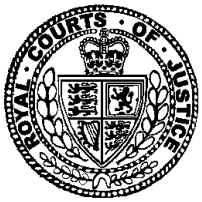

Neutral Citation Number: [2020] EWCA Civ 358

Case No: B3/2019/0594

IN THE COURT OF APPEAL (CIVIL DIVISION)
ON APPEAL FROM THE HIGH COURT OF JUSTICE,
QUEEN'S BENCH DIVISION
Mr Justice Stewart
HQ17C00168

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 10/03/2020

Before:

LORD JUSTICE McCOMBE
LORD JUSTICE HOLROYDE
and
LORD JUSTICE PHILLIPS

- -

Between:

MARIO SCHEMBRI	**Appellant**
- and -	
IAN MARSHALL	**Respondent**

- -
- -

Alexander Antelme QC and Farrah Mauladad (instructed by Hill Dickinson LLP) for the Appellant
Robert Weir QC and Stephen Cottrell (instructed by Irwin Mitchell LLP) for the Respondent

Hearing date: 6 February 2020

- -

Approved Judgment

Lord Justice McCombe:

Introduction

1. This is the appeal of Dr Mario Schembri ("the Appellant") from Mr Justice Stewart's order of 15 February 2019 made after trial. The judge ordered the Appellant to pay to Mr Ian Marshall ("the Respondent") the net sum of £260,000 together with the costs of the action to be assessed. Permission to appeal was granted by Leggatt LJ by his order of 16 September 2019.

2. The Respondent is the husband of the late Mrs Doreen Marshall ("the Deceased") who died at 0937 hours on 26 April 2014 as a result of an untreated pulmonary embolism. The Appellant is a General Medical Practitioner. It was admitted that the Appellant was in breach of his duty of care to the Deceased in failing to refer the Deceased to hospital following a consultation with him on the previous afternoon. It was and is, however, denied that this breach of duty caused the Deceased's death. Subject to that causation issue, damages were agreed between the parties before the trial.

3. The issue to be resolved, on which the judge found in the Respondent's favour, was whether the Deceased would have survived had she been referred promptly by the Appellant to Southend Hospital. The Appellant's case was, and is, that the Deceased would have died even if she had been so referred.

The Short Facts

4. At about 1600 hours on 25 April 2014, the Deceased attended the Appellant's surgery at Shoeburyness and was seen in consultation by the Appellant. She was complaining of chest pain and breathlessness. She had had a previous pulmonary embolism ("PE") in 2008, which had occurred on a visit that she and her husband were making to friends in Edinburgh. She had been successfully treated for that PE on that occasion at a hospital in Edinburgh. The breach of duty admitted by the Appellant is that he should have referred the Deceased directly to Southend Hospital on the afternoon of 25 April. He did not do so; he examined the Deceased and told her that the most probable cause of her symptoms was muscular strain affecting her hiatus hernia.

5. The Deceased returned home with her husband after that consultation. She took some ibuprofen, as the Appellant had advised, and rested for the remainder of the day. The Respondent did not recall her complaining of pain during that period and he assumed that the medication, recommended by the Appellant, had worked. The Deceased went to bed rather earlier than usual, at about 2030 hours. At that stage she was somewhat breathless and negotiated the stairs to the bedroom more slowly than usual. When Mr Marshall went to bed about 2200 hours, he found the Deceased awake but sleepy.

6. The next morning (26 April 2014) both the Respondent and the Deceased woke, after uninterrupted sleep, at about 0730 hours. The Respondent went downstairs to make coffee; he returned with the drinks and chatted to the Deceased, including about a family wedding that they were due to attend later that day. The Deceased then went to the bathroom. The Respondent heard her calling him and sounding frightened. He rushed to attend to her and found her sitting on the lavatory in distress; she was having difficulty in breathing and was leaning upon the washbasin. She collapsed and

the Respondent called for an ambulance. The call was recorded as being received at 0829 hours. The ambulance arrived very promptly at 0831. The Deceased had, however, suffered by then a cardiac arrest and the attending paramedics were unable to resuscitate her.

7. The judge records that the Deceased collapsed and was in a state of cardiogenic shock from very shortly before the Respondent's call for the ambulance. It appeared that the cardiac arrest probably happened within a few minutes of her collapse.

Common Ground between the Parties

8. It was common ground that, had the Deceased been referred to hospital at the proper time on the previous day, she would have been diagnosed as having PE. Potential treatment would have been: a) anticoagulation, i.e. heparin and/or b) thrombolysis or "clot busting". The drug that would have been used for thrombolysis would have been alteplase which works by dissolving or removing any clots already formed. This is only to be used when indicated, rather than automatically, in such cases, and only where the potential benefits outweigh certain risks, in particular the risk of bleeding.

9. The judge found that, if the Deceased had attended hospital on the Appellant's referral, she would have received heparin by 9 p.m. on 25 April which would have taken effect to prevent further clotting by about midnight at the latest. There is no further dispute before us as to that finding. However, thereafter, the cases of the parties diverge.

Disputed Matters

10. The Respondent's pleaded case at trial was stated at paragraph 11 of the Particulars of Claim as follows:

> "The negligence of the Defendant caused the death of the deceased. Had the Defendant discharged his duty of care to the Deceased, the Deceased would have attended hospital on 25th April where a diagnosis of pulmonary embolism would have been made. The Deceased would have been given anticoagulation treatment so that the massive pulmonary embolism that caused her death would have been avoided. Although unlikely after anticoagulation treatment, if a massive or sub-massive pulmonary embolism did occur whilst in hospital thrombolysis and full supportive treatment would have been available and on a balance of probabilities she would have survived."

This was denied in paragraph 8 of the Defence. Having set out in that paragraph the defence case as to the timing of when heparin would (hypothetically) have been administered on attendance at hospital, the paragraph continued:

> "(8) Mrs Marshall would therefore have had less than 12 hours of full anticoagulation before she suffered a massive PE at 08.00 hours on 26 April 2014.

> (9) Failure to achieve stable full heparinisation within 24 hours of venous thromboembolism is associated with a 4 to 12 fold increased risk of recurrent pulmonary embolism.
>
> (10) Heparin works by interfering with the clotting mechanism in such a way that the clot stops growing and spreading up the leg into the pelvis. New clot is more fragile and probably embolises more readily. It is likely the clot which embolised on the morning of 26 April 2014 would already have been present on 25 April 2014 and anticoagulation would not have dispersed it overnight. Heparin does not operate to dissolve blood clots. When the clot stops growing, the fibrinolytic enzymes in the blood will slowly dissolve the clot and thereby gradually reduce the risk of part of the clot detaching and causing a pulmonary embolism. Accordingly, the risk of recurrent VTE reduces progressively the longer a patient is anticoagulated.
>
> (11) Studies suggest that delay in achieving adequate anticoagulation by as little as 24 hours can increase the risks of recurrent VTE 4 to 12 fold.
>
> (12) On the balance of probabilities, had Mrs Marshall been anticoagulated at, or around, 21.00 to 22.00 hours on 25 April 2014, she would still have suffered the massive PE which killed her at 08.00 hours on 26 April 2014."

11. Each party adduced expert evidence from a respiratory physician (Professor Empey (Respondent); Professor Davies (Appellant)) and a haematologist (Dr Gomez (Respondent); Professor Hay (Appellant)).

12. As the judge recorded, in the light of the medical evidence at trial, the Respondent did not in the end submit that heparin alone would have probably prevented the death. It was, however, argued on his behalf that anticoagulation would have had a beneficial effect and was relevant to the consideration of the causation issue as a whole. It was, in the end, common ground that heparin would have had the effect of stopping the size of the clot in the Deceased's leg from increasing. Professor Davies' view, which the judge accepted was that the clot would probably still have been about 95% of the size that it eventually was.

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13. The judge stated the central questions for him to determine were as follows:

> "41. Therefore, the central questions for the court to determine now are:
>
> i) Has the Claimant proven on the balance of probabilities that there were progressive pulmonary emboli during the night of 25/26 April 2014? [An indicator for prescribing thrombolysis]

> ii) If so:
>
> a) would progressive pulmonary emboli have been picked up on monitoring had she been in hospital?
>
> b) if so, would thrombolysis have been prescribed and with what effect?
>
> iii) If, the answer to (i) and/or (ii) is negative, had the deceased been in hospital, would thrombolysis have saved her? In other words, had there not been progressive pulmonary emboli, can the Claimant prove that thrombolysis would have saved her had she gone into cardiogenic shock or arrested in hospital?
>
> iv) If the answer to (i)-(iii) are negative in that the Claimant cannot prove a specific train of events or mechanism which would absent the Defendant's negligence, have saved her. Looking at the evidence as a whole, is it nevertheless more likely than not that the Claimant would have survived had she been referred to Southend Hospital?"

14. The structure of the questions posed by the judge and the formulation of question (iv) is very important in this case and I return to this below. However, for present purposes, I can state the judge's findings on questions (i) and (ii) inclusive relatively shortly. His answers to questions (iii) and (iv) need to be summarised a little more fully.

15. The judge answered (i) and (ii), on the balance of probabilities, as follows:

(i) No; therefore (ii) (a) and (b) did not arise. However, as to (ii)

(ii) This had to be answered, notwithstanding the negative answer to (i), "as it [had] relevance in relation to …" (iv). On this basis, and subject to question (iv): (a) Yes; (b) No.

I turn to (iii).

16. In beginning his discussion of question (iii), the judge said this (paragraph 90):

> "This question needs to be considered in conjunction with the medical literature. Although I will not at this stage draw conclusions from overall mortality of patients with PE who are treated in hospital. I will deal with that more fully in answering question 4."

The judge looked at a study of the general effectiveness of thrombolysis (Wan & others (2004)); he quoted this passage (paragraph 95):

> "Thrombolytic therapy compared with heparin was associated with a significant reduction in recurrent pulmonary embolism or death in trials that also enrolled patients with major (haemodynamically unstable) pulmonary embolism…but not in trials that excluded these patients…"

17. The judge then addressed other papers dealing with the overall outcomes of patients with PE (paragraphs 96 et seq.). There was a study by Kopcke & others (2011) which found that in a hospital survey of 2007/8 there were over 186,000 adult in-patient admissions and 2583 in-patient deaths. Of those deaths, five had a pre-mortem diagnosis of DVT or PE. Thus, these five were the only ones who may have been treated for PE but did not survive. The authors had pointed out that "many patients who die from pulmonary embolism have other life-threatening conditions" (which the Deceased in this case did not). The judge noted, however, that the paper did not reveal the overall figure of those treated for PE in hospital.

18. A further paper (Goldhaber & others (1993)), reviewed by the judge (paragraph 97), showed a better improvement in pulmonary infusion in patients after treatment with alteplase (14.6%) than for those treated with heparin alone (1.5%). Deficiencies in this paper for the analysis of the Deceased's case were addressed by the judge.

19. The judge also considered an Italian paper from 2012 (Casazza & others) dealing with 1716 patients with confirmed PE in 47 Italian hospitals (paragraph 103). Of these 11.7% were haemodynamically stable at presentation/diagnosis (as the doctors were agreed that the Deceased would have been in this present case on hospital admission at the correct time). Of the 11.7%, death resulted in 1.4%. Of those haemodynamically unstable, death from the PE was 23.3%. In unstable patients, death occurred in 62.7% of those in cardiac arrest at presentation and in 36.4% of those in cardiogenic shock. It was found to be highly probable that all those who received alteplase were unstable on presentation/diagnosis though some may have become so later. The authors wrote:

> "Age over 75, immobilisation lasting more than three days before index PE and haemodynamic impairment were independent predictors for in-hospital deaths"

(In the Deceased's case none of these factors was present.)

20. The conclusions of the haematologists, on these materials and on the Deceased's case in the light of them on this point, were summarised by the judge as follows:

> "101. Doctor Gomez was of the opinion that the study assisted in showing that, if alteplase had been given three hours prior to death, the deceased would have survived. Further, the deceased just had PE. Otherwise she was healthy. She had nothing wrong with her heart or blood.
>
> 102. Professor Hay made a number of qualifications as to what can be drawn from Goldhaber. He agreed that typically nowadays alteplase is given by way of a 50mg bolus at the onset, followed by two hours infusion. Although he said it was

> difficult to be certain, he said that had Mrs Marshall developed shock and massive PE sometime in the night with enough time for alteplase to work, then it may well have been lifesaving."

21. On the basis of this material, the judge found:

> "104. … a number of points can be made about statistics. Nevertheless, broadly speaking, had alteplase been prescribed, say, 3 hours earlier than 8.30 a.m., Mrs Marshall would probably have survived.
>
> 105. That said, I have already found that it cannot be shown, the balance of probabilities, that Mrs Marshall would have reached the threshold for prescription of alteplase at any stage prior to her going into cardiogenic shock."

22. The judge then looked at the evidence on thrombolysis administration in cardiogenic shock and in cardiac arrest. He noted that the Casazza paper presented a number of favourable points from the Respondent's point of view. Having also reviewed a paper by Sekhri and others (2012), the judge noted (paragraph 112):

> "112. It is to be recalled that there is a broad similarity of the figures in Sekhri and Casazza. Thus in Casazza 64% of these in cardiogenic shock survived and 37% of those in cardiac arrest survived. In the Claimant's favour:
>
> a) These figures include people who were in cardiogenic shock or with arrest on presentation at hospital.
>
> b) 43% of those in the Casazza study were over 75. The deceased was not in that category. Nor was she suffering from co-morbidity."

23. The judge noted the Appellant's submission before him (paragraph 114) that the Deceased was in cardiogenic shock for only a couple of minutes or so. However, the judge added that what was not known was the likely duration of cardiogenic shock if the Deceased had spent the night in hospital, where as he had noted (at paragraph 110) Professor Davies accepted, the Deceased would have had support including oxygen, electrolyte and fluid balance together with the preparedness of medical staff to administer thrombolysis. She would have had instantaneous treatment from trained staff on the ward and a crash team would have responded promptly. She had in fact survived an hour of cardiogenic shock in Edinburgh.

24. The judge found on this aspect:

> "115. Looking at the evidence on cardiogenic shock in isolation, I find that:
>
> i) The Claimant cannot prove on the balance of probabilities that the deceased would have been in the 64-75% who would have survived; she may or may not have been.

> ii) Nevertheless, her chances of survival would have been significantly increased had she been in hospital overnight and at the time she became haemodynamically unstable.
>
> 116. As to the position with cardiac arrest, the Claimant submits that, because of the fact that she was relatively young and had no comorbidity, she probably would have survived with high quality CPR in hospital, and therefore have been in the group of 35% (Sekhri) – 37% (Casazza) who do not die. In my judgment, whilst this is a possibility, it is less likely than her chances of surviving cardiogenic shock – itself not a probability."

One must note the judge's use of the words "in isolation" at the beginning of paragraph 115. There is a dispute as to what he meant by this and I return to consider the point below.

25. The judge moved to question (iv) – "On the evidence as a whole, is it more likely than not that the Claimant [sic: the Deceased] would have survived had she been referred to Southend Hospital?"

26. He referred to authority relied upon by the Respondent before him. I would mention in particular *Drake v Harbour* [2008] EWCA Civ 25, as it is at the forefront of the arguments for the Respondent before us. In that case, Toulson LJ said at [28] this:

> "28. In the absence of any positive evidence of breach of duty, merely to show that a claimant's loss was consistent with breach of duty by the defendant would not prove breach of duty if it would also be consistent with a credible non-negligent explanation. But where a claimant proves both that a defendant was negligent and that loss ensued which was of a kind likely to have resulted from such negligence, this will ordinarily be enough to enable a court to infer that it was probably so caused, even if the claimant is unable to prove positively the precise mechanism. That is not a principle of law nor does it involve an alteration in the burden of proof; rather, it is a matter of applying common sense. The court must consider any alternative theories of causation advanced by the defendant before reaching its conclusion about where the probability lies. If it concludes that the only alternative suggestions put forward by the defendant are on balance improbable, that is likely to fortify the court's conclusion that it is legitimate to infer that the loss was caused by the proven negligence."

27. The judge said, however, that he found the authorities of limited assistance and continued (at paragraphs 128 -129):

> "128. … As is accepted, the Claimant has the burden of proving causation. Yet the Claimant needs to prove no more than that Mrs Marshall would have probably have survived had she been admitted to hospital. The Claimant does not need to

> prove the precise mechanism by which her survival would have been achieved.
>
> 129. There has been very detailed evidence from four experts dealing with the probabilities of what did happen and what would have happened, absent the negligence. I must deal with causation on the facts of the case and analysis of the expert evidence in conjunction with the medical literature."

28. He then said that he had made a number of findings on the balance of probabilities; he said,

> "Some, though not all of these are "close calls", often based on trying to assess the hypothetical situation of the deceased having been admitted to an acute medical ward."

He enumerated six factors on which he commented in some detail (paragraph 133 et seq.): (a) that the Deceased would not have responded to heparin treatment alone in terms of her life being saved; (b) the assessment of right-ventricular (RV) function ("significant in terms of monitoring/potential treatments" – paragraph 134(d)); (c) ("a difficult decision") the Respondent could not prove that the Deceased would have been hypoxic on arrival at hospital; (d) the "possibility" that there was a gradual build-up of PE in the lungs which would have led to hypoxia/haemodynamic instability, leading to alteplase treatment; (e) the probability that alteplase would have been available at the bedside; (f) the Respondent could not show positively that the Deceased would have been probably in the cohort of those who would have survived cardiogenic shock or cardiac arrest, although "she would have had a possibility of surviving the latter and a greater possibility of surviving the former".

29. At paragraph 139, the judge said:

> "139. There cannot be an inference, much less a finding, merely on the basis that a number of possibilities amount to a probability that death would have been avoided. That said, this concentration on each possible stage of what would have happened where much is uncertain and difficult to resolve, must be considered against some important overall evidence."

He continued at paragraphs 140 and 141 with this:

> "140. Overall most people do not die of PE when they are in hospital. The deceased was not very elderly and had no comorbidity. In addition, Professor Empey said that his experience and that of many of his colleagues is that once a patient is admitted to hospital, properly assessed and given the appropriate treatment: heparin, oxygen, monitoring and other observations they do not die. It is very, very unusual. Similarly, Doctor Gomez said that he would have fully expected the deceased to survive because of the package of care that would be given to her.

> 141. The Claimant's case was that despite the statistics in the literature, to find for the Defendant, the court would need to accept the scenario that Mrs Marshall, having initially presented as normotensive with a diagnosis of PE, would have gone on to develop a massive PE whose onset and progress would have been so sudden as to be undetectable and irreversible. In other words that what did happen would have probably happened in any event. It was said that such counterfactual scenario is not described anywhere in the literature adduced at trial. Also, that it is statistically unlikely and based on the factual fallacy that the embolus or emboli would have been as big – or almost as big – as the embolus or emboli that did in fact embolise at home in the absence of treatment."

30. Having noted again the arguments against this (in paragraph 142 (a) to (f)), he concluded that,

> "… (g) Nevertheless, for the Claimant to fail, looking at the case overall it needs to be at least equally likely that the deceased would have died in any event, not for death to have been just a possibility."

31. The judge referred to the submission for the Respondent before him that the court should be careful to avoid deciding what would have happened on the balance of probability simply on the basis of what did happen to the Deceased when she was at "… home untreated, unmonitored and did not have the attention and assistance she would have received in hospital".

32. The judge summarised the "overall evidence" before him. At paragraph 144 he addressed i) the expert evidence and ii) the literature. He picked out the evidence of Professor Empey as to his experience, and that of his colleagues in general medicine and chest medicine, that "once a patient is admitted to hospital, properly assessed and given the proper treatment, they do not die … it is very, very, very unusual". He recalled the evidence of Dr. Gomez of his "overriding impression that if this lady had turned up in his hospital or indeed in any hospital in the UK, haemodynamically stable, with a PE in the evening, he would have been extremely disappointed if she had died the next morning". Dr Gomez "would fully expect her to have survived because of the package of care given to her".

33. On the other side the judge referred to the evidence of Professor Hay that it is "absolutely typical that when a person has a massive PE they may die on the toilet". It was "one of those things you learn as a medical student". The judge's comment on this was:

> "This may be so, but it tells us little about the risk of death from a massive PE if a patient is admitted to hospital. Indeed, it would be seen from the statistical evidence … that that absolutely typical event does not appear to translate into many deaths in hospital".

34. The judge went again to the evidence in the literature, which he had considered under question (iii). He noted from Casazza that the overall death rate in hospital from acute PE in that review was 3.9%. Of those haemodynamically stable at presentation only 1.4% died. Of those unstable, only 23% died. Further, the Deceased did not have a number of the other risk factors for hospital death (viz. aged over 75, 3 + days immobilisation before PE and haemodynamic impairment). Returning to the statistics from the Sekhri paper, the judge said that these indicated that the Deceased was in a sub-group with a better outcome statistically than those with RV dysfunction who had a mortality rate of 8.1%. If that was correct, her chances of survival would have been well over 90% statistically. Accepting the number of variables on the Kopcke paper, it was a proper conclusion to draw that only a very small percentage of people treated in hospital for PE do in fact die.

35. I should set out finally the judge's concluding two paragraphs (paragraphs 145 and 146) as follows:

> "145. Thus the expert medical evidence to which I have referred and the statistical evidence demonstrate that at the time when Mrs Marshall should have presented at hospital, anybody rating her chances of survival would have put them at being very high. Tragically, she did in fact die out of hospital. In the situation which occurred, detailed analysis of such evidence as we have cannot lead the court to find that by such and such a mechanism, or at any particular stage, the course of events would probably have been different. This is overwhelmingly because of a large number of unknowns.
>
> 146. The court, in looking at the evidence as a whole, must take a common sense and pragmatic approach to that evidence, in circumstances where it is equivocal. The court must also be wary of relying on the statistical evidence in the literature which has a number of variables. Had the statistical evidence, in conjunction with the expert evidence, have led to the conclusion that Mrs Marshall's chances of dying would have been assessed on presentation as only slightly better than 50-50, I would have found for the Defendant. However, the above evidence of Professor Empey and Doctor Gomez, in conjunction with the medical literature, drives me to the conclusion that on the clear balance of probabilities she would have survived."

The Appeal

36. The grounds of appeal are these:

> "1. The Judge's conclusion was wrong in that:
>
> (i) Having found that the Claimant had not proven that the Deceased would have survived had she been admitted to hospital on the basis of detailed analysis of the

particular circumstances (Question 1 to 3), he should have concluded that the claim must fail.

(ii) He should not have posed a separate overriding question (Question 4) based on general survival rates of patients with pulmonary embolisms in hospital.

(iii) He should not have based a finding in favour of the Claimant on a general analysis that most people do not die from pulmonary embolisms in hospital.

(iv) In answering question 4, in any event

a. the Judge failed to consider or give any or any adequate weight to the evidence of Professors Hay and Davies whose evidence he had largely preferred when answering Questions 1 to 3.

b. the Judge wrongly applied general propositions to the Deceased's individual case in circumstances where there was sufficient evidence for him to consider the individual case, as he correctly done."

By Respondent's Notice, it is argued that, even if contrary to the Respondent's primary case that the judgment below should not be upheld, the decision should nonetheless be upheld because the judge should have found for the Respondent on the causation issue arising under his question (iii) because:

"1. The judge was addressing a counter-factual question (as the deceased had not, due to the defendant's breach of duty, in fact been admitted to hospital). Had the deceased been admitted to hospital, she would have been monitored throughout, her clot would have been smaller (para 114), she would have been provided with support including oxygen, electrolyte and fluid balance (para 110) and she would have had almost instantaneous treatment from trained staff when she would have gone into cardiogenic shock (para 114). Although the deceased did, as a matter of fact, go into cardiogenic shock for a short period of time only, there is no knowing the duration of cardiogenic shock on the counter-factual basis (para 114).

2. In those circumstances, the judge's assessment was/should have been guided by a combination of statistical evidence, known evidence about the deceased and by taking a robust approach to causation drawing inferences in favour of the claimant. …"

The Respondent's Notice elaborates on these grounds in four further paragraphs which are essentially argument and I will return to them.

37. The cases of the rival parties are as follows. They have been presented skilfully by counsel for each party, both orally and in writing, and I am grateful to them. It is convenient to state the Respondent's case first.

38. As I have trailed above, the Respondent says (relying on cases such as *Drake v Harbour* (supra)) that where a claimant establishes a breach of duty of care and shows that the injury that follows is of a kind likely to have resulted from a breach of that kind, that is usually enough to enable the court to find that the injury has resulted from the breach. Here the Appellant admitted a breach of duty in failing to refer the Deceased to hospital on 25 April 2014 in respect of what he should have seen as the signs of the pulmonary embolism which in fact she had. The likely result of that breach was that she would die from the embolism, in the absence of specialist treatment. She did die and, it is submitted, that is enough to sustain the finding that the death was caused by the breach. It was not necessary for the Respondent to show on the balance of probability, the precise mechanism, or route of treatment, that would have led to the Deceased's survival.

39. The Appellant's case accepts that a claimant does not have to demonstrate the precise mechanism by which the injury following the breach of duty would have been prevented by timeous treatment. However, it is argued that where, as it is submitted he did, the judge found that the Respondent had failed to establish to the necessary standard that the Deceased would have survived by the receipt of either or both of the only possible treatments for her condition, then his claim must fail.

40. The Appellant's central criticism of the judge's decision against it appears in paragraphs 46 and 47 of the skeleton argument filed on its behalf. In that passage, counsel submit:

> "46. Having performed that exercise, the Judge concluded in relation to Questions 1 to 3 (which correctly identified the controversial issues which remained between the parties) that:
>
> i) the Claimant had not established that on a balance of probabilities that there were continuing emboli forming during the night.
>
> ii) Accordingly, the Claimant had not established that on a balance of probabilities thrombolysis would have been administered overnight.
>
> iii) The Claimant had not established that thrombolysis undertaken when she was in cardiogenic shock or in cardiac arrest would have allowed her to survive.
>
> iv) In so finding, the Judge had appropriately considered the causation issues between the parties and had concluded that the Claimant's case could not be established. The only proper consequence of this analysis was that the claim should be dismissed.

> 47. The Judge's decision to ignore his own (detailed) analysis of the evidence and to revert to 'general' statistics and some general observations from some of the medical experts was wrong. His apparent belief that these were a valid substitute for the analysis which he had already undertaken was wrong."

It is submitted, at paragraph 48 of the same argument, that the judge's answers to questions (i) to (iii) on the one hand and to question (iv) on the other are inconsistent; counsel argue:

> "48. … In short, the analysis undertaken in respect of Questions 1 to 3 explains why the Deceased would have died if in hospital, notwithstanding that most people do not, e.g. she would not have displayed signs that would have prompted the treatment which might have saved her and the treatment which she would have received would have been inadequate to change the outcome."

41. In contrast to the statement of Toulson LJ in *Drake v Harbour*, counsel for the Appellant referred us to *Wardlaw v Farrar* [2003] EWCA Civ 1719. In that case, as in this, a general medical practitioner had negligently failed to refer the claimant's wife to hospital when he should have done for investigation for pulmonary embolism. A week later the patient saw a locum doctor, again with similar symptoms. This time she was referred to hospital. However, in spite of proper treatment at that stage, she still died. The issue was whether or not she would have survived if she had been referred to the hospital earlier, as she should have been. The judge found that the delay had not materially contributed to her death and he made only a limited award of damages to reflect pain and suffering during the week's delay in referral. Her husband appealed. The appeal was dismissed.

42. On that appeal, it was argued for the claimant in *Wardlaw* that, based on statistics in an article in *The Lancet* from the International Co-Operative Pulmonary Embolism Registry ("ICOPER"), Mrs Wardlaw, as a haemodynamically stable patient (like the Deceased is thought to have been here), had had an 85% chance of survival at the time when she should have been referred. On the facts, the judge had preferred the evidence of the expert called for the defendant whose view was that Mrs Wardlaw would not have survived. He considered that, unlike in our case, the diagnosis might not have been made on earlier referral because of the nature of the patient's breathlessness and her general condition. Further, she had progressive PE notwithstanding adequate anti-coagulation in hospital; her condition was, therefore, unresponsive to treatment. In giving a judgment, with which Butler-Sloss P and Latham LJ agreed, Brooke LJ said (at [35]):

> "35. When the judge had to consider, on the balance of probabilities, whether Dr Farrar's negligence (and the consequent delay in her admission to hospital) was causative of Mrs Wardlaw's death the judge had to take into account all the relevant evidence, and the rival cases that were being put forward at the trial in relation to this evidence. The failure of anti-coagulant therapy, when it was tried, to prevent the formation of a massive pulmonary embolism (which had not

> been present on 22nd September) was inevitably a material piece of evidence. While judges are of course entitled to place such weight on statistical evidence as is appropriate, they must not blind themselves to the effect of other evidence which might put a particular patient in a particular category, regardless of the general probabilities."

43. For the Appellant, it is argued that the judge in the present case fell into the error identified by Brooke LJ. However, *Wardlaw v Farrar* was a case where the patient had been referred to hospital and her response to treatment, albeit late, could be studied. It was not a case like the present where the matter had to be assessed on the "counter-factual" hypothesis of a referral to hospital which had not occurred. With respect, I do not question the statement of Brooke LJ about the danger of the wrong use of statistics. However, he was not questioning the proper use of statistical evidence in cases such as this.

44. Commenting on the reasoning in this case, the learned editors of *Clerk & Lindsell on Torts* (22nd Edition (2018), at para. 2-30, p.75) write:

> "On the other hand, care should be taken not to take the logic of this reasoning too far in the opposite direction. If the evidence is that, say, 80 per cent of patients survive with prompt treatment, but 20 per cent die even with prompt treatment, the fact that the patient died following delayed treatment does not establish that he probably fell into the 20 per cent category at the outset and therefore the delay did not contribute to the death. The assessment of causation would turn upon the detailed medical evidence, both as to the overall statistical chances of survival and the particular condition and circumstances of the patient."

In their skeleton argument, the Respondent's counsel put emphasis on the last sentence of this passage. In my judgment, they were right to do so.

45. Both parties relied upon passages in the speech of Lord Nicholls of Birkenhead in his dissent in *Gregg v Scott* [2005] 2 AC 176, at [27] – [28] and [32]. In the first passage, Lord Nicholls said:

> "27. … In cases of medical negligence assessment of a patient's loss may be hampered, to greater or lesser extent, by one crucial fact being unknown and unknowable: how the particular patient would have responded to proper treatment at the right time. The patient's previous or subsequent history may assist. No doubt other indications may be available. But at times, perhaps often, statistical evidence will be the main evidential aid.
>
> 28. Statistical evidence, however, is not strictly a guide to what would have happened in one particular case. Statistics record retrospectively what happened to other patients in more or less comparable situations. They reveal trends of outcome. They are

> general in nature. The different way other patients responded in a similar position says nothing about how the claimant would have responded. Statistics do not show whether the claimant patient would have conformed to the trend or been an exception from it. They are an imperfect means of assessing outcomes even of groups of patients undergoing treatment, let alone a means of providing an accurate assessment of the position of one individual patient."

At [32], there is this:

> "32. The value of the statistics will of course depend upon their quality: the methodology used in their compilation, how up to date they are, the number of patients involved in the statistics, the closeness of their position to that of the claimant, the clarity of the trend revealed by the figures, and so on. But to reject all statistical evidence out of hand would not be acceptable. This argument, if accepted, would effectually nullify the use of statistics in all cases of delayed treatment save perhaps where the figures approached 0% or 100%. Despite its imperfection, in practice statistical evidence of a diminution in perceived prospects will often be the nearest one can get to evidence of diminution of actual prospects in a particular case. When there is nothing better courts should be able to use these figures and give them such weight as is appropriate in the circumstances. This conclusion is the more compelling when it is recalled that the reason why the actual outcome for the claimant patient if treated promptly is not known is that the defendant by his negligence prevented that outcome becoming known."

46. The general position is correctly summarised, in my view, in the last sentence of paragraph 2-30 of *Clerk & Lindsell* (supra):

> "Proof of causation is almost inevitably about a burden of persuasion and sometimes statistics can be highly persuasive."

47. For the Respondent, the submission was the Appellant's case misunderstands the judge's judgment and fails to apply the proper inference that is to be drawn from the fact that the likely result flowed from the admitted breach of duty (*Drake v Harbour*).

48. It is argued for the Respondent that what the judge did in the first two questions was to look at possible specific "mechanisms" by which the Deceased's death *might* have been avoided and found first that the Claimant could not show positively that there were continuing emboli forming during the night that would have been sufficient to trigger the thrombolytic treatment. When it came to question (iii), the judge's conclusions were more nuanced; he decided that it had to be considered along with the literature (which, it can be noted, in this case was far more extensive than that placed before the court in *Wardlaw's* case). The judge's summary of the haematological evidence (at paragraphs 101 and 102) indicated that, if alteplase had been administered early enough in the Deceased's case, "it may well have been life-saving". The statistics were very favourable to survival and the Deceased did not have

any of the aggravating conditions that would have lowered her chances. Equally, the evidence as to the Deceased's condition and her hypothetical treatment in the light of it was far more speculative than in *Wardlaw*.

49. The judge's statement in paragraph 115, that he was looking at the evidence in cardiogenic shock "in isolation", has given rise to argument as to what he meant by that. Did he mean "in isolation" from "cardiac arrest", which he considered in paragraph 116 and following (Appellant's skeleton argument, paragraph 63)? Or did he mean in isolation from the overall evidence, including the literature and the particular features of the Deceased's position, as the Respondent's counsel would have it?

50. For my part, I do not think that it matters much which of these interpretations is correct. It seems to me that it is important to see what the judge's decision on question (iii) was. He found that, in the event of cardiogenic shock, the claimant could not positively prove that the Deceased would have been in the fortunate 64-75% survival cohort, but she may or may not have been. Coupled with this, however, her chances of survival would have been significantly better if she had been in hospital when she became haemodynamically unstable. At the beginning of this part of his judgment (on question (iii)) the judge had decided that he needed to have regard to the medical literature and the overall mortality of patients in considering this question: see again paragraph 90.

51. This seems to me to be a legitimate pause for thought (after answering the first three questions) in the light of statistical evidence that was highly favourable to the Respondent and consistent with the proper role of statistical evidence, as considered by Lord Nicholls in *Gregg v Scott* in the only part of that case on which the parties relied. It is also legitimate because of the "large number of unknowns" to which the judge referred and because the reason why the actual outcome is not known is that the admitted negligence prevented it becoming known.

52. The judge's approach can be clearly seen from the way in which he posed his four questions, at the very beginning, in paragraph 41 of the judgment (see paragraph 13 above). Consistently with what Toulson LJ said in *Drake v Harbour*, he was looking at questions (i) to (iii) to see whether the suggested mechanism for avoiding the death could be positively established. As he said expressly, in (iv) he was assuming that "a specific train of events or mechanism" which would have saved the Deceased, absent the negligence, could not be shown. He then said he was going to examine the evidence "as a whole" to assess whether or not it was more likely that she would have survived, had she been referred to hospital. Interestingly, the focus of the Appellant's criticism here has been largely upon the answer given by the judge to question (iv), not upon the posing of that question in the first place, although the posing of the question is criticised in paragraph 1 (ii) of the appeal grounds. Of course, as paragraphs 8 (9) and (11) of the Defence demonstrate, the Appellant was content to rely upon statistical evidence when it suited his case to do so: see paragraph 10 above. He can hardly sweep away such evidence when it becomes inconvenient.

53. I do not consider that the judge was in error in posing the fourth question. The Appellant's approach would require him to have stopped at the end of question (iii), assuming that he had answered those three questions in the negative. He was entitled, in my view, to assess what he described as the "close calls" in the light of the

Deceased's overall circumstances (age, medical history, haemodynamic stability etc.) and in the light of the medical learning in cases such as this. He was right to take the "common sense and pragmatic view" of "the evidence as a whole", as he said at paragraph 146.

54. The Appellant's case is heavily dependent upon the hypothesis that what actually happened in the Deceased's home on 25/26 April 2014 would have happened if the Deceased had been in hospital as she ought to have been. The judge was not prepared to assess the case solely on that basis. The "counter-factual" case of what would have happened in hospital could not be fully assessed on the basis of what did happen at home.

55. It seems to me that the Respondent is right in the submission that the judge, whether assisted specifically by authority or not, was attempting to find out whether a specific mechanism would in probability have prevented the death. He found that he could not do so, but death was the highly likely result of an undiagnosed and untreated PE. The evidence of Professor Empey and Dr Gomez as to their experience, together with the literature, clearly indicated that she was most unlikely to have died in hospital. He contrasted that with Professor Hay's approach to assessing the case as a typical death from PE which the judge found "tells us little about the risk of death from a massive PE if a patient is admitted to hospital" (paragraph 144(c)). That was the judge's assessment of the overall evidence. In such circumstances, while the Appellant says the judge was "driven" to the conclusion that the Deceased would have survived, the judge actually said,

> "… the above evidence of Professor Empey and Doctor Gomez, in conjunction with the medical literature, drives me to the conclusion that on the *clear* balance of the probabilities she would have survived." (Emphasis added)

56. In other words, without being able to prove the precise mechanism of survival to the requisite standard, after exhaustive consideration of all the material, the Respondent did satisfy the judge "clearly" that the result that occurred was caused by the breach of duty. In my judgment, he was entitled to be so satisfied. This was not a case in which statistics were used to transpose a strong case in the Appellant's favour into a decision in favour of the Respondent. I also reject the argument for the Appellant that to uphold the judge's judgment would be to say that statistics are determinative of causation issues such as the present. The judge's decision was heavily focused upon the Deceased's condition and likely presentation at hospital. As the Appellant's own case on the pleadings and the authorities showed, there is a legitimate place for statistical evidence in cases of this type. The employment of that evidence by the judge in this case was closely linked by him to his assessment of the evidence as to the Deceased's own particular condition, in which her prospects of survival (on hypothetical admission to hospital) were very good indeed. I remind myself that, on the judge's assessment (at paragraph 146) this was not simply a 50/50 case on the statistics. That will not be so in every case. Each case (like this one) will be intensely "fact-specific".

57. This was a highly complex, and rather puzzling, case on the extensive medical evidence. The very experienced judge heard and read all that evidence with obvious care. He explained his approach, and the questions that he saw arising, in paragraph

41 of his judgment. He was not in error in posing his fourth question, as the authorities and the major textbook indicate (*Gregg v Scott, Wardlaw v Farrar* and Clerk & Lindsell). We were taken by counsel for the Appellant to certain passages in evidence given by defence experts. However, as Respondent's counsel pointed out, the appeal is not a retrial and "island hopping" over passages in the transcripts (c.f. per Lewison LJ in *Fage UK Ltd. v Chobani Ltd.* [2014] EWCA Civ 5, at [114]-[115]) in which we were invited to indulge by the Appellant, did not, in my view, undermine the trial judge's overall assessment of all the evidence, factual and expert and in the literature.

58. I would, therefore, dismiss the appeal.

59. I should, however, address briefly the issues raised by the Respondent's Notice.

60. In the additional paragraphs of the Respondent's Notice (to which I have referred above) and in the skeleton argument in support, counsel argue that the overall approach adopted by the judge should have led him to find that, on a balance of probabilities, the Deceased would have survived cardiogenic shock if she had been in hospital; the weight of the evidence was all favourable. I see the force of the argument raised and it might have persuaded some judges to answer question (iii) in the positive sense. However, just as with the Appellant's appeal, I do not feel able to find that the judge must have erred in his conclusion based on the evidence as a whole that he heard and we have not, which he expressed in paragraph 115 of his judgment "[l]ooking at the evidence on cardiogenic shock in isolation" which was the task which he had set himself in question (iii).

Conclusion

61. For these reasons, as I have said above, I would dismiss this appeal.

Lord Justice Holroyde:

62. I agree.

Lord Justice Phillips:

63. 1 also agree.