr Wisheart stated:

> 'The early results of the non neonatal switch operation were disappointing in that they were less good than the results at centres where the procedure was established at that time.'[125]

**109** In January 1992, Mr Dhasmana started the Arterial Switch programme for neonates:

> '… there were still no guidelines, or procedures for developing new operations, or for making major changes. However, more information from various publications and courses were becoming available on the subject i.e. Arterial Switches.'[126]

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122 WIT 0084 0110 Mr Dhasmana
123 WIT 0084 0110 Mr Dhasmana
124 WIT 0084 0111 Mr Dhasmana
125 WIT 0120 0352 Mr Wisheart
126 WIT 0084 0112 Mr Dhasmana

**110** Mr Dhasmana stated that it was decided to proceed with the neonatal programme after a review of the 14 Switch operations carried out before mid-January 1992:

> 'It was felt that technical competence had been achieved and that anaesthetists, cardiologists, perfusionists and nurse teams had gained enough experience. Therefore all members of the team agreed, that the procedure had proved successful in the group of older switches … Therefore, after consideration of all the issues, in the same way as in 1988, i.e. discussion with cardiologists and anaesthetists, it was agreed to develop this operative procedure with the neonate group.'[127]

**111** In the neonatal Switch programme in the period up to September 1992 all five children died.[128]

**112** Mr Wisheart stated:

> 'Evaluation of the disappointing results for this operation was made difficult because in addition to the expectation of the learning curve, the situation was confused further by the occurrence of a number of significant additional risk factors in either four or five of the nine neonatal switch patients who died …
>
> 'There were a significant number of patients with additional abnormalities in this small series so that the real cause of death remains a matter of debate.'[129]

**113** Dr Martin was asked:

> 'Q. Was there at this stage anything in the way of what you would see as a learning curve taking place at Bristol?
>
> 'A. Certainly we looked at the first few cases and looked to see if there were any lessons there. Now whether that constitutes the learning curve or not I think it is very difficult to say. I think if you look, you know, just looking at the individual cases there were, the first case there was an unsuspected Coarctation of the Aorta[130] which we felt was a contributing factor.
>
> 'The second case, there were problems with thrombosis and infection and we were concerned there may be other factors that were important, if you like, other than the surgical expertise of doing the operation.

127 WIT 0084 0112 Mr Dhasmana
128 UBHT 0054 0081 'Neonatal Switches'
129 WIT 0120 0352 Mr Wisheart; Mr Wisheart is referring to the series, not just the period up to September 1992
130 See Chapter 3 for an explanation of this term

'So I think we looked at these cases individually. If we found what we thought was a reasonable reason for that patient's death then, if you like, that colours your view as to whether it is appropriate to carry on later.

'Q. I think the question I asked was whether you thought there was something of a learning curve or not. Did you?

'A. I think we thought that possibly was part of our learning curve, yes.'[131]

## Mr Dhasmana's visits to Mr Brawn in Birmingham

**114** Mr Dhasmana stated that he halted the programme and sought help from outside Bristol:

'As I could not get any advice locally, I talked to my fellow surgical and cardiological colleagues during a BPCA [British Paediatric Cardiac Association] meeting held at Birmingham in November 1992. A cardiologist from the GOS Hospital, London, told me of problems Mr de Leval had experienced with neonatal switches on his most recent 7 or 8 patients, and that Mr Brawn had helped him to rectify the problem. I was therefore advised to seek Mr Brawn's help in this matter. I met Mr Brawn, at the same meeting, and he was very receptive, advising me to visit him in Birmingham when he was operating on the next neonatal switch. I did invite him to Bristol and help me with the operation, to which he politely declined.'[132]

**115** Asked why he chose Mr Brawn, Mr Dhasmana told the Inquiry:

'It was not Birmingham I went to initially, it was the BPCA meeting at Birmingham in November 1992, which I was attending as a member. There I met a lot of my other colleagues, both cardiologists and paediatric surgeons and I discussed my problem with them, and one of the paediatric cardiologists from the Great Ormond Street Hospital then told me that they had a similar problem at Great Ormond Street Hospital and Mr Brawn was able to help really and "It would be a good thing if you talked to Mr Brawn". It so happened Mr Brawn was also attending the meeting, so I talked to Mr Brawn and also Mr Sethia. So it was following that meeting that I decided to go to Birmingham.'[133]

**116** Dr Masey, who accompanied Mr Dhasmana, said that the reason for the visit was that:

'A programme to perform neonatal Switch procedures had started in 1992 and the results had been uniformly poor, so it was felt that some form of retraining was required in order to see whether we could proceed with this particular procedure.'[134]

131 T76 p. 140–1 Dr Martin
132 WIT 0084 0112 Mr Dhasmana
133 T85 p. 3 Mr Dhasmana
134 T74 p. 87 Dr Masey

**117** Mr Dhasmana and Dr Masey visited Birmingham in December 1992 in order to observe Mr Brawn at work. The operation was recorded on video and Mr Dhasmana kept a copy. Mr Dhasmana stated:

> 'I was particularly impressed with the organisation. As a result of this I arranged for theatre nurses and other perfusionists to visit and learn the workings of the Birmingham set-up … I believe that the whole team received further training as a result of these visits.'[135]

**118** Dr Masey described Mr Dhasmana:

> 'He came back on the train and he was extremely enthusiastic about what he had seen and what he had been able to talk through with Mr Brawn, and felt very encouraged by what he had seen in relation to how he felt he would go forward with the neonatal Switches that he was going to be operating on.'[136]

**119** On his return, Mr Dhasmana stated that he:

> '… discussed proposed changes in the technique, set-up, pre- and post-operative management, with anaesthetists, cardiologists and nurses. They agreed to make the changes and to re-start the neonatal Switch programme … On the table I made various changes in technique, for example reductions in cross clamp and by pass time, as observed during Mr Brawn's neonatal operation, and from studying the video recording … Nurses were involved with operations. These changes resulted in an observable improvement, with the next two patients surviving the operation. Although the third patient died the fourth survived resulting in optimism in the Unit.'[137]

**120** The neonatal programme was recommenced. Six operations were carried out. Patients one, two and four survived. After the death of the sixth patient, Mr Dhasmana halted the programme and again visited Mr Brawn in Birmingham.

**121** Mr Dhasmana told the Inquiry:

> 'I lost two patients in succession and both of these patients had normal coronary arteries, so in a way, that raised doubt again in my mind that here I was, I did two successful operations, the third did not make it, but it was a highly abnormal coronary artery and probably could be explained in any centre. But the next one survived so I am still happy, I have got, you know, out of four, three survivals. And the next two did not, although of course, with one of them we did have evidence of myocardial infarction, but nevertheless, these two did not and they had a normal coronary artery.

135 WIT 0084 0112 – 0113 Mr Dhasmana
136 T74 p. 92 Dr Masey
137 WIT 0084 0113 Mr Dhasmana

'… during this period, between 1992 and this time, July 1993, I had operated on about 7 or 8 older Switches and they all survived. So that is why, really, I was very concerned that something is probably a little different in neonates which I have not still been able to transfer. That is what was quite worrying me.

'I told Dr Joffe that, "I am very sorry, it appears that I will not do any more neonatal switches" … He said, "Well, it so happens that I was going to get in touch with you". I said "What for?" He said "I have got another patient admitted with a similar problem".

'Then I narrated again what happened during the day in theatre and he I think tried to probably comfort me, saying "Let us just wait for the post mortem examination and then we can really …". I said, "Well, I am not taking that next case on …".

'… He said "Well, what should we do?" I said "I tell you. We talk to Birmingham". He said "Well, why do you not do that?" So the next day, I ring Birmingham, I ask for Mr Brawn. It so happened he was nearby … he said "No problem, you know, bring the patient and I will operate here, and I tell you, I have got another patient here, so you will see two patients operated on the same day".'[138]

**122** Mr Dhasmana recalled:

'I re-visited Birmingham in July 1993 accompanied by Dr Underwood and a patient from Bristol that Mr Brawn had agreed to operate on. We had further discussion on the problem being experienced in the Unit. We returned to Bristol, re-assured and prepared to re-start the programme. The next neonatal patient survived followed by a further fatality and the programme was ended.'[139]

**123** Dr Underwood accompanied Mr Dhasmana to Birmingham. Dr Masey on her return from Birmingham in 1992, had instituted changes in practice. Dr Underwood told the Inquiry:

'… when I went in the middle of 1993, it was to observe them doing the same thing which Dr Masey had described to me, and I do not remember adding anything different or extra after that particular visit.'[140]

138 T85 p. 48–9 Mr Dhasmana
139 WIT 0084 0113 Mr Dhasmana
140 T75 p. 99 Dr Underwood

**124** When asked by Counsel to the Inquiry what he expected to discover from a second visit to Birmingham, Mr Dhasmana replied:

> 'What I noticed over these cases is that somehow, from outside and even when I have gone back in, the coronary artery looked in the right place. There was no obvious kink from outside. So I started asking myself whether what I called at that time the "lie", the way they are lying over the heart, have I got the angulation right, and maybe, technically anastomosis fine, and when you are looking at the post mortem, it looks fine, no problem, but the heart did not work. One of the things with anastomosis I think is the coronary artery, which I think is very important.'[141]

**125** Professor de Leval commented as to whether Mr Dhasmana's visits to Birmingham constituted retraining:

> 'Whether this is what Mr Dhasmana was looking for, I am not sure. I think that the word "retraining" here might not be appropriate because he had never achieved good results in the Switches, so it was a question of training rather than retraining, which is slightly different, I believe.'[142]

[141] T85 p. 50–1 Mr Dhasmana
[142] T60 p. 51 Professor de Leval

# Chapter 15 – Post-operative Care

# The management of post-operative care

**1** After paediatric cardiac surgery at the BRI, the practice was that the consultant anaesthetist[1] accompanied the child back from theatre to the Intensive Care Unit (ICU, also referred to in evidence as ITU) with the theatre nurse. He or she connected the child to the ventilator and ensured that the necessary drugs were being delivered correctly, and gave instructions to the nurse regarding these matters. The consultant surgeon usually arrived 10–15 minutes later[2] to discuss the way forward with the anaesthetist, and to make any changes to the continuing care if appropriate.[3]

**2** The child was received by the senior ward nurse in charge and the ICU nurse who was to look after the patient, who would be given relevant information about the operation performed, any problems encountered, the present condition, and treatment to be given.[4]

**3** Julia Thomas stressed that:

> 'The children always had one nurse per shift, per 24 hours, to care for them. This was always a senior staff nurse or above and *NEVER* a nurse in training.'[5]

If the patient was very ill, then two nurses per shift were required. This was usually where the child required renal support in addition to ventilation and cardiac support.

**4** Mr Roger Baird, consultant general surgeon, described the distance between the cardiac wards and the operating theatre:

> 'Q. Am I right in thinking that the operating theatre was two floors below the ITU used for cardiac services?
>
> 'A. At that time it was. Today they are on the same floor.
>
> 'Q. But then?
>
> 'A. Then they were two floors apart.
>
> 'Q. And access from one to the other by means of a lift?
>
> 'A. Yes.

1 Together with a senior registrar anaesthetist, a Senior House Officer (SHO) surgical team member and a surgical registrar
2 Unless the child was very ill, in which case they arrived with the child
3 WIT 0114 0087 Fiona Thomas. Fiona Thomas worked as a nurse on Ward 5 from 1986, became a G grade Sister from 1988, and became Clinical Nurse Manager of Cardiac Surgery from 1992
4 WIT 0213 0040 Julia Thomas. Julia Thomas was Sister in charge of cardiac surgery, ICU from 1982 to 1988, and Clinical Nurse Manager of the Cardiac Unit from 1988 to 1992. She is now a G grade Sister
5 WIT 0213 0040 Julia Thomas (witness's emphasis)

'Q. A small lift?

'A. Yes.

'Q. And once one got up to the floor where the Intensive Care Unit was, a distance to be pushed along a corridor before one got to the ICU?

'A. Yes.'[6]

**5** Dr Susan Underwood, consultant anaesthetist, spoke of the journey from theatre to ICU. She was asked if this compromised the health or safety of patients:

'A. No, I do not think so specifically. I think because we knew that the journey was long and potentially hazardous, we would not embark on it until the patient was quite stable, so that in moving a sick patient from the operating table to the cot or the bed, there may be some instability in a very sick patient, but then you would not move out of the theatre until you had overcome that period and then you would move to the Intensive Care Unit. There was never any pressure to press on with the next patient if the patient was not fit to make the journey, because everybody understood that you must not set out on the journey unless it was going to be made as safe as possible.

'Q. Did you move directly from theatre to the ITU or was there a room immediately outside theatre where you would stabilise the patient after surgery?

'A. No, you would stabilise in the theatre and then move up to the Intensive Care as one journey.'[7]

**6** Dr Sally Masey, consultant anaesthetist, explained the nature of the surgical and anaesthetic presence in the ICU during the period 1984–1995. Her evidence included this exchange:

'A. During that period there was a resident Senior House Officer in surgery and also a more senior surgeon, Registrar or Senior Registrar level, who was not necessarily resident but would sleep in the hospital if there was considered a reason to be so.

'Q. You say "not necessarily resident". You mean not ordinarily resident; not a full-time resident Registrar?

'A. He was not expected to be resident. It was not in the contract to be resident.

6 T29 p. 103 Mr Baird. See Chapter 9 for a diagram showing the departmental relationship at the BRI
7 T75 p. 15 Dr Underwood

'Q. So the usual position would be that the resident Senior House Officer in surgery would be the permanent presence in Intensive Care?

'A. During the whole 24 hours. During the working day there was also an anaesthetist of Registrar or Senior Registrar level who was designated to be on the Intensive Care Unit.

'Q. And at night what was the position for anaesthesia?

'A. At night that Registrar or Senior Registrar was not resident.

'Q. So what was the anaesthetic cover in Intensive Care at night?

'A. The anaesthetic cover was from home both for the trainee anaesthetist and the consultant anaesthetist.

'Q. And so you would have, I imagine, some provision in your contract that you must live within X miles of the hospital, something of that sort?

'A. I believe my contract states a mileage, although I think some contracts now or in certain parts of the country state a time within which one should be able to get into the hospital rather than a mileage.'[8]

**7** In their report in 1995 Dr Stewart Hunter and Professor Marc de Leval[9] commented that:

'The overall post-operative management at the Royal Infirmary appears to be less organised with multiple decision making processes between the surgical Senior Registrar and the SHO who do rounds at 8.00 am, the anaesthetists who see the patients at 9.00 am and the intensivists who work three days a week.'

**8** Mr Wisheart commented on this criticism. He told the Inquiry:

'I have to say that I was shocked when I read this, and I did not recognise the Intensive Care Unit that I worked in, and have done for many years. I recognise that everybody did not always, at the first word, agree with everybody else, but nearly always, after proper discussion, agreement would be reached. I actually refrained from any comment – well, pretty well any comment – to anybody on this, until very recently, when I read in the transcripts of these proceedings that this remark was based on the evidence of one person only to Mr de Leval and Dr Hunter. That is the evidence of Fiona Thomas. In fact – I am not really wishing to criticise Mr de Leval or Dr Hunter, because they had a very limited time to carry out their inquiry, but they did state quite clearly that they did not take evidence on this point from

8 T74 p. 42–3 Dr Masey

9 PAR1 0008 0118; *'Visit of Cardiac Services Directorate of the United Bristol Healthcare NHS Trust 10 February 1995'*. The visit and the report are dealt with in detail in Chapter 30

anybody else. All I knew was that they had not taken evidence from me on this point, but I did not know who else. So I would simply draw your attention to that. I think that, therefore, this conclusion is not based on canvassing a broad spectrum of opinion.'[10]

**9** Mr Wisheart confirmed, however, that during the period of the Inquiry's Terms of Reference there was no 'common ward round'[11] carried out by the surgeons and the anaesthetists together. He told the Inquiry that the surgical senior registrar and SHO would do their rounds at 8 am, before theatre, in addition to which:

'There would always be a Senior House Officer who was present 24 hours a day, and there would normally be a Surgical Registrar who is not in theatre and who would be available for discussion. And of course, all the consultants are not in theatre at the same time, so some of those would also be available for discussion. I would normally see the case when I came in and that might be 8, 8.30 or 9, depending on whether I had a meeting, so I would normally pick up anything that they had left for me or endorse what they had done or whatever somewhere between 8 and 9 o'clock.'[12]

**10** Mr Wisheart confirmed that the anaesthetists would do their ward round at 10.30 or 11, at which time a surgical member of staff:

'… would be present on the ward but he might or might not be physically with the anaesthetist doing their ward round; he might well have other things that he felt he had to do. By the same token, the anaesthetic registrar was present in intensive care at 8 o'clock when the surgical team were doing their ward round and would be available for discussion with the surgeons, so that the opportunity to liaise was certainly present.'[13]

**11** Mr Wisheart was asked whether it was easy to co-ordinate the care in the ICU. He explained that there was:

'… a cardiac surgical Senior Registrar, or Registrar, who are available at all times to intensive care. … the cardiac SHO … was just the person who was there, and indeed, one of his functions stated explicitly in the "red book"[14] that has been referred to was to ensure that if somebody came at one time and somebody else came at another time, they would be aware of each other's suggestion and advice in the event that it was not written down. So he was very much a co-ordinator, a person who did things that people more experienced than himself advised him to do, or he helped the more experienced person to do it. Then, of course, the

10 T93 p. 79 Mr Wisheart
11 T40 p. 145 Mr Wisheart
12 T40 p. 144 Mr Wisheart
13 T40 p. 144–5 Mr Wisheart
14 UBHT 0152 0008 – 0098; *'Bristol Royal Infirmary Cardiac Surgical Unit – A Notebook for Members of the Team.'* This was last updated in 1988, and was described by Dr Pryn at WIT 0341 0007 as '... a set of guidelines for the management of patients, both adult and children, undergoing cardiac surgery'

consultants involved were actually frequently in intensive care, as operations, outpatients, whatever commitments, permitted. They would be in and out. They were keeping a careful eye and offering their advice, because things change and evolve and it is necessary to do so. So I would regard this as an incomplete picture. I would not claim it was ideal, and the basic reason it was not ideal is that not all of the members of the team were totally committed to either cardiac surgery or paediatric cardiac surgery. Some members of the team had commitments elsewhere, and that was quite a major difficulty, and one of the things we had been seeking to overcome.'[15]

**12** Mr Dhasmana was asked to comment on evidence he gave to the General Medical Council (GMC)[16] in which he had said of the paediatric work being done at Bristol that, having worked in Great Ormond Street, and having seen centres like Chicago and Alabama, he felt that Bristol was 'at a very low, primitive level … either because of the facilities, or theatre, or ITU, or availability of beds'.

He told the Inquiry that these comments related to the position in 1984 and 1985 when he was a senior registrar:

'There was only one surgeon doing the paediatric work, Mr Wisheart, and I thought for a centre to work in that type of facility with one surgeon working — and if I remember it correctly, our ITU was not big enough, really, to accommodate more than one patient – I may be wrong – one paediatric patient at that time. You had to juggle with your adult list to fit in the paediatric cases, and I was uncomfortable with some of the waiting list that some of the children were really going through. … Maybe "primitive" was a little bit too harsh on Bristol, really. … I would say, if not "primitive", I would say it was at a lower level, really; it was not very high up, even on my scale.'[17]

**13** Dr Stephen Pryn, consultant anaesthetist and intensivist, told the Inquiry of his overall impressions of the cardiac surgical unit at the BRI when he was appointed as an intensivist in August 1993:

'It was a unit that was often run minute by minute by relatively inexperienced doctors, with their senior cover not being that available, and it was a unit run by trainees who were not used to general intensive care issues, were quite familiar with managing the cardiovascular system, but were relatively poor at integrating that with the other systems, for instance, the respiratory system. … Their background was not in general intensive care.'

15 T93 p. 81–2 Mr Wisheart
16 GMC transcript day 42 p. 19
17 T84 p. 18–19 Mr Dhasmana

He told the Inquiry that he felt that there needed to be more input from a general intensive care background, and that senior cover needed to be more available, and agreed that it was an awareness of this that had fuelled the appointment of himself and of Dr Ian Davies.[18]

**14** Dr Stephen Bolsin, consultant anaesthetist, was asked whether the situation in ICU ever became so critical that he refused to anaesthetise any more patients because of the problems in ICU. He said:

> 'I do not think that specific decision was ever made by me, but I think a parallel decision was sometimes made by the surgeons where they would cancel a paediatric case in order to do an adult case because there were already critically ill children on the Intensive Care Unit. Whether that was because there were not enough paediatric nursing staff to go round, or whether it was because they were worried about the human resources and medical resources available, I am not sure.'[19]

**15** Mr Wisheart suggested that the problems perceived by the Hunter/de Leval report might have been a result of the team increasing in size over time. He said:

> 'I believe that historically there was close teamwork, and if we went right back to the beginning of the period of this review, in 1984, there were just two anaesthetists working in paediatric cardiac anaesthesia and they, of course, were unable to have the continual presence that the five or six or whatever number of anaesthetists provided in the 1990s. Interestingly, by their personal commitment and a feeling of being a member of the team, it was actually quite easy to co-operate with them, to get their advice, and there was always a clear knowledge of who to go to. It may be that some of what has been reflected to you is a consequence of the team increasing in numbers and the fact that in some areas of work somebody was responsible on Wednesday, but it was somebody else on Thursday and somebody else again on Friday. It is against that background that the surgeons I think felt not less but more of a pressure to maintain a continual interest, and they had to deal with the differing notions that people might have had on Wednesday, Thursday and Friday, and tried to work that into the system. But I do actually still feel – and I do not want any misunderstanding to come from my remarks – that the commitment of the people who provided that service in the 1990s, I mean, by and large was terrific. I did not, myself, sense that there was any lack of a feeling of being on the same team with them in this area in theatre and so forth.'[20]

18 T72 p. 20 Dr Pryn
19 T82 p. 32 Dr Bolsin
20 T93 p. 95–6 Mr Wisheart

## Equipment and cleanliness in the ICU

**16** Julia Thomas set out what equipment was available in the ICU throughout the period of the Inquiry:

> 'The ITU had excellent paediatric equipment. Each bed had:
>
> - 'ECG monitor (HP) with memory, alarm & recorder (attached to central monitoring)
> - 'Arterial, CVP and PAP.LAP monitoring
> - 'Body temperature monitoring
> - 'Oxygen, air vacuum
> - 'Pulse oxometer
> - '$O_2$ monitor
> - 'Paediatric ventilators (Bear Cub and Servo C) with CPAP Ventilation Mode
> - 'Humidifier
> - 'Infusion pumps x 6
> - 'Volumetric infusion pumps x 2
> - 'Full resuscitation equipment
> - 'Humidified $O_2$ with face mask/head box
> - 'Special baby therms (warming cots)
> - 'Pacing equipment
> - 'Cardiac output computer
> - 'End tidal $CO_2$ monitor
>
> 'The Unit also had a 12 lead ECG machine, echo machine, high frequency ventilator, CPAP equipment, oxygen head boxes, blood gas machine, full resuscitation equipment (defibrillator), cots, paediatric bed and incubator, peritoneal dialysis machine, pressure mattresses.'[21]

[21] WIT 0213 0042 – 0043 Julia Thomas

**17** Julia Thomas also commented on the maintenance of equipment:

> 'The equipment was fully maintained by the hospital Maintenance Department, who were very reliable and would usually respond to a call to see equipment on the Unit within an hour. All the equipment was regularly serviced. … The ventilators were maintained by a small maintenance team headed by a senior technician.'[22]

**18** Fiona Thomas, Clinical Nurse Manager of Cardiac Surgery, told the Inquiry:

> 'I mean, equipment in the early time, a lot of equipment, when I remember taking over, when I was a sister and an early Nurse Manager, equipment was bought and donated by the Heart Circle, which was very generous of them. They used to buy a lot of equipment, but there was not necessarily any consistency in the equipment that was bought. It just tended to be what was on offer at the best [price], at that time. You know, reps could come in and say "I have a syringe pump at this price", and that is how we had it. So we had quite a mixture, but, I mean, there was only a couple of companies that made them. I do not think there was any particular programme on how old certain equipment was, whereas nowadays one would say most medical equipment, you should not be using it after it has been used for ten years. So nowadays, I am keeping an eye on how old some of our equipment is. But I think in those days, I do not think we probably were looking at it from that sort of angle. I mean, I think just as technology has advanced and how we are using more equipment today. We are having to look at that continuously.'[23]

**19** Fiona Thomas also said:

> '… the thing with cardiac surgery is, it has to be well resourced. If you do not have the equipment, you cannot do the work. If you do not have a good ventilator or heart-lung machine, there is no point in doing the work, if you have no nurse to look after the patient afterwards. It is more expensive work than if you do general surgery, for instance, and you do not need any equipment to look after a patient post-operatively, whereas with cardiac surgery you need to have the equipment. I think a lot of the equipment was getting old and there was no maintenance or renewal programme. We have set up a renewal programme of when equipment definitely needs to be changed. I suppose I inherited it as it was.'[24]

22 WIT 0213 0043 Julia Thomas
23 T32 p. 30–1 Fiona Thomas
24 T32 p. 79–80 Fiona Thomas

**20** As to cleanliness in the ICU, Belinda House, mother of Ryan, told the Inquiry:

> 'We had one cleaner who was there a long time, she was wonderful. She was rather upset because the cleaning contract had been privatised and they were the same people but they were not allowed to talk to the patients, they had to clean from there to there, they were reprimanded if they were talking and she felt that had taken something away from the patients. They had to clean up at a particular time, and she was concerned that the IT Unit was not as well cleaned as it had been previously, but she had allotted times and it did not matter if a new patient was put into that bed space, she was not allowed to clean because she might have cleaned ten minutes previously.'[25]

**21** Julia Thomas said:

> 'The microbiologists at the BRI were involved with our Unit, carrying out daily rounds of the patients, discussing possible infections and appropriate treatment. We have an infection control nurse on the Unit. The Unit had the facility to isolate infected patients in the isolation bed. Barrier nursing was always instigated if infection was a problem. On the issue of hygiene and cleanliness, I would make the point that, prior to contracting out cleaning services, the ward had a wonderful team of cleaners who stayed with us for many years and cared passionately about the cleanliness of the Unit. Following the cleaning being contracted out in the early 1990s, it has not been of such a high standard.'[26]

## Role, training and numbers of nurses

**22** Julia Thomas told the Inquiry:

> 'The paediatric patients always had the most experienced nurses looking after them.'[27]

**23** She continued:

> 'The patients were brought back to the Unit from theatre by the anaesthetist and theatre nurse, who handed over the child to the ITU nurse caring for him/her, and the senior nurse in charge. This handover included information about the actual operation performed, problems (if any) encountered, and treatment and present condition. All patients were ventilated on return. The anaesthetist would set the ventilator for the child and settle him/her into the Unit. The nursing policy for caring for the patients in the immediate post-operative period consisted of two nurses settling the child – one nurse responsible for ventilation and IVs and lines/fluids, and the other for drains, observations and comfort. When the child appeared settled the senior nurse would leave the bed space, but was available to return if

25 T6 p. 107 Belinda House
26 WIT 0213 0045 Julia Thomas
27 WIT 0213 0040 Julia Thomas

any problems arose. There was a written policy along these lines. The surgical Senior House Officer would write up all the drugs required and prescribe the fluids. The consultant surgeon always visited soon after the patient's return to the ICU to assess condition and treatment. The surgeon would decide what parameters of blood pressure, heart rate, central venous pressure, left atrial and pulmonary artery pressures, were acceptable. The anaesthetist would assess the child's ventilatory state, looking at the blood gas, oxygen etc. He/she would leave instructions for those aspects of that patient's care.'[28]

**24** Julia Thomas stated:

'Continuity of care by the nursing staff was assured by the same nurse always looking after the child on two shifts running. As there was a group of experienced nurses who looked after the children, there was usually good continuity. Liaison between medical specialties was often carried out by the surgical SHO and anaesthetic registrar on duty. The nurses always reported to the physiotherapists, dieticians, and cardiac liaison nurses, about the child they were looking after.'[29]

**25** Dr Peter Martin, consultant paediatrician, worked as an SHO at the BRHSC for 12 months from August 1988 to July 1989, four months of which was spent working with Mr Wisheart and Dr Jordan, consultant cardiologist. He also worked as a paediatric registrar at the BRHSC from February 1991 to January 1992. Comparing the ICUs at the BRHSC and the BRI, he said:

'... myself and colleagues thought it was rather bizarre that the sickest children post-operatively were managed in a unit where the resident staff were generally not paediatrically trained and the nursing staff were also not paediatrically trained [the BRI]. This was in stark contrast to the children requiring less intensive surgery who were looked after on a paediatric ICU with paediatric anaesthetists, resident and paediatric medical staff, as well as of course nursing staff who only looked after ill children [the BRHSC].

'I think in summary therefore that circumstances transpired to work against those sickest children who required the most skilful input.'[30]

**26** John Mallone, father of Josie who spent five weeks in the ICU, said:

'I felt there was tremendous continuity in the nurses because they work 8-hour shifts, do they not, and so they got to know us and they got to know their patients, the children who were in there, they treated them as human beings. I found the doctors, they would come round perhaps on a 10-minute ward round twice a day

28 WIT 0213 0040 Julia Thomas
29 WIT 0213 0041 Julia Thomas
30 INQ 0042 0005 – 0006; letter to the Inquiry

and I always had the impression that they did not see the children, the babies, as human beings, more just as anatomical problems that had to be solved.'[31]

**27** Fiona Thomas said:

'In intensive care the aim was that the E grade[32] nurses or above ... looked after the children following surgery, and then there was this F grade RSCN, and the F grade RSCN would work always in the intensive care unit on a Tuesday late shift and a Thursday late shift, which was the days that the majority of children's big cases were done in those days, so she was there. She may not necessarily have looked after those children, but she was actually in the unit for support for the nurses caring for the children coming out of theatre.

'In the nursery, which was the pre- or the post-operative area, she would be working there and she was also based there for the other 3 days of the week that she worked. She worked with a D grade RSCN who was a newly qualified paediatric trained nurse. She had done no adult training so all her training was in paediatrics. She was employed to work in the nursery because she did not have the experience of any intensive care to work in ITU.

'Otherwise, we would have had D and E grade nurses working in the nursery for support as well, so she would not have been in there by herself, she would have had an E grade on the other shifts or the F grade, Cathy Warren, on the other shifts as well.'[33]

**28** Mr Dhasmana told the Inquiry about difficulties in recruiting nurses for the ICU in Ward 5 of the BRI:

'The problem with the BRI, because it is a place in the hospital where it is mainly an adult service, so whenever we wanted to recruit a paediatric trained nurse in the cardiac surgery, we were not very successful because nurses who were trained in children's care, they are in high demand everywhere and there is a shortage in almost all hospitals so obviously they get absorbed there quickly. If somebody lives, say in Bristol or other places and having been trained in paediatric, they did not feel that they wanted to look after adults when a child is not being looked after in ITU. So we had a very real problem in recruiting a pure paediatric trained children's intensive care nurse in our cardiological department. However, we had some very good, very dedicated nurses. They by their own effort, by their own experience and by going to the Children's Hospital, they doubled up their expertise as to get my confidence that I was always happy for them to look after my patients. But because of this we had a core group and there were a small number of nurses who I would

31 T95 p. 180 John Mallone

32 The nurse grading system was introduced in April 1988, when all nurses were graded according to the roles, responsibilities, experience, etc. The pre- and post-clinical grading equivalents were as follows (WIT 0114 0070): Nursing Manager – H Grade; Sisters – G Grade; Senior Staff Nurses – F Grade; Staff Nurses – E/D Grade; State Enrolled Nurse – C Grade; Auxiliary Nurse – A/B Grade

33 T32 p. 76–7 Fiona Thomas

feel happy to leave my patients with, and that used to cause some problems and that is where the term "shortage" really comes, because of course you know sickness or illness, nobody can really foresee those things.'[34]

**29** Michelle Cummings, mother of Charlotte, told the Inquiry she felt there was a lack of trained staff. Her evidence included this exchange:

'I do know, when Charlotte was in intensive care, that she had a student nurse looking after her. I think there was a question, being that it was the BRI, it was not the Children's Hospital, it was a mixed intensive care, whether there were actually enough paediatric trained nurses, and I spoke to many of the nurses about this, and it was something they themselves were extremely concerned about. I know they were extremely concerned over the resources that were available to them at that time. So, yes, there were definitely students there, and at times, instead of having a one-to-one, it was a one-to-two, so one nurse would be looking after two patients, as opposed to just looking after the one. … I cannot say whether they were there all the time. I know Charlotte did not always have a paediatric nurse looking after her, it depended on the shifts and everything, but I know the nurse looking after her was paediatric trained at times, at other times I know she was not. That is all I can say.

'Q. Of the nurses you were told were paediatric trained, did they seem to you to have other patients to care for as well?

'A. As I said, sometimes you found that you had a nurse one-to-one, so there was one nurse looking after Charlotte on a continual basis; other times there was one nurse between two patients.

'Q. And the ward which Charlotte was in was mixed children and adults?

'A. That is right.

'Q. So when it was one-to-two, one nurse to two patients, was the other patient sometimes an adult and sometimes a child?

'A. I do not remember if that was so all of the time. I know in the latter part of her stay in Ward 5 intensive care, there was another child in there at the same time. What happened was that generally the nurses would – whoever was on duty would look after – they would be sharing the two children they looked at. I do not specifically remember anything else at that point.

[34] T86 p. 18–19 Mr Dhasmana

'Q. From what you suggest, I just want to make sure this is right, so it is not taken the wrong way, there may have been occasions when one nurse was looking after, as it were, on her right, Charlotte and on her left, an adult?

'A. Oh, yes, yes.'[35]

**30** Belinda House talked about the demands placed on nurses in the ICU:

'Well, the routine, any demands placed on nurses in the ITU situations, it is a very stressful situation, with emergencies happening quite frequently, and often, when we went back to visit the nurses, they had changed, because I think the turnover in ITU is quite high because of the stress. … Yes. The equipment, the ventilator, we were told that the ideal ventilator was a certain type, I cannot remember. A cub ventilator came to mind. If they were lucky they could find one of those but they were not sure because there was a very short supply, so that indicated to us there was a short supply of ventilators when there was a great need, so there must have been a cost. There were empty beds at the time and we asked why. They said there were not the nurses that were needed to look after the patients, so that was why that particular bed was not being used.'[36]

**31** Michelle Cummings told the Inquiry that there was no ventilator for her daughter Charlotte at the BRHSC:

'… and there were no beds in the baby unit, and she ended up being put on the bed of a child who had gone down to have his tonsils out whilst they decided what to do with her. I have to say, at this point Mr Dhasmana, who at the time was caring for Charlotte because Mr Wisheart was away, he actually had no knowledge of what had gone on until his return, and he was furious, that is the only way I can describe it. The man was furious. He had not even been told she had been moved at that point, and he was absolutely livid when he got to the Children's to find us there and in that predicament. In fairness to the man, there was very little he could do at that stage. It caused untold distress for the nurses and doctors who were actually looking after her, let alone the unacceptable gamble that we had to witness being taken with her life.'[37]

**32** Michelle Cummings said:

'She went on to — I again thought it was Ward 37, but that was the baby unit. It was Ward 33, the general surgical ward, and what they — as I said, she was on the bed of the child who had gone down for a tonsillitis operation. They then had to ask a parent if they would be prepared for their child to be moved down to the non-surgical ward so that Charlotte could have a bed and that party graciously agreed, and Charlotte was placed very close to the nurse's office and everything. All this

35 T3 p. 142–4 Michelle Cummings
36 T6 p . 94–5 Belinda House
37 T3 p. 151–2 Michelle Cummings

time, she is still being hand ventilated. It got to a point in the afternoon where a decision had to be made, and it was clear that they could no longer continue to hand ventilate her. It was just a totally ridiculous situation. So it was decided to risk just placing her in an oxygen box, and seeing how she coped. Thankfully, she coped. But again, it was a totally unacceptable position that everybody was put in. And an incredible gamble.

'Q. And you say in your statement that there were no specially trained nurses around?

'A. I meant ITU nurses. There were no intensive care nurses.

'Q. Obviously there were no children's nurses?

'A. Yes, but I meant she was not having intensive care nurses looking after her, which, you know, I mean, the attention that these children get when they are in ITU. There was also the other issue over the risk of infection on a general surgical ward, so close, which again, could not be addressed because of the circumstances.'[38]

**33** Dr Pryn commented on the standard of nursing care:

'I think in general, the standard of nursing care was quite good considering the circumstances. I think if more nurses had had paediatric intensive care qualifications, then they would have perhaps brought slightly different techniques, but not a major change in the care. …'[39]

**34** He outlined what he meant by 'considering the circumstances':

'The circumstances being that they were having to look after children one day and adults the next; that the junior doctors that were working with them at the time more often than not were not that experienced with children.'[40]

**35** As for the 'slightly different techniques', he explained these were:

'Techniques such as the method of stabilisation of nasopharyngeal airways, or the way in which you can involve parents in the care of their child.'[41]

38 T3 p. 154–5 Michelle Cummings
39 T72 p. 30 Dr Pryn
40 T72 p. 30 Dr Pryn
41 T72 p. 30 Dr Pryn

**36** The Inquiry was also referred to a letter[42] sent by Mr Ashwinikumar Pawade, consultant paediatric cardiac surgeon, to Fiona Thomas in October 1995:

> 'Dear Fiona, As you know, today was the day when I operated on the last child at the BRI. Personally, I have found my last five months with you most enjoyable. I have no complaints whatsoever regarding the promptness, expertise and level of the care that the children received, both in and outside theatre. I am sure that the parents will echo my feelings. Please convey my gratitude to all those people involved, including those in the operating theatre, Wards 5A and 5B, and ancillary staff. ...'[43]

## Staffing levels

**37** Julia Thomas described the staffing situation at the BRI ICU when she was Clinical Nurse Manager as follows:

> 'The ITU was staffed on the basis of 5.60 WTEs [whole-time equivalents] per bed over a 24-hour period, making a ratio of 1 nurse per patient around the clock. This figure allowed for holidays and sickness. The Unit WTE was well up in the range for staffing ITUs recommended by the Government at that time.'[44]

**38** She stated that the ICU at the BRI was fully staffed in that it had one nurse per intensive care bed, and including the Ward Sister, one nurse over and above that number. The number of nurses subsequently increased in proportion to the number of beds as a result of the various expansions that took place over the period 1984 to 1995. In addition, she stated that when she was Clinical Nurse Manager:

> 'This area [the ICU] was staffed by RSCN [Registered Sick Children's Nurse] qualified nurses and senior NNEB [National Nursery Examination Board] trained nursery nurses. A qualified play leader worked in the nursery and playroom five days a week.'[45]

**39** Julia Thomas told the Inquiry in her written statement that cases rarely had to be cancelled due to shortage of nursing staff. When this did occur it was mainly due to sickness, either among ward staff forcing the closure of an intensive care bed or theatre staff. If the theatre staff had been working during the night on an emergency case, the theatre lists for the rest of the day would be affected and the first case scheduled for the morning would be postponed.[46]

**40** Julia Thomas said that, otherwise, cases had to be cancelled on occasions when there were seriously ill patients in intensive care and the beds became blocked. Adult cardiac cases were sometimes cancelled because beds were occupied by the

42 T32 p. 86 Fiona Thomas
43 UBHT 0129 0005; letter dated 9 October 1995
44 WIT 0213 0005 Julia Thomas
45 WIT 0213 0005 Julia Thomas
46 WIT 0213 0031 Julia Thomas

paediatric cases, which took priority over the adult cases and tended to progress more slowly.[47]

**41** She was of the opinion that this situation improved after the expansion of the Unit in 1988, when the number of intensive care beds was increased to eight. The provision of seven high dependency beds enabled the less complicated adult surgery cases to be fast-tracked, leaving the intensive care beds available for the more seriously ill patients.[48]

**42** Fiona Thomas, in her written evidence to the Inquiry, stated that the Nurse Manager had overall responsibility for planning of staffing levels and skill mix.[49] On a day-to-day basis, Ward Sisters in the ward areas looked at the staffing levels to ensure that an area had the correct level of staff to cope with the patients having operations on a given day.[50] The Sister in charge of the Unit occasionally sought the advice of the Nurse Manager if the severity of a patient's illness made it necessary for two nurses to care for them.[51]

**43** Fiona Thomas explained that although the staffing levels in the ICU were usually one nurse to one patient, there were times when one patient may have required two nurses. In such circumstances if there was also a patient who may not have needed one WTE nurse, one nurse could be allocated to two patients. Alternatively, an extra nurse would be employed, releasing a specialised nurse.[52]

**44** As regards the High Dependency Unit (HDU), Fiona Thomas stated that it was staffed with 0.5 nurses per patient, the nursing complement being a combination of Health Care Assistants (HCAs) and trained nurses.[53]

**45** She wrote that when she took over as Nurse Manager in 1992, the staffing levels seemed adequate on the ICU and HDU, but in Ward 5A they were not sufficient to cope with the level of dependency of the patients. Patients were being put through the ward more quickly, at an earlier stage of recovery and in greater numbers, so the staffing levels needed to be adjusted accordingly.[54]

**46** Fiona Thomas explained her approach to staffing levels:

> 'Each intensive care bed should have, I believe, between 4.5 and 7.5 full time equivalent nurses over a 24-hour period. This would of course depend on how ill the patients were. In Bristol, I recall that we have worked on the basis of 5.8 nurses per intensive care bed. This is a figure that I work on now, even though I do have a

47 WIT 0213 0031 Julia Thomas
48 WIT 0213 0031 Julia Thomas
49 WIT 0114 0018 Fiona Thomas
50 WIT 0114 0019 Fiona Thomas
51 WIT 0114 0010 Fiona Thomas
52 WIT 0114 0010 Fiona Thomas
53 WIT 0114 0010 Fiona Thomas
54 WIT 0114 0019 Fiona Thomas

slightly different system of calculation. I use the following method of calculation: number of staff required per shift x hours ÷ 37½ + 23%. The figure of 23% covers study leave and sickness.'[55]

**47** At a later point in her written statement, she commented:

'I believe that the national standards for ITU staffing levels were a bracket of 5.1 to 7.8 qualified nurses per bed. This provided 24-hour cover at an appropriate level. The figures varied within the bracket, according to the level of complexity of care required within ITU. Depending on how ill a patient is, he/she may require one-to-one care, or may be treated by a nurse allocated to a patient requiring similar levels of care (i.e. one-to-two ratio). In the ITU at the BRI we had a ratio of 5.4. This was, I believe, lower than the optimum indicated for pure paediatric units, but reflected the case mix of adults and children we treated.'[56]

**48** She went on to say that the staffing levels were no different during the night from during the day, with a one-to-one ratio per patient, and always with a G grade or an F grade nurse in charge of the shift. In addition, the night shift (6 pm to 8 am) was supported by an SHO who was on duty 24 hours a day and the registrars and consultants were on call and could be on the ward within ten minutes if needed.[57]

**49** Fiona Thomas commented in her written statement on morale among the nursing staff at the BRI ICU, noting that there are peaks and troughs of morale, but that in 1994 and 1995 it was particularly low. She ascribed this to the changes taking place, redeployment of staff to the BRHSC and the number of very sick paediatric patients coming through the unit. She also stated:

'There had been a shortage of staff since, I believe, around mid-1993...'[58]

**50** The Paediatric Intensive Care Society's (PICS's)[59] *'Standards for Paediatric Intensive Care'*, published in 1992,[60] said that it was essential for there to be a senior nurse with several years' experience of paediatric intensive care in charge of the unit and a minimum of one trained nurse to one patient throughout the entire 24-hour period. Also, when calculating the nursing establishment, it was necessary to make allowances for staff handover time, holidays, sickness and study leave. Dr Jane Ratcliffe, former honorary secretary of the PICS, confirmed that, taking the various factors into account, the establishment recommended by the PICS was 6.4 WTEs to one patient per 24-hour period.[61]

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55 WIT 0114 0019 Fiona Thomas
56 WIT 0114 0085 Fiona Thomas
57 WIT 0114 0086 Fiona Thomas
58 WIT 0114 0025 Fiona Thomas
59 The Paediatric Intensive Care Society was set up as an independent multidisciplinary body in 1987 to develop and promote standards of paediatric intensive care, education, training and research. As such it has a major role in promoting research and education in paediatric intensive care: WIT 0060 0001 Dr Jane Ratcliffe
60 WIT 0060 0011 Dr Ratcliffe
61 T7 p. 152 Dr Ratcliffe

**51** In the light of this, Fiona Thomas drew the distinction between this recommendation which was for a purely paediatric unit, and what was needed for a mixed adult and paediatric unit. She added that, while there were eight intensive care beds on the ward, the most children she could remember on the unit at any one time was five:[62]

> 'You have to remember that the unit was a mixed unit. That is why when I answered the question it was 5.4 for the whole intensive care unit, because of course there were 8 beds, not necessarily 8 beds would have been [occupied by] a patient, at this stage when we are talking, who would be ventilated and may be considered an intensive care patient.'[63]

> 'They [paediatric patients] always received one nurse per patient every single shift. If the patient was more dependent, which sometimes they were and they needed two nurses per shift, then another nurse would have worked with that nurse.'[64]

**52** Julia Thomas stated that:

> 'The English National Board for Nursing and Midwifery (1991) guidelines covered the numbers of staff in ICUs [i.e. both adult and paediatric] and recommended staffing at a ratio of 1 nurse per bed per shift.
>
> 'These guidelines recommended 70% of nurses to be children's [nurses] trained in paediatric wards/ITU. I believe the same ENB guidelines recommended regular skill mix exercises to be carried out, which I carried out regularly with Lesley Salmon, the then Associate General Manager of Cardiac Surgery.
>
> 'In 1988, I was made aware of the recommendations of the DoH for a play specialist to be available on all units where children were routinely nursed. This led to the appointment of a full time play leader for our playroom. Prior to this the post had been a part time one.'[65]

**53** She went on:

> 'The Department of Health's 1991 recommendations of an RSCN on duty 24 hours a day to advise on care, and the [ENB's] target of 70% paediatric nurses on ITU, were not met. However, as ward 5B was not a designated Paediatric Intensive Care Unit (PICU) I am not sure whether this recommendation applied to the unit. In the British Paediatric Association survey of 1993, adult ITUs which admitted paediatric patients were shown to have less than 1% RSCNs. This study also concluded that 84% of PICUs and 80% of adult intensive care units failed to meet the recommended minimum. Ward 5B employed a specialist paediatric nurse to advise ITU staff on care issues. We always had 1 nurse per ITU bed. We tried very hard to

62 T32 p. 48 Fiona Thomas
63 T32 p. 42–3 Fiona Thomas
64 T32 p. 43 Fiona Thomas
65 WIT 0213 0038 Julia Thomas

employ RSCNs on the unit, but this was difficult to achieve, due to a national shortage of children's trained nurses.'[66]

**54** The change in the training of nurses in 1990, which led to nurses receiving more of their training at university, taking a diploma or degree in nursing, had an effect on the arrangements for nursing on the ward, as Fiona Thomas explained:

'It was quite drastic on some wards, because some wards did require those extra staff, extra nurses, and third-year student nurses particularly were used as a good pair of hands for patient care. Student nurses up until the change were used as staff caring for patients.'[67]

**55** She further explained the situation due to the change in nurse training:

'When they were not around, there was a deficit of nurses, of carers, then, one could say, and then the BRI had introduced quite a big training programme for HCAs to try and get more HCAs to try and fill up the gap that was going to be present when there were no student nurses.'[68]

**56** The gap left by the student nurses was filled by nursing auxiliaries:

'... auxiliaries were trained, the training for auxiliaries changed to become health care assistants so an auxiliary could do extra training to NVQ [National Vocational Qualification] level 2 so they were able to be more knowledgeable about certain aspects of nursing care, so they were able to do some of the nursing care roles.'[69]

**57** In her written evidence Fiona Thomas stated:

'There were occasions when post-registration students, who were undertaking extra courses in cardiac care or Project 2000[70] students, visited the ITU/HDU. Both were supernumerary. However, the ENB students occasionally looked after patients by themselves, but only when it was felt that they were competent and confident. The Project 2000 students never looked after patients by themselves.'[71]

66 WIT 0213 0039 Julia Thomas
67 T32 p. 63–4 Fiona Thomas
68 T32 p. 64 Fiona Thomas
69 T32 p. 64 Fiona Thomas
70 Project 2000 replaced the previous system whereby pre-registration nurses were trained on a ward-based apprenticeship, with a university-based diploma education. All student nurses on the ward under Project 2000 were supernumerary
71 WIT 0114 0010 Fiona Thomas

**58** In her written statement, Belinda House said:

> 'While the nurses there [in the Nursery] were helpful and appeared to do their job very well, we were surprised how few of them there were, particularly considering that there were several children on the ward who had recently come back from the intensive care unit and at times there were no nurses in the room at all.'[72]

**59** Fiona Thomas replied to this in her oral evidence:

> '... the children only went back into the nursery from the intensive care when they were well. I mean, the children, in 1990, used to stay in intensive care for quite a while, even once they were extubated and breathing by themselves, they did not go back to the nursery until they were fairly well, because there was nothing in-between. We had intensive care and we had the nursery, there was nothing in-between. To a parent's perception of somebody coming back from intensive care, it may have just looked fairly dramatic, I suppose, they might have come back with a drip or two, but they would not have actually gone into the nursery very much at that stage.'[73]

**60** Belinda House also stated that a trainee failed to notice that a ventilator had run out of water. Fiona Thomas replied that it would not have been a trainee's responsibility to refill the ventilator:

> 'The trainee nurses never looked after the children unless they were ... with a trained nurse, so there were many times when the trained nurses had a trainee with them. Maybe that was what the parents were referring to; that trainee was the one who was with the trained nurse. But I agree the water should not have run out in the ventilator. There was a pot we used to have to top up continuously; as time went on and advances were made it used to top itself up, but it had to be filled with water which made sure the ventilator was humidified with oxygen and that went to the child's lungs.
>
> '... it would not have been the trainee's responsibility to do that. She would have been there with one of the trained nurses as well.'[74]

**61** Asked by Counsel to the Inquiry whether she could recall cancelling operations due to not having sufficient staff on the ICU, Fiona Thomas replied:

> 'What I do recall doing ... was rallying round, calling extra staff, but I do not remember being able to get agency staff, because agency staff were not clinically able to care for the children, so if we did have agency staff, they would look after the adults and our own nurses would look after the children. ... That is how we

72 WIT 0025 0005 – 0006 Belinda House
73 T32 p. 87–8 Fiona Thomas
74 T32 p. 89–90 Fiona Thomas

would manage it. I do not recall cancelling operations; I remember just trying desperately to sort the staffing matters out by phoning around.'[75]

**62** Lorna Wiltshire said that while she was Nurse Manager of the Cardiac Unit:[76]

'We did use bank nurses, but it was often the case that it was easier to manage with what we had rather than to bring in someone who had no experience on the ward. It was rare to bring in an agency nurse, unless all else failed. We would try to look at who we had and see if we could shift people around. It was quite often the case that sisters dealt with the problems and only came to me if they could not resolve them.'[77]

**63** She continued:

'If all avenues failed, we had to close a bed. This did happen on occasion. It had to be approved at a higher level, and was only done as a last resort.'[78]

**64** Pat Fields was employed as an Operational Nurse at the BRI in November 1990, in order to organise the nursing services within the surgical unit as the unit was using high numbers of agency staff.[79]

**65** She said of the nursing situation throughout the Trust:

'When the Trust was created, the structure became very fragmented. Everyone had their own budgets, all the way through the structure. By way of an example, if there was a shortage of nurses on one ward, then agency nurses would be used, rather than asking for (or obtaining) help from another ward, because of the budget implications. This meant that units no longer worked together as closely and co-operatively as they had before, always being concerned about the implications for their own budgets, which were jealously guarded.'[80]

She also said that the increase in the use of agency staff was in part due to the changes in nurse training and to clinical grading issues.[81]

**66** Mrs Fields was of the opinion that this would have an adverse effect on care throughout the surgical unit:

'I felt that the quality of care offered was bound to be reduced due to the large number of agency nurses. My first task was to advise Mr Roger Baird as Clinical

75 T32 p. 92–3 Fiona Thomas
76 Lorna Wiltshire was Nurse Manager during Julia Thomas' maternity leave in April 1990, and subsequently became an Assistant Manager in General Surgery from late 1990 until 1993
77 WIT 0330 0007 Ms Wiltshire
78 WIT 0330 0007 Ms Wiltshire
79 WIT 0154 0002 Mrs Fields; her appointment was part-time for three months, but her contract was subsequently extended
80 WIT 0154 0006 – 0007 Mrs Fields
81 WIT 0154 0018, 0022 Mrs Fields

> Director for Surgery that, in order to sustain a good quality service for all patients, we would have to close some beds on the ward, and reduce the number of agency nurses being used.'[82]

**67** Mr Dhasmana said that when a shortage of nurses occurred due to an unforeseeable sickness, in order that an operation on a child should not be postponed, bank nurses needed to be recruited to the BRI ICU. He said that this was unfortunate because they may have got nurses who were intensive care trained, but not in the field of cardiac surgery. In such a situation an adjustment was made whereby the bank nurse was placed in the HDU and a suitable nurse was moved from the HDU to the ICU.[83]

**68** As regards staffing levels in the Cardiac Theatres, Sister Kay Armstrong, Cardiac Sister, noted in her statement that when she first began to work as a staff nurse in the theatres in October 1984, there were approximately 11 nursing staff including her. This covered the three Level 4 Theatres of the BRI. Between 1986 and 1988, she did not recall more staff being employed, although the allocation of one person to cover nights was increased to two.[84]

**69** After the expansion of cardiac surgery in 1988, staff numbers increased, although Sister Kay Armstrong stated that:

> '... it was very hard to find out from management what our staffing allocation should have been.'[85]

**70** Sister Armstrong also stated:

> 'The sisters were responsible for the day-to-day running of the theatres but did not hold the budget or have any control over the staff numbers allocated to each theatre. This was very frustrating as we were frequently understaffed without the power to do anything about it.'[86]

**71** Sister Armstrong explained the nursing element of the team for each theatre ordinarily comprised an anaesthetic nurse assistant, a scrub nurse and a circulating nurse. In addition, there would be an allocated sister-in-charge. The sister-in-charge would rarely be supernumerary and would often take up one of these positions.[87]

**72** Mrs Margaret Maisey, Nurse Advisor to the B&WDHA and later to UBHT, told the Inquiry that on two separate occasions she had had carried out formal reviews of

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82 WIT 0154 0007 Mrs Fields
83 T86 p. 19–20 Mr Dhasmana
84 WIT 0132 0002 Ms Armstrong
85 WIT 0132 0003 Ms Armstrong
86 WIT 0132 0003 Ms Armstrong
87 WIT 0132 0041 Ms Armstrong

nurse staffing and the skill mix. The first one was across all of B&WDHA and the second across UBHT. She stated that, as regards staffing (establishment):

> 'At the time the results of the first survey revealed no significant nursing establishment problems. On the second occasion, the Trust, in general, appeared to be as well as, or better, staffed than comparative institutions in the middle and senior grades on clinical nursing staff. The results of the surveys were discussed at DNAC [District Nursing Advisory Committee] and TNAC [Trust Nursing Advisory Committee].'[88]

**73** Mrs Maisey went on in her written evidence to refer specifically to the cardiac ICU at the BRI:

> 'With reference to the BRI cardiac ICU, I am sure that if there had ever been a reason to raise the subject of nurse staffing on the cardiac ICU because of a shortage of staff, the Nurse Advisers, again, experienced professional nurses who would have had no difficulty in raising any subject, would have brought it to the attention of the relevant manager, and, if the situation had not been resolved satisfactorily, to myself. From 1991, when the service was an Associate Clinical Directorate, the situation would have been reported to the Clinical Director, and, if that failed to improve the situation, brought to my attention with the expectation that I would support the Nurse Adviser's recommendations for corrective measures.'[89]

## Skill mix

**74** Mr Andrew Darbyshire[90] said that the differences between nursing adult and paediatric patients are that, although there are similarities in the physiological care, the anatomy of children is not as straightforward. Also, there is the additional need to understand and deal with the interactions between the parents and the child, so as to deliver 'family-centred care':[91]

> 'But in terms of delivering that physiological care, I think experienced adult nurses, provided they have made the adjustments into paediatrics and the anatomical and physiological problems of the child, could deliver that.'[92]

88 WIT 0103 0027 Mrs Maisey
89 WIT 0103 0029 – 0030 Mrs Maisey
90 Expert to the Inquiry in Post-Operative Nursing Care
91 T51 p. 31 Mr Darbyshire
92 T51 p. 32 Mr Darbyshire

**75** Mr Leslie Hamilton[93] was asked whether in his opinion a nurse might not pick up the more subtle signs from a child that there may be a problem or deterioration in condition, if that nurse is not paediatrically trained.[94] He replied:

> 'Personally, I think the key is that they are used to dealing with patients who have the abnormal physiology that we see after coronary pulmonary bypass, or after repair, closed surgery. I think that is very specific to cardiac patients. As Andrew [Darbyshire] said, if you are an adult nurse, as long as you are in that paediatric environment, your skill will be in picking up those subtle signs.
>
> 'I think, again, the background of the person is less important than how they are integrated into the unit. To me, paediatric intensive care is very much a team thing and everyone has their own input. The role of the intensivist is to bring all that together. The nurses are the key at the bedside; they are the ones who pick up, usually first of all, that something is not quite right. It may be a surgical problem, it may be something else, but I think it is very much an integrated thing.'[95]

**76** Dr Barry Keeton[96] gave his view of the paediatric training and experience required of nurses as follows:

> 'On the nursing side, clearly it is very desirable that the nurses have had paediatric training, but we must not ignore the very experienced nurses who became very adept at looking after both adults and children within the intensive care environment. Although they may not have had paper qualifications, they have looked after children, and families, for many years and done it very well. Clearly things have changed in more recent years, where they now go off on courses and get their paediatric qualifications, but our senior nursing staff were very expert with the children.'[97]

**77** Dr Duncan Macrae[98] told the Inquiry:

> 'I think on the question of first of all nursing skills, some of the best paediatric cardiac intensive care nurses I have come across have actually been adult nurses who have come to paediatric intensive care nursing, adult nurses with intensive care training, who have been absorbed and trained within the unit by the paediatrically trained people there who really have been excellent nurses.
>
> 'Having said that, the overall feel of the paediatric nursing needs to come from nurses with paediatric training, so it is possible for units to function with a proportion of intensive care trained nurses who are not specifically paediatric

93 Consultant cardiac surgeon at the Freeman Hospital, Newcastle; Expert to the Inquiry in Paediatric Cardiac Surgical Services
94 T51 p. 32 Mr Hamilton
95 T51 p. 32–3 Mr Hamilton
96 Consultant paediatric cardiologist, Expert to the Inquiry in Paediatric Care
97 T51 p. 36 Dr Keeton
98 Director of Paediatric Intensive Care at the Royal Brompton Hospital, London; Expert to the Inquiry in Post-Operative Intensive Care

nurses but there very definitely needs to be a balance, or indeed a majority, of paediatrically skilled people to set the overall tone and policy of the unit.'[99]

**78** Mr Darbyshire took up the point:

'I take on board the point that Duncan [Macrae] made, that an adult ICU nurse may well be able to offer very good physiological care for children within the ICU, and maybe from a medical perspective that is how you would judge a good nurse; what information you get to enable you to do your job. I think from a paediatric nursing perspective there is a little bit more to it and I think paediatricising a unit is something that paediatric nurses are qualified and trained to do.

'I think the support of the family, again, is something specific to paediatrics, and the involvement and the relationship between the patient and their parents is very important and is an important facet of, if you like, paediatric training.

'I think there is a bottom line underneath all the statements I have made that is what is really important is that you have a skilled, experienced paediatric intensive care nurse, and they can come from an adult background. They can come from a paediatric background. It is the experience that they have within the PICU that I think is of fundamental importance.

'There are all sorts of arguments about what sort of ratio do you need of paediatric trained staff to non-paediatric trained staff; I do not know the answers to those questions. I know recent guidelines have been published that state that a very large percentage should be paediatrically trained.

'I think the other issue surrounding paediatric nurses in PICU in a mixed unit is how you actually allocate those staff to the patients. Do you have an individual nurse who one day is allocated to adult patients and the next day to paediatrics? No matter how good an adult nurse is, on the first day she looks after a paediatric patient she will not be as good a paediatric nurse as she was an adult nurse and it is how you actually structurally organise that situation in a mixed unit that I think would be of great importance in the delivering of skilled nursing intervention really.'[100]

**79** Mr Hamilton added:

'Essentially I would agree with both the previous speakers. As a surgeon, I want a nurse at the bedside who is going to pick up the subtle changes that we see after cardiac surgery, so I want an intensive care nurse who is experienced in, and knows about, cardiopulmonary bypass and post-operative cardiac patients. I think it is very important to have the paediatric environment. Whether it is physically separate has to be clearly identified, and I think the senior nurses in the unit need to

99 T51 p. 56 Dr Macrae
100 T51 p. 57–9 Mr Darbyshire

be paediatrically trained to bring that paediatric component and the care of the whole family into it, so I think those need to be wedded together.'[101]

**80** Dr Keeton said:

'I would agree with the previous comments that have been made. I obviously have personal experience of evolving from working within a specific cardiothoracic intensive care unit which housed both adults and children to now the much better situation that we have of having a separate paediatric ITU.

'I think the paediatric bits of nursing — the paediatric nurses do not have a monopoly of it. There were some very good adult-trained intensive care nurses who were extremely good at looking after children and within our unit we had a group of nurses within the intensive care unit staff who liked looking after children and who did it quite well, and in fact they are the nurses now who have gone off and got their paediatric qualifications and now some of them are running the paediatric intensive care unit or the cardiac bit of the new paediatric intensive care unit which we have.'[102]

**81** Julia Thomas explained how an even skill mix was ensured on the BRI ICU between 1984 and 1995:

'Each shift in the ITU and theatre is run by a G grade or F grade nurse, both day and night. The senior nurse delegates work to her team of nurses, assessing their experience in relation to each patient's needs. All students are supernumerary. Rotas are worked out every four weeks, thus allowing an even skill mix over [a] 24-hour period.'[103]

**82** Julia Thomas stated that the experience and skill mix of the nurses on the ICU at the BRI varied over the period 1984–1995, but all the senior nurses from F grade to G grade had taken a recognised intensive care course and had at least three years' ICU experience.[104] The E grade staff nurses had at least one year's ICU experience and many had done an ENB intensive care or cardiac course. The D grade staff nurses were sometimes newly qualified, but had some ICU experience and an interest in gaining more.[105]

101 T51 p. 59 Mr Hamilton
102 T51 p. 60 Dr Keeton
103 WIT 0213 0012 Julia Thomas
104 WIT 0213 0038 Julia Thomas
105 WIT 0213 0039 Julia Thomas

**83** Although the skill mix varied during this period, the majority of the staff were graded between G and E grades, with ICU experience, and over 50% of staff had attended recognised ICU courses. As for paediatric qualifications:

> 'Between two and four nurses on the ITU were RSCN trained. At any one time other senior nurses had undertaken shortened paediatric courses, including SEN [State Enrolled Nurse] children trained nurses. All nurses caring for children had undertaken the Unit's in-house training in paediatric ITU nursing. This was a three-week training, undertaken on the Unit, following strict protocols laid down by a senior paediatric nurse.'[106]
>
> 'Qualified nurses undergoing post-graduate courses worked on the Unit. These nurses were never allowed to look after paediatric patients, unless they were upgrading their paediatric nursing skills, in which case they would be working alongside, and supervised at all times by, a cardiac/ITU experienced nurse. These nurses wore student uniforms so that they were readily identifiable by medical and nursing staff as supernumeraries.'
>
> 'We also had general student nurses on the Ward. They were never left alone with any of the patients and worked as supernumeraries at all times with named mentors. The Unit had a core of nurses qualified to look after children. They were very well qualified. ... we would always try to recruit a children's trained nurse but there was a huge shortage, so the next best thing was to recruit a nurse with general or cardiac ITU experience and then training the nurse to look after children on the ITU. On the whole, the children were looked after by an ITU nurse with an ENB 100 qualification.'[107]

**84** Julia Thomas explained that the cardiac ICU course (ENB 249) was only introduced nationally in 1992. It is now offered at the BRI.[108]

**85** Catherine Warren took the general ICU course (ENB 100) in 1990 and trained as an RSCN in 1991–1992. As an F grade senior paediatric nurse, she was in charge of writing the protocols for care standards following her qualification as RSCN, and also carried out audit work. She also attended outpatients' clinics so parents could talk to her after they had seen the consultant.[109]

**86** After April 1992, when Ms Warren returned to the Unit with the RSCN qualification, she worked only with children, either in the Nursery or on the CICU,[110] whereas before this she had worked on the CICU caring for both children and adults. This change came about because she was the only nurse who had both experience of cardiac care and a paediatric nursing qualification.[111] Depending on the severity of

106 WIT 0213 0039 Julia Thomas
107 WIT 0213 0006 Julia Thomas
108 WIT 0213 0006 Julia Thomas
109 WIT 0213 0007 Julia Thomas
110 Cardiac ICU
111 WIT 0483 0001 Ms Warren

the child's condition and the experience of the other nurses, she stated that she cared for most of the children immediately post-operative.[112]

**87** Catherine Warren was the only nurse who rotated between Wards 5A and 5B.[113] She worked on Ward 5B on the two days of the week when children were being operated on, caring for the children when they returned from theatre. Otherwise she worked in the nursery. Since Ms Warren had also completed the cardiac course, her knowledge was used extensively throughout the unit to advise all staff on how to care for the children.[114]

**88** From 1992 there was a D grade nurse who was a newly qualified RSCN working solely in the nursery. The other nurses in the nursery were D and E grade.[115] A play leader[116] was also employed from the mid-1990s.

**89** Fiona Thomas stated that since she became Nurse Manager, in 1992, she carried out skill mix reviews with the General Manager, every year or every two years, depending on workload and when expansion plans were scheduled to take place.[117] She explained that skill mixes had always been easily addressed in intensive care because of the existence of national guidelines on staffing levels. She stated that she had always found the General Managers very accommodating when discussing skill mix, and, although they may have questioned why extra members of the team were needed, she never encountered any particular problem in justifying the need to recruit.[118]

**90** She went on to say that on a day-to-day basis, skill mixes were readily determined by the knowledge of the case mix of patients expected. Staffing levels and mixes were always appropriate to the case mix.[119]

**91** She agreed that the overall mix and expertise of the ICU staff differed from that set out in published guidelines, because the guidelines stipulated that only paediatric nurses should at all times care for paediatric patients, which the ICU at the BRI could not meet. She put the lack of specialist paediatric nurses down to the difficulty in recruiting such nurses to a mixed adult and paediatric unit.[120]

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112 WIT 0114 0085 Fiona Thomas
113 Ward 5B contained the ICU and the High Dependency Unit, while Ward 5A contained the Admission and Continuing Care Beds and the nursery
114 WIT 0114 0012 Fiona Thomas
115 WIT 0114 0012 Fiona Thomas
116 Ms Helen Passfield
117 WIT 0114 0010 Fiona Thomas
118 WIT 0114 0019 Fiona Thomas
119 WIT 0114 0071 Fiona Thomas
120 WIT 0114 0086 Fiona Thomas

**92** When asked how frequently children in intensive care at the BRI were cared for by nurses of whom none was paediatrically qualified, Sister Sheena Disley replied:

> 'It would be fairly common for there not to be an RSCN, but it would be extremely uncommon for it not to be a highly skilled nurse above E grade level who had had considerable orientation and training for it. That would just not happen.'[121]

# Involvement of clinical staff

## Cardiologists

**93** Dr Jordan, consultant cardiologist, in his written statement to the Inquiry stated that:

> 'It was difficult to maintain any continuing liaison between the surgeons and anaesthetists at the BRI and the cardiologists at the Children's Hospital. This actually became more of a problem as the number of adult patients increased and with this the actual number of anaesthetists and of cardiac ITU nurses, so that the role of the paediatric cardiologists inevitably appeared less important.'[122]

**94** Dr Jordan did not regard the fact that the cardiologists were based at the BRHSC as being a problem in itself. Rather:

> 'The main problem as I saw it was that the system had grown up as being managed by the surgeons and anaesthetists and we were not routinely involved in post-operative care. Another problem was that for much of the time there was no regular time for the surgeons and anaesthetists to carry out their visits, and these seldom coincided, so it was impossible to co-ordinate the visits which I did make with their attendance on the ward. The situation was actually better at weekends when I was able to at least make an effort to get there when the surgeons or anaesthetists were expected.'[123]

**95** However, as Dr Joffe, consultant cardiologist, told the Inquiry:

> 'Dr Jordan specifically made a point of going to the BRI every day and often twice a day, so it was not as if there was no presence whatsoever at the BRI. He found it slightly easier than I could because earlier on he was still involved in adult cardiology, had an office at the BRI, and needed to be there anyway, and indeed, he and later Dr Martin [consultant cardiologist, BRHSC] were running an outpatient clinic for adolescents and adults who had grown from the childhood period, usually post-surgery, at the BRI. Therefore, they had some time when they had to go. So,

121 T32 p. 136 Ms Disley
122 WIT 0099 0045 Dr Jordan
123 WIT 0099 0045 – 0046 Dr Jordan

apart from the weekends, I would say that on a daily basis there was at least one call by a paediatric cardiologist who would look at all the patients, not only his or her own, but all paediatric cardiac cases, and make recommendations about management, if necessary. In addition, we, or certainly I, tried, I think on two occasions, to establish a regular routine ward round at the BRI, twice or three times a week, and discussed this with Mr Wisheart at the time, and the intention was there, on both sides, but with all our other demands and the variation between timetables of surgeons and paediatricians, et cetera, it was just not possible to organise.'[124]

**96** As to his own input, Dr Joffe said that he regretted that he had not had the available time on every occasion to go to the BRI, from the BRHSC where he was based, in order to see his patients post-operatively. He told the Inquiry:

'I do regret it. I think we may have made a difference to the overall outcomes, but it is very hard to put hard figures on to that, so it is an impression. But I wish we had the time to have spent in the BRI for that purpose. Unfortunately, we did not.'[125]

**97** Dr Joffe went on:

'The physical separation was real, although of course not insurmountable. The distance between the two hospitals was really quite small: 150, 200 metres, maybe. But the hill, when you were walking up it, felt as if it was almost half a mile, rather than 200 metres. It was extremely steep, so it was difficult coming back up; it was easy going down. This may sound trite, but it does make a difference, and it also makes a difference in terms of the ordinary communication that exists in a unit where consultants and various doctors can meet with each other and bump into each other in a corridor, and so on, which facilitates overall management.'[126]

**98** Dr Robin Martin's evidence to the Inquiry included this exchange:

'I personally found it difficult to get actively involved in the care of the patients down there [at the BRI]. Patients were under the care of the surgeons, the surgical team were looking after the patients in conjunction with the anaesthetic team. It was very difficult to arrange a time when you could be there when other people were there to discuss the individual case, so usually when I went down I would find there was no one else actually physically there that I could talk to about the case and —

'Q. The communication between yourself and the surgeon would necessarily have particular difficulties because of that?

'A. It would be difficult, yes. There would be occasions when surgeons or anaesthetists might specifically ask for an opinion about this or that and of course

124 T90 p. 65 Dr Joffe
125 T90 p. 62 Dr Joffe
126 T90 p. 67 Dr Joffe

we would give that opinion and there would be some discussion. But just in the day-to-day management it was very difficult to get very actively involved.'[127]

**99** Julia Thomas stated:

'The paediatric cardiologists visited their patients on the Unit on a regular basis. They would be contacted in an emergency. They would often come into the Unit to assess the child, give advice, or perform an echocardiogram.'[128]

**100** Dr Pryn said:

'There was a definite failure to involve the cardiologists enough. When they were called, they came down from the Children's Hospital and they were very helpful, but they were not called as a routine, and they were not there as a routine.'[129]

## Surgeons

**101** The Inquiry heard evidence that the surgeons would fit in visits to the ICU around their other commitments.

**102** Mr Dhasmana said:

'The Registrars we had in our unit, they were career grade, were going to be cardiothoracic surgeons in the future, so in a way they were more focused on the cardiac surgical aspect of these patients. They may not be necessarily experienced in the paediatric … we used to have one or two SHOs all the time who had expressed their opinion or ambition to become a cardiac surgeon in the future, and, of course, they had experience somewhere else, but at times we would have an SHO sent from rotation, another time – there were two posts, from rotation, from the surgical grade coming to cardiac surgery. Of course, in the beginning, the first few weeks, although they were very bright boys and they picked up very quickly, but in the first few weeks it used to be a hard time for all of us to train them in order to look after the children.'[130]

**103** Mr Dhasmana agreed that until the concept of the intensivist was developed in the 1990s, he was conscious that the management of the ICU was in the hands of a resident whose interest was in surgery but not necessarily in cardiothoracic surgery, and not necessarily in paediatrics, or in the hands even of someone who had no particular interest in either field, yet this person would be the only resident presence on the ICU, apart from the regular rotation of the nursing staff. He said:

'That did put a lot of pressure on us, really, especially on me. That is why I used to hang around almost up to midnight or 1 o'clock in the morning, really. …

127 T77 p. 35–6 Dr Martin
128 WIT 0213 0041 Julia Thomas
129 T72 p. 39 Dr Pryn
130 T84 p. 92 Mr Dhasmana

> Supposing I finished a case at 6 o'clock and I had got a paediatric patient or very sick adult patient, I would stay around in the ward up to 8 or 9 o'clock, because I always believed it is the first two or three hours when you get all the major problems. Then I would leave a message and also, you know, we did have a Registrar. It is not that when I am operating he is with us, but during other times he is there. One is not supposed to leave an SHO with a very sick patient unattended but I am always sure I am around there, but then I would go home, I would have a little meal or snack, snooze around the telly, if you understand what I mean. I would come back again around 11 o'clock, and especially I would come back because that is the night staff which would have settled by this time, so I would have really gone round, I would have seen that and talked to the nurses, and for children I had a type of co-ordinator, they knew about my feeling and somehow they would have one of those, who would look after the children.'[131]

**104** John Mallone spoke of seeing his daughter Josie in the ICU:

> 'She was actually on a steep incline on this incubator with obviously lots of wires going into her arteries and she was on a ventilator as well. … Mr Wisheart was there – this was at 3.00 in the morning. One concern I had was – that we both had at the time – was that he was operating at the end of a day when he had been at work since 9.00 in the morning. He started this operation at 7.30 in the evening and did not finish it until 3.00, finally went home some time after 4.00 and he was back on the ward at 8.00 in the morning. I could not understand how anybody could do that, physically stay awake that long and perform complex surgery, but he was there and he said he thought the operation was okay; he had performed the coarctation and everything was going to be all right, I think, at that stage.'[132]

**105** Dr Theo Fenton worked as a senior registrar in paediatric nephrology at Southmead Hospital in Bristol between 1992 and 1994 and was called on separate occasions to dialyse two of Mr Wisheart's patients in the ICU at the BRI. Dr Fenton stated:

> 'I remember that Mr Wisheart was on the Intensive Care Unit on both occasions, despite it being quite late at night. He discussed the two patients with me in some depth and I remember being impressed by his conscientiousness.'[133]

**106** Mr Wisheart agreed that he and Mr Dhasmana attempted to remedy some of the less attractive aspects of the split site by spending rather longer in the ICU than they might otherwise have done:

> 'I think that is correct, because we represented the regular cardiological input ... we were the cardiac specialists who were regularly there, yes.'[134]

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131 T84 p. 93–4 Mr Dhasmana
132 T95 p. 161–2 John Mallone
133 INQ 0042 0001; letter to the Inquiry
134 T93 p. 75 Mr Wisheart

## Anaesthetists

**107** Dr Pryn explained the anaesthetists' ward round. If he were the on-call anaesthetist on a Monday, he would wait until his patient in theatre was safely established before visiting the BRI ICU for a complete ward round. That would normally take place at 10 to 10.30 in the morning:

> 'So this would be the way the anaesthetic ward rounds were done on a Monday or Friday. On Tuesday, Wednesday or Thursday it would have been as previously stated, around 9 o'clock.'[135]

**108** Dr Pryn said that when he conducted a ward round at 9 o'clock he found that complex decisions, with which he disagreed, had been taken in a hurry, at the earlier registrars' ward round.[136] This happened 'relatively frequently'.[137]

**109** Dr Pryn commented on what would happen if a decision had been made at the surgeons' 8 o'clock ward round which he would have disagreed with, on a day when he did not have a round at 9 o'clock:

> 'It would either have been picked up on when the anaesthetists did their round, at 10, 10.30, on Monday or Friday, or it would not have been picked up at all. At weekends, the anaesthetic consultant on for the weekend would always do a thorough ward round, around intensive care, with the Surgical Registrars on for that weekend. It was better at weekends because there was not this pressure of time, assuming we did not have an emergency case. Quite often we had emergency cases to do on a Saturday morning, which meant that again the anaesthetist could not get to do their ward round because we were doing an emergency case.'[138]

## Intensivists

**110** Dr Macrae explained the role of the intensivist:

> 'Traditionally, when cardiac surgery started in children, the key people involved were a paediatric cardiologist who was largely responsible for pre-operative and post-operative care, mainly in the non-surgical sense, and a surgeon and cardiac anaesthetist who were mainly involved in the immediate operative and post-operative care. There was not such a thing as a specialist in intensive care itself. Most of that fell to a combination of the skills of the anaesthetist to look after ventilators and some of the devices, arterial lines and access, that sort of thing, and the surgeon, who broadly speaking perhaps understood the inside of the heart, and between them they decided what the best support and treatment for that child is, with additional support from cardiology. But the difficulty of course was that at the end of an operation, a surgeon and indeed his anaesthetist would probably have to

135 T72 p. 44 Dr Pryn
136 WIT 0341 0011 – 0012 Dr Pryn
137 T72 p. 50 Dr Pryn
138 T72 p. 51 Dr Pryn

go back to the operating room, or perhaps even another hospital, to do some other procedure, leaving the patient in the intensive care unit often being looked after by very skilled nurses, but a hotchpotch of resident doctors in training who may or may not have particular skills in intensive care; they were there to monitor and call people back to help if possible.

'The history of my job at Great Ormond Street was that there was funding for another surgeon and the surgeons looked at one another and said "We do not really want another surgeon; we want someone to look after the things we now do in the intensive care unit, so let us put the money towards someone to do that, to take that load off our shoulders so we do not have to worry about the intensive care unit while we are back in the operating room".

'I think perhaps that helps to explain the perception of this skill gap, the sort of vacuum that was there, and increasingly over the last ten years, that gap has been filled by people who are called intensivists, many of whom are anaesthetists who specialise in intensive care, some physicians or paediatricians who have done the same.'[139]

**111** Dr Masey commented on the introduction of the intensivists:

'Over the time that I was there in the 1980s I felt that it would be advantageous to have personnel who had within their contracts actual time set aside for Intensive Care.'[140]

**112** The Inquiry heard that two intensivists were appointed in Bristol: Dr Pryn and Dr Davies.

**113** Dr Pryn was appointed in August 1993:

'I was also appointed as an intensivist: prior to my, and Dr Davies', appointment[141] there were no anaesthetic consultant sessions on the cardiac intensive care unit (CICU). Dr Davies and I covered three morning sessions a week, alternating months. During my CICU month I anaesthetised for a paediatric cardiac list on Mondays and, on my non-CICU month, I anaesthetised for two cardiac theatre lists per week on Monday, Wednesday or Thursday (of which one was often paediatric).'[142]

139 T51 p. 19–20 Dr Macrae
140 T74 p. 45 Dr Masey
141 Dr Davies was appointed in April 1993 and took up his appointment at the BRI in July 1993
142 WIT 0341 0002 Dr Pryn

**114** Mr Wisheart was asked how the intensivists, once they began, related to anaesthetists and surgeons. He said:

> 'Well, they were anaesthetists, so they related relatively easily, but not totally with the anaesthetists, because again different people have different views. The intensivists began in 1993 with two sessions a week,[143] that is, two mornings a week devoted to intensive care, so on those mornings they played, if you like, a role in relation to the detailed care of the patients, but that was only on two mornings a week.'[144]

**115** Mr Wisheart told the Inquiry about the advent of the intensivists:

> 'I think it is like all major changes, and this represented quite an important change. We debated it and part of the difficulty, I think, in it was that there was a rather long and difficult transitional period. My view to intensive care was very much that people needed to be committed to it, and it was very hard to function in intensive care if you just came in and went out again, so to speak, and did not pick up the consequences of what you had advised or instituted or done, so there had to be an element of continuity. The difficulty with the transitional period, when we first had intensivists, was, of course, that we only had them part of the time and therefore, it was still necessary for the surgeon, and I think Mr Dhasmana – I do not know what he said on this point, but I do not think there was a great deal of distance between us – so we continued to feel that in fact the continuing responsibility lay with us.'[145]

**116** Dr Pryn was asked about the ward rounds:

> 'When I first started at the BRI, that round, the surgeons used to insist that all the surgical registrars and all the surgical SHOs go on that round as part of their training, so you can imagine a round of maybe 10, 12 people, surrounding a bed, thinking about complex issues in two to four minutes: not conducive to discussion.'[146]

**117** Dr Pryn told the Inquiry he felt that the consultant cardiac surgeons were concerned that they would lose control of clinical decisions relating to their patients to the intensivists:

> 'I believe it came from all surgeons. I think Mr Bryan and Professor Angelini voiced those opinions openly, but I believe that Mr Wisheart felt that he did not want to lose clinical control and so did Mr Dhasmana, initially, although he warmed to the concept of us taking over some of the management of his cases at a later stage.

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143 Compare with Dr Pryn's evidence in para 113, above
144 T40 p. 147 Mr Wisheart
145 T93 p. 74 Mr Wisheart
146 T72 p. 43 Dr Pryn

I have to say that Professor Angelini now has completely gone over to our role and is now very keen on the intensivist's role. This was just initially.'[147]

**118** Dr Pryn said:

'The early days were an uncomfortable time. Our uncertain role was compounded by the fact that we were only available on CICU for three morning sessions a week.'[148]

## Consistency of approach

**119** Dr Pryn told the Inquiry of protocols he introduced shortly after his appointment in 1993 to improve care. His evidence included these exchanges:

'The particular one I am thinking about is, say, the drug infusion protocol, where some people were using that type of protocol already, but others were not. It was 50:50 whether somebody was going to use it or not. I thought that needed to be standardised throughout. That was the reason for that protocol.'[149]

'As far as the daily clinical note written in the child's notes, they were of a relatively poor quality because they did not thoroughly assess the level of sickness of the child and, in particular, they did not thoroughly assess or document all the organ systems, and they did not document the clinical plan that was in the minds of the clinicians looking after the child. So my attempt at this daily structured note was to make it easy to document the support the child was on, i.e. how sick they were and what the daily plans were, and any changes in the plans throughout the day. …
It was based on a daily note that I saw from one of the London hospitals, I think it might have been Great Ormond Street, but basically, it was tick boxes to start with, as to what level of support the child was on, and then different sections for the different organ systems and a section at the end for the daily plan.

'Q. So by introducing sections for every organ or matter that you wanted clinicians to look at, you were increasing the chances of those being considered in a systematic way and documented in a systematic way?

'A. That is what I wanted to achieve, yes.

'Q. Did you achieve it?

'A. Well, unfortunately, what tended to happen was that this was seen as an anaesthetic note and the trainee surgeons would often write their notes separate to this and not use the form. We went with it for probably a couple of years before I finally admitted defeat and went back to an unstructured form.'[150]

147 T72 p. 42 Dr Pryn
148 WIT 0341 0010 – 0011 Dr Pryn
149 T72 p. 27 Dr Pryn
150 T72 p. 35–6 Dr Pryn

**120** Dr Susan Underwood, consultant anaesthetist, told the Inquiry:

> 'The number of people working in intensive care, offering input in intensive care, is always a problem and how to organise the rounds is always difficult when people have other commitments as well. The biggest confusion arises between the medical staff and the nursing staff, and when the intensivists came and really pressed on trying to document things more clearly, this helped focus the mind and improve the prescriptions to which I referred before on the charts at the ends of the beds, so that if decisions were changed for good reason, it would be clear to the nursing staff who were trying to implement them which decision was current. So I think that like many things in intensive care, this was an evolving process and at one point it is true that the rounds took place at different times. In fact, before this, there would be the junior surgical round first thing in the morning and then the anaesthetist popping in before theatre, and then the consultant surgeon arriving individually and then the anaesthetist coming on bypass and so on. So I think over the years, it has gradually improved, although, until recently, it has not been really completely co-ordinated, because it has been evolving from a situation where people were years ago popping in and out to do their best, into a team led by an intensivist now.'[151]

## Communication between the specialties

**121** Mr Dhasmana was asked what, if any, measures he took to make sure that each part of the team responsible for the patient was performing adequately. He said:

> 'I thought I was trying to get the communication right but it appears it was not very good, communication amongst the staff. As a result I used to put in a lot of presence there just to make sure that what we talked about in the morning was being carried out during the day. What we are talking about in the evening would be carried out in the night; what we left in the night was carried out for the remaining part of the night because the rest of the staff were moving or changing. So the communication was not very good and I used to find that sometimes that could create confusion specially amongst nurses really because it is possible a different set of doctors may have advised differently on the same line because, as you know, for any management there could be more than one way of dealing with the problem.'[152]

**122** Mr Wisheart commented on the Hunter/de Leval criticism that:

> 'The overall post-operative management at the Royal Infirmary appears to be highly disorganised with conflicting decisions between surgical senior registrar and the SHO who do the rounds at 8.00 am, the anaesthetists who see the patients at 9.00 am, and the intensivists who work three days a week.'[153]

151 T75 p. 94–5 Dr Underwood
152 T86 p. 18 Mr Dhasmana
153 UBHT 0061 0356 – 0357

He said:

> 'I thought that there was not a particular difficulty. The people involved in the intensive care of children following surgery came from a number of disciplines, and of course, in order to provide that care, they had to work together. Sometimes their views would coincide and at other times their initial views would be different … so frequently there were discussions, and some of those would have been quite vigorous discussions … usually an agreed way forward would emerge from that discussion.'

However, Mr Wisheart conceded that:

> 'Occasionally, however, a difficulty might arise if one party instituted a course of action, for whatever reason, without discussing it with the other party and the second party then comes along and may not agree with what has been done. … but it was usually resolved if the two people simply talked to each other … Whether there were issues that [when] … the anaesthetists did their ward round at 10.30 or 11 … when we were mainly in the operating theatre, but whether there were issues that emerged then that the nurses on the ground were more conscious of than I was when I came back at midday or lunchtime or whatever to see how things had progressed, I cannot say, but I was quite surprised when I saw this description.'[154]

**123** Asked whether there was any formal mechanism for briefing and handover, Mr Wisheart told the Inquiry:

> 'The formal mechanism was that there was a surgical SHO and registrar and there was an anaesthetic registrar who at any time was either on call or present and available and I would have expected them to discuss any issues that would appear to occur between them … it must be correct to say that there were occasions when it did not happen, but it had been my understanding that they were relatively rare.'[155]

**124** Mr Wisheart was asked by the Chairman of the Inquiry about the difficulties of having ward rounds at different times and the possibility of advice being given at 8 o'clock that might be changed at 9 o'clock, or countermanded by someone of a different specialty:

> 'Q. (The Chairman) Of course, if that has then to be communicated to a nurse who then has to speak to a parent who may have been up all night, that X is going to take place soon, that is the advice given at 8 o'clock, but then at 9 o'clock that decision is changed, you can see that the, as it were, rollercoaster of emotion which is already there in a parent might be even more exacerbated, if you can

154 T40 p. 142–3 Mr Wisheart
155 T40 p. 145–6 Mr Wisheart

exacerbate a rollercoaster. Is that not a problem in a very real and personal sense, as well as the organisational sense of managing the care of the child?

'A. ... I think that, taking the point of the consultant coming in at 9 o'clock, the junior having seen the patient at 8 o'clock or 8.30, or whatever … The junior surgeons and the junior anaesthetists were both present at 8 o'clock, so there is absolutely no reason why their views should not have been co-ordinated, or if they were not unanimous, some way found to resolve it. I think the question of coming in at 9 o'clock and changing the orders is one that has received some prominence in evidence, and of course I can only speak from my own perspective; I cannot speak for the other four cardiac surgeons, because I think that comment actually picked up adult and paediatric cardiac surgery. I would say that occasionally that happened, but the notion that it was the general rule I think lacks perspective. Of the occasions when it happened, it would only rarely, I think, have had consequences of the type that you have described. Usually it would be some adjustment of what was happening, which would not necessarily impinge in any dramatic way upon the parents. Of course, it would have to be communicated and discussed with the nurse, naturally, and if it were important, it would need to be discussed with whoever else had been involved in the earlier decision, so that everybody was working to the same plan. So I think that occasionally it may have happened the way you mentioned, but I think quite rarely. I think there is a perspective which needs to be applied to that.'[156]

**125** Dr Bolsin was asked what steps were taken to address the difficulty of there being blurred responsibilities between anaesthetists and surgeons and the difficulty of the one group, because of timing, talking to the other. He said:

'One of the big advances was bringing in an anaesthetic registrar into the Intensive Care Unit who became the communication point for the consultant anaesthetists with the surgical side. So that whenever the surgeons did a ward round there was always an anaesthetic presence. If we as anaesthetists had done our ward round earlier he would be able to pass on our view of what was happening to the patient. … I think the fact that things improved over time indicates that people were aware of the problems and were trying to address them as best they could.'[157]

**126** John Mallone, father of Josie, told the Inquiry of her care at the BRHSC:

'About three weeks into her stay in ICU I think, a doctor who we had never seen before, a middle-aged man, came and introduced himself, I cannot remember his name, and said he was a consultant and went straight over to Josie's ventilator and said "That looks a bit low" and turned it up, almost doubled the pressure and increased the frequency by 50 per cent I think as well. The following morning she had a punctured lung. That was the thing that staggered me most. He just seemed to walk straight into the ward without consulting any notes or talking to anybody

156 T93 p. 92–4 Mr Wisheart
157 T82 p. 31 Dr Bolsin

whatsoever, I still have no idea who he was, and just interfere with the treatment of a child who had been on quite a continuous routine for something like three weeks post-operatively at that stage, I think.

'Q. Who had been looking after the child, who had been in charge as you saw it in a practical sense until then?

'A. In the practical sense Dr Martin, he was the one who we saw most often and he would tell us that he had consulted Mr Wisheart about certain things and we also saw Mr Wisheart from time to time, but on a daily basis it was Dr Martin who was saying what treatment would be followed for that day. I am sure you are aware there are big wall charts that operate for 24 hours and when they would come round in the morning they would look at what had happened in the previous 24 hours and it would be Dr Martin who would say "Okay, I think we ought to do this for the next 12 hours", until the next ward round and so on.

'Q. This other doctor was interfering in Dr Martin's arrangements?

'A. So far as I know he acted entirely on his own initiative. I think they were shocked when she developed this pneumothorax I think they called it, punctured lung anyway.

'Q. What sense did you have of the treatment strategy being co-ordinated and organised, in a coherent sense?

'A. Apart from that one incident it seemed to be very methodical, that the doctors would meet with the nurses and the nurses would say what had happened to Josie since they had last seen them and they would look at the charts and they would look at the notes hanging on the end of her cot and then they would talk about it for a bit and then they would say "I think we ought to do this", it seemed to have a method to it, it seemed to be well organised.

'Q. Did you have different doctors coming round at different times; you have mentioned two ward rounds?

'A. I do not know, I cannot remember what their particular working hours might have been, but the person who seemed to be in overall charge was Dr Martin.'[158]

[158] T95 p. 181–3 John Mallone

# Who was in charge of post-operative care?

**127** The Inquiry heard a number of views as to who was in charge of post-operative care. Rachel Ferris, General Manager of the Directorate of Cardiothoracic Services, BRI, said that by the mid-1990s:

> '... there were very severe expressions of stress from the nursing staff, who felt that the situation on intensive care was so difficult because it was not clear who was in charge of the patient in intensive care that they were actually feeling that this was now becoming dangerous, and I expressed this ...
>
> '... we felt that without proper understanding of who was in charge of the patient and what was happening on ITU that we were at risk of, you know, an incident occurring.'[159]

**128** The cardiologists' limited involvement in post-operative care has been set out above.

**129** Fiona Thomas told the Inquiry of what she saw as the 'subservient' role of the nurses in ward rounds:

> 'The Sister would take the trolley and put the X-rays up. That is the subservience. I think the Sisters were able to say and comment on the care if they felt there was need to … I think if you felt you had something to say on that patient's care, you could say it. Whether it was listened to, was a different matter. … But then I do not think it was probably any different at that stage than probably in many other ward rounds in any other hospital, probably, or any other ward in the BRI.'[160]

**130** Mr Wisheart was asked whether, as the surgeon who had conducted an operation, he would have overall charge of intensive care. He agreed that ideally a regular presence was required and a regular review by someone who knew the details and the facts of the case:

> '… and that is essentially me. Well, my team and myself. … I was able to undertake a regular review. I was not able to maintain a constant presence, rather a repetitive presence. I was not there all the time, but I was there regularly, keeping the review in mind, but then, you see, Dr Pryn was also there each day[161] and in a sense, the fact that he was not there for a period gave him a slight distance that would enable him to see changes possibly more clearly than I would have seen them. So it is a team effort, but I absolutely agree, it was part of my fundamental attitude, that I was maintaining the continuity and the overview.'[162]

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159 T27 p. 111 Mrs Ferris
160 T32 p. 66–7 Fiona Thomas
161 Dr Pryn was appointed in 1993
162 T93 p. 73 Mr Wisheart

**131** Mr Wisheart went on:

> 'It is certainly my view that there was by and large a very good co-operation between the members of the team in intensive care. There were areas that the anaesthetists certainly had the predominant interest. There were areas where the surgeon had the predominant interest, and there were also overlapping areas, but no aspect of the care of the child was outside the interests and comment and suggestion of any member of the team. If the anaesthetists suggested to me something that I would have regarded as predominantly my territory, then that would have been helpful and hopefully would have been properly considered. With all due sensitivity, of course, the surgeon from time to time might have suggested things to the anaesthetist and, by and large, that was properly received and it was just debated and common ground established. So my own view is that there was a good understanding mostly, in intensive care, and good co-operation …'[163]

**132** Mr Wisheart emphasised that there was, in his view, a team approach to the running of the ICU:

> 'As far as I am concerned, we were a team; we were colleagues. Whether they were anaesthetists, paediatric nephrologists, cardiologists, nurses, physiotherapists, whatever, we were a team, each with input, each with a freedom to make any comment they wished to make and contribute to the debate.'[164]

**133** It was put to Mr Wisheart by Counsel to the Inquiry that this was not a team that found it very easy to talk to each other because ward rounds were carried out at different times by surgeons and anaesthetists. He said:

> 'There were some practical difficulties, but if somebody wanted to talk to somebody, a way would usually be found and, for the great majority of the people, it was found.'[165]

**134** Fiona Thomas agreed that the conflict over the intensivist's role, once appointed in 1993, was essentially a struggle for who would be in charge of the patient post-operatively:

> 'Yes, it was, because at that time there were surgeons who would care for their patients predominantly in the intensive care unit and then the anaesthetist would come in as well and give their input as well, give their clinical knowledge, and there were various different anaesthetists and of course just one surgeon, and I think there was a view that the management of the patients in intensive care could be managed better if there was one person in that day managing the care of any patient. I think this is why the intensivist role was suggested and other units in the

163 T93 p. 75–6 Mr Wisheart
164 T93 p. 77 Mr Wisheart
165 T93 p. 77 Mr Wisheart

country had different management of patients and in the intensive care unit ... I think there were some consultants, probably anaesthetists who had come from other areas, were bringing in ideas to look at, maybe to have one person in charge … there were times when anaesthetists and surgeons disagreed with care and management of children, whether it was a drug therapy or what it was … I do remember them being there, having great debates over changing drugs, changing drug therapies, because a tiny change of a drug therapy to a child is an absolute major change and it could have a major affect on the child, but often they did that together for support and to get the best care for that child in a way, so there were two angles really to that. One was to get the best care for the child and at other times they may disagree with each other.'[166]

**135** Belinda House was asked who was in charge of Ryan's care in the ICU:

'Mr Wisheart was always there. He always turned up, especially if there was a problem, but I feel it was more the anaesthetists at that point that were in charge of Ryan's care.'[167]

**136** Dr Pryn commented on the input of the paediatric cardiac surgeons and the adult surgeons:

'They basically would come in, have a look at their case and tell the nurses to do something, write it up on a drug chart and go away. … I think fundamentally, the surgeons have always considered these cases their cases, for their management. If they want to do something to the management, they can; it is their case.'[168]

**137** He commented on how the presence of the intensivists for three sessions a week had an impact on the attitude of the surgeons. His evidence included this exchange:

'It meant that they could discuss their decisions if they wanted to with another senior colleague on their selected three days, or three mornings, I should say, which is a very small percentage of the week.

'Q. But did it change, those three mornings a week, the hierarchy of control over the management of a case? Who was in charge of a child when the intensivists were in?

'A. No, I do not believe it did change the hierarchy. I think Mr Wisheart and Mr Dhasmana always felt in charge of their case. Sometimes, especially early on, I felt more like one of their senior registrars than a fellow consultant, and I was there to make sure their bidding was done, so to speak. I think in general, I did not have a big problem with that, as long as I agreed with the management. The main problem I had was with the speed with which we could change management.

166 T32 p. 36–7 Fiona Thomas
167 T6 p. 95 Belinda House
168 T72 p. 52 Dr Pryn

> For instance, Mr Wisheart would often come in and say: "What needs to happen today is that we need to wean these inotropes before we extubate the child", and I entirely agreed; we did need to wean those inotropes. Then he would write on the chart: "These inotropes are to be weaned by 0.1 ml per hour if [so-and-so] happens". Actually, if you work it out, that would have taken three days to wean off the inotrope, so a long time, and the child may be improving more rapidly than that and I would want to cut the inotropes down even faster. Once or twice I did. I remember on one occasion he was extremely angry with me for weaning inotropes faster than he had prescribed, but I did so because I was there with the child and it needed to be done. So he had quite tight control of what happened with his patients.'[169]

**138** Dr Pryn felt that this was slightly less true of Mr Dhasmana:

> 'I think he warmed to the concept of intensivists sooner than Mr Wisheart, and I think he saw that we were welcome allies.'[170]

## Involvement of parents

**139** The Inquiry heard that it was policy at the BRI to promote family-centred care.

**140** Julia Thomas dealt in her written statement to the Inquiry with the involvement of parents:

> 'The ward philosophy was to promote family-centred care throughout the child's stay. We encouraged parents to be involved with their child's care at all times. This included full care pre-operatively and post-operatively in the nursery, washing, dressing, feeding, and generally caring for their child. In the ITU the amount of participation varied depending on the parents and the severity of the illness. Some parents found the whole intensive care experience extremely upsetting and could not visit for long. Others were there all the time and were keen to do as much as possible for their child. We encourage parents to wash their babies, change nappies, and give eye and mouth care. Naso-gastric feeding was taught to parents, especially if their child was in ITU for a long time.'[171]

**141** She went on:

> 'We were very careful to keep the parents fully informed about their child's progress. The nurses explained all the procedures they were carrying out, and what

169 T72 p. 52–4 Dr Pryn
170 T72 p. 54 Dr Pryn
171 WIT 0213 0046 Julia Thomas

drugs and treatment the child was receiving. The parents were able to read the care plan for their child, and were involved in discussions about any treatment changes required.'[172]

**142** However, she also stated:

'The babies were more stressful to look after in many ways. The parents often required a lot of support, which was time-consuming. Encouraging the parents to participate in their child's care also took time, to teach them about feeding naso-gastrically, eye and mouth care, etc.'[173]

**143** Michelle Cummings, mother of Charlotte, said:

'I think sometimes it can be quite helpful for parents to help. When you have the operation and it is short-term … I found it a great help to feel I was included in Charlotte's care, that I was able to do basic things like wash out her mouth and wash her down, not do huge amounts, but it made me feel included. I think that is quite a help for parents.'[174]

**144** Karen Welby, mother of Jade, said:

'While Jade was in for her second operation in 1984, a little boy who was admitted whose mother could not cope at all, she delivered into the hospital and then left a few hours later and said she would be back after his surgery and after his intensive care. The nurses were very, very busy and they did not have time to play with him, or feed him. Obviously they would have made the time to feed him, but I took over his care, as well as Jade's. … he was a bit younger than Jade and I had two, both in a high chair, feeding them both at the same time.'[175]

## Discharge

**145** When the doctors deemed discharge appropriate, the senior nursing staff made the arrangements. The Cardiac Liaison Nurse talked to the parents about the arrangements. If she assessed the home environment to be unsuitable, or if the children were not yet well enough for discharge home, they would be transferred to Ward 36 of the BRHSC for further in-patient care.[176]

172 WIT 0213 0047 Julia Thomas
173 WIT 0213 0042 Julia Thomas
174 T95 p. 88 Michelle Cummings
175 T95 p. 102 Karen Welby
176 WIT 0213 0045 Julia Thomas

**146** Patients were transferred from the ICU in Ward 5B to the nursery in Ward 5A prior to discharge. When the surgeon adjudged the child to be well enough, they were sent home or back to the BRHSC if they needed further treatment or to gain in weight.[177]

**147** The Cardiac Liaison Nurse would be involved in planning the patient's discharge, contacting the GPs and social workers.

**148** When a child was returned from the BRI to the BRHSC, a nurse from the BRI accompanied them. Details of the drains, drips and lines for the child were given by telephone before they were transferred.[178]

## Post-discharge care

**149** Post-discharge support and counselling are dealt with in Chapter 16.

**150** Julia Thomas explained that, in addition to the involvement of the health visitor and Helen Stratton, Cardiac Liaison Nurse, or Helen Vegoda, Counsellor in Paediatric Cardiology, parents received a discharge booklet, and:

> '… on discharge home, a doctor's letter and tablets to take out were provided, and the parents were spoken to at length about what to expect when their child went home. This included advice on mobilising, infection risk, eating, pain, behaviour, and starting school … Transport home was organised by the ward clerk and may have involved the ambulance services if the parents could not provide transport. The child was always seen at outpatients between four to six weeks after discharge at BRHSC.'[179]

**151** As to the management of discharge and future care, Dr Jordan told the Inquiry:

> 'The routine was for appointments to be made at the Children's Hospital for the cardiac surgeons' clinic. Although these ran at the same time as the cardiologists' (Wednesday afternoons) it was chance whether the cardiologist responsible for the pre-operative care was the one who was in the clinic that day. When patients were seen by the junior surgical staff there were sometimes problems in management of drug regimes and often no appreciation that follow-up in a peripheral clinic was more appropriate.'[180]

177 WIT 0114 0090 Fiona Thomas
178 WIT 0121 0005 Ms Woodcraft
179 WIT 0213 0046 Julia Thomas
180 WIT 0099 0046 Dr Jordan