IN THE GENERAL DIVISION OF
THE HIGH COURT OF THE REPUBLIC OF SINGAPORE

[2026] SGHC 7

Originating Claim No 468 of 2022

Between

(1) Parvaty d/o Raju
(2) Meenachi d/o Suppiah

… *Claimants*

And

(1) National University Hospital (S) Pte Ltd
(2) Ang Mo Kio – Thye Hua Kwan Hospital Ltd

… *Defendants*

GROUNDS OF DECISION

[Professions — Medical profession and practice — Liability]
[Tort — Negligence — Breach of duty]

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v
National University Hospital (S) Pte Ltd and another

[2026] SGHC 7

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1–4, 8–11, 15–17, 22–24, 29 April, 28 August, 15 October 2025

12 January 2026

Mavis Chionh Sze Chyi J:

Introduction

1 The first claimant named in this suit is Mdm Parvaty d/o Raju ("Mdm Parvaty"), who passed away on 30 January 2023.[1] The second claimant named in this suit is Mdm Meenachi d/o Suppiah ("Mdm Meenachi"), who is Mdm Parvaty's daughter and the administrator of her estate.[2]

2 The first defendant is National University Hospital ("NUH"), which provides hospital services including specialised medical care, treatment and services including vascular surgery, orthopaedics, infectious diseases, podiatry

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1 Statement of Claim ("SOC") at [1]; Mdm Meenachi's Affidavit of Evidence-in-Chief ("AEIC")("Mdm Meenachi's AEIC") dated 17 October 2024 at [5] in the Claimant's Bundle of Affidavits of Evidence-in-Chief ("BAEIC") Volume 1 ("CBAEIC Vol 1") at p 7.

2 Mdm Meenachi's AEIC at [1] (CBAEIC Vol 1 at p 7).

and wound nursing.[3] The second defendant is Ang Mo Kio – Thye Hua Kwan Hospital Ltd ("AMKH"), a community hospital providing medical, nursing, and rehabilitation care management, treatment, and services. These include, *inter alia,* medical services for patients who require a short period of continuation of care following their discharge from an acute care hospital.[4]

3 In the present suit, Mdm Parvaty and Mdm Meenachi pleaded various breaches of duties owed to Mdm Parvaty by both NUH and AMKH (collectively the "Defendants"). The Defendants were said to be vicariously liable for the breaches of duties by their staff in the management and treatment of Mdm Parvaty. According to the Statement of Claim ("SOC"), these breaches led to the development and worsening of wounds on her right heel and right posterior shin, ultimately necessitating an above-knee amputation ("AKA"). Damages were claimed for the loss and damage allegedly caused by the AKA.

4 The trial before me was not bifurcated as to issues of liability and damage. I make two preliminary points. First, following Mdm Parvaty's demise on 30 January 2023, the learned Assistant Registrar had – at a case conference on 18 May 2023 – directed counsel for Mdm Parvaty and Mdm Meenachi to file a formal application for the latter to be substituted as the claimant, as opposed to being added as the second claimant.[5] However, counsel did not proceed to do so; and in the course of the trial before me, the Defendants have not raised any real objections to Mdm Parvaty's name continuing to appear as the first

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3 Defence of the 1st Defendant dated 3 August 2023 ("D1D") at [5].

4 Defence of the 2nd Defendant dated 3 August 2023 ("D2D") at [5]; Dr He Yingci's ("Dr He") AEIC dated 16 October 2024 at [5] in the 2nd Defendant's BAEIC Volume 1 Tab 3 ("D2BAEIC Vol 1 Tab 3") at p 3.

5 Minute sheet of the case conference held on 18 May 2023 at p 2.

claimant. In the interests of accuracy, however, I will refer only to the "Claimant" in these grounds of decision, on the understanding that this refers to Mdm Meenachi in her capacity as the administrator of Mdm Parvaty's estate.

5 Second, it should be pointed out that in the SOC, the Claimant pleaded two different causes of action against the Defendants: first, a cause of action in the tort of negligence;[6] and second, a breach of these Defendants' contractual obligations to Mdm Parvaty.[7] However, the Claimant did not put forward any evidence at trial of the contractual terms pleaded in the SOC. In the written submissions filed on her behalf at the end of the trial, the Claimant also did not address the purported breaches of contract. As such, it was not necessary for me to address the claim for breach of contract.

6 At the conclusion of the trial, having considered the evidence and parties' submissions, I found that the Claimant had failed to establish any of the pleaded breaches of duties; and I dismissed the claim against both Defendants. In so doing, I provided parties with a summary of the grounds for my decision. I now set out the full written grounds.

7 I first outline the factual background to the dispute. For ease of reference, a list of the medical abbreviations used in these written grounds is attached at Annex A herein. A list of the witnesses who testified at trial (including the designation and role of each witness) is attached at Annex B.

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6 SOC at [49] and [53]–[54].

7 SOC at [49] and [56].

Facts

The parties

8 The Claimant's action against NUH mainly concerned the alleged conduct of three of its doctors who were involved in the care and management of Mdm Parvaty's case. These doctors were:

(a) Dr Ng Yau Hong ("Dr Ng"), an Orthopaedic surgeon and a Consultant in the Division of Adult Reconstruction and Joint Replacement Surgery in the Department of Orthopaedic Surgery, NUH. Dr Ng was involved in the medical management of Mdm Parvaty during her admission at NUH between 25 September 2020 and 13 January 2021.[8] During that time, Dr Ng was the orthopaedic consultant in charge of Mdm Parvaty's septic arthritis.[9]

(b) Dr Tham Sai Meng ("Dr Tham"), a specialist in infectious diseases and a consultant in the Division of Infectious Diseases in NUH.[10] Dr Tham was involved in the medical management of Mdm Parvaty between 3 October 2020 and 6 January 2021 as a Year 2 Senior Resident. Dr Tham's scope of duties included providing specialist advice for patients with suspected or confirmed infections. Dr Tham also provided advice on evaluating and managing infective issues, in consultation with the covering consultant, Associate Professor Chai Yi Ann Louis.[11]

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8 D1D at [7]; Dr Ng Yau Hong's ("Dr Ng") AEIC dated 17 October 2024 at [1] and [3] in the 1st Defendant's BAEIC Volume 3 ("D1BAEIC Vol 3") at p 5.

9 Dr Ng's AEIC at [4]–[6] (D1BAEIC Vol 3 at pp 5–6).

10 Dr Tham's AEIC dated 11 October 2024 ("Dr Tham's AEIC") at [1] in the 1st Defendant's BAEIC Volume 5 Tab 1 ("D1BAEIC Vol 5 Tab 1") at p 5.

11 Dr Tham's AEIC at [9]–[10] (D1 BAEIC Vol 5 Tab 1 at p 9).

(c) Dr Wong Chi Leung Julian ("Dr Julian Wong") was the Head of Division of the Vascular and Endovascular Surgery in the Department of Cardiac, Thoracic & Vascular Surgery in NUH at the time of Mdm Parvaty's admission. Dr Julian Wong was involved in the Vascular team's management of Mdm Parvaty from 25 September 2020 to 13 January 2021 and from 5 February to 22 March 2021.[12]

9 The Claimant's action against AMKH mainly concerned the alleged conduct of one of its doctors, Dr He Yingci ("Dr He"), who was a resident physician at AMKH at the material time. Dr He was involved in the management of Mdm Parvaty between 13 January 2021 and 5 February 2021.[13] His duties involved, *inter alia*, conducting ward rounds, managing acute and chronic medical conditions, updating family members of patients' progress, and discharge planning.[14]

Background to the dispute

10 Mdm Parvaty first presented at NUH's emergency department on 6 September 2020 with a complaint of severe pain in her right knee. She was diagnosed as having chronic right knee pain.[15] At the material time, Mdm Parvaty suffered from multiple medical conditions, including end-stage renal failure ("ESRF") for which she was on haemodialysis, as well as diabetes

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12 Dr Julian Wong Chi Leung Julian's ("Dr Julian Wong") AEIC dated 14 October 2024 at [5]–[7] in the 1st Defendant's BAEIC Volume 1 ("D1BAEIC Vol 1") at pp 5–6 .

13 Dr He's AEIC at [1] (D2BAEIC Vol 1 Tab 3 at p 2); SOC at [53]–[56]

14 Dr He's AEIC at [6] (D2BAEIC Vol 1 Tab 3 at p 3).

15 SOC at [8]; D1D at [15]; Mdm Meenachi's AEIC at [10] (CBAEIC Vol 1 at p 9).

mellitus, seronegative rheumatoid arthritis, hypertension, hypothyroidism, hyperlipidemia, and severe aortic valve disease.[16]

11 On 9 September 2020, she presented at NUH's emergency department a second time for worsening right lower limb pain. She underwent a right knee aspiration (the "First NUH Admission")[17] and was diagnosed with a calcium pyrophosphate dihydrate flare in her right knee.[18] Following some improvement in her right knee, she was discharged from NUH on 19 September 2020.[19]

12 On 25 September 2020, after Mdm Parvaty hit her right knee against the corner of her bed frame,[20] she presented again at NUH's emergency department with a complaint of right knee pain with swelling (the "Second NUH Admission"). Her right knee was found to have an effusion with warmth.[21] She was advised to undergo right knee arthrocentesis (knee aspiration) on 29 September 2020, but she initially declined. This knee aspiration was eventually done on 1 October 2020, and culture results from the fluid aspirated confirmed gram-positive cocci, which was indicative of right knee septic arthritis.[22] She was started on intravenous antibiotics on the same day.

13 On 2 October 2020, Mdm Parvaty received surgical treatment which included a right knee arthroscopic debridement and washout.[23] According to

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16 Dr Ng's AEIC at [6(i)] (D1BAEIC Vol 3 at p 6).

17 SOC at [8]–[9]; D1D at [15]–[17].

18 Dr Tham's AEIC at [8] (D1 BAEIC Vol 5 Tab 1 at p 8).

19 SOC at [13]; D1D at [25]; Mdm Meenachi's AEIC at [15] (CBAEIC Vol 1 at p 11).

20 Notes of Evidence ("NEs") (1 April 2025) at p 49 lines 10–19.

21 SOC at [14]; D1D at [27]; Mdm Meenachi's AEIC at [16] (CBAEIC Vol 1 at p 11).

22 Dr Ng's AEIC at [6(iv)] (D1BAEIC Vol 3 at p 7).

23 Mdm Meenachi's AEIC at [19] (CBAEIC Vol 1 at p 12).

NUH's records, the blood and joint fluid cultures isolated Methicillin-Susceptible Staphylococcus Aureus ("MSSA").[24] Mdm Parvaty was diagnosed with MSSA bacteremia secondary to right knee septic arthritis.[25] Wound dehiscence was noted on 20 October 2020, which indicated the recurrence of her knee infection.[26] On 21 October 2020, Mdm Parvaty underwent a repeat right knee arthrotomy, synovectomy, and washout. There was osteomyelitis (*ie*, infection of the bone) of the inferior pole of the patella; and 90% of the patella tendon at the patellar insertion site was found to be necrotic and had avulsed off. Septic workup including a 2D echocardiography and PET-CT scan did not reveal a definite source of infection. A plaster back slab was applied on Mdm Parvaty's right leg post-operation.[27] According to NUH, this back slab was applied in order, firstly, to protect the residual patellar tendon by allowing the knee extensor mechanism to scar down. The second reason for the back slab was wound protection, as Mdm Parvaty's arthroscopic wounds from the first right knee arthrotomy had dehisced; and she had multiple risk factors for wound breakdown, including diabetes, renal failure, and severe vascular disease.[28]

14 On 2 November 2020, Mdm Parvaty's knee back slab was converted to a fibreglass cast. It was at this time that she was noted to have a 1.5cm-by-1.5cm deep tissue injury ("DTI") on her right lateral foot and a 7cm-by-7cm DTI on her right heel.[29] The NUH Orthopaedic team ordered the fibreglass cast to be

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24 D1D at [29]; Dr Ng's AEIC at [9] (D1BAEIC Vol 3 p 8).

25 Mdm Meenachi's AEIC at [16] (CBAEIC Vol 1 at p 11); Dr Julian Wong's AEIC at [8] (D1BAEIC Vol 1 at p 6).

26 D1D at [36]; Dr Ng's AEIC at [15] (D1BAEIC Vol 3 at p 10).

27 SOC at [18]–[19]; D1D at [36]–[41].

28 A joint medical report on Mdm Parvaty made by Dr Ng, Dr Julian Wong, and Dr Tham dated 26 July 2023 in Dr Ng's AEIC at NYH-1 (D1BAEIC Vol 3 at pp 32 to 43) ("Joint Medical Report") at [9].

29 SOC at [24]; D1D at [48]; Mdm Meenachi's AEIC at [25] (CBAEIC Vol 1 at p 13).

applied above the ankle to facilitate heel monitoring and dressings; and soft tissue protection strategies, such as the use of foam dressing and appropriate offloading of the heel, were continued.[30] It was not disputed that pressure ulcers were still present on Mdm Parvaty's right heel and foot as at 11 November 2020.[31]

15 On 29 November 2020, Mdm Parvaty's right heel wound was assessed by the Infectious Diseases team to have developed into dry gangrene.[32]. The following day, the NUH Orthopaedic team issued a blue letter referral to the Vascular Surgery team requesting that Mdm Parvaty be reviewed for peripheral artery disease ("PAD") and noting that she had dry gangrene of the right foot secondary to pressure ulcers.[33] Mdm Parvaty was subsequently reviewed by the Vascular team on 1 December 2020; and it was observed that the dry gangrene over her right heel was well-demarcated, with no evidence of ascending cellulitis, infection, bogginess or discharge. An MRI scan on 1 December 2020 showed no signs of osteomyelitis.[34]

16 On 3 December 2020, Mdm Parvaty underwent an arterial ultrasound of her right lower limb, which showed significant stenosis over the mid anterior tibial artery ("ATA"), with a patent peroneal artery ("PA") all the way to the ankle, and chronic occlusion with minimal flow distally in the posterior tibial artery ("PTA").[35] The Vascular team assessed that Mdm Parvaty's right heel wound was likely a heel pressure wound and advised that conservative

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30 Dr Ng's AEIC at [28] (D1BAEIC Vol 3 at p 15); Joint Medical Report at [11].

31 SOC at [26]; D1D at [52]; Mdm Meenachi's AEIC at [27] (CBAEIC Vol 1 at p 14).

32 Dr Tham's AEIC at [30]

33 SOC at [28(a)]; D1D at [56]; Dr Julian Wong's AEIC at [11] (D1BAEIC Vol 1 at p 7).

34 Joint Medical Report at [14(a)]; Dr Ng's AEIC at [42] (D1BAEIC Vol 3 at p 20).

35 SOC at [29]; D1D at [58]; Mdm Meenachi's AEIC at [30] (CBAEIC Vol 1 at p 15).

management be continued, including elevation of her right lower limb and offloading of the right heel.[36]

17 According to NUH, Mdm Parvaty's right heel gangrene remained dry and was not infected for the remainder of her stay in NUH up to her discharge to AMKH on 13 January 2021. On 6 January 2021, a PET-CT scan was carried out; and it was noted, *inter alia*, that there was no FDG-avidity over the right heel, which indicated that there was unlikely to be any active infection at that area.[37]

18 Upon admission to AMKH on 13 January 2021, Mdm Parvaty was reviewed by Dr He on the same day. In his notes of the examination, Dr He documented his observation, *inter alia,* of a right heel eschar with bogginess noted at the eschar.[38]

19 It was not disputed that subsequently, in the course of her stay at AMKH, Mdm Parvaty was reviewed by Dr He and his colleague Dr Sandhya Chandramohan Girijadevi ("Dr Sandhya") on various occasions between 14 January 2021 and 5 February 2021. On 25 January 2021, during a review carried out by Dr He together with the wound nurse Senior Staff Nurse Siti Rohaidah binte Mohamed ("SSN Siti"), it was observed, *inter alia,* that Mdm Parvaty's right heel wound was 100% necrotic with slight bogginess but without odour.

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36 SOC at [30]; D1D at [60]; Mdm Meenachi's AEIC at [31] (CBAEIC Vol 1 at p 15); Joint Medical Report at [15].

37 Joint Medical Report at [21].

38 SOC at [33] and [63]; D1D at [64]; Dr Ng's AEIC at [50] (D1BAEIC Vol 3 at p 24); D2D at [33]; Dr He's AEIC at [12] and a medical note charted by Dr He on 13 January 2021 (D2BAEIC Vol 1 Tab 3 at pp 5 and 32).

It was not disputed that following this review, the wound dressing was changed from spirit dressing to an antiseptic dressing, *ie,* iodine.[39]

20 On 29 January 2021, during another wound inspection, Dr He noted, *inter alia,* that the right heel wound was foul smelling with odour present, and boggy when depressed especially along the peripheries.[40] According to AMKH, the frequency of wound inspections was increased in response; and the right heel wound was dressed daily with iodine.

21 According to Dr He's notes, when he carried out wound inspections on 1 February 2021, the right heel wound was not foul-smelling and also less boggy when depressed. His notes of the next wound inspection on 3 February 2021 similarly recorded his observation that the right heel wound was not foul-smelling and that there was mild bogginess over the peripheries.[41] There was no change in the wound shape. In Dr He's view, the right heel wound was stable at that point and had returned to its baseline condition on admission.[42]

22 On 5 February 2021, Dr He and Dr Sandhya both observed that Mdm Parvaty's right heel wound had deteriorated and was exhibiting signs of wet gangrene: *inter alia,* the right heel was observed to be mildly foul-smelling with purulent exudative discharge.[43] As wet gangrene required an escalation of care,

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39 Dr He's AEIC at [24]–[30] (D2BAEIC Vol 1 at Tab 3 at pp 10 to 11); SSN Siti's AEIC dated 16 October 2024 ("SSN Siti's AEIC") at [15]–[16] (D2BAEIC Vol 1 Tab 6 at p 5).

40 SOC at [36]; D2D at [36(a)]; Mdm Meenachi's AEIC at [45] (CBAEIC Vol 1 at p 23).

41 Dr He's AEIC at [42] and [46] (D2BAEIC Vol 1 Tab 3 at pp 14 to 15); Dr He's progress notes dated 1 February 2021 and 3 February 2021 (Dr He's AEIC at HYC-9 and HYC-10 (pp 79 to 88)).

42 Dr He's AEIC at [46] (D2BAEIC Vol 1 Tab 3 at p 15).

43 Dr He's AEIC at [48]–[49] (D2BAEIC Vol 1 Tab 3 at p 16); Dr He's progress notes dated 5 February 2021 at HYC-11 (pp 97 to 101).

Mdm Parvaty was transferred back to NUH under the care of the Vascular team (the "Third NUH Admission").[44] Upon Mdm Parvaty's readmission to NUH, she was observed to have a large foul-smelling right foot wound with purulent discharge.[45]

23 According to NUH, after Mdm Parvaty's re-admission, the Vascular team ordered a series of tests and also administered antibiotics to her.[46] On 6 February 2021, after reviewing the test results, the Vascular team assessed that Mdm Parvaty had a right gangrenous posterior heel wound against a background of right lower limb critical limb ischaemia ("CLI").[47] The team noted that she might require either a below knee amputation ("BKA") or an AKA.

24 A family conference was held on 7 February 2021 to convey the proposed treatment plan, including the possibility of either a BKA or an AKA.[48] According to the Vascular team's notes of the family conference, they were informed by Mdm Parvaty's children that Mdm Parvaty had said "she would rather die than have a major amputation".[49]

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44 SOC at [38]; D2D at [38]; Dr Julian Wong's AEIC at [18] (D1BAEIC Vol 1 at p 11 to 12).

45 SOC at [39]; D1D at [68] Mdm Meenachi's AEIC at [52] (CBAEIC Vol 1 at p 27); Dr Julian Wong's AEIC at [18] (D1BAEIC Vol 1 at p 11 to 12).

46 Dr Julian Wong's AEIC at [19] (D1BAEIC Vol 1 at p 12).

47 Dr Julian Wong's AEIC at [20] (D1BAEIC Vol 1 at p 12).

48 SOC at [40]; D1D at [72]; Mdm Meenachi's AEIC at [56] (CBAEIC Vol 1 at p 29).

49 D1D at [73]; Dr Julian Wong's AEIC at [25] (D1BAEIC Vol 1 at p 14); Vascular note of the family conference dated 7 February 2021 (Joint Bundle of Documents ("JBOD") Vol 12 at p 8197).

25 On 8 February 2021, pursuant to a blue letter referral by the Vascular team, Mdm Parvaty was reviewed by NUH's Orthopaedics team for the possibility of wound debridement.[50] The Orthopaedics team noted that she had poor pulse in her right lower leg and opined that if revascularisation of her right leg was possible, there might be a chance for the wound to heal with debridement – but if revascularisation was not possible, then debridement was unlikely to succeed, in which case it might be better to do a major amputation. In this connection, vascular scans on 9 February 2021 showed that Mdm Parvaty's right PTA was entirely occluded, while the mid-ATA was occluded, with 70–99% stenosis at the origin of the peroneal artery and 50-69% of the distal peroneal artery.[51]

26 At the family conference held on the same day (9 February 2021), Mdm Parvaty and her children were informed that the severe occlusion shown in the scans would make revascularisation of the right lower limb technically difficult. They were informed that the overall chance of success of debridement with possible revascularisation was less than 20%; and that the option recommended by the Vascular team was a BKA or an AKA, with an AKA wound being the most likely to heal. The Vascular team's notes of this family conference noted that Mdm Parvaty and her children were still keen to try for limb salvage, while understanding that this might only be delaying the inevitable need for a major amputation.[52]

27 On 10 February 2021, Dr Julian Wong saw Mdm Parvaty again and explained to her that the heel wound was too deep for revascularisation and

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50 Dr Julian Wong's AEIC at [29] (D1BAEIC Vol 1 at p 16).

51 SOC at [41]; D1D at [76]; Mdm Meenachi's AEIC at [59] (CBAEIC Vol 1 at p 30).

52 Dr Julian Wong's AEIC at [35]–[37] (D1BAEIC Vol 1 at pp 17 to 18); Vascular note of the family conference fated 9 February 2021 (D1BAEIC Vol 2 at p 436).

debridement. The following day, at another family conference, Mdm Parvaty and her family were told that she required surgical intervention to prevent worsening sepsis and that the first recommendation was to try a BKA.[53] However, according to the Vascular team's notes of the family conference, Mdm Parvaty was still adamant in opposing any major amputation.[54] As such, the treatment plan at that time was to carry out local debridement to assess the depth of the gangrene first: if the gangrene was found to be superficial, the possibility of proceeding with an angioplasty could be explored; whereas if the gangrene was confirmed to be extensive and the right limb was unsalvageable, then amputation would have to be further considered.[55]

28 On 13 February 2021, the planned debridement of Mdm Parvaty's right heel wound was carried out by Dr Julian Wong. The operation showed that Mdm Parvaty had a deep abscess collection underneath the necrotic eschar that tracked up her mid-shin, with extensive unhealthy tissue, and unhealthy underlying fascia and tendons. This meant that any revascularisation attempt would be unsuccessful. Mdm Parvaty and her daughter, the Claimant, were informed of these findings on the same day; and the Vascular team repeated their recommendation of major amputation.[56]

29 At the next family conference on 15 February 2021, the Vascular team again explained to Mdm Parvaty's family the intra-operative findings. The team's notes of this family conference documented that the family was told: (a)

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53 SOC at [42]; D1D at [80]; Dr Julian Wong's AEIC at [39] (D1BAEIC Vol 1 at p 19).

54 Dr Julian Wong's AEIC at [39] (D1BAEIC Vol 1 at p 19); Vascular note on family conference charted on 11 February 2021 (D1BAEIC Vol 2 at p 1086).

55 Dr Julian Wong's AEIC at [39] (D1BAEIC Vol 1 at p 19).

56 SOC at [43]; D1D at [82]; Mdm Meenachi's AEIC at [60] (CBAEIC Vol 1 at p 31); Dr Julian Wong's AEIC at [41] (D1BAEIC Vol 1 at p 20).

as there was a lot of unhealthy tissue in Mdm Parvaty's right posterior heel with abscess tracking proximally, it would not be possible to debride the wound adequately to remove all unhealthy tissue; (b) conservative management with antibiotics and wound dressing changes was not recommended as the chances of healing were poor, with the sepsis likely to progress and turn life-threatening; (c) a BKA had a lower chance of wound healing than an AKA; and (d) an AKA had the best chance of healing, but even if a prosthesis were to be fitted post-amputation, Mdm Parvaty was likely to be wheelchair-bound thereafter.[57]

30 According to NUH's medical records,[58] on 16 February 2021, when seen by Dr Julian Wong and his colleague Dr Bryan Buan, Mdm Parvaty agreed to proceed with amputation, but requested that the surgery be done on 19 February 2021, as 18 February 2021 was the date of her birthday. Informed consent was signed by Mdm Parvaty on 17 February 2021, indicating her consent to a right BKA, with an AKA to be kept in view during the operation.[59]

31 On 19 February 2021, Mdm Parvaty underwent a right AKA. During the operation, it was discovered that her right heel gangrene had infection tracking up her tendoachilles and calf muscles to the mid-calf, which rendered a BKA impossible.[60]

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57 Dr Julian Wong's AEIC at [43] (D1BAEIC Vol 1 at pp 20–21); Vascular note on family conference dated 15 February 2021 (D1BAEIC Vol 2 at p 1114).

58 Note charted by Dr Li Tianpei dated 16 February 2021 (D1BAEIC Vol 2 at p 1123).

59 Dr Julian Wong's AEIC at [45] (D1BAEIC Vol 1 at p 22); Informed consent form (D2BAEIC Vol 2 at p 1135).

60 SOC at [44]; D1D at [85]; Mdm Meenachi's AEIC at [63] (CBAEIC Vol 1 at p 32); Dr Julian Wong's AEIC at [46]–[47] (D1BAEIC Vol 1 at p 22 to 23).

32 Following her recovery from the AKA, Mdm Parvaty was discharged from NUH on 22 March 2021.[61] She was reviewed by NUH's vascular surgery team on seven occasions following her discharge; and it was noted that her right AKA had healed well.[62]

33 Mdm Parvaty passed away two years later, on 30 January 2023, at the age of 75.[63] It was not disputed that the cause of death was coronary artery disease and ESRF.[64]

Parties' cases

34 I next summarise the parties' pleaded cases.

Claimant's case

35 As I noted earlier, the Claimant pleaded both a cause of action in negligence and a cause of action in breach of contract.[65] However, since the Claimant failed to adduce any evidence of the relevant contract terms and/or to address the purported breach of contract in her closing submissions, I will not address the claim in contract.

36 In respect of the claim in negligence, the Claimant set out in her SOC an extensive list of the Defendants' alleged breaches of duty. However, in the closing submissions filed on her behalf, the Claimant elected to focus on only a

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61 SOC at [46]; D1D at [89]; Mdm Meenachi's AEIC at [64] (CBAEIC Vol 1 at p 32).

62 Dr Julian Wong's AEIC at [47]–[48] (D1BAEIC Vol 1 at p 23); Joint Medical Report at [43].

63 Mdm Meenachi's AEIC at [5] (CBAEIC Vol 1 at p 5).

64 Claimant's Opening Statement dated 25 March 2025 ("Claimant's Opening Statement") at [11].

65 SOC at [49].

specific few alleged breaches and to forego addressing the other breaches pleaded. Accordingly, these written grounds address only those specific breaches which the Claimant elected to focus on in her closing submissions.

37 In gist, the Claimant's case against NUH and AMKH rested on three central and related allegations:

(a) First, NUH breached its duty to Mdm Parvaty by: (a) causing Mdm Parvaty to develop a DTI on her right heel; and/or (b) failing to prevent the DTI from developing; and/or (c) causing the DTI to deteriorate; and/or (d) failing to prevent the DTI from deteriorating.[66]

(b) Second, both NUH and AMKH failed to treat Mdm Parvaty's dry gangrene by debriding it and performing revascularisation by angioplasty in a timeous manner or at all.[67]

(c) Third, both NUH and AMKH caused Mdm Parvaty's dry gangrene to deteriorate and/or failed to prevent the dry gangrene from deteriorating to the point where extensive tissue death made limb salvage no longer viable.[68]

I elaborate on each of the above allegations.

NUH failed to prevent Mdm Parvaty's DTI from developing and deteriorating

38 In respect of the allegations about the development of the DTI and its deterioration, the Claimant argued that during Mdm Parvaty's Second NUH

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66 Claimant's Closing Written Submissions dated 10 June 2025 ("CWS") at [50(A)]; SOC at [51(j)], [50(g)], [50(i)].

67 CWS at [50(B)]; SOC at [50(i)], [50(j)], [51(f)], [51(g)].

68 CWS at [50(C)]; SOC at [50(g)], [51(j)].

Admission, her condition was attributed by NUH to septic arthritis "without any microbiological study",[69] and without any "assessment of the level of risk of pressure ulcers".[70]

39 Further, the Claimant alleged that after Mdm Parvaty underwent right heel debridement on 2 October 2020 and 20 October 2020, NUH failed to ensure that sufficient precautions were adopted to protect her skin, despite NUH being aware that she was a diabetic patient who was especially at risk of developing foot ulcerations.[71] According to the Claimant, right foot elevation and off-loading measures, such as the use of heel protectors, were only commenced on 4 November 2020, when they should have been employed earlier to prevent the DTI from developing.[72] In this connection, the Claimant pointed to the evidence of her expert witness, Mr Phillip Coleridge Smith ("Mr Smith"), who opined in his expert report that the "ulceration of [Mdm Parvaty's] right foot would have been prevented with adequate nursing care at NUH during the period September [to] December 2020".[73]

40 In the Claimant's closing submissions, it was also alleged that the nurses at NUH must have touched Mdm Parvaty's right foot with their ungloved hands and that their actions likely introduced infection in the right foot.[74]

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69 CWS at [55].

70 CWS at [56].

71 CWS at [59].

72 CWS at [62].

73 CWS at [65]; Mr Phillip Coleridge Smith's ("Mr Smith") Medical Report on Liability and Causation dated 18 July 2024 ("Mr Smith's 2nd Report") at [5.8] (Claimant's Bundle of AEICs Volume 20 dated 25 March 2025 ("CBAEIC Vol 20") at p 5007).

74 CWS at [141(c)] and [147].

41 It was the Claimant's case, therefore, that the above acts and/or omissions by NUH caused the development of the DTI on Mdm Parvaty's right foot and heel.[75] According to the Claimant, Dr Ng's failure to send a blue letter referral to the Vascular team immediately upon noticing the DTI on 2 November 2020 or very shortly thereafter meant that the DTI was allowed to deteriorate further and to turn into dry gangrene "which was the death of tissue caused by a lack of blood perfusion".[76]

NUH failed to perform revascularisation and debridement for Mdm Parvaty during the Second NUH Admission

42 In respect of the management of Mdm Parvaty's subsequent dry gangrene, the Claimant contended that NUH was cognisant that Mdm Parvaty had CLI as early as 30 November 2020. The Claimant contended that since this condition was characterised by reduced blood flow to the legs and feet, which could in turn lead to tissue loss, non-healing ulcers, and amputation, urgent vascular intervention, *ie*, angioplasty, should have been carried out by NUH's Vascular team at a much earlier stage – in December 2020 or January 2021.[77] In this connection, the Claimant pointed to the evidence of her expert Mr Smith, who opined at trial that even if angioplasty could not have been attempted on Mdm Parvaty's occluded right PTA, NUH could and should have attempted angioplasty on her right PA and ATA. In Mr Smith's opinion, this would have allowed the ulceration on Mdm Parvaty's right foot to heal and thereby prevented the need for an AKA.[78]

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75 SOC at [25]; CWS at [60].

76 CWS at [60] and [67].

77 CWS at [64]–[69] and [94].

78 CWS at [71], [94], [105]; NEs (16 April 2025) at p 77 lines 1–8, p 78 at lines 2–8.

43 The Claimant also argued that NUH should, in any event, have offered Mdm Parvaty debridement as a treatment option as early as November 2020.[79] It was the Claimant's case that early debridement of the dry gangrene would have removed the source of her infection[80] and allowed the ulcer to heal.[81]

NUH's negligence in discharging Mdm Parvaty to AMKH

44 In respect of the management of Mdm Parvaty's dry gangrene, it was also the Claimant's case that NUH should have treated her dry gangrene before discharging her to AMKH on 13 January 2021.[82] In this connection, the Claimant relied on Mr Smith's opinion evidence that photographs taken of Mdm Parvaty's necrotic right heel showed the presence of extensive necrotic tissue from around early December 2020; and that regardless of whether the 6 January 2021 PET-CT scan revealed signs of infection, this necrotic tissue should have been "managed surgically" and "excised".[83]

45 Additionally, according to the Claimant, Mdm Parvaty's follow-up review was unjustifiably delayed to some four to six weeks from her discharge from NUH on 13 January 2021.[84] The Claimant claimed that this delay in the follow-up review was negligent because dry gangrene could deteriorate very rapidly and required close monitoring every two to three days by a physician in a clinical setting.[85]

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79 CWS at [126].

80 CWS at [94].

81 CWS at [98].

82 CWS at [86] and [98].

83 CWS at [93].

84 CWS at [85].

85 CWS at [130].

46 It was also alleged that neither Mdm Parvaty's right leg ulcers nor her dry gangrene/necrosis was included in the "problem list" that NUH passed over to AMKH upon her discharge; and that NUH failed, in addition, to specify to AMKH the wound care products to be used.[86] The Claimant contended that had NUH supplied AMKH with the relevant information about Mdm Parvaty's condition, AMKH would have been better equipped to manage Mdm Parvaty's condition;[87] and that the deterioration of her dry gangrene into wet gangrene would have been thereby prevented.[88]

AMKH's failure to diagnose and treat Mdm Parvaty appropriately

47 In respect of the deterioration in Mdm Parvaty's condition following her discharge to AMKH, the Claimant argued in her closing submissions that the following breaches of duty by AMKH caused and/or contributed to the deterioration:

(a) First, AMKH used saline in the wound dressing applied to Mdm Parvaty's dry gangrene and only switched to iodine on or around 23 January 2021. In her closing submissions, the Claimant argued that since saline was not an antiseptic (unlike iodine), the use of saline up until 23 January 2021 increased the risk of Mdm Parvaty's dry gangrene worsening or getting infected.[89]

(b) Second, the Claimant claimed that the nursing care provided by AMKH was substandard, as no wound dressing was done for Mdm

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86 CWS at [96].

87 CWS at [99] and [158].

88 CWS at [161] and [166].

89 CWS at [170]–[172]; CRS at [94].

Parvaty from her admission to AMKH on 13 January until 15 January 2021; and the nursing team only started changing her wound dressing on a daily basis from 25 January 2021 onwards.[90] The AMKH nurses were also alleged to have touched Mdm Parvaty's right leg with ungloved hands.[91]

(c) Third, the Claimant argued – relying again on Mr Smith's opinion evidence – that following her admission on 13 January 2021, AMKH should have carried out debridement of Mdm Parvaty's right leg ulcers and angioplasty on her right lower limb arteries.[92] Further, it was suggested that since dry gangrene could progress quickly to wet gangrene, antibiotics should have been prescribed for Mdm Parvaty even before 5 February 2021.[93]

(d) Fourth, it was alleged that since Dr He had by 30 January 2021 noted a foul smell coming from Mdm Parvaty's right heel wound, this meant that the wound must have become infected; and AMKH should have transferred Mdm Parvaty back to NUH earlier than 5 February 2021. The Claimant argued that their delay in transferring her back to NUH caused or contributed to her deterioration.[94]

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90 CWS at [177].

91 CWS at [181].

92 CWS at [189].

93 CWS at [190].

94 CWS at [185] and [189].

NUH's failure to perform urgent debridement when Mdm Parvaty was readmitted on 5 February 2021

48 In respect of the deterioration in Mdm Parvaty's condition following her transfer back to NUH on 5 February 2021, the Claimant argued that this was caused and/or contributed to by NUH's failure to carry out urgent debridement and angioplasty on either 5 February or 6 February 2021. Relying on Mr Smith's expert reports, the Claimant argued that had NUH carried out urgent debridement and angioplasty at that earlier stage, it would have limited the infection and made a BKA possible (as opposed to an AKA).[95]

Res ipsa loquitur

49 Aside from the above allegations as to the Defendants' breaches of their duty of care, the Claimant also stated in her SOC that she was relying "on the doctrine of *res ipsa loquitur* to establish that the injury to [Mdm Parvaty's] right leg was caused by the negligence of the Defendants".[96]

NUH's case

50 In its defence, NUH accepted that it owed a duty of care to Mdm Parvaty, and that it was vicariously liable for the acts and/or omissions of its doctors and staff *vis-à-vis* their care and management of Mdm Parvaty. However, NUH asserted that the care provided to her by its doctors and staff was in accordance with the requisite standard of care, and that there were no breaches of its duty of care.

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95 CWS at [197] and [206].

96 SOC at [54].

51 In respect of the Claimant's allegations regarding the care provided to Mdm Parvaty during her Second NUH Admission, NUH asserted that all appropriate measures were taken to avoid the development of DTIs during her admission and stay. The fact that she developed a right heel DTI was not the result of any lapse of care on the part of NUH.[97] From 2 October 2020 until her discharge to AMKH on 13 January 2021, appropriate pressure injury measures were put in place.[98] These measures included:[99]

(a) Applying padding with foam dressing over pressure points on Mdm Parvaty's right foot;

(b) Offloading Mdm Parvaty's right heel with a pillow and heel protector;

(c) Regular turning and regular monitoring of Mdm Parvaty's skin condition; and

(d) Converting the plaster back slab for her knee to a fiberglass cast so that the areas with DTIs could be left exposed, and to facilitate heel monitoring and dressings.[100]

52 In respect of the Claimant's allegations regarding the development of the right heel DTI and subsequent dry gangrene, NUH asserted that the decision to manage these conditions conservatively was appropriate because Mdm Parvaty was not a suitable candidate for an angioplasty procedure and/or wound

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97 NUH's Closing Written Submissions dated 10 June 2025 ("NUHWS") at [44].

98 D1D at [41]–[42] and [95(a)].

99 D1D at [41]–[42].

100 D1D at [48].

debridement of the right heel, nor was there any clinical indication for such treatment options during her Second NUH Admission.[101]

53 In respect of the Claimant's allegations regarding the decision to discharge Mdm Parvaty to AMKH, NUH contended that by 13 January 2021, she was fit to be discharged to AMKH for step down care.[102] In particular, NUH pointed out the following:

(a) By 3 January 2021, Mdm Parvaty had completed her antibiotic treatment; and her right heel gangrene was dry and not infected as at the point of her discharge to AMKH;[103]

(b) The PET-CT scan on 6 January 2021 did not show any FDG-avidity over the right heel, which indicated that there was unlikely to be any active infection at the area; and[104]

(c) AMKH had the necessary information, facilities, and care available to provide continued management and rehabilitative care to Mdm Parvaty for her condition.[105]

54 In respect of the Claimant's allegations regarding the deterioration in Mdm Parvaty's condition during her Third NUH Admission, NUH contended that Mdm Parvaty and her family had been repeatedly advised that the chances of successful limb salvage were low; and in particular, that the right foot debridement procedure carried out on 13 February 2021 had shown that the foot

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101 NUHWS at [44(b)] and [76].

102 NUHWS at [47].

103 D1D at [64]; NUHWS at [115].

104 D1D at [97(b)]; NUHWS at [119].

105 D1D at [97(d)] and NUHWS at [47].

was not salvageable due to the extensive unhealthy tissue. NUH emphasised that Mdm Parvaty had repeatedly been advised as early as 7 February 2021 to undergo a major amputation: any delay in treatment was due to her own persistent refusal to consider amputation.[106]

55 Finally, according to NUH, the Claimant was unable in any event to establish that the pleaded injuries, loss and damage were caused by any breach of duty on NUH's part[107], and/or to show any basis for the application of the doctrine of *res ipsa loquitur* in this case.[108]

AMKH's case

56 In its defence, AMKH similarly accepted that it owed a duty of care to Mdm Parvaty;[109] and that it was vicariously liable for the acts and/or omissions of its doctors and staff *vis-à-vis* their care and management of Mdm Parvaty.[110] However, AMKH denied that there was any breach of its duty of care. According to AMKH, the care, treatment, and management provided to Mdm Parvaty during her stay were appropriate at all times and consistent with the relevant professional standard of care.[111]

57 In respect of the Claimant's allegations regarding the process of Mdm Parvaty's admission to AMKH on 13 January 2021, AMKH asserted that Mdm Parvaty was fit for admission to AMKH; that it had in place a screening protocol

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106 NUHWS at [49], [130], and [135].

107 D1D at [107] and NUHWS at [140].

108 NUHWS at [58].

109 D2D at [48].

110 D2D at [53].

111 D2D at [49] and [52].

for assessment and acceptance of referred patients; and that this protocol was adhered to in Mdm Parvaty's case. This included checking the referred patients' diagnosis, condition, latest parameters, and blood test results before their transfer to AMKH.[112]

58 In respect of the Claimant's allegations regarding the care provided to Mdm Parvaty during her stay, AMKH denied any lapse in the care, treatment, and management provided by its doctors and staff. *Inter alia*, AMKH pointed out the following:

(a) When Mdm Parvaty was admitted to AMKH on 13 January 2021, her wounds received proper inspection and treatment.[113] Dr He observed that Mdm Parvaty had a right heel eschar with bogginess noted at the eschar, and ulceration on her right first toe, with no weeping or discharge. These findings were consistent with dry gangrene; and there were no signs of developing infection.[114]

(b) Elevation and offloading of Mdm Parvaty's right lower limb were done regularly at AMKH.[115]

(c) The responsibility to determine whether an angioplasty was indicated and to advise Mdm Parvaty accordingly lay with NUH. Both debridement and angioplasty were not clinically indicated nor suitable

112 D2D at [52(a)]; AMKHWS at [57]–[60].

113 D2D at [52(b)]; AMKHWS at [11(b)(i)].

114 D2D at [33].

115 D2D at [34] and [52(f)]; AMKHWS at [11(b)(ii)] and [96].

for Mdm Parvaty. As a community hospital, AMKH was, in any event, not equipped to carry out these procedures.[116]

(d) Prior to 5 February 2021, inspections of Mdm Parvaty's wounds did not reveal any signs of infection.[117] Upon new developments being observed in her right heel wound on 5 February 2021, Mdm Parvaty was promptly sent back to NUH.[118]

(e) Mdm Parvaty had multiple pre-existing conditions at the time of her admission to AMKH, including chronic life-threatening ischaemia (which represented the end stage of PAD). While the care provided at a rehabilitative facility like AMKH was aimed at stabilising the wound condition and keeping the gangrene dry and infection-free as far as possible, wounds could get infected even with the best efforts; and given Mdm Parvaty's pre-existing conditions, amputation would have been a significant risk regardless.[119]

59 Further and in any event, AMKH contended that even assuming there was a breach of its duty of care, causation of the injuries and the loss pleaded by the Claimant was not made out because, *inter alia*, Mdm Parvaty's right leg was already non-salvageable by the time she was admitted to AMKH on 13 January 2021.[120]

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116 AMKHWS at [11(b)(iii)]–[11(b)(iv)], [104(a)]–[106]; D2D at [52(e)].

117 D2D at [35]–[37].

118 AMKHWS at [11(c)] and [138].

119 D2D at [55(b)].

120 AMKHWS at [12].

60 As for the doctrine of *res ipsa loquitur,* AMKH took the position that this doctrine had no application on the facts of Mdm Parvaty's case, because she already had gangrene at the time of her admission to AMKH; and this condition, when seen against her pre-existing end stage PAD, placed her at significant risk of amputation.[121]

61 Finally, AMKH also took the position that the infection of Mdm Parvaty's wound which led to her requiring AKA, as well as any injury, pain, suffering, and/or loss arising from the AKA, were caused or contributed to by her own acts and/or omissions.[122]

Issues to be determined

62 In light of the parties' respective cases, the key issues which arose for my determination at trial were as follows:

(a) Whether NUH negligently failed to take sufficient precautions to prevent Mdm Parvaty's right heel DTI from developing and worsening during her Second NUH Admission;

(b) Whether NUH was negligent in deciding to treat Mdm Parvaty's dry gangrene conservatively instead of carrying out revascularisation and debridement during her Second NUH Admission;

(c) Whether NUH was negligent in discharging Mdm Parvaty to AMKH on 13 January 2021;

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121 D2D at [54] and [55(a)]; AMKHWS at [143]–[145], [158]–[164].

122 D2D at [57] and [61]; AMKHWS at [13] and [150].

(d) Whether AMKH negligently caused Mdm Parvaty's dry gangrene to deteriorate; and

(e) Whether NUH was negligent in not performing debridement and/or angioplasty immediately upon or shortly after Mdm Parvaty's re-admission on 5 February 2021.

63 I address each of these issues in turn.

My decision

The applicable law

64 In order to succeed in her claim in negligence, the Claimant had to establish, *inter alia,* that: (a) each of the Defendants owed Mdm Parvaty a duty of care; (b) each of the Defendants breached that duty of care by acting (or omitting to act) below the standard required of it; and (c) the Defendants' breaches caused the injuries, loss and/or damage pleaded (*Spandeck Engineering (S) Pte Ltd v Defence Science & Technology Agency* [2007] 4 SLR(R) 100 at [21]).

65 In respect of (a), it is uncontroversial that a doctor owes a duty of care to the patient (*Hii Chii Kok v Ooi Peng Jin London Lucien* [2016] 2 SLR 544 at [60]); and as I noted earlier, the Defendants accepted that they each owed a duty of care to Mdm Parvaty.[123]

66 In respect of (b), the issue of whether a doctor has met the requisite standard of care in relation to his medical diagnosis and treatment is to be

[123] D1D at [91]; D2D at [48(a)].

determined according to the principles set out by the Court of Appeal in *Hii Chii Kok v Ooi Peng Jin London Lucien* [2017] 2 SLR 492 ("*Hii Chii Kok*").

67 In *Hii Chii Kok*, the Court of Appeal held that the requisite standard of care in relation to a doctor's medical diagnosis and treatment (including pre- and post-operative care) was to be determined by the principles established in *Bolam v Friern Hospital Management Committee* [1957] 1 WLR 582 ("*Bolam*") and *Bolitho v City and Hackney Health Authority* [1998] AC 232 ("*Bolitho*"). These principles are commonly referred to as the "*Bolam* test" and the "*Bolitho* addendum" respectively (*Hii Chii Kok* at [76] and [102]–[112]).

68 The *Bolam* test only requires that the defendant's practice was supported by a responsible body of opinion within the profession, even if there is another body of opinion which disagrees (*Hii Chii Kok* at [76(c)]). This test is a proxy or a heuristic for determining what a reasonable and competent doctor would do. Its underlying logic is that a reasonable and competent doctor would only do that which at least some responsible body of doctors would do (*Hii Chii Kok* at [104]).

69 As for the *Bolitho* addendum, this consists of a two-stage inquiry. At the first stage, the court considers whether the experts holding the opinion directed their minds to the comparative risks and benefits relating to the matter. At the second stage, the court considers whether the opinion was defensible (meaning that it was internally consistent and did not contradict proven extrinsic facts relevant to the matter) (*Hii Chii Kok* at [76(d)]). The *Bolitho* addendum is engaged where there is a genuine difference of opinion within the medical community as to what the medical practitioner ought to have done (*Armstrong, Carol Ann (executrix of the estate of Peter Traynor, deceased, and on behalf of*

the dependents of Peter Traynor, deceased) v Quest Laboratories Pte Ltd [2020] 1 SLR 133 ("*Armstrong*") at [53] citing *Hii Chii Kok* at [109]).

70 In evaluating whether the doctor has met the requisite standard of care in any aspect of his interaction with the patient, the courts should apply the relevant tests with reference only to the facts that were known at the time that the material event occurred (*Hii Chii Kok* at [158]–[159]). Further, where there is conflicting expert evidence (such as in this case), it is not the sheer number of experts articulating a particular opinion that matters. Rather, it is the consistency and logic of the preferred evidence that is paramount (*Ilechukwu Uchechukwu Chukwudi v Public Prosecutor* [2021] 1 SLR 67 at [247] citing *Sakthivel Punithavathi v Public Prosecuto*r [2007] 2 SLR(R) 983 ("*Sakthivel*") at [75]).

71 It was with these general principles in mind that I considered each of the issues below.

Whether NUH failed to implement sufficient precautions to prevent Mdm Parvaty's DTI from developing and worsening

72 To recapitulate, the Claimant submitted that NUH failed to prevent Mdm Parvaty's DTI from developing and then worsening by the following acts and/or omissions of its doctors and staff:

(a) There was no assessment of Mdm Parvaty's level of risk of developing pressure ulcers;[124]

[124] CWS at [56].

(b) Insufficient precautions were taken to protect Mdm Parvaty's skin.[125] In so far as right foot elevation and off-loading were eventually implemented, these should have been commenced before 4 November 2020 so as to prevent the DTI from developing.[126]

(c) Dr Ng should have sent the blue letter referral to the Vascular team by 2 November 2020 when the DTI was first noted; and[127]

(d) Wound photographs were not taken regularly and were of poor quality; and the photographs that were taken showed that contact was made with Mdm Parvaty's leg by "ungloved hands".[128]

73 I found no merit in the Claimant's submissions. My reasons were as follows.

74 First, the allegation that NUH failed to assess Mdm Parvaty's level of risk of developing pressure ulcers was patently untrue. This allegation appeared to be based on a statement by the Claimant's expert witness Mr Smith in his first medical report that he had been "unable to find an assessment of the level of risk of pressure ulcers"[129] and that this appeared to fall below the standard of adequate nursing care. However, it was not clear what documents Mr Smith had referred to before concluding that no "assessment of the level of risk of pressure ulcers" could be found.[130] In making the above suggestion about the inadequacy

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125 CWS at [59] and [68(a)].

126 CWS at [62].

127 CWS at [60].

128 CWS at [66] and [127].

129 Mr Smith's first report dated 14 August 2022 ("Mr Smith's 1st Report") at [1.4] (CBAEIC Vol 20 p 4968).

130 Mr Smith's 1st Report at [1.4] (CBAEIC Vol 20 p 4968).

of NUH's nursing care in this area, Mr Smith also qualified his opinion by pointing out that the issue of acceptable nursing practice in the assessment of risk of pressure ulcers and prevention thereof lay outside his field of expertise.

75 More fundamentally, in claiming that NUH failed to carry out any assessment of Mdm Parvaty's risk of developing pressure ulcers, what the Claimant failed to acknowledge was that Mdm Parvaty's medical history – including her history of diabetes mellitus, hypertension, hyperlipidemia and severe aortic valve disease – was in fact well-known to NUH even before the Second NUH Admission on 25 September 2020. *Inter alia,* Dr Julian Wong (NUH's then Head of Division of Vascular and Endovascular Surgery) testified that Mdm Parvaty had been his patient since 2014, the year in which she started thrice-weekly haemodialysis.[131] It is a known medical fact that patients with diabetes are especially at risk of developing foot ulceration.[132] It was for this reason that NUH performed extensive assessments to ascertain the pressure points on Mdm Parvaty's body and to implement appropriate measures to prevent DTIs from developing. NUH's Nurse Naw Hnin Yee Aye ("Nurse Naw") deposed that as early as 2 October 2020, following the right knee aspiration performed on Mdm Parvaty, she had performed a "*head-to-toe*" [emphasis added] skin assessment of Mdm Parvaty to determine which parts of her body would be more prone to pressure injuries. Nurse Naw explained that she was aware that Mdm Parvaty was at risk of developing pressure injuries, especially since she had spent a significant amount of time resting and recovering in bed, and was not very mobile.[133] After conducting this "head-to-

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131 NEs (8 April 2025) at p 176 lines 17–18; Joint Medical Report at [1].

132 Mr Smith's 1st Report at [1.6] (CBAEIC Vol 20 at p 4969); NUHWS at [60].

133 Affidavit of Nurse Naw dated 14 October 2020 ("Nurse Naw's Affidavit") at [5] (D1BAEIC Volume 5 at p 560).

toe" skin assessment, Nurse Naw instructed the nursing team to implement, *inter alia*, the following measures to reduce the risk of Mdm Parvaty developing any pressure injuries:[134]

(a) Placing Mdm Parvaty on a pressure reliving mattress (which Mdm Parvaty initially refused);

(b) Applying Cavilon cream on Mdm Parvaty's sacral area to protect her skin;

(c) Covering the sacral area and lateral side of Mdm Parvaty's right foot with Mepilex (which is an adhesive foam dressing used to cushion and protect the pressure points);

(d) Placing both Mdm Parvaty's heels in heel protectors made of foam so as to offload her heels (*ie*, reduce the pressure placed on the heels); and

(e) On 22 October 2020, after Mdm Parvaty's right leg had been placed in a back slab, further pressure-reliving measures were implemented, namely, by placing two pillows under her right calf to keep it elevated.

76 Nurse Naw maintained her evidence under cross-examination. She was also able to provide additional details in cross-examination. In relation to the pressure-relieving mattress, for example, she had noted in her Affidavit of Evidence-in-Chief ("AEIC") Mdm Parvaty's initial reluctance to lie on a pressure-relieving mattress, which led to her (Nurse Naw) having to explain to the latter the importance of using such a mattress. In cross-examination, Nurse

134 Nurse Naw's Affidavit at [5]–[7], [16]–[18] (D1BAEIC Volume 5 at pp 560 to 567).

Naw was able to recall that after she spoke to Mdm Parvaty on 2 October 2020 to get her concurrence to the installation of a pressure-relieving mattress, the mattress was ordered that same afternoon and installed on 5 October 2020.[135]

77 I should point out that in alleging that no appropriate pressure relieving measures were put in place by NUH, the Claimant and her counsel appeared to take the position that it was sufficient for her to make the allegation, without doing anything more, and that the onus then fell on NUH to adduce evidence to refute her allegation. This was clearly a misapprehension of the rules of evidence. As the party who was alleging that NUH had failed to implement sufficient precautions to prevent Mdm Parvaty's DTI from developing and worsening, the Claimant had the legal and the evidential burden of proving this allegation. This meant that the Claimant was required to adduce some (not inherently incredible) evidence of the fact(s) alleged before the evidential burden could shift to NUH: see *Britestone Pte Ltd v Smith & Associates Far East, Ltd* [2007] 4 SLR(R) 855 at [58]–[60]; ss 103 to 105 of the Evidence Act 1893 (2020 Rev Ed). In respect of the allegation that pressure relieving measures were not implemented, she had to adduce some (not inherently incredible) evidence to bear out this allegation before the evidential burden shifted to NUH. Instead of doing so, the Claimant and her counsel merely sought to rely on bare – and unfortunately, sweeping – assertions, claiming (for example) that the "[nursing] records did not chart any use of pressure reliving mattresses or heel protectors by [NUH]",[136] and that there was a lack of "even a single photograph by [NUH of the pressure reliving measures being implemented]".[137] These assertions were, again, patently untrue. I have

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135 NEs (16 April 2025) at p 12 lines 14–24.

136 Claimant's Reply Submissions dated 1 July 2025 ("CRS") at [2] and [17].

137 CRS at [24].

highlighted earlier Nurse Naw's evidence about the "head-to-toe" skin assessment she performed on Mdm Parvaty and the pressure-relieving measures she instructed the nursing team to put in place. A perusal of NUH's nursing records also revealed multiple references to – and photographs of – pressure relieving measures such as right foot elevation and the use of heel protectors being implemented for Mdm Parvaty.[138]

78 In fact, it should be noted that evidence adduced by the Claimant herself corroborated NUH's evidence about the implementation of pressure relieving measures. For example, photographs exhibited in the Claimant's supplementary bundle of documents showed Mdm Parvaty's right leg elevated with a pillow[139] with her right heel also offloaded with a heel protector.[140]

79 Indeed, despite claiming that he was "unable to find an assessment of the level of risk of pressure ulcers", Mr Smith accepted in his report that "regular pressure area checks were done [by NUH]"; that "Mrs Parvaty was nursed on a pressure relief mattress"; and that Mdm Parvaty's heel was "treated by elevation and off-loading" – all of which he acknowledged as being "*consistent with standard practice*" [emphasis added].[141] In cross-examination, after being shown Nurse Naw's affidavit evidence as to the various pressure-relieving measure put in place for Mdm Parvaty (see [75] above), Mr Smith conceded that a combination of the pressure-reliving measures described by Nurse Naw

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138 Nursing progress note charted by Chen Yan on 19 November 2020 at 1455 hrs (D1BAEIC Vol 5 at pp 706 and 708).

139 Claimant's Supplementary Bundle of Documents dated 18 March 2025 ("CSBOD") at p 198.

140 CSBOD at p 199.

141 Mr Smith's 1st Report at [1.4] and [1.8] (CBAEIC Volume 20 at pp 4968 to 4969).

would have been appropriate in terms of keeping Mdm Parvaty's heels offloaded.[142]

80 When Mr Smith was cross-examined on what *additional* measures he thought NUH should have employed to relieve pressure on Mdm Parvaty's right heel and to prevent the DTI from developing, he opined that NUH should have "probably [avoided] encasing the heel in the plaster cast" *ie*, NUH should not have immobilised Mdm Parvaty's right leg in the back slab.[143] In this connection, however, it was Dr Ng's evidence that the plaster back slab was *necessary* for two reasons.[144] First, the repeat right knee arthrotomy, synovectomy and washout on 21 October 2020 had revealed osteomyelitis of the inferior pole of the patella: as a result, there was necrosis of a significant part of Mdm Parvaty's patellar tendon, which could compromise a critical part of the extensor mechanism and affect her knee function. A plaster back slab was thus ordered to protect the residual patellar tendon attachment and preserve the extensor mechanism by allowing it to scar down. Second, the plaster back slab would provide wound protection. This was in view of Mdm Parvaty's multiple risk factors for wound breakdown, including diabetes, renal failure, malnutrition, and severe vascular disease. In fact, her initial arthroscopic wounds from the index surgery had dehisced. Immobilisation via the plaster back slab would put the surgical wound over her knee in the optimal tension-free state for healing.

81 Dr Ng's evidence was not refuted by any opposing medical evidence from the Claimant's sole expert Mr Smith. On the contrary, in cross-

142 NEs (15 April 2025) at p 124 lines 1–4.

143 NEs (15 April 2025) at p 131 at lines 24–25; CRS at [26].

144 Dr Ng's AEIC at [16]–[18] (D1BAEIC Vol 3 at pp 11 to 12).

examination, Mr Smith agreed that it was for the orthopaedic team to decide the extent of immobilisation required to prevent any movement on the part of the patient that might tear or stretch the stitches in the knee. As such, the extent of immobilisation needed for Mdm Parvaty's right leg was a matter for the discretion of the orthopaedic team based on their clinical judgment. Mr Smith agreed that matters such as whether Mdm Parvaty needed a back slab extending from the mid-thigh to the sole thus fell within the orthopaedic surgeon's field of expertise and were not within his own field of expertise.[145]

82 Having regard to the evidence set out above at [75]–[81], therefore, I found no merit in the Claimant's allegations about NUH's failure to prevent the development of Mdm Parvaty's DTI. On the evidence adduced, I was satisfied that multiple pressure-reliving measures had in fact been implemented by NUH prior to 2 November 2020, and that they continued to be employed after the DTI was first observed. Accordingly, I was satisfied that NUH had met the requisite standard of care in respect of the steps taken to offload Mdm Parvaty's right heel.

83 Next, the Claimant alleged that Mdm Parvaty should have been referred to the Vascular team as soon as the DTI on her right heel was observed on 2 November 2020, "or by 7 November 2020".[146] This appeared to be a suggestion that Dr Ng's decision to issue the blue letter referral to the Vascular team "only" on 30 November 2020 caused or contributed to the worsening of Mdm Parvaty's DTI.

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145 NEs (15 April 2025) at p 133 lines 2–17.

146 CWS at [60].

84 In this connection, the Claimant appeared to take the position, first, that in so far as there was worsening of the DTI, this was represented by the progression of the DTI from pressure ulcer to dry gangrene; and second, that this progression from pressure ulcer to dry gangrene could and should have been prevented by Dr Ng referring Mdm Parvaty to the Vascular team on 2 November 2020 or shortly thereafter.

85 In my view, this position was misconceived for the following reasons. In so far as the DTI was observed to have progressed to dry gangrene on 29 November 2020, Dr Ng's evidence was that this progression was not unexpected given Mdm Parvaty's underlying vasculopathy, renal failure and diabetes, coupled with her prolonged immobile state which compromised tissue healing.[147] Pertinently, the dry gangrene on the right heel was observed on 29 November 2020 to be stable, with no evidence of underlying bogginess or surrounding cellulitis. None of this evidence was refuted by the Claimant. Further, no evidence was adduced by the Claimant to establish that referring Mdm Parvaty to the Vascular team on 2 November 2020 or shortly thereafter would have prevented the progression of the DTI to dry gangrene. While Mr Smith opined that he would have expected a "Diabetic Foot team [to] review the lower limb when a foot ulcer had developed in a diabetic patient" and claimed that "this was not done",[148] he did not elaborate on what he expected would have been done by the "Diabetic Foot team" following such a review *that would have prevented the right heel DTI from progressing to dry gangrene*.

147 Dr Ng's AEIC at [40] (D1BAEIC Vol 3 at p 19).

148 Mr Smith's 1st Report at [1.9] (CBAEIC Vol 20 at p 4969).

86 For the reasons set out above, I also found no merit in the allegation that "delayed" referral to the Vascular team caused or contributed to the worsening of Mdm Parvaty's DTI.

87 In disposing of the claim that NUH failed to take appropriate steps to prevent the development and worsening of Mdm Parvaty's DTI, I noted that in addition to the above pleaded allegations, the Claimant's closing submissions brought up two other matters as alleged examples of "substandard nursing care". According to the Claimant, NUH's nursing staff failed to photograph Mdm Parvaty's right heel wounds with any regularity; and the photographs that were taken were of poor quality. In addition, according to the Claimant, NUH nursing staff had touched Mdm Parvaty's right leg with "ungloved hands" on numerous occasions.[149]

88 Crucially, these additional allegations were never pleaded by the Claimant.[150] It is trite that facts which are material to a party's claim must be pleaded (*How Weng Fan v Sengkang Town Council* [2023] 2 SLR 235 ("*How Weng Fan*") at [19]; *Multi-Pak Singapore Pte Ltd (in receivership) v Intraco Ltd* [1992] 2 SLR(R) 382 at [22]–[24]). The general rule is that parties are bound by their pleadings and the court is precluded from deciding matters that have not been put into issue by the parties (*How Weng Fan* at [18] citing *V Nithia (co-administratrix of the estate of Ponnusamy Sivapakiam, deceased) v Buthmanaban s/o Vaithilingam* [2015] 5 SLR 1442 at [38] and *OMG Holdings Pte Ltd v Pos Ad Sdn Bhd* [2012] 4 SLR 231 at [21]).

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149 CWS at [66] and [127].

150 NUH's Reply Submissions dated 1 July 2025 ("NUHRS") at [45] and [47].

89 In the present case, while no express objections were voiced by the Defendants when the Claimant's counsel sought to cross-examine several of their witnesses on the unpleaded issues,[151] this did not assist the Claimant. The case of *The "Tian E Zuo"* [2019] 4 SLR 475 ("*Tian E Zuo*") is instructive. In that case, the plaintiff's vessel and the defendant's vessel were involved in a collision. The plaintiff claimed that this collision was caused by the defendant's negligence in permitting their vessel to drag her anchor initially (at [2]). In their closing submissions, the plaintiffs also made a number of arguments about the incompetence of the crew on board the defendant's vessel and urged the court to make a finding on the crew's incompetence and their resulting lack of bridge management. In response to the defendant's objection that the issue of incompetence had never been pleaded, the plaintiff sought to persuade the court that their failure to plead this issue was no bar to the court making a finding on it, because the defendant's witnesses had been cross-examined about this issue during the trial, and "full weight" should be accorded to this aspect of their testimony (at [35]). In rejecting the plaintiff's argument, Belinda Ang J (as she then was) made the following observation (at [36]):

> Having not sought leave to amend the pleadings in the course of the trial, the plaintiffs' submission that the court could make a finding on an issue that is not pleaded is plainly wrong.

90 In similar vein, I found that the Claimant in this case had ample opportunity to amend her SOC to include the allegations about NUH's purported failures to ensure regularly staged and good-quality photographs of Mdm Parvaty's DTI as well as to prevent the alleged contact between the DTI and the nursing staff's ungloved hands. Having failed to seek leave for such

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151 See, for example, NEs (3 April 2025) at p 38 lines 2–5; NEs (16 April 2025) at p 24 lines 5–9, p 25 lines 21–22.

amendments at any stage of these proceedings, the Claimant was not entitled to ask that the court make a determination on these unpleaded matters.

91 Further and in any event, even assuming these unpleaded matters could be considered, no evidence was adduced by the Claimant to establish that either or both of these matters caused or contributed to the development and/or worsening of Mdm Parvaty's DTI. Mr Smith did not testify that either or both of these matters could have caused or contributed to the development and/or worsening of Mdm Parvaty's DTI. More to the point, he was not even asked if either or both of these matters could have caused or contributed to the development and/or worsening of the DTI.

Whether NUH was negligent in deciding to treat Mdm Parvaty's dry gangrene conservatively instead of carrying out debridement and/or angioplasty

92 I next address the claim that NUH breached its duty of care to Mdm Parvaty in deciding to treat her right heel wound conservatively after observing the development of dry gangrene on 2 November 2020. It will be recalled that following the observation of dry gangrene on 2 November 2020, the NUH Orthopaedic team had ordered the application of the fibreglass cast above Mdm Parvaty's right ankle to facilitate heel monitoring and dressings, as well as the continuation of soft tissue protection strategies such as offloading of the heel. The Claimant's case was that such conservative management measures were inadequate; and that NUH should instead have carried out debridement of the dry gangrene and revascularisation of Mdm Parvaty's right lower limb.

Whether NUH should have carried out debridement of Mdm Parvaty's right heel dry gangrene as soon as possible upon observing it on 29 November 2020

93 I address first the Claimant's argument that NUH should have carried out debridement of Mdm Parvaty's dry gangrene as soon as possible upon observing it on 29 November 2020. The Claimant contended that once dry gangrene was observed, NUH should have recognised that there was "almost certain or guaranteed that there would be an underlying infection" underneath the dry gangrene,[152] and should have proceeded to eliminate the source of infection by debriding the dry gangrene. According to the Claimant, doing so earlier would have allowed Mdm Parvaty's wounds to heal and thereby avoided the subsequent need for an AKA.[153]

94 The Claimant's case was premised on Mr Philip's opinion. In his testimony at trial, Mr Smith explained the basis for his opinion as follows:[154]

> [T]he body's defences against infection depend upon the presence of bloodflow through the region and so if infection is present the bloodflow brings in white blood cells and other factors which will fight the infection. *If there is necrotic tissue there there [sic] is no bloodflow. So if there are bacteria which have penetrated the region they can use the necrotic tissue as a medium on which they can be cultured. So the necrotic tissue forms a culture medium for them, thus facilitating infection.*
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> …
>
> … [*The*] [*n*]*ormal method of managing diabetic ulceration is to debride and excise that tissue at as early a stage as possible for the reasons that we've already discussed … the problem with leaving it in place is the problem I was referring to earlier, that you can't see what's happening underneath and you can't know the extent of the infection which can then extend beyond the*

152 CWS at [69]–[70]; CRS at [33].

153 CWS at [93]–[94] and [126].

154 NEs (15 April 2025) at p 158 lines 13–23, p 159 at lines 15–18, p 159 at line 21 to p 160 line 2, p 161 at lines 21–24.

> *limits of what you can see, thus destroying the rest of the foot, which is indeed what happened in this case.*
>
> …
>
> … So the way to protect the wound is to remove all dead tissue, to clean the wound and to apply a sterile dressing to it. That's how I would treat a healing wound.
>
> [emphasis added]

95 To support his opinion, Mr Smith relied on three sets of documents which he tendered at trial:[155]

(a) A set of guidelines issued by the Vascular Society concerning the management of lower limb arterial disease (the "Vascular Society Guidelines");[156]

(b) A set of guidelines issued by the "National Institute for Health and Care Excellence" ("NICE Guidelines") which discussed the management of diabetic foot ulceration; and[157]

(c) Chapter 116 of a textbook titled "Rutherford's Vascular Surgery and Endovascular Therapy" (10th Ed, 2022) (the "Rutherford's Book").[158]

96 Mr Smith relied on the NICE Guidelines primarily to suggest that diabetic patients who were already in hospital and who developed a foot ulcer should receive "detailed advice and treatment within one day of the

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155 CRS at [80]–[81].

156 NEs (15 April 2025) at p 163 lines 16–25.

157 NEs (15 April 2025) at p 164 lines 3–6.

158 NEs (16 April 2025) at p 40 lines 1–13.

development of their foot ulcer".[159] As for the Vascular Society Guidelines, he said that these guidelines recommended that persons who presented with an ischaemic ulcer of their leg should – whether or not they are diabetic – "receive investigation and treatment for their lower limb arterial disease within five days".[160] Mr Smith also referred to the following passage in the Rutherford's Book to explain the basis for wound debridement:[161]

> The purpose of debriding a diabetic foot ulcer is to alter the environment of the wound and to promote healing by removing abnormal tissue, such as hyperkeratotic epidermis and necrotic dermal tissue, foreign debris, and bacteria. In addition to removing nonviable tissue, debridement converts a stagnant wound into an acute healing wound by releasing platelet growth factors, inhibiting proteinases, and limiting the action of bacterial biofilm …

97 In response, NUH submitted that:

(a) The three sources cited by Mr Smith did not support his opinion.[162]

(b) Mr Smith's view that dry gangrene must be removed as soon as possible was not shared by any of the other expert witnesses.[163] Mdm Parvaty's dry gangrene showed no signs of infection prior to her discharge to AMKH on 13 January 2021.[164] Moreover, the other experts' evidence was that the dry gangrene acted like a biological dressing or

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159 NEs (16 April 2025) at p 40 line 21 to p 41 line 3; NICE Guidelines (Admitted into evidence as "C2") at [1.1].

160 NEs (16 April 2025) at p 41 lines 9–16.

161 NEs (16 April 2025) at p 42 lines 3–12; Rutherford's Book (admitted into evidence as "C5") at p 1552.

162 NUHWS at [93].

163 NUHWS at [89].

164 Dr Julian Wong's AEIC at [16] (D1BAEIC Vol 1 at pp 9 to 10).

plaster between the tissue under the gangrene and the external environment, thus *preventing* infection.[165]

(c) Mr Smith's opinion that debridement should have been performed by early December 2020, because Mdm Parvaty's infection had presumably resolved by early November 2020, was misconceived,[166] and in any event, it would have been risky for Mdm Parvaty to undergo wound debridement given her co-morbidities.[167]

(d) In any event, surgical debridement could not have been carried out on its own; it would have had to be coupled with revascularisation of the debrided region because otherwise, Mdm Parvaty would have ended up with a non-healing wound which would be worse than if nothing had been done. Revascularisation procedures such as angioplasty were neither appropriate nor clinically indicated for Mdm Parvaty during her Second NUH Admission.[168]

98 Having considered the evidence adduced and the parties' submissions, I accepted NUH's submissions. My reasons were as follows.

(1) The sources cited by Mr Smith did not support his opinion that there should have been early debridement of Mdm Parvaty's right heel dry gangrene

99 First, I agreed with NUH that the three sources cited by Mr Smith did not actually support his proposition that there should have been early

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165 NUHWS at [76(e)(vii)].

166 NUHWS at [87].

167 NUHWS at [100].

168 Dr Ng's AEIC at [46] (D1BAEIC Vol 3 at p 23); NEs (9 April 2025) at p 62 lines 6–20.

debridement of Mdm Parvaty's right heel dry gangrene during her Second NUH Admission.

100 In respect of the NICE Guidelines, these appeared to be broad in nature; and while they recommended as a general guiding principle the initiation of "care" for inpatients with diabetic foot problems within 24 hours,[169] there was no specific injunction to carry out *wound debridement* for such patients within that time-frame, or indeed, within any particular time-frame. There was also no specific consideration of the sort of wound treatment which would be most appropriate for patients with similar co-morbidities and wound conditions to Mdm Parvaty's.

101 Similarly, as Mr Smith himself acknowledged during cross-examination, the Vascular Society Guidelines offered only *broad recommendations*, leaving the final interpretation regarding the timing and appropriateness of any endovascular interventions to the treating clinicians – *ie*, Mdm Parvaty's medical team at the material time.[170]

102 Clearly, therefore, both the above sources were broad-based guidelines which could not be relied on to establish the specific standard of care applicable to a patient with Mdm Parvaty's co-morbidities and wound conditions.

103 As for the principles pertaining to wound debridement outlined in the Rutherford's Book, as I explain in the subsequent portion of these written grounds, Mr Smith's reliance on the stated principles failed to take into account Mdm Parvaty's multiple co-morbidities and the resulting implications for any proposed wound debridement (see [107]–[113] below).

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169 C2 at [1.1].

170 NEs (16 April 2025) at p 111 at lines 3–12.

(2) Mdm Parvaty's dry gangrene showed no signs of infection in December 2020 to 13 January 2021

104 Next, Mr Smith's assertion that there must certainly have been infection beneath the right heel dry gangrene formed one of the key reasons – if not *the* key reason – for his opinion that the dry gangrene should have been debrided before Mdm Parvaty's discharge to AMKH. In the reply submissions filed on her behalf, the Claimant sought to support Mr Smith's opinion by arguing, firstly, that the "speed" at which the dry gangrene had developed into wet gangrene during Mdm Parvaty's AMKH admission supported the inference that infection must have been present beneath the dry gangrene even before the AMKH admission;[171] and secondly, that the photographs taken of the right heel during the Second NUH Admission showed that the dry gangrene was not stable but was instead "expanding from a slight discolouration on the heel to the blackening of the entire heel".[172]

105 I rejected Mr Smith's opinion and the Claimant's submissions as they were inconsistent with several key pieces of evidence. In particular:

(a) An MRI of Mdm Parvaty's right heel on 30 November 2020 revealed no underlying abscess and no signs of osteomyelitis.[173]

(b) A PET-CT scan performed on 6 January 2021 revealed no FDG-avidity (*ie*, no areas of brightness which indicate infection or inflammation) over the right heel.[174] Pertinently, NUH's vascular expert,

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171 CRS at [46].

172 CRS at [14(e)].

173 NEs (17 April 2025) at p 105 lines 15–17; Dr Julian Wong's AEIC at [12(a)] (D1BAEIC Vol 1 at p 7).

174 NEs (17 April 2025) at p 38 lines 6–9, p 39 lines 7–18; Dr Tham's AEIC at [44] (D1BAEIC Vol 5 at p 21).

> Dr Peter Robless ("Dr Robless") described the PET-CT scan as a "highly sensitive scan"[175] and opined that if there had been any signs of infection, these findings would have been recorded.[176]

106 Given the objective evidence of the state of Mdm Parvaty's right heel dry gangrene during the Second NUH Admission, I agreed with NUH that there was no evidence of infection beneath the dry gangrene, and that debridement was therefore not indicated prior to her discharge to AMKH.

(3) NUH's decision to manage Mdm Parvaty's uninfected dry gangrene conservatively was appropriate

107 Next, Dr Julian Wong was able to provide cogent justification for NUH's decision to treat Mdm Parvaty's dry gangrene conservatively. Dr Julian Wong explained that a decision as to how dry gangrene should be treated had to be made within the context of the individual patient's co-morbidities. As he put it, "[he would] not remove the gangrene for the sake of removing it".[177]

108 Crucially, Dr Julian Wong explained that dry gangrene which was uninfected actually functioned as "a piece of plaster to protect the tissue underneath": once that was removed, the patient would have lost "a protective layer of the skin" and a "line of defence" against infection".[178]

109 The above evidence was corroborated by the following expert witnesses:

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175 NEs (17 April 2025) at p 39 lines 2–3.

176 NEs (17 April 2025) at p 39 lines 2–3.

177 NEs (8 April 2025) at pp 80 to 81.

178 NEs (8 April 2025) at p 80 lines 9–14, lines 19–20, p 81 lines 1–9.

(a) Dr Robless testified that leaving dry gangrene on top of the underlying tissue would protect the tissue from external secondary infection. In Dr Robless' experience, if the dry gangrene was managed appropriately (*eg*, with 70% alcohol dressing and offloading measures), the care could be done in an out-patient setting – *eg* in a community hospital or even in the patient's own home.[179] In Dr Robless' words, "a lot of this care is done in the community now".[180]

(b) AMKH's vascular expert Dr Glenn Tan ("Dr Glenn") testified that he treated diabetic foot ulcers and gangrene daily; and that if a patient presented with dry gangrene alone, he would not go ahead to debride the gangrene. Instead, he would apply dressings to dry up the gangrene and keep it from getting infected. Dr Glenn further explained that in some cases, dry gangrene on the heel would fall off on its own over time, thereby obviating the need for debridement.[181]

(c) NUH's orthopaedic expert Dr Tan Tong Leng's ("Dr Tan") evidence was that debridement of dry gangrene would cause the patient to lose the "biological barrier" that the dry gangrene would otherwise have provided, leaving the wound "exposed to the elements" and at "very high risk" of developing infection – unless a further "soft tissue resurfacing or flat procedure" was carried out.[182]

(d) NUH's infectious diseases expert witness, Dr Wong Sin Yew ("Dr Wong SY") was of the similar opinion that dry gangrene formed a

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179 NEs (17 April 2025) at p 104 lines 2–12.

180 NEs (17 April 2025) at p 104 lines 17–18.

181 NEs (24 April 2025) at p 19 line 19 to p 20 line 7.

182 NEs (29 April 2025) at p 30 lines 5–10, p 31 lines 10–21.

> protective covering for the underlying tissue. In his view, having such a "natural covering" was "always better than any form of artificial plaster", especially because the underlying tissue might not have adequately healed before any attempt to remove the protective covering.[183] Like Dr Glenn, Dr Wong SY also testified that dry gangrene in the heel could "often" be managed conservatively with a view to letting the dry gangrene become "very well defined" and then auto amputating (*ie*, dropping off by itself).[184]

110 In short, the evidence showed convincingly that there was no infection present beneath Mdm Parvaty's right heel dry gangrene during her Second NUH Admission; and moreover, that this uninfected dry gangrene functioned as a "biological plaster" which afforded the underlying tissue protection from the external environment, and thus protection from potential infection.

111 Critically, there was also clear evidence that even if debridement of Mdm Parvaty's right heel dry gangrene was to be considered, it was not something that could be considered in isolation: as Dr Julian Wong noted in his testimony, because debriding the dry gangrene would in effect mean removing the protective covering over the heel wound, any decision to perform wound debridement would first require ensuring adequate blood supply to the affected area, so as to promote healing.[185] Dr Ng, too, gave similar evidence. As Dr Ng put it, once the dry gangrene was "cut open", the relevant area of the heel would be "exposed to the external environment and … ready for infection". In order

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183 NEs (22 April 2025) at p 53 lines 2–8.

184 NEs (22 April 2025) at p 43 line 23 to p 44 line 22.

185 NEs (8 April 2025) at p 80 lines 16–20, p 81 lines 14–21, p 83 lines 1–10, p 84 lines 1–17.

for the heel wound to heal, any debridement had to "come together well" with revascularisation of the lower limb.[186]

112 Dr Julian Wong's and Dr Ng's evidence was supported by the expert witness Dr Tan. Dr Tan testified that if Mdm Parvaty's right heel dry gangrene were to be debrided for any reason, there "must be a plan for revascularisation", as well as a plan for coverage of the heel area post debridement. As Dr Tan explained:[187]

> … The heel is what we term a critical area, meaning to say once you remove the skin away it will expose critical structures, and critical structures are, namely, exposed bone, tendons or neurovascular structures like veins, arteries and nerves. Typically, our coverage strategy will entail a flap or graft … which means we take a portion of a patient's skin or muscle from somewhere … and transpose it and cover a critically exposed area …
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> … [F]or the flap or graft to survive the surrounding area needs to have good blood flow, or needs to borrow some blood vessel around the heel region for blood supply and already her existing blood flow is extremely poor. there's no additional blood flow to support a flap or graft procedure.

113 Dr Tan testified that with a patient like Mdm Parvaty, one could not simply debride the right heel dry gangrene, and then apply a sterile wound dressing and wait for the wound created by the debridement to heal, because her healing potential would be "quite limited given the almost occluded blood flow" to her heel.[188] In fact, Dr Tan highlighted that if debridement of the right heel

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186 NEs (9 April 2025) at p 72 line 15 to p 73 line 1.

187 NEs (29 April 2025) at pp 21 to 23.

188 NE (29 April 2025) at p 24.

dry gangrene were to be performed at all, it would have to be as part of an entire "sequence" and "series" of operations:[189]

> … [I]n a patient such as Mdm Parvaty, if a debridement needs to be done, then it is a sequence and series of operations which are usually in discussion with the vascular surgeons, hand and plastic surgeons and orthopaedic surgeons, so the sequence will be debridement first and then we recheck the wound to make sure the debridement is adequate. Around this same setting there will be a revascularisation procedure … timed around the … first operation … to start facilitating wound healing. After ascertaining that the debridement is adequate and the blood perfusion in terms of the revascularisation is successful, only then would the soft tissue resurfacing or flap procedure be done.

114 Following from the above, I next address the issue of whether, as the Claimant contended, NUH should have performed angioplasty on Mdm Parvaty's right lower limb during her Second NUH Admission.

Whether NUH should have performed angioplasty during Mdm Parvaty's Second NUH Admission

115 On this issue, the Claimant's case was that the presence of a DTI on 2 November 2020 and the subsequent blackening of the right heel tissue on 7 November 2020 suggested a lack of blood perfusion, which, *inter alia*, warranted NUH performing an angioplasty "sooner"[190] and certainly "before 13 January 2021".[191]

116 In putting forward the above argument, the Claimant relied on the opinion evidence of Mr Smith. According to Mr Smith, once the vascular scans in early December 2020 revealed "[s]ignificant lower limb arterial disease", an

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189 NE (29 April 2025) at pp 29 to 30.

190 CWS at [64] and [69].

191 CWS at [82]–[83].

"appropriate method of management" would have been to "undertake angioplasty" of the "below knee arteries" in Mdm Parvaty's right leg; and "if successful", such angioplasty would have improved blood flow to her right foot and facilitated healing of her pressure ulcer.[192]

117 In its defence, NUH contended that angioplasty of Mdm Parvaty's right leg was neither appropriate nor clinically indicated during her Second NUH Admission. On the contrary, according to NUH, there were sound medical reasons for conservative management of her right heel dry gangrene during December 2020. These were as follows:

(a) Following the progression of the right heel DTI to dry gangrene on 29 November 2020, the foot radiographs performed on 29 November 2020 revealed no signs of osteomyelitis or soft tissue gas. An MRI of her right foot and right leg on 30 November 2020 also showed that her right knee septic arthritis was not worsening, nor were there any signs of osteomyelitis.[193]

(b) When the Vascular team reviewed Mdm Parvaty on 1 December 2020, they noted that her right heel dry gangrene was well demarcated, with no evidence of ascending cellulitis, infection, bogginess or discharge.[194]

(c) After the Vascular team reviewed the results of the vascular scan on 5 December 2020, they assessed that her right heel wound was likely a pressure wound; and that pending further review of her condition after

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192 Mr Smith's 1st Report at [1.10]–[1.11] (CBAEIC Volume 20 at p 4969).

193 NUHWS at [76(a)].

194 NUHWS at [76(b)].

her septic arthritis resolved, conservative management was to continue.[195] Conservative management was reasonable because:

> (i) Mdm Parvaty was then 73 years old, had multiple comorbidities like ESRF, and was undergoing haemodialysis.[196] Furthermore, she had undergone several surgical procedures at NUH during the Second NUH Admission; and as at 5 December 2020, she was still on intravenous antibiotics for treatment of her sepsis which had not yet settled. Attempting any further invasive surgical procedures such as revascularisation of her right lower limb while sepsis was ongoing, and in view of her various co-morbidities, was not recommended.[197]
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> (ii) In any event, there was a high chance that angioplasty would fail, because the right PTA – which was the vessel responsible for supplying blood to the right heel – was severely occluded for a very long segment, making it very difficult for a wire to be passed through the vessel.[198] This meant that the operation would have to involve a femoral distal bypass – a major surgery with significant potential for failure, especially since it would have meant extended surgery in the region of the right knee which at that point was still being treated for infection. If angioplasty and a femoral distal bypass both failed, then Mdm Parvaty would have immediately required either an AKA or BKA.[199]

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195 NUHWS at [76(d)].

196 NUHWS at [76(e)(i)].

197 NUHWS at [76(e)(v)]; Dr Julian Wong's AEIC at [16] (D1BAEIC Vol 1 at p 9).

198 NUHWS at [76(e)(v)].

199 NUHWS at [76(e)(vi)].

118 The NUH Vascular team's decision to opt for conservative management of Mdm Parvaty's right heel dry gangrene while she continued to recover from septic arthritis – and while also keeping in view the follow-up review in four to six weeks' time following her scheduled discharge – was supported by Dr Robless and Dr Tan.[200]

119 Having considered the evidence adduced and the parties' submissions, I accepted NUH's submissions. My reasons were as follows.

(1) Mr Smith's opinion that angioplasty could have been performed by NUH in early November 2020 was premised on an unfounded presumption that Mdm Parvaty's sepsis had resolved by early November 2020

120 The Claimant's case was that angioplasty should have been carried out on Mdm Parvaty's right leg as soon as the DTI was observed on 2 November 2020 or shortly thereafter. This was based on Mr Smith's opinion evidence. While Mr Smith accepted that angioplasty was not indicated during sepsis, he opined that in Mdm Parvaty's case, sepsis "was only present during October 2020" and "presumably had resolved with treatment by early November 2020".[201] As such, according to Mr Smith, angioplasty would have been feasible at that point.[202]

121 To this, NUH's response was two-fold. First, as NUH pointed out, Mr Smith's opinion was premised on the *presumption* that Mdm Parvaty's sepsis "had resolved with treatment by early November 2020".[203] However, when

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200 NUHWS at [78].

201 Mr Smith's 2nd Report at [3.2] (CBAEIC Vol 20 at p 4997).

202 Mr Smith's 2nd Report at [3.3] (CBAEIC Vol 20 at p 4997).

203 NUHWS at [81]–[82]; Mr Smith's 2nd Report at [3.2] (CBAEIC Vol 20 at p 4997).

cross-examined at trial, Mr Smith could not explain adequately the basis for this presumption. When asked by NUH's counsel to clarify the basis, Mr Smith first stated that because Mdm Parvaty had received intravenous antibiotics for "a substantial period", in addition to undergoing "two operations to drain necrotic tissue from her knee", he "would expect that both of these treatments would lead to resolution of infection", or at least "control … the infection".[204] Mr Smith claimed that he arrived at this understanding after reviewing the "clinical records".[205] When asked to identify the specific "clinical records" in question, Mr Smith was unable to do so.[206] Eventually, he conceded the possibility that the infection might not have been "eradicated", but said that he had concluded that infection "was at least under control" because "in the medical records there was not [*sic*] explicit mention of continuing sepsis".[207]

122 Having considered the evidence and the parties' submissions, I agreed with NUH that it was speculative of Mr Smith to "presume" that Mdm Parvaty's knee infection must have been under control – if not eradicated – by early November 2020, solely on the basis that her clinical records contained no explicit mention of continuing sepsis.

123 Second and in any event, it was NUH's case that even if sepsis was no longer present in Mdm Parvaty's right knee by 2 November 2020, it was very unlikely that the "knee infection" would have been completely cleared by then.[208] In this connection, NUH's infectious diseases specialist Dr Tham

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204 Nes (16 April 2025) at pp 97 to 99.

205 NEs (16 April 2025) at p 97 lines 10–19.

206 NEs (16 April 2025) at p 97 line 20 to p 99 line 16.

207 NEs (16 April 2025) at p 99 lines 9–16.

208 NEs (9 April 2025) at p 22 at lines 12–17.

explained that "sepsis" and "infection" were *not* the same thing: as he explained[209] –

> … [S]epsis is a further complication of infection. So the definition of sepsis is the presence of an infection on top of evidence of end organ damage or end organ involvement. Someone having infection does not necessarily mean she is in sepsis.

124 Bearing the above distinction in mind, I noted that Dr Julian Wong's explanation as to why Mdm Parvaty would have been seen by the Vascular team for follow-up only within four to six weeks from her discharge was that she had experienced "very severe" septic arthritis in her right knee, and at the time of discharge, the infection would still have been inside her body. The period of four to six weeks was thus to allow her to "come out of infection" before any surgery was attempted. As Dr Julian Wong put it:[210]

> When someone have [*sic*] septic arthritis, which [*sic*] is just finishing antibiotics, at that point … her inflammatory marker is still up, and it is almost common practice among doctors that you would not do any further operation minimum of four to six weeks. That's why the four to six week is put on there, because if we were going to do something to help her I still have to wait a minimum of four to six weeks. Now, with someone who has very severe septic arthritis, even back this morning when we looked at the wound orthopaedics say okay, nice and clean, that is at the macroscopic, eye level. But the infection is still inside the body and normally we won't do any operation minimum six weeks. So I suggest the four to six weeks is to let her come out of the infection, based on what I know on 5th of December, then I will talk to her …

125 When he was referred to Dr Julian Wong's evidence, NUH's orthopaedic specialist Dr Ng testified that he understood Dr Julian Wong to be saying that "one needs to let the patient come out of infection before something elective can be done in the realms of revascularisation and that period is around

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209 NEs (4 April 2025) at p 41 lines 3–7.

210 NEs (8 April 2025) at p 105 to p 106 line 20.

four to six weeks".[211] Dr Ng agreed with this statement. Elaborating on his answer, Dr Ng pointed out that the period of four to six weeks was actually somewhat "arbitrary", in the sense that there was no guarantee that a patient would be found to be free from infection after four to six weeks. As such, at the four-to-six week mark, NUH would have to assess the patient's suitability for any subsequent elective procedures by (*inter alia)* checking clinical and biochemical markers to determine whether the patient had come out of infection.[212] Dr Ng's opinion was that in Mdm Parvaty's case, it was "very unlikely" that her "knee infection" would have "completely settled" in less than four weeks from the date of her discharge to AMKH.[213] Dr Ng explained that his opinion was based on the following factors:

(a) Mdm Parvaty was "severely immune-compromised". Not only did she have poorly controlled diabetes with resulting ESRF, she was also a rheumatoid arthritis patient on medication. All this led to an "almost non-existent immune system she [could] depend on to clear infection herself"; and she had to rely entirely on the antibiotics prescribed by NUH to suppress infection.[214]

(b) Despite having been advised by the Orthopaedic team on 29 September 2020 and 30 September 2020 to undergo right knee aspiration to rule out septic arthritis, Mdm Parvaty had initially declined such a procedure, and had only been prepared to undergo the right knee aspiration on 1 October 2020.[215] This meant that her septic arthritis had

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211 Nes (9 April 2025) at p 15 lines 7–11.

212 NEs (9 April 2025) at pp 18 to 19.

213 NEs (9 April 2025) at p 22 at lines 12–17.

214 NEs (9 April 2025) at p 21 lines 10–24.

215 Joint Medical Report at [3].

> been treated in a delayed fashion which in turn led to a more severe infection involving not only the knee joint but the bone and tendon as well. These were parts of the body that were "notoriously difficult to treat" and required a "long extended duration of therapy".[216]

Indeed, given the above factors, Dr Ng opined that it would have taken around three to six months from the date of Mdm Parvaty's discharge before he could confidently say that her knee infection was "completely settled".[217]

126 In cross-examination, Dr Ng disagreed with the suggestion that since Mdm Parvaty's antibiotics had been discontinued as at 3 January 2021, this meant that she would have been infection-free by that date. Dr Ng explained that there was a difference between an active infection and infection *per se*. As he put it:[218]

> So the antibiotics has settled the active infection. There can be indolent ongoing infection which we cannot assess just at snapshots in time, which is why we need an extended period of time to assess the clinical progress of the patient while the antibiotics have been ceased -- have stopped. So if you ask me if I have confidence that at this time -- at this point in time that all infection in the knee has been eradicated, I would say no, I am not sure about that. I need time to figure that out. But there is no active, ongoing infection that requires active treatment any more, and we have to balance the risk/reward -- the risks and rewards of giving long-term antibiotics.

127 In respect of the *type* of procedure which would have been contemplated *vis-à-vis* Mdm Parvaty's right heel wound, I noted that in his expert report, Mr Smith specifically decried the alleged failure by NUH to undertake "surgical

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216 NEs (9 April 2025) at p 22 lines 1–7.

217 NEs (9 April 2025) at p 22 lines 12–17.

218 NEs (9 April 2025) at p 41 lines 3–16.

debridement of [Mdm Parvaty's] ulcer": he opined that the lack of "[w]ound debridement" was what "allow[ed] infection to develop in the foot".[219] In so far as Mr Smith appeared to suggest that surgical debridement of the right heel wound should have been undertaken without more, this suggestion was not supported by any medical evidence. On the contrary, evidence was given by more than one witness that any debridement of the dry gangrene would have had to be done in conjunction with revascularisation of the right lower limb. Dr Tan, for example, opined in his expert report that "without successful revascularisation, wound debridement on its own will not heal the wound and will only delay the inevitable need for major amputation".[220] Although in his second expert report Mr Smith sought to argue that this was "not necessarily true", in his testimony at trial, Mr Smith conceded that for a patient like Mdm Parvaty, who had significant lower limb arterial disease, the view of vascular surgeons in general was that "where lower limb ischaemia prejudices the healing of wounds so there is arterial disease and an open wound on the leg, then the wounds will fail to heal unless vascular intervention is done". So "if somebody has severe limb ischaemia the most important thing is to address the limb ischaemia because nothing will heal unless blood flow can be improved".[221]

128 In this connection, as I alluded to earlier at [117(c)], Dr Julian Wong's evidence was that because Mdm Parvaty's right PTA was "severely occluded from origin to ankle" and this was "the most important artery in [the] leg … especially for the heel", any attempt at revascularisation of her right lower limb

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219 Mr Smith's 1st Report at [2.4] (CBAEIC Vol 20 at p 4972).

220 Dr Glenn Tan's expert report (undated) ("Dr Glenn's Report") at [16] (D2BAEIC Vol 1 Tab 1 pg 14).

221 NEs (15 April 2025) p 80 at lines 12–21, p 81 lines 1–5.

"would necessarily have to involve a femoral distal bypass, which would be a major surgery that had significant potential for failure".[222] In his testimony at trial, Dr Ng echoed Dr Julian Wong's assessment that any procedure to re-establish blood supply to the right heel would necessarily involve bypass surgery, and that a bypass would have been fraught with significant risk in Mdm Parvaty's case. As Dr Ng put it:[223]

> … [W]hat happens in a bypass is that you are creating a detour using good vessels, either your own or a synthetic graft to plug up basically a more proximal point in your vascular tree, which if you think of towards the head as higher and towards the toe as lower, so in this situation the higher part of the blood vessels are patent. So you have good blood flow, so you want to connect that blood flow to the point on the foot bypassing the blocked up areas in between …
>
> So in this situation it is an open procedure. There's a risk of -- there is a possibility of putting in a synthetic material, you are cutting up normal blood vessels and doing multiple anastomosis. Anastomosis meaning joining up tissues which were not supposed to be together. So, firstly, extended procedure, open wounds, and all done in the vicinity of the knee, around the knee, where it is still being treated for an infection. If the infection extended to this area of anastomosis and bypass then we are looking at a situation where the patient will be way worse off than if she started, or way worse off than if she had done nothing because now you have sacrificed good proximal or upper, higher part blood vessels, you have synthetic grafts embedded inside that now are infected and are now a host for further infection. And now you have basically sacrificed a whole area of soft tissue intervening that region. So if you required some form of amputation later on it will be a much higher level of amputation to bypass this whole area of intervention. So the possible risks are much higher than the benefits you would have gotten if you had operated on close to a region of ongoing, or infection that's being treated, that you are not confident that is completely eradicated yet.

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222 NEs (8 April 2025) at p 136 line 20 to p 137 line 1; Dr Julian Wong's AEIC at [16(d)] (D1BAEIC Vol 1 at p 10).

223 NEs (9 April 2025) at pp 70 to 72.

129 Asked whether the above would be the case even if the infection in question was not an active infection, Dr Ng replied in the affirmative. He emphasised that it was precisely because "the stakes [were] so high with doing such a big procedure nearby" that he needed to be "absolutely certain" he could "make a good call" that Mdm Parvaty's knee was free from infection before allowing any elective procedure.[224]

130 In this connection, I rejected the statement in the Claimant's closing submissions that "Dr Ng was certain that the knee infection had resolved by end October 2020".[225] This statement was both misconceived and misleading. In the specific paragraphs of Dr Ng's affidavit relied on by the Claimant, Dr Ng was clearly detailing his clinical observations of the *right knee wound* ("*right knee wound was clean and dry with no signs of infection*").[226] There was no finding documented by Dr Ng as at end-October 2020 that the infection in Mdm Parvaty's knee had "resolved". As Dr Ng explained in cross-examination, an "amalgamation of different assessment tools" – including not only clinical observation but also laboratory tests, X-rays and possibly MRI – would be required for him to determine whether a patient had come out of infection.[227]

131 Dr Ng's evidence was corroborated by the fact that Mdm Parvaty's inflammatory markers and white blood cell ("WBC") count fluctuated on multiple occasions following the 21 October 2020 surgery, even right up to end-December 2020.[228] It was in view of the fluctuations in her inflammatory

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224 NEs (9 April 2025) at p 72 lines 7–14.

225 CRS at [39].

226 See Dr Ng's AEIC at [26] and [35] (D1BAEIC Vol 3 at p 14 and 18).

227 NEs (9 April 2025) at p 18 lines 7–17.

228 Dr Tham's AEIC at [25]–[29] (D1BAEIC Vol 5 Tab 1 at pp 15 to 16).

markers and WBC count that NUH's infectious diseases team had extended her intravenous antibiotics treatment,[229] and advised further tests in an effort to identify any other sources of infection.[230]

132 Having considered the evidence and the parties' submissions, I accepted NUH's submission that even if sepsis was no longer present in Mdm Parvaty's right knee by 2 November 2020, it was very unlikely that she would have been completely infection-free at that stage; and it was reasonable to have allowed for a three- to six-month period of observation before Mdm Parvaty's infection could be confidently determined to have fully resolved and before any elective surgery could be considered. In my view, the evidence of the NUH witnesses was to be preferred to Mr Smith's evidence. With respect, Mr Smith's evidence stuck me as being one-sided: in particular, he did not appear to have sufficiently considered the repercussions of Mdm Parvaty's various co-morbidities and severely immune-compromised condition. Conversely, not only was the evidence of the NUH witnesses cogent and amply supported by reference to contemporaneous medical records, their evidence was also corroborated by the evidence of the expert witnesses Dr Robless and Dr Tan.

133 While Dr Robless acknowledged that Mdm Parvaty's septic arthritis *should have* resolved by 21 October 2020 following the open-knee arthrotomy and washout,[231] he agreed with Dr Ng's evidence about the risk of operating in the potential presence of infection – even an indolent infection.[232] As Dr Robless explained, the osteomyelitis which had been found in Mdm Parvaty's right knee

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229 Dr Tham's AEIC at [34] (D1BAEIC Vol 5 Tab 1 at p 17).

230 Dr Tham's AEIC at [25]–[29] (D1BAEIC Vol 5 Tab 1 at pp 15 to 16).

231 CRS at [42]; NEs (17 April 2025) at p 26 lines 1–10.

232 NEs (17 April 2025) at p 28 line 3 to p 29 line 20.

was "very difficult to clear" and would have required "weeks and weeks of antibiotics, or removal of the bone, which is effectively amputation".[233] Mdm Parvaty was moreover "immunocompromised with kidney dialysis, seronegative rheumatoid arthritis and so would have been very susceptible to infection even if it [was] under control". In this connection, Dr Robless agreed with Dr Ng that it would have been right to wait for three to six months before restaging Mdm Parvaty for any elective surgery.[234]

134 Dr Tan's testimony further reinforced Dr Ng's and Dr Robless' evidence. Dr Tan noted that Mdm Parvaty's case was "complex" because her co-morbidities – including her rheumatoid arthritis, renal disease, haemodialysis and diabetes – put her at a disadvantage as far as fighting infection or mounting an immune response to infection were concerned.[235] The form of septic arthritis she had experienced was also severe in that it had (in addition to affecting the joint) caused osteomyelitis and disrupted the tendon. Indeed, Dr Tan observed that in the course of her recovery, Mdm Parvaty's inflammatory markers had fluctuated from time to time. As Dr Robless opined, with such a patient, therefore, the "normal procedure" would be to "treat the infection and then restage the patient much later on".[236] In Dr Tan's opinion, there was "never a point" in the period immediately post the 21 October 2020 right knee arthrotomy, synovectomy and washout that one could be "certain or confident that infection [had] been eradicated" – and particularly not within the four-week period from the review by the Vascular team in early December

233 NEs (17 April 2025) at p 29.

234 NEs (17 April 2025) at p 29.

235 NEs (29 April 2025) at p 10.

236 NEs (17 April 2025) at p 29 lines 11–12.

2020.[237] In the circumstances, Dr Tan agreed with Dr Ng's assessment that for patients with Mdm Parvaty's medical profile, a three- to six-month observation period was necessary before an orthopaedic surgeon could confidently conclude that the knee infection had completely settled and that elective procedures could be considered.[238]

135 For the reasons set out above, I was satisfied that NUH was not in breach of its duty of care to Mdm Parvaty in deciding to manage her right heel dry gangrene conservatively and not to attempt angioplasty on her right lower limb during the Second NUH Admission.

(2) Mr Smith's opinion that angioplasty should have been performed in December 2020 on Mdm Parvaty's right PA and ATA was contrary to the evidence

136 Next, I address the Claimant's argument that angioplasty should have been attempted *specifically* on Mdm Parvaty's *right PA and ATA* in December 2020. This argument was based on Mr Smith's evidence.

137 In his expert reports, Mr Smith did not discuss specifically the issue of angioplasty on the *right PA and ATA*: he had spoken only in general terms of the need to "undertake angioplasty of the lower limb arteries".[239] In this connection, it will be recalled that Dr Julian Wong's evidence was that because Mdm Parvaty's right PTA (the artery responsible for supplying blood to her right heel) was "severely occluded from origin to ankle", any attempt at revascularisation of her right lower limb "would necessarily have to involve a

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237 NEs (29 April 2025) at p 10 lines 19–25.

238 NEs (29 April 2025) at p 7 lines 17–25, p 9 lines 9–24.

239 See, *eg*, Mr Smith's 1st Report at [2.5] (CBAEIC Vol 20 at p 4972); Mr Smith's 2nd Report at [3.2]–[3.4] (CBAEIC Vol 20 at p 4997).

femoral distal bypass" which would "bypass the blockages".[240] Dr Julian Wong's position was that a femoral distal bypass was a major surgery which would generally only be performed on a patient who was physically "quite fit"; and given Mdm Parvaty's condition and the concerns about ongoing infection as at December 2020, a femoral distal bypass was not an option in her case at that stage.[241] Asked how he would treat dry gangrene in a patient like Mdm Parvaty who was not "physically fit", Dr Julian Wong maintained that he would make sure the dry gangrene did not turn into wet gangrene, by adopting a combination of strategies including offloading, continuation of antibiotics, and the use of spirit dressings to keep the wound sterile.

138 In the course of Mr Smith's cross-examination at trial, he was informed of the above evidence from Dr Julian Wong. Mr Smith first stated that he disagreed with Dr Julian Wong that a femoral distal bypass would have had to be considered as a line of treatment. According to Mr Smith, this was because of the "presence of the problems within the knee that would greatly prejudice healing".[242] Mr Smith did not elaborate on what exactly he meant by "the problems in the knee". I add parenthetically that this was a rather odd statement in itself, in view of his own presumption that any infection in Mdm Parvaty's right knee would have "resolved with treatment by early November 2020". In any event, it was pointed out to Mr Smith that Dr Julian Wong was not denying the desirability of performing angioplasty on Mdm Parvaty's right lower knee *per se,* but was simply highlighting the extent of the occlusion in her right PTA as a factor which had to be considered in determining whether a wire could be

240 NEs (8 April 2025) at p 83.

241 Dr Julian Wong's AEIC at [16(d)] (D1BAEIC Vol 1 at p 10); NEs (8 April 2025) at p 82 line 24 to p 84 line 6.

242 NEs (15 April 2025) at p 151 lines 7–17.

passed through that artery.[243] Mr Smith then conceded that it was "unlikely" that Mdm Parvaty's right PTA could be restored to function by angioplasty.[244] It was at this point that Mr Smith offered the opinion that nevertheless, angioplasty on the right PA and ATA would have been "highly desirable" and "effective" in "improv[ing] the blood supply to the foot".[245] According to Mr Smith, all three arteries in Mdm Parvaty's right lower limb (the right PTA, PA and ATA) had "communications" with each other; and even if her right PTA was completely occluded and unable to supply blood to her right heel, so long as the right PA and ATA were patent, these two arteries combined would have been capable of supplying enough blood to the right heel, via a process of micro-vascularisation.[246]

139 As Mr Smith's opinion on the viability and desirability of angioplasty on *the right PA and ATA* in early December 2020 only emerged during his cross-examination, it was not put to Dr Julian Wong for the latter's response. It was, however, put to NUH's vascular expert Dr Robless and AMKH's vascular expert Dr Glenn when they took the witness stand. Both experts disagreed with Mr Smith; and both experts were able to provide cogent reasons for their disagreement.

140 Dr Robless' evidence was that while micro-vascularisation might occur in normal patients, this process was notably absent in patients like Mdm Parvaty, who had both diabetes and PAD.[247] This was because patients in this

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243 NEs (15 April 2025) at p 151.

244 NEs (15 April 2025) at p 152.

245 NEs (15 April 2025) at p 152.

246 NEs (16 April 2025) at p 77 lines 1–8.

247 NEs (17 April 2025) at p 164 line 13 to p 165 line 5.

group typically had "inframalleolar or below ankle disease where the plantar arch is incomplete … [t]hat means they do not communicate".[248] Dr Robless emphasised that contemporary best practice followed an "angiosome targeted approach" – a method that focuses on treating the blood vessel responsible for directly supplying blood to the affected area of the foot. In Mdm Parvaty's case, this would be her right PTA – which supplied blood to the right heel and the back of the right foot.[249] Attempting to revascularize blood vessels which do not directly reach the target area would be significantly less efficacious than directly targeting the primary blood vessel responsible for blood supply to that target area.[250] As Dr Robless put it, this was why it was "very important to find the relevant angiosome and target that rather than going for a kind of blind, hopeful approach".[251]

141 Dr Robless' testimony was substantially corroborated by Dr Glenn, a senior consultant in general and vascular surgery.[252] Dr Glenn emphasised that in Mdm Parvaty's case, her right PTA was the crucial vessel that would have required revascularisation, as it was responsible for directly supplying blood to the right heel and right posterior foot region.[253] Dr Glenn pointed out that Mdm Parvaty's right PA was *patent* and showed no signs of disease, which meant that it *did not* in fact require any angioplasty.[254] As for the right ATA, revascularizing it would yield limited results, given that the right ATA supplies

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248 NEs (17 April 2025) at pp 164 to 165.

249 NEs (24 April 2025) at p 11 lines 18–25, p 20 lines 8–13.

250 NEs (17 April 2025) at p 20 lines 8–22.

251 NEs (17 April 2025) at p 165.

252 AEIC of Dr Glenn dated 15 October 2024 ("Dr Glenn's AEIC") at [1] (D2BAEIC Vol 1 Tab 1 at p 2).

253 NEs (24 April 2025) at p 11 lines 18–25.

254 NEs (24 April 2025) at p 12 lines 20–24

blood to the dorsum (*ie*, the front and upper part of the foot) and might not effectively reach the affected area of Mdm Parvaty's right foot.[255] Importantly, Dr Glenn agreed with Dr Robless that micro-vascularisation was "notoriously poor" in patients with diabetes (like Mdm Parvaty). This was because diabetes would cause calcification in the blood vessels, which significantly impaired any micro-vascularisation.[256]

142 Dr Robless' and Dr Glenn's evidence exposed a number of major flaws in the Claimant's submissions. For one, in maintaining that angioplasty should have been performed on Mdm Parvaty's right PA and ATA in early December 2020, the Claimant and her expert Mr Smith apparently overlooked the fact that the right PA was patent and required no revascularisation. Mr Smith himself appeared to concede this during trial when he testified that he had "misinterpreted the [vascular scan diagram]".[257] More fundamentally, in suggesting that revascularizing the right PA and ATA would have ensured adequate blood flow to Mdm Parvaty's right foot *via* a process of micro-vascularisation, Mr Smith appeared not to have taken into account the fact that her diabetes would have caused blood vessel calcification, thereby compromising any potential micro-vascularisation. Indeed, considering that Mdm Parvaty already had a patent right PA but still experienced inadequate blood flow to her right foot, the inference which must ineluctably be drawn was that even if angioplasty had been performed on her narrowed right ATA, it would – on a balance of probabilities – have been ineffective in ensuring adequate blood supply to her right heel.

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255 NEs (24 April 2025) at p 12 lines 1–12.

256 NEs (24 April 2025) at p 12 lines 9–19.

257 NEs (16 April 2025) at p 72 lines 6–21, p 73 lines 2–23.

(3) An additional reason for NUH's decision not to attempt angioplasty during the Second NUH Admission was Mdm Parvaty's high risk for complications from general anaesthesia

143 In addition to the above risks and problems associated with any attempt at angioplasty in Mdm Parvaty's case, NUH adduced evidence to show that Mdm Parvaty would have been at high risk of developing serious complications from the general anaesthesia which would have been necessary in the event of an angioplasty.

144 Dr Ng's evidence was that Mdm Parvaty was an "[American Society of Anaesthesiologists grade four]" ("ASA4") patient.[258] He explained that the ASA grading was a scale used by anaesthetists to determine the kinds of risks that patients undergoing surgery would be subjected to "from the anaesthetic point of view independent of … surgery";[259] and Mdm Parvaty was placed at the highest grade of risk, *ie*, grade four.[260] According to Dr Ng, as an ASA4 patient, Mdm Parvaty was on the "highest grade of frailty" and faced very high risks by merely being placed under general anaesthesia, independent of the type of surgery performed.[261] These risks included the risk of heart attack, stroke, and death.[262]

145 In the closing submissions filed on her behalf, the Claimant argued that Dr Ng's evidence about the high risk of complications from general anaesthesia should be rejected. The Claimant contended that Dr Ng's evidence was unsupported by any medical records showing that an assessment had been

258 NEs (9 April 2025) p 156 lines 6–13.

259 NEs (9 April 2025) p 156 lines 17–24.

260 NEs (9 April 2025) p 157 lines 1–2.

261 NEs (9 April 2025) p 80 lines 1–7.

262 NEs (9 April 2025) p 79 lines 17–25.

carried out to determine Mdm Parvaty's ASA grading.[263] Further, according to the Claimant, NUH's stated concerns about the anaesthetic-related risks Mdm Parvaty would be subjected to in an angioplasty with general anaesthesia were inconsistent with its actions in administering both spinal and general anaesthesia to her for various procedures during her Second NUH Admission. Spinal anaesthesia was administered for the arthroscopic debridement and washout on 2 October 2020;[264] and general anaesthesia was administered for the right knee "washout" on 21 October 2020.[265]

146 I found the Claimant's arguments to be without merit. My reasons were as follows.

147 First, while there were no records of a formal assessment by NUH that Mdm Parvaty was an ASA4 patient, Dr Ng's evidence as to her being at high risk for complications arising from general anaesthesia was amply corroborated by both Dr Robless and Dr Glenn. Dr Robless testified that for a patient like Mdm Parvaty who was already sick, performing surgery under general anaesthesia for a few hours would have put her at risk of developing pneumonia, sepsis, and heart failure. According to Dr Robless, the fact that Mdm Parvaty was a dialysis patient automatically put her in a "high-risk category".[266] Similarly, Dr Glenn testified that Mdm Parvaty's various comorbidities put her at "high risk for any kind of general anaesthesia".[267]

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263 CWS at [118].

264 CWS at [122].

265 CWS at [122].

266 NEs (17 April 2025) at p 116 line 21 to p 117 line 3.

267 NEs (24 April 2025) at p 4 line 22 to p 5 line 7.

148 Second, in respect of the spinal anaesthesia administered for the knee washout on 2 October 2020, it was Dr Ng's evidence that spinal anaesthesia was administered precisely because spinal anaesthesia was a "safer option [than general anaesthesia]", as it "spare[d] the respiratory system and cardiovascular system" and thus helped Mdm Parvaty to avoid the risks associated with general anaesthesia.[268] Dr Ng's evidence on this matter was not refuted. As such, there was no inconsistency between the NUH team's decision to administer spinal anaesthesia for Mdm Parvaty's knee washout on 2 October 2020, and their concerns about subjecting her to angioplasty under general anaesthesia.

149 Third, while general anaesthesia was administered for the right knee washout on 21 October 2020, it was not feasible to draw a parallel between this procedure and an angioplasty procedure. It was not disputed that the right knee washout on 21 October 2020 took approximately an hour. Although Mr Smith opined that an angioplasty on Mdm Parvaty's right leg would similarly have taken "about an hour",[269] this was contradicted by Dr Glenn and Dr Robless. Dr Glenn's evidence was that some angioplasty procedures on a patient like Mdm Parvaty, who had diabetes and ESRF, could take between three to four hours. Dr Robless too testified that an angioplasty on a patient like Mdm Parvaty would have taken between two to four hours.[270]

150 In weighing Mr Smith's evidence about the expected duration of an angioplasty versus the differing evidence from Dr Glenn and Dr Robless, I bore in mind the need for a trial court to scrutinise the credentials and relevant experience of experts in their professed and acknowledged areas of expertise

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268 NEs (9 April 2025) at p 118 lines 9–25, p 119 lines 1–5; NUHRS at [44].

269 NEs (16 April 2025) at p 122 lines 6–12.

270 NEs (17 April 2025) at p 168 lines 19–25.

(*Sakthivel* at [75]). Where medical evidence is concerned, an expert with greater relevant clinical experience may often prove to be more credible and reliable on "hands-on" issues. In this connection, I noted that Dr Glenn has been a specialist in General Surgery in Singapore for 13 years, and treats diabetic foot diseases and gangrene on a daily basis.[271] As for Dr Robless, he has been a practising consultant vascular surgeon in Singapore since 2013;[272] and he also serves as a contributor to the Global Vascular Guidelines on CLI management.[273] On the other hand, Mr Smith's current medical practice at the British Vein Institute primarily involved treating venous diseases such as varicose veins and providing aesthetic treatments.[274] Mr Smith himself agreed in cross-examination that all his recent publications related to venous disorders or the treatment of venous conditions; further, that a "significant" part of his current practice included the provision of medico-legal opinions and reports.[275]

151 With respect, therefore, while I did not doubt Mr Smith's expertise and experience in the treatment of venous conditions, I had reservations about whether he possessed the requisite *current* clinical experience to reliably opine on the likely duration of an angioplasty on a patient with Mdm Parvaty's various co-morbidities.

152 For the reasons stated above, I preferred Dr Glenn's and Dr Robless' evidence that an angioplasty in a case like Mdm Parvaty's would have taken

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271 Dr Glenn's Report at [1] (D2BAEIC Vol 1 Tab 1 at p 7); NEs (24 April 2025) at p 19 lines 19–21.

272 NEs (17 April 2025) at p 32 lines 7–15; Dr Robless' Report dated 1 December 2023 at [1] (D1BAEIC Vol 5 at p 279).

273 AEIC of Dr Robless dated 15 October 2024 ("Dr Robless' AEIC") at [1]–[2] (D1BAEIC Vol 5 at p 268).

274 NUHWS at [104]; NEs (15 April 2025) at p 85 line 8 to p 86 line 24.

275 NEs (15 April 2025) at p 88 lines 10–13.

between two to four hours – *ie*, at least double the length of time taken for the right knee washout on 21 October 2020. Clearly, given the significantly longer duration of an angioplasty procedure, Mdm Parvaty would have been exposed to a correspondingly greater risk of complications from the general anaesthesia required for such a procedure.

(4) The debridement (with possible revascularisation) and the AKA with general anaesthesia in February 2021 were performed under very different circumstances from those prevailing during the Second NUH Admission

153 I also rejected the contention that NUH's actions during Mdm Parvaty's Third NUH Admission were inconsistent with the reasons given for its decision to treat her right heel wound conservatively during the Second NUH Admission. In their written submissions, counsel for the Claimant argued, firstly, that since NUH was able to "offer" to carry out debridement with possible angioplasty in February 2021, this suggested "that the angiosome-targeted approach theories" were "without any scientific or factual basis";[276] and secondly, that since NUH carried out an AKA with general anaesthesia in February 2021, this showed that the concerns about the high risk of complications from general anaesthesia were also unfounded.[277]

154 Regrettably, these arguments completely disregarded the starkly different circumstances in which decisions about Mdm Parvaty's treatment were made during the Third NUH Admission, as compared to the circumstances in which decisions were made during the Second NUH Admission. As I noted earlier, during Mdm Parvaty's Second NUH Admission, her right heel dry gangrene was found to be stable, with no signs of infection. However, the

276 CRS at [51].

277 CWS at [119].

development of wet gangrene during her AMKH admission and the ensuing marked deterioration in her condition necessitated her readmission to NUH on 5 February 2021. On 7 February 2021, Mdm Parvaty and her family were advised of the need for either a BKA or an AKA, in view of the risk of the wet gangrene progressing to sepsis.[278] Dr Julian Wong's testimony that Mdm Parvaty was facing imminent death at that stage was not seriously disputed.[279] Nor was it disputed that Mdm Parvaty and her family repeatedly objected to amputation and pleaded with the doctors to attempt limb salvage. The debridement (with possible revascularisation) carried out by the NUH Vascular team on 13 February 2021 was thus a response of last resort to the life-threatening situation Mdm Parvaty faced at that juncture. There was simply no sensible parallel to be drawn between the state of affairs as at December 2020 and the state of affairs in February 2021; and the fact that debridement (with possible revascularisation) was attempted on 13 February 2021 did not mean that NUH was in breach of its duty of care in not offering angioplasty in December 2020.[280]

155 It was not disputed that the intraoperative findings on 13 February 2021 "confirmed that any attempt at revascularisation would be unsuccessful".[281] Again, given the life-threatening situation which Mdm Parvaty was facing, the NUH vascular team repeated its advice that a major amputation was needed. Mdm Parvaty eventually agreed to proceed with amputation, which – at her request – was performed on 19 February 2021.

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278 Dr Julian Wong's AEIC at [23] (D1BAEIC Vol 1 at p 13).

279 NEs (8 April 2025) at p 142 lines 1–3.

280 CRS at [64].

281 Dr Julian Wong's AEIC at [41] (D1BAEIC Vol 1 at p 20).

156 Again, in light of the prevailing circumstances during Mdm Parvaty's Third NUH Admission, the decision to proceed with an AKA with general anaesthetic could not be said to be inconsistent with the concerns expressed by Dr Ng about subjecting Mdm Parvaty to anaesthetic-related risks during her Second NUH Admission.

157 In sum, I was satisfied that NUH's decisions to proceed with the debridement (with possible revascularisation) and the AKA under general anaesthesia during the Third NUH Admission were reasonable, appropriate, and in no way inconsistent with their management of Mdm Parvaty during the Second NUH Admission. The Claimant's submissions fundamentally misapprehended the critical distinction between elective procedures and life-saving surgical interventions. Contrary to her submissions, NUH demonstrated sound clinical judgment, and in particular, careful balancing of the risks and benefits to Mdm Parvaty: first, in their conservative approach during Mdm Parvaty's Second NUH Admission, when her right heel dry gangrene was stable and uninfected; and subsequently, in their decisions to proceed with life-saving procedures (*ie*, the debridement with possible revascularisation and then the AKA) during the Third NUH Admission.

(5) The BASIL 2 study provided no support for the claim that angioplasty was not a high-risk procedure for Mdm Parvaty

158 I make two final points in respect of the Claimant's submissions about NUH's breach of its duty of care during the Second NUH Admission.

159 First, the Claimant sought to rely on an article titled "A vein bypass first versus a best endovascular treatment first revascularisation strategy for patients with chronic limb threatening ischaemia who required an infra-popliteal, with or without an additional more proximal infra-inguinal revascularisation

procedure to restore limb perfusion (BASIL-2): an open-label, randomised, multicentre, phase 3 trial" ("the BASIL 2 study") as a basis for the proposition that angioplasty would not have been a high-risk procedure for Mdm Parvaty. In cross-examination at trial, the Claimant's expert Mr Smith stated that the BASIL 2 study showed angioplasty to be "a *low-risk procedure* carrying low-operative mortality for diabetic patients" [emphasis added]: according to Mr Smith, the "30-day mortality of [an angioplasty] operation in high-risk diabetic patients" was "about 3%".[282]

160 I did not accept the above evidence. With respect, Mr Smith's opinion that the BASIL 2 study proved angioplasty would not have been a high-risk procedure for Mdm Parvaty appeared to be based on an incomplete reading of the article and a failure to take account of *all* of Mdm Parvaty's various co-morbidities. It was not disputed that Mdm Parvaty suffered from ESRF. Both Dr Glenn and Dr Robless testified that as such, the BASIL 2 study would not have been applicable to her case – because ESRF patients would have been excluded from the study. Both experts gave clear, reasoned explanations as to why this would have been so. As Dr Glenn pointed out:[283]

> …the BASIL 2 trial is a trial that compares patients who are either bypass or on angioplasty. To be included in this trial the patient must be able to be fit for either a bypass or an angioplasty. It is clear that this patient [Mdm Parvaty] is not going to be fit for a bypass operation, and most trials, although not specifically stated, will exclude patients with end stage renal failure and in my reading of this article it was not clearly stated, but it's implied. And when I speak to experts around the world we have come to the conclusion that while patients with some kidney disease is included, they have excluded end stage renal failure patients. It is quite common for trials to exclude end stage renal failure patients because they generally have a much higher risk of limb loss and also a very high risk of subsequent

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282 NEs (16 April 2025) at p 104 line 22 to p 105.

283 NEs (24 April 2025) at pp 20 to 21.

> mortality, not surviving for long after the trial period which will skew trial data ...

161 Dr Robless too testified that the BASIL 2 study specifically included chronic kidney patients and would thus have excluded patients with ESRF. Like Dr Glenn, Dr Robless testified that most chronic limb-threatening ischaemia ("CLTI") studies excluded ESRF patients because they were "too confounding".[284]

162 In his testimony, Dr Robless also noted that both the Global Vascular Guidelines ("GVG") as well as the Vascular Society Guidelines cited by Mr Smith put ESRF patients on dialysis in the primary amputation group without option of revascularisation.[285] Referring to the PLAN framework of clinical decision-making in CLTI set out in the GVG ("Framework Chart"), Dr Robless was able to explain how the application of the Framework Chart would lead to the conclusion that Mdm Parvaty was too high risk for an angioplasty procedure, and that her circumstances would place her in the "no option for revascularisation" pathway leading to either primary amputation or palliation/wound care.[286] Further, Dr Robless reiterated that in addition to suffering from ESRF, Mdm Parvaty faced other risk factors in an angioplasty procedure. Apart from anaesthetic-related risks (*eg*, heart failure), her anatomy did not favour success in an angioplasty procedure, given that her right PTA – the "target vessel" – was a "long … chronic total occlusion"; she was on

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284 NEs (17 April 2025) at pp 128 to 129.

285 NEs (17 April 2025) at p 115 lines 10–15.

286 NEs (17 April 2025) at pp 14 to 15, 112 to 114.

dialysis; and the distal vessels below her ankle were "very calcified and small with very high chance of re-occlusion".[287] In Dr Robless' words:[288]

> … you try and open up a blood vessel that's 1 or 2 millimetres at most, and calcified, it's likely that it will block again and they don't stay open. So we are putting her through an operation that's likely to be …futile, and not without risk.

163 Dr Robless' evidence was that he himself would have staged Mdm Parvaty as a "no option or poor option" for revascularisation and would not have performed angioplasty on her as at December 2020.[289]

164 When Dr Glenn was informed of Dr Robless' application of the Framework Chart and his conclusion that Mdm Parvaty would have been a "no option or poor option" for revascularisation, he expressed agreement with Dr Robless' evidence. Dr Glenn also pointed out that in addition to the risk factors pointed out by Dr Robless, Mdm Parvaty had "one extra severe co-morbidity" – moderately severe aortic stenosis – which in his view was "as important as" ESRF. As he explained, patients with moderately severe aortic stenosis were at "very, very high risk of any operative interventions" because they would not be able to tolerate large amounts of blood loss and operative stress, and were thus at high risk of sudden death from a stroke or "very poor sudden perfusion in their brain" during an operation.[290]

165 For the reasons set out above, I rejected the claim that the BASIL 2 study showed that angioplasty would have been a low-risk procedure for Mdm Parvaty.

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287 NEs (17 April 2025) at p 115.

288 NEs (17 April 2025) at p 116.

289 NEs (17 April 2025) at p 42 lines 18–25, p 115.

290 NEs (24 April 2025) pp 53 to 54.

Whether NUH failed to advise Mdm Parvaty of the option to proceed with revascularisation procedures

166 The last point I make in relation to the Claimant's allegations of negligence during the Second NUH Admission concerns her claim that NUH "failed to give [Mdm Parvaty] the option to decide whether to proceed with revascularisation procedures".[291] According to the Claimant, the "treatment options were indisputably relevant albeit were not offered by [NUH] because according to [NUH] they entailed risks due to her comorbidities".[292]

167 In *Hii Chii Kok*, the Court of Appeal held that the appropriate test in relation to the provision of medical advice should not be the *Bolam* test. *Inter alia*, the Court of Appeal noted that the *Bolam* test was developed at a time when much less emphasis was generally placed on the principle of patient autonomy than was the case in relation to the principle of beneficence (at [115]); and that there was ample evidence that with a new generation of patients far better informed about medical matters, and their choices and rights, there had been seismic shift in medical ethics, and in societal attitudes towards the practice of medicine (at [118]–[120]). Referencing the decision of the UK Supreme Court in *Montgomery v Lanarkshire Health Board* [2015] UKSC 11 ("*Montgomery*"), the Court of Appeal held that the use of the *Bolam* test in relation to the provision of medical advice gave "insufficient regard to the autonomy of the patient, who should be armed with all the information he reasonably requires in order to make a proper decision as to whether to proceed with the proposed treatment" (at [122]). Once it was accepted that a patient should be equipped with such information as is reasonably required to arrive at an informed decision, it "would be incongruous to then *ignore* the patient's

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291 SOC at [51(g)]; CRS at [54].

292 CRS at [54].

perspective when examining the question of the sufficiency of the information provided" [emphasis in original] (at [125]).

168 Having considered the approaches and experiences of various common law jurisdictions, the Court of Appeal held that in place of the *Bolam* test, the following three-stage inquiry (modified from the *Montgomery* test) should henceforth govern the standard of case in relation to the provision of information and advice by a doctor to his patient (at [131]–[134]):

> (a) At the first stage, the patient has to identify the exact nature of the information that he alleged was not given to him and establish why it would be regarded as relevant and material. In this connection, the information which doctors ought to disclose is (a) information that would be relevant and material to a reasonable patient situated in the particular patient's position; or (b) information that a doctor knows is important to the particular patient in question. This stage of the inquiry should be undertaken essentially from the perspective of the patient, in view of the autonomy of the patient, who has an interest in being furnished with sufficient information – in terms of both quantity and quality – to allow him to arrive at an informed decision as to whether to submit to the proposed therapy or treatment.
>
> (b) Assuming the court is satisfied that the information in question is indeed relevant and material, the court will determine whether the information was in the possession of the doctor at the relevant time. At this stage, if there is a complaint that the doctor was not in possession of the information because he made the wrong diagnosis or failed to administer the proper treatment due to ignorance or carelessness, the appropriateness of the doctor's conduct will continue to be assessed

from the professional perspective of the doctor, applying the *Bolam* test and the *Bolitho* addendum.

(c) Assuming the court finds that the doctor did possess the information, it will then proceed to the third stage of the inquiry and examine the reasons why the doctor chose to withhold the information from the patient. Here, the court must be satisfied that the non-disclosure was justified having regard to the doctor's reasons for withholding the information and then considering whether this was a sound judgment having regard to the standards of a reasonable and competent doctor.

169 Applying this three-stage framework, I found that NUH did not fall short of its standard of care in omitting to advise Mdm Parvaty on the option of revascularisation procedures during her Second NUH Admission. In my view, the Claimant could not pass the first stage of the three-stage test set out in *Hii Chi Kok.* My reasons were as follows.

170 The first stage of the test is concerned with relevance and materiality. *Per* the Court of Appeal in *Hii Chii Kok* (at [137]), "materiality is to be assessed from the vantage point of the patient, having regard to matters that the patient in question was reasonably likely to have attached significance to in arriving at his decision, or matters which the doctor in fact knew or had reason to believe that the patient in question would have placed particular emphasis on". In this connection, it is important to highlight that the Court of Appeal held that the doctor should *not* have to provide information on "mainstream treatment options which are *obviously inappropriate on the facts*" [emphasis added] (*Hii Chii Kok* at [142]). In the final analysis, the question of whether the information is reasonably material "is one that will have to be answered with a measure of common sense" (*Hii Chii Kok* at [143]). While the amount of information

furnished cannot be "so threadbare that the reasonable patient is left to grapple with information that is as vague as it is abstract", the reasonable patient "would not need or want to know and understand every iota of information before deciding on whether to undergo the proposed treatment". The factors of certainty and consequence (and context) will necessarily influence what information is reasonably material at every stage. Where the diagnosis is uncertain, more information pertaining to other possible diagnoses will also become material (*Hii Chii Kok* at [143]).

171 In the present case, in so far as revascularisation procedures were concerned, the two lines of treatment in question were a femoral distal bypass and an angioplasty. In respect of the former, all the expert witnesses agreed with Dr Julian Wong's assessment that a femoral distal bypass was "simply not an option" for Mdm Parvaty.[293] Dr Robless, for example, stated firmly that Mdm Parvaty was "not a candidate for distal bypass … that's out".[294] Mr Smith himself testified that a femoral distal bypass would not even be considered as a line of treatment in Mdm Parvaty's case.[295] Given that all the relevant experts (including the Claimant's) agreed with Dr Julian Wong that a femoral distal bypass was *not* an option for Mdm Parvaty, information about such a procedure could not be said to satisfy the first-stage test of materiality.

172 As for angioplasty, I have set out in detail above the circumstances in existence during the Second NUH Admission which led to such a procedure being ruled out: in particular, the septic arthritis discovered in her right knee in September 2020; the concerns about lingering or indolent infection in the knee

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293 Dr Julian Wong's AEIC at [16(d)] (D1BAEIC Vol 1 at p 10).

294 NEs (17 April 2025) at p 112 at lines 7–10.

295 NEs (15 April 2025) at p 151 lines 8–12; NEs (16 April 2025) at p 71 lines 3–7.

even after the 21 October 2020 arthrotomy and washout; the risk of complications from the general anaesthesia required for a lengthy procedure like angioplasty; the fact that her anatomy did not favour angioplasty (due to the severe occlusion of the right PTA); and the absence, in any event, of infection in the right heel during the Second NUH Admission (see [119]–[165] above). Given the clear evidence adduced, I was satisfied that on the facts of this case, angioplasty was an obviously inappropriate option for Mdm Parvaty during the Second NUH Admission. Information about such a procedure during the Second NUH Admission thus could not be said to satisfy the first-stage test of materiality.

Whether NUH was negligent in discharging Mdm Parvaty to AMKH on 13 January 2021

173 Next, I address the Claimant's allegation that NUH was negligent in discharging Mdm Parvaty to AMKH. According to the Claimant, the decision to discharge Mdm Parvaty to AMKH was in breach of NUH's duty of care because:

(a) NUH should have treated Mdm Parvaty's dry gangrene (by performing angioplasty and/or debridement) before discharging her to AMKH;[296]

(b) Since dry gangrene may deteriorate "very rapidly" and requires "regular monitoring", Dr Julian Wong was derelict in scheduling a follow-up appointment for Mdm Parvaty four to six weeks after her discharge to AMKH; and[297]

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296 CWS at [86] and [98].

297 CWS at [130].

(c) NUH failed to supply AMKH with relevant information about Mdm Parvaty's condition (*eg*, details about the number and nature of her multiple right leg ulcers; PAD; how often to review her; and what wound care products were and should have been used).[298]

174 I rejected the above allegations for the following reasons.

175 In respect of the arguments at (a) and (b), these have been addressed earlier in these written grounds, at [98]–[113], [132]–[135], and [125]–[126]. I make two additional points. First, in so far as the Claimant appeared to suggest that Mdm Parvaty was discharged to AMKH "prematurely", there was no basis at all for such a suggestion. No evidence was led by the Claimant to refute Dr Ng's evidence that prior to her transfer to AMKH, Mdm Parvaty had been assessed to be fit for discharge not only by his team, but also by other ancillary healthcare services such as the nursing team.[299] Indeed, as NUH pointed out,[300] extensive tests and investigations were carried out to confirm Mdm Parvaty's fitness for discharge, including a PET-CT Scan which Dr Robless described as being a "highly sensitive scan" for the detection of infection.[301] Dr Robless highlighted that it was not normal practice to order a PET-CT scan in such situations: the fact that it was done for Mdm Parvaty showed that the NUH team was extremely thorough in confirming the absence of any active infection before authorising her transfer to AMKH.[302]

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298 CWS at [96], [99], [158], and [166]; CRS at [87].

299 NEs (9 April 2025) at pp 57 to 58.

300 NUHWS at [119].

301 NEs (17 April 2025) at pp 37 to 39.

302 NEs (17 April 2025) at pp 37 and 164.

176 Second, in explaining the decision to review Mdm Parvaty within four to six weeks from her discharge, Dr Julian Wong also testified that NUH had an emergency vascular service that operates round the clock;[303] and if the doctors managing Mdm Parvaty's case at AMKH formed the view that there was a need to refer Mdm Parvaty back to the NUH Vascular team, such referral could be done immediately. The Claimant did not dispute this aspect of Dr Julian Wong's evidence.

177 For the reasons explained, I found no merit in the arguments set out at [173(a)] and [173(b)] above.

178 I also rejected the argument set out above at [173(c)], *ie,* that NUH failed to provide AMKH with adequate information about Mdm Parvaty's condition when discharging her to AMKH and that this failure contributed to the deterioration of her right heel wound. To begin with, some of the information which the Claimant appeared to think NUH had failed to provide to AMKH were in fact provided, albeit not in the discharge summary. For example, while the Claimant appeared to think that NUH had failed to inform AMKH that Mdm Parvaty suffered from PAD, it was not disputed that NUH had in fact provided AMKH with Mdm Parvaty's vascular scan reports around mid-December 2020 – which scans would have revealed that she had PAD.[304]

179 As another example, despite the Claimant's suggestion that AMKH had no information on the wound dressing products used by NUH on Mdm Parvaty, the evidence available showed that NUH had in fact communicated information about the wound dressing products they used (*ie,* spirit dressing and Mepilex)

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303 NEs (8 April 2025) at p 119.

304 NEs (23 April 2025) at p 21 line 1 to p 22 line 7.

in their admission communications notes, though not in the discharge summary. This was acknowledged by Dr Sandhya.[305] Further, although Dr Sandhya seemed to be suggesting at one point that the absence of this piece of information from the discharge summary might have created "confusion" for AMKH, this appeared to be speculation on her part. In any event, even assuming for the sake of argument that information about wound dressing products was omitted by NUH, there was no evidence that such a (purported) lapse would have caused or contributed to the subsequent deterioration of Mdm Parvaty's right heel dry gangrene. On the contrary, Dr Sandhya herself confirmed that AMKH, as a community hospital, was capable of managing patients with dry gangrene (like Mdm Parvaty) and making independent assessments about the appropriate wound dressing products to be used.[306] Indeed, Dr Sandhya's evidence was that each medical institution would follow its own guidelines for wound care, and that AMKH's nursing team followed their own established guidelines in choosing to use normal saline and Mepilex for Mdm Parvaty's wounds on her right leg.[307]

180 More fundamentally, the Claimant sought to suggest in closing submissions[308] that the information provided by NUH of Mdm Parvaty's wounds was so lacking that Dr Sandhya (the supervising doctor in Mdm Parvaty's ward at AMKH) had – in reliance on NUH's allegedly sub-standard information – assumed that her right heel wound was non-gangrenous and only realised the existence of dry gangrene on 25 January 2021. However, this startling suggestion was not put to Dr Sandhya herself at trial. No evidence was

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305 NEs (23 April 2025) at p 20 lines 3–15.

306 NEs (23 April 2025) at p 20 lines 16–24.

307 NEs (23 April 2025) at p 19 lines 14–19.

308 CWS at [162].

adduced on behalf of the Claimant to show that critical AMKH personnel such as Dr Sandhya were in some way confused, or misled, or left in the dark about the condition of Mdm Parvaty's right heel wound *because of* NUH's alleged failure to provide adequate information.

181 Indeed, quite apart from failing to put the above suggestion to Dr Sandhya, the Claimant's closing submissions ignored two critical pieces of evidence. First, her submissions ignored the clear evidence given by Dr Er Boon Kwang Gilbert ("Dr Er"), who served as AMKH's Service Registrar at the material time. Dr Er confirmed that AMKH had the capability to manage patients with dry gangrene[309] and that AMKH maintained a thorough internal review process for all incoming patient referrals. This review process included checking the patients' diagnosis, condition, and latest parameters. Dr Er's evidence was that the protocol was followed in Mdm Parvaty's case prior to AMKH accepting her admission application.[310]

182 Second, the Claimant's submissions also ignored the evidence given by Dr He about the examination which he personally conducted of Mdm Parvaty on the day of her admission to AMKH (13 January 2021). Dr He was clear about having observed and taken note of the wounds on Mdm Parvaty's right lower limb during this examination. *Inter alia,* Dr He had observed that she had a "right heel eschar with bogginess noted at the eschar". Dr He's evidence was that his findings on 13 January 2021 were consistent with dry gangrene, and there were no signs of a developing infection.[311] Dr Sandhya also testified that the term "eschar" referred to a crust on the wound surface; that for a pressure

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309 NEs (4 April 2025) at p 130 lines 2–6.

310 Dr Er Boon Kwang Gilbert's ("Dr Er") AEIC dated 16 October 2024 ("Dr Er's AEIC") at [7]–[8] (D2BAEIC Vol 1 Tab 2 at p 3).

311 Dr He's AEIC at [12]–[13] (D2BAEIC Vol 1 Tab 3 at p 5)

wound with a background of peripheral vascular disease, "eschar" would mean a small area of necrotic wound; and that the terms "dry gangrene" and "necrotic tissue" were generally used to mean the same thing.[312] Tellingly, it was never put to Dr He either that in fact, he failed to recognise the presence of dry gangrene on 13 January 2021 and/or that his colleague Dr Sandhya was ignorant of the presence of dry gangrene until 25 January 2021.

183 In the circumstances, even if I accepted (*which I did not*) that NUH failed to provide adequate information to AMKH about Mdm Parvaty's right heel wound, the evidence showed that AMKH had carried out their own examination of Mdm Parvaty on 13 January 2021 and that the presence of dry gangrene was duly observed during this examination. In other words, there was no evidence to support the suggestion that NUH's alleged failure to provide adequate information *caused* AMKH to be ignorant of or confused about the nature of Mdm Parvaty's right heel wound for some time after 13 January 2021.

184 In light of the findings set out above at [74]–[135], [146]–[157], and [171]–[183], I found that NUH did not breach its duty of care to Mdm Parvaty at any time during the Second NUH Admission; and I therefore rejected the Claimant's allegations of breach of duty by NUH in relation to this period.

Whether AMKH caused Mdm Parvaty's dry gangrene to deteriorate

185 I next address the claims against AMKH. In the closing submissions filed on her behalf, the Claimant alleged that AMKH breached its duty of care to Mdm Parvaty by the following acts and omissions:

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312 NEs (15 April 2025) at pp 20 to 23.

(a) AMKH's choice of saline (as opposed to an antiseptic) for Mdm Parvaty's right heel wound dressing likely risked exposure of the dry gangrene to infection and thus likely caused it to deteriorate into wet gangrene;[313]

(b) AMKH failed to keep proper records for the period of Mdm Parvaty's admission: *eg*, they failed to keep photographs of Mdm Parvaty's wounds on her right leg;[314]

(c) Mdm Parvaty's right leg was handled by the "ungloved hands" of nurses and others;[315]

(d) No antibiotics were prescribed to Mdm Parvaty on 5 February 2021 when she was discovered to have wet gangrene;[316]

(e) AMKH failed to diagnose that Mdm Parvaty had "dry gangrene and necrosis" until 25 January 2021;[317]

(f) AMKH failed to ensure regular elevation and offloading of Mdm Parvaty's right leg;[318]

(g) AMKH failed to change Mdm Parvaty's wound dressings daily (or prior to 15 January 2021);[319]

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313 CWS at [171].

314 CWS at [176]–[178].

315 CWS at [181].

316 CWS at [190].

317 CWS at [135].

318 CRS at [102].

319 CWS at [177]; CRS at [70].

(h) AMKH failed to perform debridement and/or angioplasty for Mdm Parvaty's dry gangrene; and[320]

(i) AMKH delayed referring Mdm Parvaty back to NUH for treatment, which delay caused or contributed to her condition deteriorating;[321]

186 I found the Claimant's allegations against AMKH to be devoid of merit. My reasons were as follows.

The Claimant failed to plead the first four of the above claims

187 First, as I noted earlier (at [88]), the law requires a party to plead the facts which are material to its claim: parties are bound by their pleadings, and the court is precluded from deciding matters that have not been put into issue by the parties (*How Weng Fan* at [18]–[19]). Regrettably, in respect of the allegations set out above at [185(a)], [185(b)], [185(c)], and [185(d)] (collectively, the "Unpleaded Claims"), these were not pleaded in the Claimant's SOC despite these claims clearly involving facts material to her claim of negligence against AMKH.

188 There is a narrow exception to the general rule, whereby the court *may* permit an unpleaded point to be raised (and to be determined) where there is no irreparable prejudice caused to the other party in the trial that cannot be compensated by costs, or where it would be clearly unjust for the court not to do so. As the Court of Appeal cautioned in *How Weng Fan,* however, cases where "it is clear that no prejudice will be caused by the reliance on an

320 CWS at [175] and [191].

321 CWS at [185] and [189].

unpleaded cause of action or issue that has not been examined at the trial" are likely to be uncommon (*How Weng Fan* at [20]).

189 In the present case, I had no doubt that permitting the Claimant to advance the Unpleaded Claims would cause AMKH irreparable prejudice. No mention at all was made of the Unpleaded Claims in the Claimant's SOC, her AEIC, and her opening statement. Nor did Mr Smith's two expert reports address any of the matters raised in the Unpleaded Claims.[322] This was despite the fact that Mdm Parvaty's medical records – including nursing records such as the wound nursing charts – were made available to the Claimant long before the trial. There was no way in which AMKH could have discerned prior to – or during – the trial that these Unpleaded Claims would be brought up in the Claimant's closing submissions as matters pertinent to her claim of negligence against AMKH. AMKH therefore had no opportunity to present any evidence in response to the allegations. This inability to respond to allegations which – in the Claimant's closing submissions – were presented as material breaches – amounted to prejudice for which AMKH could not be compensated by costs.

190 Given these glaring omissions, there was no basis for the Claimant to complain that Dr Glenn's report failed to "make any mention of the crucial facts that … [AMKH] had applied saline, which was not an antiseptic, to the wounds of [Mdm Parvaty]".[323] There was no reason for Dr Glenn to address the matter of saline being used for the wound dressings when the Claimant herself failed to plead this in her SOC, and when there was no mention of it either in her expert witness' reports.

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322 AMKHRS at [12]–[13].

323 CWS at [173].

191 For the reasons set out above, I declined to consider the Unpleaded Claims outlined above in [185(a)] to [185(d)]. In the interests of completeness, I should add that in any event, no evidence was adduced on behalf of the Claimant to establish a causal link between the matters set out in the Unpleaded Claims and the deterioration of Mdm Parvaty's right heel dry gangrene. Not only was there no mention of these matters in Mr Smith's expert reports, he was not asked at trial to expound on any of these matters – let alone to opine on whether each or all of these matters could have caused or contributed to the deterioration of the dry gangrene.

The allegation that AMKH failed to diagnose dry gangrene / necrosis until 25 January 2021 was refuted by the evidence adduced at trial

192 In respect of the allegation set out at [185(e)] above, the Claimant's closing submissions took the position that AMKH was ignorant of Mdm Parvaty's right heel dry gangrene / necrosis when she was admitted on 13 January 2021, that AMKH only diagnosed dry gangrene / necrosis around 25 January 2021; and that the delay in diagnosis contributed to the deterioration into wet gangrene.[324]

193 In its reply submissions, AMKH contended[325] that the above claim was not pleaded in the SOC. There was certainly some basis for AMKH's complaint, as the relevant pleadings in the SOC were somewhat vague. In particular, while [52(a)] of the SOC referred to AMKH having "failed to properly examine, investigate and/or treat [Mdm Parvaty's] right heel ulcer and/or gangrene upon her admission on or about 13 January 2021, allowing it to worsen and extend to the posterior heel and calf causing extensive regional tissue death until limb

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324 CWS at [135].

325 AMKHRS at [9]–[10].

salvage was no longer viable", there was no mention of AMKH having failed even to recognise the presence of dry gangrene / necrosis on the right heel until 25 January 2021.

194 Ultimately, however, I did not find it necessary to rule on the point relating to pleadings, because even if the Claimant could be said to have pleaded this claim adequately, it was refuted by the evidence adduced at trial. In this connection, I have already set out at [179]–[183] the evidence given by Dr Er, Dr He and Dr Sandhya. To recap, Dr Er's evidence was that AMKH had a thorough internal review process for all incoming patient referrals which included checking the patients' diagnosis and condition; further, that this protocol was followed in Mdm Parvaty's case prior to her admission. Dr He's evidence was that he examined Mdm Parvaty on 13 January 2021; and that he observed and documented, *inter alia*, a "right heel eschar with bogginess noted at the eschar".[326] Dr Sandhya's evidence was that the term "eschar" was used to denote necrotic tissue, which meant the same thing as dry gangrene.[327] No evidence was put forward by the Claimant to refute the evidence of these witnesses; and as I observed earlier, it was not even put to Dr He and Dr Sandhya that they failed to "[diagnose] the gangrene and necrosis until 25 January 2021".[328]

The Claimant failed to adduce evidence of her claim that AMKH failed to ensure regular elevation and offloading of Mdm Parvaty's right leg

195 In respect of the allegation set out above at [185(f)], it was the Claimant's case that no measures were put in place by AMKH to ensure regular

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326 Dr He's AEIC at [12] (D2BAEIC Vol 1 Tab 3 at p 5).

327 NEs (15 April 2025) at p 19 line 24 to p 20 line 1, p 21 lines 13–17.

328 CWS at [135].

elevation and offloading of Mdm Parvaty's right leg. I found this allegation to be unfounded as well.

196 First, AMKH's contemporaneous nursing records clearly indicated that elevation and offloading were done regularly for Mdm Parvaty.[329] AMKH staff Nurse Lim Soo May ("Nurse Lim") gave evidence in her AEIC and at trial that offloading and elevation – by "applying a heel protector to [Mdm Parvaty's right] heel and then [placing] a pillow underneath [Mdm Parvaty's] lower limb that ends before her ankle, so that her heels will be dangling off the bed and will not be in contact with the mattress" – were implemented at all material times.[330] Nurse Lim also deposed that she personally observed Mdm Parvaty's right heel offloaded.[331]

197 The nursing records and the AMKH witness' evidence were not seriously challenged by the Claimant. Instead, the Claimant's main gripe appeared to be that AMKH had failed to keep "objective evidence such as photographs" to prove that offloading and elevation were carried out regularly. No explanation was offered by the Claimant, however, as to why AMKH would have been required to maintain photographic evidence of offloading and elevation measures. Certainly, no evidence was adduced to show that the standard of care applicable to a community hospital such as AMKH required the maintenance of such photographic evidence.

198 As for the photographs which the Claimant relied on in support of her allegation that elevation and offloading were not done regularly, these were

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329 AMKHWS at [98]; see for *eg*, JBOD Vol 14 at pp 9207, 9212, 9406, 9492, 9497.

330 NEs (11 April 2025) at p 4 lines 8–14; AEIC of Nurse Lim Soo May dated 16 October 2024 ("Nurse Lim's AEIC") at [17] (D2BAEIC Vol 1 Tab 5 at p 6).

331 Nurse Lim's AEIC at [22] and [25] (D2BAEIC Vol 1 Tab 5 at p 8).

photographs purportedly taken by Mdm Parvaty's domestic helper between 22 January and 31 January 2021.[332] However, the domestic helper was not called as a witness to explain the circumstances in which the photographs were taken. Even more confoundingly for the Claimant, at least some of these photographs appeared to indicate that measures to offload and elevate of Mdm Parvaty's right heel were in fact implemented.[333] For example, a photograph purportedly taken by the domestic helper on 31 January 2021 at 2.54pm appeared to show Mdm Parvaty's right leg offloaded by a foam heel protector.[334]

The Claimant failed to prove that AMKH's omission to change Mdm Parvaty's wound dressings daily prior to 15 January 2021 caused the worsening of her right heel wound

199 In respect of the allegation set out above at [185(g)], it was unclear from the Claimant's closing submissions whether her complaint was solely that Mdm Parvaty's right heel wound dressing should have been changed *between 13 January and 15 January 2021*, or that the wound dressing should have been changed *daily throughout Mdm Parvaty's stay at AMKH*. Having scrutinised the Claimant's closing submissions (including [92], [95] and [173] of the submissions), I surmised that her complaint was the latter, *ie*, that Mdm Parvaty's wound dressing should have been changed *daily from the outset*, and that AMKH was negligent in switching to daily wound dressing change only on 25 January 2021.

200 Unfortunately for the Claimant, this allegation was again not pleaded in the SOC. Nor was it put to AMKH's witnesses.[335] Even if I were to overlook

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332 CRS at [102]; CSBOD at pp 206–209.

333 See for *eg*, CSBOD at pp 207 and 209.

334 CSBOD at p 209.

335 CWS at [95] and [173].

these serious flaws, she had no evidence to prove her case. No evidence was adduced to show what the appropriate standard of care should have been; and specifically, how frequently wound dressings for the type of wounds seen on Mdm Parvaty's right heel as at 13 January 2021 should have been changed.[336] Instead, she sought only to rely on testimony given by NUH Nurse Hamizah Binte Jamal's ("Nurse Hamizah") testimony.

201 In this connection, it was Nurse Hamizah's evidence that after Mdm Parvaty's wound started to turn black in colour around 26 November 2020, a wound nurse suggested that her wound dressing be changed every day in order to facilitate a daily review of her wound.[337] However, Nurse Hamizah's evidence did not assist the Claimant. Since the Claimant failed to adduce any evidence of what the appropriate standard of care *vis-à-vis* the frequency of wound dressing change should have been from 13 January 2021 onwards, there was no basis for me to infer that changing the dressing less frequently than daily constituted negligent practice by AMKH. Indeed, *per* Dr Sandhya's testimony (which was not refuted), each medical institution follows its own guidelines for wound care. This was corroborated by AMKH's wound nurse, Nurse Lim, who deposed that wound dressing changes may not be performed daily, as the frequency of such wound dressing changes depends on the type of dressing being used and the condition of the wound.[338]

202 Further and in any event, even if I were to accept (which I did not) that AMKH's standard of care required them to change Mdm Parvaty's wound dressings daily from 13 January 2021, the Claimant was unable to explain how

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336 AMKHRS at [42].

337 NEs (8 April 2025) at p 110 at lines 23 to p 111 line 2; NEs (3 April 2025) at p 23 line 16 to p 24 line 6, p 21 lines 1–5.

338 Nurse Lim's AEIC at [4] and [21] (D2BAEIC Vol 1 Tab 5 at pp 2 and 7).

AMKH's alleged failure to change the wound dressing daily between 13 January 2021 and 25 January 2021 caused or contributed to the injuries and damage pleaded. No evidence was led from Mr Smith – or from any other witness – to establish that AMKH's alleged failure to change the wound dressing daily between 13 January and 25 January 2021 caused the right heel dry gangrene to deteriorate into wet gangrene.

Debridement and angioplasty were not clinically indicated and not suitable while Mdm Parvaty was admitted at AMKH

203 In respect of the allegation set out above at [185(h)], the Claimant relied on Mr Smith's evidence. In his first expert report, Mr Smith opined that AMKH fell short of its standard of care by failing to undertake angioplasty and debridement for Mdm Parvaty during the period of her admission at AMKH.[339]

204 I rejected Mr Smith's opinion evidence as it was shown at trial to have been based on his misconceptions about what a community hospital like AMKH was intended – and equipped – to deal with. As Dr He explained in his AEIC, AMKH is a community hospital that provides medical, nursing, and rehabilitation care to patients in need of a short period of continuation of care following their discharge from an acute care hospital like NUH.[340] This was corroborated by the other AMKH doctors. Dr Er testified that patients like Mdm Parvaty would be admitted to AMKH for rehabilitation and convalescent care – *not* for acute treatments, which would fall under the purview of the relevant specialists at acute care hospitals such as NUH.[341] Accordingly, AMKH was not equipped with the facilities required for surgical wound debridement and

339 Mr Smith's 1st Report at [2.5] (CBAEIC Vol 20 at p 4972).

340 Dr He's AEIC at [5] (D2BAEIC Vol 1 Tab 3 at p 3).

341 NEs (4 April 2025) at p 109 line 23 to p 110 line 4.

angioplasty.[342] If a patient's condition became unstable while they were admitted at AMKH (*eg*, if their dry gangrene turned into wet gangrene), the patient would have to be transferred back to an acute care hospital (like NUH) for further management.[343] As Dr Sandhya also explained, any plans for revascularisation would be beyond AMKH's scope, and would fall within the purview of NUH's Vascular team.[344]

205 These witnesses' evidence as to AMKH's role and facilities was not challenged by the Claimant. When Mr Smith was informed of this evidence during cross-examination, he agreed that at the time of preparing his expert report, he had not been aware that as a community hospital, AMKH would not be able to carry out surgical wound debridement and angioplasty.[345] Given that Mdm Parvaty was already scheduled to see NUH's vascular team for follow-up, Mr Smith also conceded that it was reasonable in the circumstances for AMKH to continue care for Mdm Parvaty if and until she developed a condition that required acute care.[346]

206 Further and in any event, for the reasons I explained earlier (at [127]–[128]) and [146]–[152]), any surgical debridement of the right heel wound would have had to be carried out in conjunction with angioplasty; and the evidence was clear that Mdm Parvaty was not a suitable candidate for angioplasty.

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342 NEs (4 April 2025) p 131 at lines 2–14.

343 NEs (4 April 2025) at p 130 lines 10–15.

344 NEs (15 April 2025) at p 48 line 8 to p 49 line 2.

345 Nes (16 April 2025) at p 130.

346 NEs (16 April 2025) at p 131 lines 1–9.

207 For the reasons given above, I was satisfied that there was no breach of duty by AMKH in "failing" to perform debridement and/or angioplasty for Mdm Parvaty.

AMKH promptly transferred Mdm Parvaty back to NUH for further management once her dry gangrene became wet

208 In respect of the allegation set out above at [185(i)], the Claimant's case was that AMKH should have transferred Mdm Parvaty back to NUH before 5 February 2021 because "[o]n or about 30 January 2021", Dr He had already "diagnosed that [Mdm Parvaty's] wound on her right *shin* had become infected"[347] [emphasis added]. Regrettably, however, this allegation was based on a misapprehension of the relevant evidence.

209 Dr He did not in fact give evidence that he had diagnosed *infection of Mdm Parvaty's right shin wound on or about 30 January 2021*. To begin with, it was Dr He's evidence that he did not conduct any inspection of the wounds on Mdm Parvaty's right lower limb on *30 January 2021*. This was because 30 January 2021 fell on a Saturday, when he would ordinarily not perform wound inspections unless requested. In addition, Mdm Parvaty was undergoing haemodialysis at the time that he was conducting his ward rounds on 30 January 2021.[348] In cross-examination, the Claimant herself admitted that she did not know whether Dr He had inspected Mdm Parvaty's wounds on 30 January 2021. Instead, according to her, Dr He had spoken to her on 1 February 2021 about his observations of Mdm Parvaty's wound condition as of 29 January 2021. The Claimant alleged that in this conversation on 1 February 2021, Dr He had mentioned the words "bogginess" and "foul-smelling". Tellingly, however, she

347 CWS at [189]; SOC at [37].

348 Dr He's AEIC at [41] (D2BAEIC Vol 1 Tab 3 at p 14).

could not remember whether he had been referring to the *right heel* wound or the *right shin* wound when he used these words.[349] She also admitted that she could not actually remember Dr He using the word "infected" during this conversation.[350]

210 Not only was the Claimant's alleged recollection of the conversation with Dr He on 1 February 2021 unreliable, her version of the conversation was also contradicted by Dr He's and Nurse Lim's evidence as well as the contemporaneous medical records. Dr He's evidence was that on 29 January 2021, during his inspection of Mdm Parvaty's wounds, he had noted that her right heel wound was "foul smelling with odour present, boggy when depressed, especially along the peripheries", while the right shin wound was "mildly sloughy along peripheries, was foul smelling and had no discharge".[351] These observations were recorded in the wound inspection progress notes on the same day. As "the wound base remained intact and the wounds were not exudative", this indicated that there were "no signs of localised infection from the right heel wound", and "no indication for debridement";[352] and instead, in response to the "mild changes" observed in the right heel and shin condition, Dr He increased the frequency of wound inspections, which he carried out on 1 February, 3 February and 5 February 2021.[353]

211 As for the wound inspection on 1 February 2021 and his conversation with the Claimant that day, Dr He's evidence was that the inspection showed

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349 NEs (1 April 2025) at pp 181 to 182.

350 NEs (1 April 2025) at p 182 at line 15.

351 Dr He's AEIC at [36] (D2BAEIC Vol 1 Tab 3 at p 12).

352 Dr He's AEIC at [37] (D2BAEIC Vol 1 Tab 3 at p 13).

353 Dr He's AEIC at [38] (D2BAEIC Vol 1 Tab 3 at p 13).

Mdm Parvaty's wound condition to have "improved since the last inspection on 29 January 2021".[354] The right heel wound was "not foul smelling and less boggy when depressed, especially along the peripheries", while the right shin wounds "had no surrounding bogginess", "no discharge", and "were not foul smelling". Dr He informed the Claimant – who was present for the wound inspection – that the wound had been improving since the last inspection on 29 January 2021.[355] This conversation was documented contemporaneously by Dr He.[356] Nurse Lim (who conducted the wound inspection on 1 February 2021 together with Dr He), also deposed that the right heel was noted to be "100% necrotic, with slight boggyness [*sic*] felt" and "no odour present"; and that "demarcation was noted around the [right shin] wound; it was dehydrated and uplifted and there was no odour or discharge".[357] It was "planned that the same treatment plan" for the wounds "would continue, with regular wound inspections by the team doctors and wound nurses".[358]

212 At the wound inspection on 3 February 2021, Dr He observed that Mdm Parvaty's right heel wound had "returned to its baseline condition on admission and was in a stable state, [*ie,*] it was not foul smelling with mild bogginess over the peripheries". The right heel "remained intact, was not sloughy, and no change in wound shape was observed". As for the right shin wounds, these were observed to be "the same since the wound inspection on 1 February 2021".[359]

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354 Dr He's AEIC at [42] (D2BAEIC Vol 1 Tab 3 at p 14).

355 Dr He's AEIC at [43] (D2BAEIC Vol 1 Tab 3 at p 15).

356 A medical note charted by Dr He on 1 February 2021 (Dr He's AEIC at p 80 (D2BAEIC Vol 1 Tab 3 at exhibit HCY-9)).

357 Nurse Lim's AEIC at [37] (D2BAEIC Vol 1 Tab 5 at p 12).

358 Nurse Lim's AEIC at [39] (D2BAEIC Vol 1 Tab 5 at p 13).

359 Dr He's AEIC at [46] (D2BAEIC Vol 1 Tab 3 at p 15).

Dr He's observations were documented in the wound inspection progress notes charted on the same day.[360]

213 In short, therefore, the Claimant's allegation that Dr He had diagnosed *infection of the right shin wound on or about 30 January 2021* was refuted by the testimony of the AMKH witnesses and the contemporaneous medical records.

214 In the interests of completeness, I noted that in the reply submissions, counsel for the Claimant sought to rely on photographs taken by Mdm Parvaty's domestic helper on 20 January and 30 January 2021 as evidence of "the presence of wetness, discharge, swelling, redness, bogginess and spreading of the wound, all of which were red flags for [wet gangrene]".[361] Regrettably, however, the allegation that these photographs showed the presence of wet gangrene on the dates in question was not put to any of the witnesses at trial. The Claimant's expert Mr Smith was not asked to opine on whether the presence of wet gangrene could be seen from these photographs. Nor was Dr He. Indeed, what Dr He was actually asked to do during cross-examination was to compare the domestic helper's photograph of Mdm Parvaty's right heel taken on 30 January 2021 with another photo taken of her right heel on 1 February 2021, and to opine whether "the condition of the right heel [could] have improved … in two days".[362] Dr He testified that such improvement was possible within two days; and no evidence was adduced to refute his answer. In the circumstances, I found the Claimant's allegation to be baseless.

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360 A wound inspection progress note charted by Dr He on 3 February 2021 (Dr He's AEIC at p 89 (D2BAEIC at Vol 1 Tab 3 at exhibit HYC-10)).

361 CRS at [97].

362 NEs (10 April 2025) at pp 142 to 143.

215 Given my findings, I was satisfied that there was no evidence of wet gangrene on Mdm Parvaty's right heel as at 29 January or 30 January 2021; and that it was on 5 February 2021 that that her right heel wound was first observed to have "deteriorated" and to be "exhibiting signs of wet gangrene/infection".[363] I was further satisfied that AMKH's response after first observing the signs of infection was reasonable and appropriate. Having made this observation, Dr He and Dr Sandhya assessed that the deterioration in the wound required "an escalation of care which NUH would be able to provide". Mdm Parvaty was conveyed back to NUH via ambulance that very day.[364] This was entirely in line with the existing protocol for a community hospital like AMKH: as the undisputed evidence of various witnesses established (see [204]–[205] above), since AMKH was not equipped to handle acute conditions (*eg*, development of wet gangrene), the standard protocol was to refer a patient with such conditions back to the acute care hospital for further management.[365] There was thus no undue delay by AMKH in referring Mdm Parvaty back to NUH.

216 In light of the findings set out above at [186]–[215], I found that AMKH did not breach its duty of care to Mdm Parvaty at any time during her admission; and I rejected all the Claimant's allegations against AMKH.

Whether angioplasty or debridement should have been done for Mdm Parvaty on 5 February or 6 February 2021 to avoid an AKA

217 I next address the Claimant's allegations of breach of duty by NUH in respect of the Third NUH Admission.

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363 Dr He's AEIC at [49] (D2BAEIC Vol 1 Tab 3 at p 17).

364 Dr He's AEIC at [48]–[49] (D2BAEIC Vol 1 Tab 3 at p 16).

365 NEs (4 April 2025) at p 130 lines 10–15.

218 The Claimant alleged that NUH should have carried out "urgent" angioplasty and/or debridement on Mdm Parvaty's right lower limb on 5 February or 6 February 2021.[366] According to the Claimant, NUH's "delay" in appropriately managing Mdm Parvaty's wet gangrene fell short of the requisite standard of care and resulted in her subsequent need for an AKA. To support her case, she relied on Mr Smith's expert reports. In his first expert report dated 14 August 2022, Mr Smith opined that "urgent debridement done on 5th or 6th February would have limited the infection and permitted management with a below knee amputation".[367] In his second expert report dated 18 July 2024, Mr Smith stated that "timely angioplasty and wound debridement in December 2020 or January 2021 would have permitted healing of the heel ulcer" and "would have led to avoidance of an above knee amputation, on the balance of probabilities".[368]

219 I found no merit in the above allegations. Regrettably, in placing reliance on Mr Smith's expert reports, the Claimant and her counsel appeared to entirely disregard the testimony he actually gave at trial; and no attempt was made either to address the evidence of NUH's expert Dr Robless.

220 While Mr Smith did opine in his expert reports that debridement and angioplasty on 5 February or 6 February 2021 would have avoided the need for an AKA, he changed his position at trial. In cross-examination, Mr Smith testified that he was "quite certain" that Mdm Parvaty would have required an amputation as at 5 February 2021;[369] and he agreed with counsel for NUH that

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366 CWS at [197]; Mr Smith's 1st Report at [1.20] (CBAEIC Vol 20 at p 4971).

367 Mr Smith's 1st Report at [1.20] (CBAEIC Vol 20 at p 4971).

368 Mr Smith's 2nd Report at [4.20] and [5.9]–[5.10] (CBAEIC Vol 20 at pp 5005 and 5007).

369 NEs (15 April 2025) at p 180.

given the extent of the infection on her right heel and the poor vascularisation in her right lower limb, she would probably already have needed an AKA *as at 5 February 2021*. In his own words:[370]

> … I don't think that Mdm Parvaty was disadvantaged, that any unexpected adverse event arose from the delayed above-knee amputation compared to having it done on, say, the 7th of February. So I don't think there is any causation there.

221 When I asked him to confirm his position as to Mdm Parvaty's condition and treatment options as at 5 February 2021, Mr Smith reiterated:[371]

> … I don't think it would ever have been possible to undertake a below-knee amputation because of the extent of the infection and also because of the previous problems with septic arthritis in the right knee.

222 Mr Smith's testimony at trial – that Mdm Parvaty would probably have required an AKA right from the start of her Third NUH Admission – was consistent with the evidence given by Dr Robless. In disagreeing with Mr Smith's stated opinion in his expert reports that "urgent debridement" at the start of the Third NUH Admission would have avoided the need for an AKA, Dr Robless pointed out the following in his own report:[372]

> … [Mdm Parvaty's] knee was permanently damaged by infection and unlikely to be functionally stable to support a below knee prosthetic leg because of a residual flail knee. Furthermore, the risk of a non-healing below knee stump would have been more than 50% given her infection and poor general condition. A below knee amputation therefore would not have been appropriate in my opinion.

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370 NEs (15 April 2025) at p 180 line 25 to p 181 line 5.

371 NEs (15 April 2025) at p 181 lines 18–22.

372 Dr Robless' expert report dated 1 December 2023 ("Dr Robless' Report") at [53] (D1BAEIC Vol 5 at p 298).

223 In respect of the reference to the permanent damage to Mdm Parvaty's right knee and the "residual flail knee", Dr Robless highlighted at trial that Mdm Parvaty had suffered very severe septic arthritis in the right knee which had necessitated an open arthrotomy, synovectomy and washout on 21 October 2020; and that this surgery had revealed the knee to be so damaged that only 10% of the patellar tendon remained. This meant that "there was a likelihood that she would be left with a flail knee, meaning that her right knee would not be functional, whether or not she had an ongoing infection in that knee".[373] Given this extensive permanent damage to the right knee, Dr Robless' evidence was that the knee was "unlikely to be functionally stable to support a below knee prosthetic leg because of a residual flail knee".[374] In addition, in his view, "the risk of a non-healing below knee stump would have been more than 50% given her infection and poor general condition". In Dr Robless' opinion, therefore, a BKA "would not have been appropriate" for Mdm Parvaty as at 5 February 2021; and an AKA "would have been inevitable as a lifesaving procedure".[375]

224 In short, Mr Smith's and Dr Robless' evidence rendered the Claimant's case wholly unsustainable. Both experts were agreed that by the start of her Third NUH Admission on 5 February 2021, Mdm Parvaty would probably already have needed an AKA. As Mr Smith put it, she was therefore not "disadvantaged" by the fact that debridement and angioplasty were not carried on 5 February or 6 February 2021.[376]

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373 NEs (17 April 2025) at p 26 lines 1–8.

374 Dr Robless' Report at [53] (D1BAEIC Vol 5 at p 298).

375 Dr Robless' Report at [52]–[53] (D1BAEIC Vol 5 at p 298).

376 NEs (15 April 2025) at p 173 lines 5–6.

225 Further, the evidence before me showed that from the start of Mdm Parvaty's Third NUH Admission, it was always NUH's position that she would require either a BKA or AKA.[377] *Per* the contemporaneous medical records maintained by NUH, the Vascular team advised Mdm Parvaty on 7 February 2021 to proceed with a BKA or an AKA to obtain source control for the right heel infection; and she was also advised that the alternative to major amputation surgery – *ie*, wound debridement with antibiotics and revascularisation – had a low success rate[378] and was not recommended.[379] Contemporaneous medical records also showed that from the outset, Mdm Parvaty had strongly opposed any major amputation, even remarking at one point that she would "rather die than undergo an amputation".[380] It was not disputed that both she and her family members had urged the NUH team to attempt limb salvage. It was for this reason that Dr Julian Wong had agreed to attempt debridement with possible revascularisation on 13 February 2021: it will be recalled that Dr Julian Wong's evidence (which was not refuted) was that given the extent of the heel infection, if he had done nothing by that stage, Mdm Parvaty would probably have died.[381] As Dr Julian Wong also explained, he had personally performed the debridement because he wanted to be able to assess for himself how bad the infection was, so that he could relay the information to Mdm Parvaty and her family.[382] It was only upon being informed on 15 February 2021 of Dr Julian Wong's intraoperative findings that Mdm Parvaty finally agreed – on 16 February 2021 – to proceed with amputation. Even then, the amputation surgery

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377 Vascular note charted by Dr Li Tianpei dated 6 February 2021 at 1156 hrs (D1BAEIC Vol 2 at p 1020); CRS at [62].

378 Dr Julian Wong's AEIC at [22]–[24] (D1BAEIC Vol 1 Tab 1 at p 14).

379 Dr Julian Wong's AEIC at [38] (D1BAEIC Vol 1 Tab 1 at p 18).

380 Dr Julian Wong's AEIC at [25] (D1BAEIC Vol 1 Tab 1 at p 14).

381 NEs (8 April 2025) at p 137 lines 3–25, p 142 at lines 1–3.

382 NEs (8 April 2025) at p 137 lines 19–25.

was performed only on 19 February 2021 at her request, because she did not wish to have the surgery on 18 February 2021, which was her birthday.[383]

226 At trial, the Vascular experts agreed that Dr Julian Wong's actions were appropriate, reasonable, and – as Dr Robless pointed out – "humane", especially in light of Mdm Parvaty's refusal to consider amputation up until 16 February 2021. When Mr Smith was apprised of the circumstances, including Mdm Parvaty's refusal of amputation, he too agreed that Dr Julian Wong and his team had managed Mdm Parvaty appropriately, and that what Dr Julian Wong had done was "good medical practice".[384]

227 To be clear, it was a very understandable emotional response on Mdm Parvaty's part to wish to hang on to even the smallest chance of limb salvage, and similarly on the Claimant's part to wish – as a filial daughter – to comply with her mother's wishes. No doubt the prospect of amputation was a frightening and distressing one for Mdm Parvaty and for her family. That being said, what I had to determine in the present case was whether the Claimant could prove her case that NUH is legally to blame for the fact that Mdm Parvaty had to undergo an AKA. On the evidence adduced, I found that she could not. By the time Mdm Parvaty was re-admitted to NUH on 5 February 2021, she would probably already have needed an AKA; and there was no delay on NUH's part in advising and treating her appropriately.

228 In view of the findings set out above at [217]–[227], I was satisfied that NUH did not breach its duty of care to Mdm Parvaty during the Third NUH Admission.

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383 Dr Julian Wong's AEIC at [44] (D1BAEIC Vol 1 at p 22).

384 NEs (17 April 2025) at p 179 lines 2–20; NEs (15 April 2025) at p 178 line 23 to p 179 line 9.

Summary of findings

229 In sum, therefore, applying the *Bolam* test (read with the *Bolitho* addendum), I was satisfied that the Defendants' decisions and actions during their care and management of Mdm Parvaty were supported by a responsible body of opinion within the profession. I have explained why I found the evidence of the Defendants' expert witnesses to be persuasive; indeed, compelling – and why, conversely, I rejected the evidence of the Claimant's expert Mr Smith. In my view, the requisite professional standards were clearly met by the doctors and staff of NUH and AMKH in respect of the care and management of Mdm Parvaty; and I accordingly rejected the multiple claims of negligence pleaded by the Claimant in her SOC. In so far as the Claimant sought in her closing submissions to put forward claims which were *not* pleaded, I have also explained why I rejected these unpleaded claims.

Whether the res ipsa loquitur principle applies in the present case

230 Finally, the Claimant also purported to invoke the *res ipsa loquitur* principle to establish that the injuries suffered by Mdm Parvaty – from the initial right heel DTI to the subsequent deterioration of the dry gangrene into wet gangrene – all resulted from the negligence of the Defendants, Dr Ng, Dr Tham, and/or Dr He.[385]

231 The *res ipsa loquitur* principle is a rule of evidence that enables a claimant to establish a *prima facie* case of negligence in the event that there is insufficient direct evidence to establish the cause of the accident in a situation where the accident would not have occurred in the ordinary course of things had proper care been exercised, *ie*, absent any negligence (*Grace Electrical*

[385] SOC at [54]; CRS at [15].

Engineering Pte Ltd v Te Deum Engineering Pte Ltd [2018] 1 SLR 76 ("*Grace Electrical*") at [39]). As VK Rajah JC (as he then was) explained in *Cheong Ghim Fah v Murugian s/o Rangasamy* [2004] 1 SLR(R) 628, the principle of *res ipsa loquitur* is a "principle of common sense" which "applies in situations where the occurrence of an incident is *prima facie* consistent with the want of care of the other party – the defendant" (at [32]).

232 The three requirements for the application of the *re ipsa loquitur* principle are as follows (*Grace Electrical* at [39]):

(a) The defendant must have been in control of the situation or thing which resulted in the accident;

(b) The accident would not have happened, in the ordinary course of things, if proper care had been taken; and

(c) The cause of the accident must be unknown.

Once the three requirements are satisfied, the evidential burden shifts to the defendant to rebut the *prima facie* case of negligence (*Grace Electrical* at [40]).

233 In *Grace Electrical*, a fire broke out on the appellant's premises and spread to the adjoining property belonging to the respondent, causing considerable damage to both properties. The appellant used its premises as a factory to assemble, test, and commission electrical cables and equipment, as well as to repack electrical cables. The evidence showed that the appellant had also converted the premises into unauthorised housing for its foreign workers, in contravention of the Fire Safety Act (Cap 109A, 2000 Rev Ed) ("FSA"). Further, the appellant knew that its workers were cooking their meals on the premises and permitted this. There was evidence that workers had been cooking

on the premises less than three hours before the fire started. After the fire, the appellant was charged with and subsequently convicted of several contraventions of the FSA which centred on the unauthorised conversion of its premises into workers' accommodation and cooking areas. The respondent sued the appellant for negligence. In the expert reports produced following the fire, the exact cause of the fire could not be identified. Nonetheless, they posited that the cause of the fire was possibly electrical in nature. The reports also concluded that the fire likely started at the rear of the appellant's premises, which included the unauthorised accommodation area.

234 In allowing the claim, the trial judge applied the *res ipsa loquitur* principle to infer negligence on the appellant's part. On appeal, the trial judge's finding was upheld by the Court of Appeal, which held that the appellant's convictions under the FSA provided the "clearest objective evidence that the appellant had, by its conduct, increased the risk of fire on its premises" (at [52]). While it might be unclear whether the specific breaches of the FSA of which the appellant was convicted were directly causative of the fire, it could not be disputed that the breaches led to the appellant's unauthorised use of its premises as an accommodation area where multiple electrical appliances and wirings were located – thereby increasing the risk of fire occurring on the premises. The appellant's breaches of the FSA thus formed the backdrop to the Court's finding that it had more likely than not breached its duty of care to the respondent, because the breaches undeniably increased the risk of fire occurring on the appellant's premises (at [52]–[53] and [59]).

235 In contrast to the respondent in *Grace Electrical,* the Claimant in this case was unable to establish that Mdm Parvaty's injuries – *ie* the initial right heel DTI, its progression to dry gangrene, and the deterioration into wet gangrene – would not have happened in the ordinary course of things *if proper*

care had been taken. I have set out in detail above the findings and reasoning which led to my conclusion that there was no breach of duty by the Defendants in their care and management of Mdm Parvaty at all material times. In particular, it will be recalled that Mdm Parvaty had numerous co-morbidities (including PAD and diabetes) which increased the risk of complications of the poorly vascularised foot areas; and she had moreover undergone knee surgery in October 2021 to address her septic arthritis, which surgery had then necessitated the immobilisation of her right lower limb.[386] Further, as Dr Ng explained in his testimony, there is "always a risk of wet gangrene developing"; and "no-one knows how quickly dry gangrene can deteriorate in any one case".[387] The aim is certainly to "manag[e] it optimally" so as to "prevent all the bad consequences from happening too quickly"[388] – but as vascular expert Dr Glenn pointed out in his expert report, "[e]ven with best efforts, wounds can get wet and/or infected".[389]

236 On the evidence adduced, therefore, I found no basis for the Claimant's attempt to invoke the principle of *res ipsa loquitur.* I agreed with the submission by counsel for the Defendants that the development of the right heel DTI, its progression to dry gangrene, and the subsequent infection, were all events which could be explained by and were related to Mdm Parvaty's underlying medical conditions as well as her post-surgery immobilisation.

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386 NEs (9 April 2025) at p 87 line 1 to p 88 line 8.

387 NEs (9 April 2025) at p 111 lines 14–15, p 113 lines 2–5.

388 NEs (9 April 2025) at p 113 lines 22–25.

389 Dr Glenn's Report at [17] (D2BAEIC Vol 1 Tab 1 at p 14).

Conclusion on the issue of liability

237 Having found both Defendants to have met the requisite professional standards of care in advising, treating, and managing Mdm Parvaty, and having rejected the Claimant's attempt to invoke the *res ipsa loquitur* principle, I dismissed the claims in negligence against NUH and AMKH.

238 As the Claimant did not succeed in establishing liability on the part of either of the Defendants, there was no need for me to consider the issue of quantum of damages.

Costs

239 Following my dismissal of the Claimant's action in HC/OC 468/2022, I gave counsel directions to file written submissions on costs. Subsequently, I was informed that the Claimant had filed a Notice of Intention to Act in Person in place of her then counsel, and that she declined to make any submissions on costs. At the hearing before me on 15 October 2025, the Claimant confirmed that she did not wish to make any submissions on costs and that she would leave it to the court to determine the quantum of costs.

240 The grounds for my decision on costs in this case have been set out in my minute sheet of the hearing on 15 October 2025; and I provide a summary of those grounds as follows.

241 Both NUH and AMKH submitted that pursuant to O 21 r 22(1) of the Rules of Court 2021 ("ROC 2021"), costs in this case should be assessed on the indemnity basis in view of the manner in which the Claimant had conducted the litigation against them. I accepted these submissions.

242 In gist, I found that the Claimant's conduct before and during the trial was unreasonable. In particular, I noted that multiple offers to settle were made by both Defendants to the Claimant, but all these offers were not taken up by the Claimant. Indeed, the Claimant took one year to respond to the Defendants' first joint offer, which was made on 27 February 2024 and rejected by the Claimant on 10 February 2025. The Defendants' subsequent (and increased) joint offer was also not taken up by the Claimant, despite the Defendants reinstating this offer on more than one occasion. The Claimant also failed to respond to an offer to settle made by AMKH. Along the way, the Claimant proposed a few amounts for settlement, but these were pitched at considerably higher amounts. There was thus no evidence of a genuine desire on the Claimant's part to work towards a settlement. In fact, on 13 June 2024, AMKH had proposed mediation or alternatively, a non-binding, documents-only neutral evaluation – but these proposals were unsuccessful because the Claimant took the position that the costs of any mediation or neutral evaluation had to be borne wholly by the Defendants. Even then, AMKH offered to contribute to the Claimant's share of the costs of neutral evaluation up to a cap of $4,000 – but the Claimant did not respond to this proposal.

243 No doubt the Claimant acted on the advice of her counsel and also on the basis of the expert opinion procured by counsel. However, to borrow the words of the High Court in *Chia Soo Kiang (personal representative of the estate of Tan Yaw Lan, deceased) v Tan Tock Seng Hospital Pte Ltd* [2023] SGHC 56 (at [7]), what advice the Claimant received was not a matter of inquiry before me; and while costs are not meant to punish a failed civil action, when reasonable offers to settle and genuine attempts to reach amicable resolution are rebuffed by a party who ends up worse off than the terms offered, the other parties should not have to bear the resulting costs that might have been saved.

244 In the course of these proceedings, the Claimant also engaged in unreasonable conduct which necessitated additional work for the Defendants and/or prolonged the trial and/or created entirely unnecessary complications. For example, at the registrar's case conference on 29 November 2024, the learned Assistant Registrar ("AR") had urged counsel for the Claimant to take note, *inter alia*, of various points regarding the Claimant's Single Application Pending Trial in HC/SUM 3186/2024 ("SAPT") for leave to adduce the evidence of the Claimant's expert witness via video-link. In particular, the AR had pointed out to counsel for the Claimant that if the relevant requirements under the Supreme Court Practice Directions 2021 were not complied with, the Claimant risked having the application for video-link evidence dismissed. For reasons best known to the Claimant and her counsel, the AR's observations were not heeded; and this application for video-link evidence was indeed dismissed by me after I heard the SAPT on 27 January 2025; *inter alia*, because of the failure by the Claimant to satisfy the relevant requirements. A fresh application for video-link evidence with a fresh supporting affidavit was eventually filed by the Claimant. As this was filed just five days before the trial, an urgent hearing had to be convened at short notice to the Defendants and their counsel.

245 As another example of unreasonable behaviour, counsel for the Claimant insisted, prior to the trial, that the Claimant would not agree to the authenticity of any of the Defendants' medical records. This led to each of the Defendants having to call an additional witness (and to prepare the corresponding AEIC) to attest to the authenticity of the medical records. Ironically, in the closing submissions filed on behalf of the Claimant, counsel actually made copious references to many of these medical records.

246 In yet another example of unreasonable behaviour which necessitated additional work for the Defendants, the Claimant's closing submissions raised

numerous claims and allegations which – as I have noted in these written grounds – were never pleaded in her SOC and which the Defendants had no choice but to address in their submissions.

247 Regrettably, in the absence of any evidence and submissions from the Claimant herself, I had no basis for disbelieving that these unreasonable actions were pursued by counsel only after having taken full instructions from the Claimant, and with her having been apprised of the potential consequences of such actions. In the circumstances, I ordered that the costs for NUH and AMKH should be on an indemnity basis from 28 February 2024 (*ie* the day after the Defendants' first joint offer to settle).

248 As to the quantum of the Defendants' costs, I did not accept NUH's and AMKH's submissions on what the costs on a standard basis should be in this case and what uplift should be applied. Having regard to the relevant considerations such as the complexity of the case, the difficulty of the questions raised, the length of the trial, and the skill, specialised knowledge and responsibility required of counsel, I concluded that in respect of NUH, costs on a standard basis should be in the region of $360,000 (excluding disbursements, GST and interest); and that in respect of AMKH, costs on a standard basis should be in the region of $260,000. I was also of the view that an uplift of about one-third is appropriate.

249 Accordingly, I awarded NUH costs of $470,000 plus GST (excluding disbursements and interest); and I awarded AMKH costs of $350,000 (excluding disbursements and interest). As for disbursements, I found the disbursements claimed to be reasonable, being composed of items such as transcription fees, expert fees, filing and commissioning fees, and printing fees. I therefore allowed NUH's total disbursement amount of $101,837.39 and

AMKH's total disbursement amount of $53,566.03. Lastly, I ordered interest to run on the above amounts at the rate of 5.33% per year from the date of the costs order to the date of full payment.

Mavis Chionh Sze Chyi J
Judge of the High Court

Vijay Kumar Rai and Jasleen Kaur (Arbiters Inc Law Corporation) for the claimants;
Kuah Boon Theng SC, Yong Shuk Lin Vanessa, Kimberly Chia Wei Xin and Kwok Chong Xin Dominic (Legal Clinic LLC) for the first defendant;
Mar Seow Hwei, Toh Cher Han, Aw Sze Min and Isaac Hoe Wen Jie (Dentons Rodyk & Davidson LLP) for the second defendant.

Annex A:

Abbreviation	Meaning
AKA	Above-knee amputation
ASA4	American Society of Anaesthesiologists Grade 4
ATA	Anterior tibial artery
BKA	Below-knee amputation
CLI	Critical limb ischaemia
DTI	Deep tissue injury
ESRF	End stage renal failure
MSSA	Methicillin-susceptible staphylococcus aureus
PAD	Peripheral arterial disease
PA	Peroneal artery
PTA	Posterior tibial artery

Annex B:

S/N	Name of the witness	Brief description of the witness's role
Factual witnesses		
1	Dr Er Boon Kwang Gilbert ("Dr Er")	Dr Er was a Service Registrar at AMKH and was one of the doctors reviewing the suitability of referral admissions to AMKH at the material time. He gave evidence regarding the protocol for assessment and acceptance of referred patients at AMKH which were applicable at the time of Mdm Parvaty's transfer from NUH on 13 January 2021.
2	Dr He Yingci ("Dr He")	Dr He was a resident physician at AMKH and was involved in the medical management and treatment of Mdm Parvaty between 13 January 2021 and 5 February 2021. His duties involved, *inter alia*, conducting ward rounds, managing acute and chronic medical conditions, updating family members of patients' progress, and discharge planning.
3	Ms Hamizah Binte Jamal ("Nurse Hamizah")	Nurse Hamizah was a registered nurse working at NUH. Since 1 July 2020, she has been working as a Nurse Manager in NUH's Ward 52, where Mdm Parvaty was cared for

		from 7 November 2020 until she was discharged from NUH on 13 January 2021.
4	Ms Lim Soo May ("Nurse Lim")	Nurse Lim was a staff nurse and wound nurse at AMKH at the material time. She gave evidence regarding the details of the nursing care (in particular, the wound care) provided to Mdm Parvaty at AMKH.
5	Ms Maria Delanie Sumalde Jover ("Nurse Delanie")	Nurse Delanie was a registered nurse working at NUH and was involved in the nursing care of Mdm Parvaty.
6	Mdm Meenachi d/o Suppiah ("Mdm Meenachi")	Mdm Meenachi is the daughter and administrator of the estate of Mdm Parvaty in this action.
7	Ms Naw Hnin Yee Aye ("Nurse Naw")	Nurse Naw was a registered nurse working at NUH. She was involved in the nursing care of Mdm Parvaty between 2 October 2020 and 5 November 2020.
8	Dr Ng Yau Hong ("Dr Ng")	Dr Ng was an Orthopaedic surgeon and a Consultant in the Division of Adult Reconstruction and Joint Replacement Surgery in the Department of Orthopaedic Surgery, NUH. Dr Ng was involved in the medical management of Mdm Parvaty during her admission at NUH between 25 September

		2020 and 13 January 2021. During that time, Dr Ng was the Orthopaedic consultant in charge of Mdm Parvaty.
9	Dr Qu Xinyi ("Dr Qu")	Dr Qu was involved in the medical management of Mdm Parvaty between 6 December 2020 and 26 December 2020 when she was admitted at NUH. During this time, Dr Qu was a house officer assigned to NUH, and she assisted Dr Ng in the care of Mdm Parvaty.
10	Dr Sandhya Chandramohan Girijadevi ("Dr Sandhya")	Dr Sandhya was working as a Service Registrar at AMKH and was involved in the medical treatment and management of Mdm Parvaty during her admission at AMKH. As Service Registrar, she was responsible for overseeing the ward where Mdm Parvaty was admitted from 13 January 2021 to 5 February 2021. Her main responsibility was to ensure that the clinical decisions made by her team members were appropriate.
11	Ms Siti Rohaidah Binte Mohamed ("SSN Siti")	At the material time, SSN Siti was an assistant nurse clinician at AMKH and the wound nurse in charge of wound care in the ward where Mdm Parvaty was warded. She provided an account of the nursing care (in particular, the

		wound management) provided to Mdm Parvaty during her admission at AMKH.
12	Dr Tham Sai Meng ("Dr Tham")	Dr Tham Sai-Meng was a specialist in infectious diseases and is a Consultant in the Division of Infectious Diseases in NUH. Dr Tham was involved in the medical management of Mdm Parvaty between 3 October 2020 and 6 January 2021 as a Year 2 Senior Resident. Dr Tham's scope of duties included providing specialist advice for patients with suspected or confirmed infections. Dr Tham also provided advice with regards to evaluation and management of infective issues, in consultation with his covering consultant, Associate Professor Chai Yi Ann Louis.
13	Dr Julian Wong Chi Leung Julian ("Dr Julian Wong")	Dr Julian Wong was a Senior Consultant and the Head of Division of the Vascular and Endovascular Surgery in the Department of Cardiac, Thoracic & Vascular Surgery in NUH when Mdm Parvaty was admitted to NUH from 25 September 2020 to 13 January 2021, and 5 February 2021 to 22 March 2021.
14	Mr Yeap Kok Chooi ("Mr Yeap")	Mr Yeap was a Senior Manager working at the Medical Records Office of NUH. He gave

		evidence regarding how NUH stores and manages its medical records.
15	Mr Yong Kok Leong ("Mr Yong")	Mr Yong is the Manager of the Medical Records Office at AMKH. He gave evidence regarding the authenticity of Mdm Parvaty's medical records that had been disclosed by AMKH.
Expert witnesses		
16	Mr Phillip Coleridge Smith ("Mr Smith")	Mr Smith was a Consultant Vascular Surgeon and Medical Director at the British Vein Institute in the United Kingdom. He was asked by the Claimant's solicitors to provide his expert opinion on the Defendants' treatment, care, and management of Mdm Parvaty.
17	Dr Peter Robless ("Dr Robless")	Dr Robless was a Vascular and Endovascular Surgeon at the Advanced Vascular Centre. He was instructed by Dr Julian Wong's solicitors to provide his expert opinion in relation to NUH's Vascular team's treatment, care, and management of Mdm Parvaty.
18	Dr Tan Tong Leng ("Dr Tan")	Dr Tan was an Orthopaedic surgeon and a Senior Consultant in the Department of Orthopaedic Surgery at Tan Tock Seng

		Hospital. He was asked to provide an expert opinion in respect of Dr Ng's medical management of Mdm Parvaty.
19	Dr Tan Wei Leong Glenn ("Dr Glenn")	Dr Glenn was a Senior Consultant in General and Vascular Surgery, Head of Department of General Surgery, and Head of Service for Vascular and Endovascular Surgery at Tan Tock Seng Hospital. He was asked to provide his expert opinion on whether the medical care of Mdm Parvaty rendered by AMKH between 13 January 2021 and 5 February 2021 was appropriate.
20	Dr Wong Sin Yew ("Dr Wong SY")	Dr Wong SY is an infectious disease physician. He was engaged to provide his expert opinion regarding NUH's management of Mdm Parvaty from an infectious diseases management perspective.