

SOUTH AFRICA / JUDGMENT

## Louw v Patel (245/2021) [2023] ZASCA 22 (9 March 2023)

[2023] ZASCA 22

COURT

Supreme Court of Appeal

BEFORE

Dambuza, Molemela, Gorven, Basson, Masipa

CASE / FILE NUMBER

245/2021

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### THE SUPREME COURT OF APPEAL OF SOUTH AFRICA

#### JUDGMENT

Not Reportable

Case no: 245/2021

In the matter between:

DR FREDERICK CHRISTOFFEL LOUW APPELLANT

and

DR ABDUS SAMAD PATEL RESPONDENT

Neutral citation: Louw v Patel (245/2021) [2023] ZASCA 22 (9 March 2023)

Coram: DAMBUZA, MOLEMELA and GORVEN JJA, and BASSON and MASIPA AJJA

Heard:

23 August 2022

Delivered: 9 March 2023

Summary:

Delict – medical negligence – delay in transferring a patient to definitive care – whether medical practitioner’s conduct was negligent – whether negligence was causally linked to the amputation of the patient’s leg.

ORDER

On appeal from: Gauteng Division of the High Court, Johannesburg (Wanless AJ, with Lamont and Mahalelo JJ concurring, sitting as a court of appeal):

The appeal is dismissed with costs, including the costs of two counsel where so employed.

Masipa AJA (Molemela and Gorven JJA concurring):

## Introduction

- [1] This is an appeal against the judgment of the full court of the Gauteng Division of the High Court, Johannesburg (the full court), which upheld an appeal and set aside the order of the trial court, in terms of which the respondent's, Dr A S Patel, damages claim for medical negligence was dismissed. The appeal is with the special leave of this Court.
- [2] The appellant, Dr F C Louw, and the respondent are general medical practitioners practising in Standerton, a small town in Mpumalanga

Province. The respondent instituted a claim for damages against the appellant, one Dr A B Joosub and the Member of the Executive Council for Health, Mpumalanga Province (the MEC). He contended that Dr Joosub and the appellant had breached their legal duty to attend to him with the skill and care of a reasonable doctor, while the MEC was said to have failed to render hospital and nursing services of a standard reasonably expected of a hospital of the size and in the location of Standerton Hospital. The claim against the MEC was withdrawn. The trial court dismissed the claim in respect of both doctors, having found that there was no causal link between their negligence and the harm suffered by the respondent, which resulted in his lower left leg being amputated. In upholding the appeal, the full court found that the appellant failed to transfer the respondent to definitive care[1] with the necessary urgency, which led to the amputation of his lower left leg. It accordingly found that there existed a causal link between the negligence and the resultant harm.

- [3] In this Court, the appellant contended that the full court made several incorrect factual findings which caused it to reach conclusions that were unfavourable to him. One of these is the conclusion that the appellant decided to transfer the respondent to Pretoria East Hospital without ascertaining that the hospital had the necessary facilities and medical experts. This conclusion was, according to the appellant, grounded on the incorrect contention by the respondent that the appellant never told one Dr Straub that the respondent

presented with no pedal pulse.

- [4] It was also contended that the full court failed to apply the trite principles pertaining to the assessment of expert evidence, in that it preferred the evidence of Prof Kenneth David Boffard, the respondent's expert, over that of Prof Martin Veller and that of Dr Konrad Botes, the appellant's experts. Prof Boffard was then the Head of the Department of Surgery at the University of the Witwatersrand Vascular and Surgical Units teaching hospitals, and a trauma surgeon. Prof Veller on the other hand was the Academic Head in the Department of

Surgery at the University of the Witwatersrand and Vascular Surgical Units, Johannesburg teaching hospitals, and a specialist vascular surgeon. Dr Botes was the attending specialist vascular surgeon.

#### The facts

- [5] A better understanding of this matter requires that the relevant facts leading to the event be set out. On 7 August 2019 at about 17h30, the respondent was shot at his home surgery during a robbery. He was attended to by paramedics from the Mpumalanga Provincial Ambulance Services at 17h40, who inserted an intravenous infusion and stabilised him. Dr Joosub,[2] a colleague and neighbour of the respondent, was alerted to the incident and immediately arrived to provide assistance.
- [6] At 17h50, the respondent requested Dr Joosub to phone Dr Herbst, a senior general medical practitioner in their area. The appellant, a partner of Dr Herbst, took the call from his consulting rooms where he was attending to 'after-hours patients'. Dr Joosub informed the appellant about the shooting and that the respondent had sustained a gunshot injury to his left lower limb.
- [7] The appellant accepted the respondent as a patient and undertook to attend to him at Standerton Hospital, but advised Dr Joosub that he was still attending to patients in his consulting rooms and had an emergency appendectomy scheduled for 18h30. Dr Joosub followed the ambulance to Standerton Hospital.
- [8] Upon completing his consultations, the appellant proceeded to Standerton Hospital. There is a dispute as to the exact time that the appellant arrived at the hospital which shall be dealt with later. The ambulance arrived at the hospital before the appellant. The respondent instructed Dr Joosub to phone Dr Batev, another local senior medical practitioner. According to the respondent, at 18h12, while Dr Joosub was busy with the call, the appellant arrived. The appellant's version was that he arrived at 18h20.
- [9] On arrival, the appellant examined the respondent and found that he had a fracture of the left femur with no pedal pulse on his left lower leg, which he realised indicated a potential vascular injury. At 18h27, the appellant contacted the theatre to delay the appendectomy by ten minutes. The appellant then inserted a second intravenous infusion, splinted the fractured leg and ordered an X-ray. He asked Dr Joosub to accompany the respondent to the X-ray while he proceeded to theatre to perform the appendectomy, which in his view was urgent since he had previously lost a patient from systemic sepsis related to appendicitis. He had treated the patient the previous day and the following morning the patient returned with severe appendicitis. The appendectomy had been delayed to the evening because the anaesthetist and assistant general practitioner who were to assist, were both tied up in their private practices during the day

[10] The appellant commenced the appendectomy at 18h40. At about 19h00, Dr Joosub took the X-ray results which confirmed a femur fracture, to the appellant in the theatre. Due to the absence of a vascular surgeon at Standerton, the appellant decided that it was necessary to transfer the respondent to a facility with a vascular and orthopaedic surgeon, for urgent restoration of blood supply to the injured leg and further treatment of the fracture. It was common cause between the parties that the appellant was aware that a delay in restoring blood supply to a leg could result in ischaemia. At 19h11, the appellant telephoned Mar Peh Hospital, a local private hospital, to enquire about a safe and quick ambulance service and was referred to Langamed Ambulance Services (Langamed) located in Secunda.

[11] As the ambulance services required details of the receiving hospital, the appellant telephoned Dr Marcel Straub, a specialist orthopaedic

surgeon at Pretoria East Hospital, to arrange for the respondent's transfer. The two doctors had a long-standing relationship and had previously facilitated numerous emergency transfers together. Dr Straub advised that he was not on call that night and that Dr Willem Tollig was the specialist orthopaedic surgeon on call. Protocol required the transferring doctor to phone the receiving doctor. However, Dr Straub undertook to liaise with Dr Tollig regarding the transfer. The appellant prepared a referral letter addressed to Dr Tollig, wherein he confirmed having spoken to Dr Straub and indicated the nature of the injuries and his diagnosis.

[12] At 19h30, the appellant telephoned Langamed to arrange for the transfer. According to the transcript of the phone calls between Langamed and International SOS, attempts made to arrange for the respondent to be airlifted to Pretoria East Hospital met with no success. An ambulance was dispatched from Secunda at 19h51, arriving at Standerton at 20h20. It took another 26 minutes to prepare the ambulance to depart for Pretoria at 20h46. Mr Shane van der Heever, a certified Principal Care Assistant and the owner of Langamed, escorted the respondent. En route to Pretoria East Hospital, International SOS agent phoned the appellant to confirm the transfer. The appellant advised the agent, among other things, that the respondent had a vascular injury and that Dr Tollig was expecting him.

[13] Standerton is approximately 200km from Pretoria. The ambulance travelled for one hour and fifty-nine minutes, arriving at Pretoria East Hospital at 22h45. During the transfer, approximately 60km (about 45 minutes) towards Pretoria, Mr van der Heever observed commencement of compartment syndrome[3] on the respondent's injured leg. This is an important consideration in the determination of causation.

[14] While Dr Tollig was not physically present at the hospital, he was expecting the respondent and scheduled that an angiogram be performed

on the respondent's arrival. At 22h58, the respondent was attended to by Dr Daniel Frederik van der Merwe, the emergency

physician on duty.

[15] On examination, Dr van der Merwe was surprised to note the absence of the left pedal pulse. He had been unaware of the respondent's

vascular injury. He also observed advanced compartment syndrome on the injured leg. According to Mr van der Heever, he had attempted to inform Dr van der Merwe and the hospital staff about this on arrival at Pretoria East Hospital, but, in his view, no one paid attention. Pretoria East Hospital had no resources to treat a vascular injury and the respondent had to be transferred to yet another hospital.

[16] When Dr van der Merwe telephoned Dr Tollig at 23h08, Dr Tollig was equally astonished to learn of the vascular injury. Dr Straub had phoned him at approximately 20h00 to inform him of the transfer, but made no mention of the absent pedal pulse or of a vascular injury. Pursuant to the phone call from Dr van der Merwe, Dr Tollig cancelled the angiogram and went to the hospital. At 23h30, while travelling to the hospital, Dr Tollig phoned Dr Botes to arrange for the respondent's transfer to Pretoria Heart Hospital. Dr van der Merwe also attempted to locate a vascular surgeon and phoned Unitas Hospital to no avail.

[17] When Dr Tollig arrived at Pretoria East Hospital at 23h40, he examined the respondent and then arranged with Langamed to transfer him to Pretoria Heart Hospital. He arrived there at 00h04. At Pretoria Heart Hospital, Dr Botes informed the respondent and his family of a possible amputation, but was asked to attempt to save the limb. He examined the respondent in theatre at 00h12 and was able to revascularise the respondent's leg by 02h47. Unfortunately, despite the revascularisation, the respondent's lower left leg did not regain viability. On 10 August 2009, the respondent's left leg was amputated through the knee.

#### The approach to expert evidence

[18] Expert evidence was led in respect of the nature and seriousness of the injuries sustained and the effect of the passage of time on the prognosis of the injured leg. As already stated, it was common cause that, due to the nature of the injury, the time taken to treat the injury was of the essence. Although the trial court recorded that the critical time commenced at 18h30, the evidence led by all the experts was that it commenced immediately when the injury was sustained, being at 17h30.

[19] In *Michael and Another v Linksfield Park Clinic (Pty) Ltd and Another*,<sup>[4]</sup> this Court referred with approval to the principle laid down in *Bolitho v City and Hackney Health Authority*.<sup>[5]</sup> Therein, the court held that the evaluation of expert evidence entails a determination of whether and to what extent the opinions

advanced are founded on logical reasoning. The court is not bound to absolve a defendant from liability for alleged negligent medical

treatment or diagnosis based on the evidence of an expert genuinely held and which accords with sound medical practice. A defendant can therefore be held liable despite a body of professional opinion sanctioning his conduct. The court must be satisfied that such

opinion has a logical basis and that the expert has considered comparative risks and benefits and has reached ‘a defensible

conclusion’.[6] In the same vein, in *Mediclinic v Vermeulen*,[7] this Court held that an opinion, which is expressed without logical foundation, may be rejected.

[20] However, it will seldom be correct to conclude that views genuinely held by a competent expert are unreasonable,[8] because courts would not be able to assess medical risks without expert evidence. Furthermore, it would be improper to prefer one view where there are conflicting expert views which are both capable of logical support. In *Dingley v The Chief Constable, Strathclyde Police* [2000] UKHL 14, 2000 SC (HL) 77 at 89D-E, the court warned that:

‘One cannot entirely discount the risk that, by immersing himself in every detail and by looking deeply into the minds of the experts, a judge may be seduced into a position where he applies to the expert evidence the standards which the expert himself will apply to the question whether a particular thesis has been proved or disproved – instead of assessing, as a judge must do, where the balance of probabilities lies on a review of the whole of the evidence.’ (My emphasis.)

[21] In *Life Healthcare Group (Pty) Ltd v Suliman*,[9] this court held that:

‘Judges must be careful not to accept too readily isolated statements by experts, especially when dealing with a field where medical certainty is virtually impossible. Their evidence must be weighed as a whole and it is the exclusive duty of the court to make the final decision on the evaluation of expert opinion.’

In essence, a court must consider probabilities along with the views of experts.

## Negligence

[22] The test for negligence is whether a reasonable person in the appellant’s position would have reasonably foreseen harm befalling the respondent as a result of his conduct, and would have taken reasonable steps to prevent the harm. If so, the question is whether he took reasonable steps to avert the harm that ultimately occurred.[10] The reasonableness of such conduct is assessed objectively.

[23] Liability for medical negligence, as set out in *Goliath v Member of the Executive Council for Health, Eastern Cape*,[11] is determined by asking whether the failure of a professional person to adhere to the general level of skill and diligence possessed and exercised by the members of the branch of the profession to which he or she belongs would normally constitute negligence. What constitutes the general level of skill exercised by members of a particular profession is demonstrated through evidence of experts in that profession. Our courts have in numerous judgments outlined the approach to the evaluation of such evidence.

[24] In this case, the respondent had to explain the events of the night in question and by so doing demonstrate that the appellant was

negligent, in that he foresaw harm ensuing but failed to adhere to the standard of a reasonable medical practitioner in preventing such harm. Consideration is given to the following three factors: the urgency with which the appellant attended to the respondent; the urgency with which the appellant arranged for the respondent's transfer, noting that the appellant admitted that he realised the urgency of the respondent's condition immediately upon examination; and, lastly, the appellant's omission to communicate with the receiving doctor.

Urgency in attending to the patient

[25] In Prof Boffard's view when the appellant received the phone call about the shooting, he should have immediately rushed to the hospital, because he did not know the nature of the injury. A delay in the face of an uncertain injury was significant, since even seconds could have made a difference. He however conceded that he did not know the condition of the patients who were in the appellant's surgery.

[26] The evidence of Prof Veller was that general practitioners do not undergo triage training. Relying on the information provided to him, the appellant took a decision to attend to the patients in his consulting rooms before proceeding to the hospital. His evidence was that he was unaware of the seriousness of the respondent's injury. Based on the advantage of hindsight, the appellant conceded that none of his patients' conditions were as urgent as that of the respondent. Prof Veller's opinion is that the appellant's decision to treat the patients in his surgery first could not be faulted.

[27] Relying on *Cooper v Armstrong*,<sup>[12]</sup> counsel for the appellant argued that it was irrationally meticulous to assess and judge negligence on knowledge acquired after the fact, which he said was what Prof Boffard did. In *Cooper*, the court stated as follows:

'... Now this standard of diligent conduct which the law demands is constant and must be applied to the facts examined in the light of the circumstances prevailing at the time when they supervened, not in the light of after-acquired knowledge. It seems to me a hard and false doctrine that one subject can, by ignoring all rules of the road and in fact all caution, cast upon another subject a more exacting duty than to conform to the ordinary standard of conduct which the law demands. Where a plaintiff is put in jeopardy

by the unexpected and patently wrongful conduct of the defendant, it seems to me irrational meticulously to examine his reactions in the placid atmosphere of the Court in the light of after-acquired knowledge; to hold that, had he but taken such and such a step, the accident would have been avoided, and that consequently he also, was negligent. To do so would be to ignore the penal element in actions on delict and to punish a possible error of judgment as severely as, if not more severely than, the most callous disregard of the safety of others.'

[28] As already stated in paragraph 8, the parties disagreed on the time of the appellant's arrival at Standerton Hospital. The respondent contended that the appellant should have immediately left his surgery and proceeded to Standerton Hospital, to reach the hospital before the respondent. According to the respondent, the appellant's failure to do so was the start of his negligent conduct.

[29] The difference in the times asserted by the parties for the appellant's arrival at the hospital was eight minutes (the respondent's

18h12 as opposed to the appellant's 18h20). Although this is significant in medical terms, in my view, the difference provides no support to the broad claim of negligence. Particularly in that, according to the respondent, the appellant started examining him at 18h15, which is earlier than the appellant's asserted time of 18h20. Moreover, at the time the appellant received the telephone call from Dr Joosub, he was not alerted to a potentially life-threatening injury. It was only later that such information

became available. Consequently, I find this part of the negligence claim to be unsustainable.

Urgency in the arrangement of the transfer

[30] The second basis upon which the appellant is said to have been negligent relates to his decision to proceed with the appendectomy instead of cancelling or rescheduling it and attending to the respondent who required urgent medical care. It was also submitted by the respondent that, having splinted the fractured leg, it was not necessary for the appellant to prioritise the X-rays. A reasonable doctor would have promptly proceeded to arrange the transfer, as the vascular injury required extremely urgent attention.

[31] The appellant's explanation that the appendectomy was an emergency was rebuffed with an assertion that, in this instance, the appendectomy was a less urgent procedure compared with revascularisation. The appendectomy could have been performed after

arranging the transfer. The appellant was also criticised for not asking Dr Joosub to arrange the transfer. It was contended that this failure too was unreasonable and therefore negligent.

However, according to Dr Joosub, he had not done transfers for some time and was of the view that he would not have known what to do.

[32] As regards the X-rays, Dr van der Merwe confirmed that, as a rule, X-rays should be taken to confirm the diagnosis of a fracture, as did Prof Boffard. However, Prof Boffard's concession was qualified. According to him, in instances of urgency, where a delay could be dangerous to the patient, X-rays should be omitted.

- [33] I agree that the reasonable route was to prioritise the transfer over the appendectomy and without first referring the respondent for X-rays. A reasonable doctor of the appellant's standing would have arranged transport to definitive care as a matter of urgency. With transport taking some time to arrive, he would have ordered the X-rays to be taken while the respondent was waiting for the ambulance to arrive. This could all have been done in time to perform the appendectomy at the time it was scheduled or shortly thereafter.
- [34] It seems to me that a reasonable doctor would have weighed the level of urgency of the vascular injury against that of the appendicitis. Although the appendicitis had aggravated overnight, there was no evidence that the condition of the patient had become a threat to his life. That the appendicitis was not an emergency is apparent from the scheduling the procedure for the evening instead of the morning. A reasonable doctor would have concluded that the respondent's condition required priority.
- [35] Whilst I accept that these decisions were made under pressure and taking cognisance of the appellant's previous experience of losing a patient from systemic sepsis resulting from appendicitis, these factors cannot serve to alter the standard to which he must be held. Prof Veller's suggestion that as a general practitioner the appellant may not have had triage training can be readily discounted. The appellant is a highly experienced general practitioner who frequently performed general surgery. He holds numerous degrees, including a Master's degree and conducts continuing medical education courses for other medical practitioners. He had worked at the Standerton Hospital trauma unit for a decade.
- [36] Considering that the appellant was aware of the urgency of the respondent's condition when he first examined him, he accordingly appreciated the significance of urgently transferring the respondent, the danger in not doing so and the possibility of arranging urgent transfer without prejudicing the appendectomy patient. I accordingly agree with the full court that the appellant was negligent in failing to timeously transfer the respondent to definitive care.

#### Communication with the receiving doctor

- [37] In addition to the delay in the transfer, the respondent contends that the appellant failed to inquire into the appropriateness of Pretoria East Hospital. This issue is central to the respondent's case. On the respondent's version, the longest part of the delay occurred as a result of this omission. The submission was that had the appellant acted as a reasonable medical practitioner, the blood supply to the respondent's leg would have been restored within three to three and a half hours after the injury, instead of nine and a quarter hours from the time of injury to revascularisation.
- [38] The omission in this regard arises from the appellant's conduct of not communicating directly with Dr Tollig, the receiving doctor; it being contended that this was protocol and practice within the profession. Both the trial court and the full court found that a reasonable medical practitioner ought to have contacted the receiving doctor and that the appellant's failure to do so constituted negligence. However, the trial court found that this was not sufficient to uphold a claim of damages against the appellant, because in its view, there was

evidence that the respondent's lower left leg had already been severely compromised when the appellant first examined him. It therefore found that there was no causal nexus between the negligent conduct and the harm suffered by the respondent.

- [39] Before this Court, counsel for the appellant submitted that because of the long-established professional relationship between the appellant and Dr Straub, it was reasonable for the appellant to have discussed the transfer with Dr Straub. Prof Boffard agreed that the appellant's conduct in discussing the transfer with Dr Straub was reasonable; although, he would also have expected the appellant to follow protocol and communicate with Dr Tollig, since Dr Straub was not on call that night.
- [40] Dr Tollig was adamant that he was not advised about the presence of a vascular injury, and that when he was called by Dr Straub at approximately 20h00, he was informed of a transfer from Standerton Hospital with a fractured femur from a gunshot wound. Had he been aware of the vascular injury with no pedal pulse, he would not have agreed that the respondent be transferred to the Pretoria East Hospital, which had no facilities to treat a vascular injury. This accords with the probabilities and there was no evidence to the contrary. It is virtually impossible that, if Dr Tollig had been told of the absence of a pedal pulse, he would have undertaken to receive the respondent. He would have referred him to a hospital with vascular surgery facilities.
- [41] The full details of the conversation between the appellant and Dr Straub regarding the nature of the injuries sustained by the respondent

remain an enigma. Notwithstanding the importance of the testimony pertaining to this aspect, Dr Straub was not called as a witness to shed light on what was conveyed to him, despite being available during the trial. No reasons were advanced for this. The irresistible

inference is that the appellant did not call him as a witness, because he knew that Dr Straub would not support his account of

events on this aspect. This is further supported by the fact that Dr Straub worked at Pretoria East Hospital as an orthopaedic surgeon and knew that vascular surgery could not be performed there.

- [42] The appellant insisted that he told Dr Straub of the absence of a pedal pulse on the injured leg. His evidence was also that he expected a hospital of the size of Pretoria East Hospital to have the relevant facilities. My view is that it is not only improbable but impossible that Dr Straub would have facilitated the transfer to Pretoria East Hospital if the appellant had alerted him to a vascular injury. Dr Tollig presented optional hospitals he would have suggested to the appellant for the respondent's transfer, had the appellant contacted him and informed him of a vascular injury. These were closer to Standerton, being either Union Hospital in Alberton or Milpark Hospital in Johannesburg. Had this happened, the probabilities are that the respondent would have reached definitive care timeously, well within the seven hours' time limit of the injury as explained in paragraph 50 below.

- [43] While the transcripts of contemporaneous recordal of the communication with International SOS confirm that the appellant communicated his concern about the vascular injury to the ambulance services, it does not confirm what the appellant communicated to Dr Straub.
- [44] In my view, the evidence proves that although the appellant reasonably foresaw the need to urgently arrange the transfer of the respondent to a hospital with the facilities to treat a vascular injury and the possibility of harm ensuing in not doing so, he was derelict in his legal duty by omitting to do this. Such omission is tantamount to negligent conduct.

#### Causation

- [45] It is well established that success in a delictual claim requires proof on a balance of probabilities of a causal link between a defendant's negligent act or omission and the harm suffered by the plaintiff.[13] It is common cause that proof of such a causal link in instances of negligence by omission is more difficult to establish. Where the defendant has negligently breached a legal duty and the plaintiff has suffered harm, it must still be proved that the breach is what caused the harm suffered.[14] The court in *Minister of Police v Skosana*[15] referred to two aspects of causation being factual causation and legal causation. In dealing with factual causation in this matter,

the relevant question is whether the conduct of the appellant in not timeously transferring the respondent to definitive care has been proved to have caused or materially contributed to the amputation of his leg.

- [46] In *Oppelt v Head: Health, Department of Health, Provincial Administration: Western Cape*, [16] it was stated that factual causation is determined through the *conditio sine qua non* test, commonly known as the 'but-for' test. The court in *International Shipping Co (Pty) Ltd v Bentley*,[17] stated that:

'In order to apply this test one must make a hypothetical enquiry as to what probably would have happened but for the wrongful conduct of the defendant. This enquiry may involve the mental elimination of the wrongful conduct and the substitution of a hypothetical course of lawful conduct and the posing of the question as to whether upon such an hypothesis plaintiff's loss would have ensued or not. If it would in any event have ensued, then the wrongful conduct was not a cause of the plaintiff's loss; aliter, if it would not so have ensued. If the wrongful act is shown in this way not to be a *causa sine qua non* of the loss suffered, then no legal liability can arise. On the other hand, demonstration that the wrongful act was a *causa sine qua non* of the loss does not necessarily result in legal liability. The second enquiry then arises, viz whether the wrongful act is linked sufficiently closely or directly to the loss for legal liability to ensue or whether, as it is said, the loss is too remote.'

- [47] In the trial court, it was found that because of the nature and extent of damage to internal structures of the leg, it had already been non-viable when the respondent arrived at the Pretoria East Hospital. It therefore found that causation had not been proved. The full court

had difficulty with the evidence of Dr Botes, who performed the revascularisation, in that he reduced the time normally accepted for revascularisation of a limb by half, but was unable to cogently and rationally explain how the nature and extent of the injury led to this. His opinion was that because of the nature and effect of the fracture on surrounding muscle tissue, the respondent's leg could have only been saved if blood supply was restored within two to three hours from the time of injury. It was, however, submitted on behalf of the appellant that the full court should have preferred the evidence of Dr Botes.

- [48] In answering the question of whether the respondent's leg would have been amputated, time is a crucial issue, as was the case in *Skosana*. The period from when the respondent was shot at 17h30 to revascularisation at 02h45 is approximately nine and a quarter hours.

Expert evidence varied on the period of the commencement of ischaemia and on the period within which the respondent's leg would have been salvageable. All experts agreed that ischaemia ordinarily

commences progressively after four hours.

- [49] According to Prof Boffard's evidence, there is almost 100 percent chance of salvageability for a period of four hours following the vascular injury, because ischaemia only sets in after this period. His opinion that other factors such as the mechanism of the injury, the seriousness thereof, the necessary treatment, concomitant venous injuries and fractures had no significant influence on the amputation rate of the nature of this injury had a rational basis and derived from his personal experience and authoritative literature. As he explained, that is because all these factors are time dependant. With the passage of time, the respondent's leg became less viable, compartment syndrome developed and ischaemia commenced, leading to necrosis. Notably, his evidence that by seven and a half hours there is an 85 percent chance that the limb would have been saved was not disputed.

- [50] Prof Boffard never examined the respondent. In his opinion, the respondent's leg would probably have been salvaged if the blood supply to it had been restored within seven to seven and a half hours from the time of injury. Prof Boffard's opinion was that the weapon that caused the respondent's injury was of a low energy velocity. He stated additionally that the X-ray taken at Standerton Hospital showed a simple low energy fracture of the femur with limited damage to the surrounding body tissues. He ascribed the extensive bleeding into the surrounding tissue to arterial blood that had forced its way into the tissues. According to him, the longer it took the injury to be attended to, the more muscle fibre was pushed apart by the blood. Internationally published research articles supported Prof Boffard's opinion that provided the blood flow is restored approximately four hours from time of injury, there is a significantly greater chance of salvaging the limb.[19]

- [51] In contrast to Prof Boffard's view, Prof Veller and Dr Botes contended that limb salvageability is not only time-related but

depends on multiple factors. They argued that the nature and extent of injury cumulatively determine ischaemic time, ascertaining that the more severe the injury the more abbreviated the onset of ischaemia, also reducing the period to salvage the injured limb.

[52] Dr Botes was of the view that because the fractured femur had left the leg muscle tissue in 'tatters', time was not the only important factor in determining whether the respondent's leg could be saved from amputation. Referring to Prof Boffard's 85 percent chance of limb survival within seven hours, Dr Botes opined that amputation would still have been necessary. At approximately

seven hours, the popliteal fossa was one large haematoma and the posterior tibial nerve was not visualised.

[53] Dr Botes emphasised the inverse proportionality between the severity of injury and the onset of ischemia. He relied on his physical

observation of the severely injured limb, but fell short of explaining what role is played by such severity in this case. Although he estimated that ischaemia would have set in within three hours of the injury, his evidence failed to explain the significance

of reduced time for salvageability in the circumstances. Accordingly, his opinion was not properly motivated.

[54] In his analysis, Dr Botes, fails to take cognisance of the fact that when Dr Louw first examined the respondent, at about 18h20, he formed a view that the limb could be salvaged. Amongst other important observations made by the appellant was that the respondent's

toes were still twitching, which led the appellant to conclude that transfer to definitive care would save the limb. In my view, it made no sense for Dr Louw to transfer the respondent to a hospital with a vascular surgeon if he was of the opinion that ischemia was about to set in and any such transfer would be futile. This is because, from the start, Dr Louw was intent on transferring the respondent to Pretoria. Dr Botes's opinion is also not supported by the evidence of Mr van der Heever in respect of the compartment syndrome. In view of this, not much regard can be placed on Dr Botes's evidence, since his evidence is based on his observation of the limb approximately seven hours from the time of injury.

[55] Prof Veller suggested the multiple univariate analysis to factors associated with limb injuries and although he conceded to the

difficulty of such analysis, he advised on the importance of understanding the interplay of factors in increasing or reducing the

risk of amputation. He too associated the nature of injury with complications such as compartment syndrome and suggested that early

treatment provided a better prognosis. He alluded to the seven-hour period without committing to a cut-off time before which the risk of amputation would be reduced.

- [56] It was argued for the appellant that there were multiple potentially cumulative factors which predicted amputation, and that time was the only modifiable one. In line with the research article by Obara, Prof Boffard attributed tissue tatter to the arterial haemorrhage occurring over a period of time and causing compartmentalisation. All facts indicate that treatment delay caused ischaemia, culminating in compartmental syndrome and resulting in amputation. It is this finding that links the negligent referral to Pretoria East Hospital to the harm suffered by the respondent.
- [57] Despite other considerations referred to by Dr Botes and Prof Veller, I accept, having considered the evidence against the backdrop of the Nair article, that time was ultimately the main determining factor in respect of the salvageability of the respondent's limb. Notwithstanding the nature of the injuries, the quicker the respondent was transferred to definitive care the better chance he stood for the restoration of blood supply. The opinion of Dr Botes is inconsistent with logic, is indefensible and it fails to meet the test postulated in *H A L obo M M L*.
- [58] Both counsel prepared schedules setting out what a notional realistic timeline for a reasonable medical practitioner would be, in dealing with vascular injuries. This is to determine hypothetically what would have happened 'but for' the negligent conduct of the appellant. In this regard, the hypothetical situation is to introduce the omitted conduct of the appellant, being to immediately arrange for an ambulance and to communicate directly with Dr Tollig to arrange the respondent's transfer, which would have resulted in the respondent being sent to either Union or Milpark Hospitals, and then determining whether the respondent's leg would nevertheless have been amputated. In this regard, the respondent's schedule made use almost entirely of actual times taken with the transfer, other than travelling time to the different hospital.
- [59] If necessary transfer arrangements had been made timeously (being immediately following the first examination at about 18h30) and to the correct receiving hospital, the ambulance from Secunda would have arrived in Standerton in about 29 minutes, at 19h24, instead of 20h20. As it took the ambulance service 26 minutes to load the respondent, it would have left Standerton to definitive care at 19h50.
- [60] Dr Tollig was not informed of a vascular injury; had he known, he would have suggested that the respondent be referred to Union or Milpark Hospitals. Assuming this was done, it would have taken the ambulance one hour and 27 minutes to travel to Union Hospital or one hour and 38 minutes to Milpark Hospital. In view of the existent medical urgency, a reasonable medical doctor would have taken measures to ensure that he located the closest equipped care facility, which in this case would be Union Hospital. It is accepted that it would have taken one minute to offload the respondent, which meant that he would have been in theatre at 21h18 at Union Hospital. The total time from diagnosis by the appellant to theatre at the Union Hospital would thus have been more or less three hours. Failure of the appellant to act as would a reasonable doctor resulted in a delay of approximately seven hours.

[61] The respondent contends, in accordance with the evidence of Prof Boffard, that it would have taken 15 minutes to restore blood flow by means of a temporary shunt. This was not the option taken by Dr Botes for reasons known only to him. According to his evidence, having attended to the respondent at 00h10, it took him just over two hours to revascularise the leg. By that time irreversible damage had already occurred that would lead to necrosis.

[62] The total period from time of injury to revascularisation in the hypothetical scenario would, therefore, have been around four hours.

The finding of the full court is based on an acceptance of Prof Boffard's evidence that the leg would almost certainly have

been salvaged if blood flow was restored within four hours and more probably than not have been salvaged if treatment occurred within seven hours. In the hypothetical scenario, the respondent's time to salvageability is approximately four hours, as opposed to the nine hours and thirty minutes that was taken.

[63] Had the appellant acted as a reasonable doctor in the circumstances, the respondent's blood flow to his lower left leg would have been restored within four to five hours. Consequently, the 'but-for' test in respect of factual causation has been proven. On a balance of probabilities, the evidence is, therefore, that the negligence of the appellant is directly linked to the respondent's leg being amputated. The second enquiry of legal causation, which asks whether the factual link is strong enough and whether the harm is sufficiently connected to the conduct, is also satisfied.

#### Costs

[64] As regards the issue of costs, I see no reason to deviate from the norm that costs should follow the result. No such submissions were made by either party.

#### Order

[65] In the result, the following order is made:

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M B S MASIPA

ACTING JUDGE OF APPEAL

Basson AJA (Dambuza JA dissenting):

[66] I have had the benefit of reading the majority judgment penned by my sister, Masipa AJA. Whilst I agree with the reasoning and conclusion

in respect of the issues pertaining to negligence, I part ways with the conclusion on the issue of causality. The main point of

divergence is the weight accorded in the majority judgment to the evidence of Dr Boffard, to reach the conclusion, just as the full court did, that the respondent's limb would have been saved if revascularisation had taken place within seven hours after injury. As will be pointed out, this conclusion is principally based on Prof Boffard's opinion, which does not account for factors relating to the nature and extent of the injury to the respondent's leg. The acceptance of Dr Boffard's opinion over and above that of Dr Botes also does not consider that Dr Botes was the attending specialist vascular surgeon and the only expert with first-hand knowledge of the extensive injuries sustained by the respondent.

[67] The two experts mainly differed in respect of two issues. Firstly, whilst the experts agreed that time is always of the essence in instances where a patient is at risk of developing ischaemia as a result of muscles being deprived of a blood supply due to an injury to a main artery, such as the popliteal artery in the respondent's case, they hold different opinions on when the point of no return was reached after which the respondent's leg could not be salvaged by a revascularisation. Particularly, they differed on the correlation between ischaemic time and the possible limb salvage rate, with Dr Botes cautioning that other factors (associated injuries) may have a material influence on the salvageability of the limb. Secondly, the experts differed on whether the time period calculated from the commencement of ischaemia on its own, irrespective of the presence of other associated factors, ultimately is the main determining factor in respect of the salvageability of a patient's limb.[20] On both these issues the majority judgment found in favour of the respondent's expert Prof Boffard, whilst rejecting the evidence of Dr Botes as not having been properly motivated.

[68] Prof Boffard regarded the time to restore the blood supply to the tissue as the most crucial element. It was his evidence that, although the dying of the muscle starts immediately after the injury, it is of limited consequence for the first three to four hours. According to him, there is an almost a 100 percent chance of salvaging the leg within the period of three to four hours after the injury, because ischaemia commences after about four hours, with the estimated point of no return to be 'somewhere beyond the six to seven (hour) mark'. He further held the view that other associated factors such as the nature of the injury, the presence of concomitant venous injuries and bone fractures have no impact on the amputation rate of an injured leg, provided that the blood flow is restored approximately four hours from the time of the injury. The majority judgment accepted that Prof Boffard's opinion is in line with international published research articles, notably that of Nair.[21]

[69] Dr Botes took a more pragmatic approach. According to him, the nature and extent of the injury was a significant contributory factor to the deadline for salvageability of the respondent's leg. He described the injury, which he clinically observed, as extensive, with a sharp tipped compound fracture and bone fragments. The broken bones (femur fragments) transacted not only the popliteal (the main) artery and vein, but also tore the medial side leg muscle tissues. The extensive tears to the muscle tissue resulted in the destruction of collateral blood supply to the leg. Dr Botes also explained that three of the four muscle

compartments of the leg had muscle neurosis. This, according to Dr Botes, significantly curtailed the period within which there may still have been sufficient oxygen supply from the blood reserves in the muscle tissue in the wider area around the wound in the respondent's leg. Dr Botes's opinion was that the cumulative effect of all of these factors truncated the time for the onset of ischaemia, which, in turn, reduced the period in which the injured leg could have been salvaged. Dr Botes and Prof Veller were both of the opinion that, due to the nature of the respondent's injury, the leg could not be salvaged, absent revascularisation within two to three hours of the injury (which occurred at 17h30).

[70] My colleague concludes in the majority judgment, as the full court did, that Dr Botes's opinion was not sufficiently motivated. The criticism is based on Dr Botes's response that he could not give an estimate of the degree or extent to which each of the various aspects of the injury had contributed to the loss of blood supply. His response was that it was impossible to say.

[71] I do not agree with the critical assessment of the evidence of Dr Botes. Dr Botes was at great pains to describe what he clinically

observed and what the nature of the injuries was that impacted on the salvageability of the respondent's leg. The fact that Dr Botes was unable to explain exactly to what extent each of the individual factors contributed towards the truncated period for ischaemia, does not, in my view, warrant a rejection of his evidence. The cumulative effect of the injuries was apparent from the description of the injuries. The early onset of compartmentalisation was consistent with Dr Botes's evidence and opinion. Dr Botes's description of the nature of the fracture, the 'tattered' leg muscle tissue, and the loss of not only the main but ancillary blood supply, presented an image of far more damage to the respondent's leg than could logically be accounted for on Prof Boffard's reasoning and opinion – which was anchored to the fact that the weapon that caused the injury was a low energy instrument.

[72] It is further critical that Dr Botes is the specialist vascular surgeon who performed the revascularisation. He is the only expert with first-hand knowledge of the extended narrative of the injuries sustained by the respondent. Prof Boffard ultimately conceded that there was extensive damage and bone fragments present that caused damage to the blood vessels adjacent to the wound. He, albeit

somewhat reluctantly, conceded that he was not present at the operation and that he only relied on the report that was written

after Dr Botes had dealt with the patient. He stated with reference to Dr Botes that 'he was there and I have to understand and refer to that'. Elsewhere in his evidence he specifically stated that he would 'defer to Dr Botes' regarding the damage to the bone and to the blood vessels. But, he sought to downplay the effect thereof by an explanation that the tattered

muscle tissue resulted from blood 'pulling apart all the fibres so that they can appear to be [in] tatters'. Dr Botes's

evidence that the bleeding could have caused a haematoma which would have had the effect of increasing pressure over time, and could have caused compression of the muscles, and even ischaemic damage, is, in my view, more logical.

- [73] Dr Botes explained, consistent with what is set out in both the Nair and Hafez[22] articles that, in some instances, an amputation is unavoidable even where revascularisation takes place within three to four hours, whilst, in other instances, a leg need not be amputated after 12 hours. His evidence was that there is no 'magical number' but a 'spectrum' which is dependent upon a clinical observation of the amount of damage that was done to the leg. He amplified in his evidence that the factors associated with the nature of the injury include the presence of compartment syndrome, the fractures and venous injuries, all of which, in this case, resulted in the timeline to be 'a much faster thing'. The opinion that salvageability is not merely a matter of time, but directly related to the nature and extent of the injury itself, is founded in logical reasoning drawn from his own clinical observation of the injury.
- [74] Regarding the academic articles tendered in evidence, which the majority judgment found supportive of Prof Boffard's opinion, it is important to note that both experts held the same opinion that revascularisation within approximately four hours of injury results in significantly greater chances of salvaging the limb. But, the Nair article is of no support to Prof Boffard's opinion that there is a 100 percent salvageability rate at that stage. In fact, this article states that '[c]ompartment syndrome was associated with a high significantly increased risk of amputation, as was limb fracture' and that '[m]ost factors associated with amputation were related to the severity of the initial injury or degree of ischaemia'. Furthermore, the Nair article also underscores the opinion of Dr Botes that 'concomitant venous injury was not associated with a higher amputation rate'.
- [75] Staying with the Nair article, Prof Boffard insisted, with reference to the Nair article and the statistical figures presented in Table 3, that the cut-off time for salvageability is in the range of seven hours. He was, however, hard-pressed to concede that 'these figures do not break it down into what the actual survival or amputation rate was like, in a patient such as ours'. This concession, in my view, confirms that statistics in themselves, in isolation, and without assessing the potential cumulative effect of associated factors, are unhelpful unless individualised, which, as conceded by Prof Boffard, is not done in the Nair article.
- [76] The Hafez article, to which detailed reference was made in the evidence of Dr Botes, refers to research done on 550 patients (compared to the 117 patients referred to in the Nair article). It is stated therein that it is difficult to quantify the impact of ischaemia time on outcome. Time can therefore not be the main determining factor in respect of the salvageability of the respondent's limb. The authors explain:

'Although all efforts should be made to minimise ischaemia time, it is difficult to accurately quantify the effect of this factor on the overall limb salvage rate. The severity of tissue ischaemia depends not only on its duration but also of the level of arterial injury, extent of soft tissue damage, and the efficiency of collateral circulation. This explains the lack of correlation between

ischaemia time at outcome reported by some authors. It is not uncommon to see patients with non-salvageable limbs after 4 to 5 hours of ischaemia, whereas others with more than 12 hours of ischaemia are treated successfully. We think that it is more relevant to identify signs of severe ischaemia such as compartmentalization or loss of sensation or function than to rely on the absolute ischaemia time for predicting outcome.’[23]

[77] The Hafez article also refers to other independent factors relevant to ischaemia such as the presence of an arterial transection, fractures and the interruption of collateral circulation, as significantly reducing the salvageability of a limb. The opinion held by Dr Botes that the limb salvageability is not only time-related but also influenced by multiple factors can therefore not be faulted:

‘Arterial transection and compound fractures were also significant independent factors for limb loss. These injuries are usually associated with significant interruption of collateral circulation either because of propagating thrombosis in the former or extensive soft tissue damage in the latter. For the same reason, combined above- and below-knee injuries also carry a high risk of limb loss. . . . The other significant factor associated with primary amputation was combined above- and below-knee injuries. These injuries led to severe interruption of the main, as well as collateral blood supply; hence, the higher risk of critical ischaemia and limb loss.’[24]

[78] Ultimately, Prof Boffard agreed that the seven-to-seven-and-a-half-hour statistic referred to in the Nair article, does not break it down into what the actual survival or amputation rate was like in a patient such as the respondent. This confirms that, viewed in isolation and ignoring the cumulative effect of the injury factors, the statistics or time estimates are unhelpful in the determination.

[79] Having considered the conspectus of evidence, I am satisfied that, as a matter of probability, the respondent’s leg could not have been salvaged beyond a two to three-hour period calculated from the time the injury took place. On the evidence and considering the period it took for Dr Botes to complete revascularisation procedure, even if the appellant had been transferred from Standerton to Union Hospital, the time limit of two to three hours could not have been met. For these reasons, I would have upheld the appeal, set aside the order of the full court and replaced it with an order dismissing the appeal with costs.

A C BASSON

Appearances

For appellant: C H van Bergen SC (with J A Booyse) Instructed by: MacRobert Attorneys, Pretoria Neuhoff Attorneys, Bloemfontein For respondent: J S Saner SC Instructed by: Lanser Liedtke & Associates, Cape Town Rosendorff Reitz Barry Attorneys, Bloemfontein

[1] Restoration of the blood flow to, and ultimately revascularisation of, the severed popliteal artery and damaged vein.

- [2] Dr Joosub was the first defendant in the trial court and passed away before the full court hearing. The action against him was withdrawn, by agreement with his executor.
- [3] This condition is usually caused by acute limb ischemia, causing partial or complete occlusion of arterial supply from trauma. The condition, which results from increased capillary permeability, causes localised oedema creating pressure in the limb. The pressure causes circular disturbances and neuromuscular dysfunction that may lead to irreversible nerve and muscle necrosis. It is this condition that contributed to amputation.
- [4] Michael and Another v Linksfield Park Clinic (Pty) Ltd and Another  
[2001] ZASCA 12; [2002] 1 All SA 384 (A) para 34.
- [5] Bolitho v City and Hackney Health Authority [1997] UKHL 46; [1998] AC 232 (H.L.(E).)
- [6] H A L obo M M L v MEC for Health, Free State  
[2021] ZASCA 149; 2022 (3) SA 571 (SCA) para 53.
- [7] Mediclinic v Vermeulen  
[2014] ZASCA 150; 2015 (1) SA 241 (SCA) para 5.
- [8] Linksfield Park Clinic fn 5 above para 39.
- [9] Life Healthcare Group (Pty) Ltd v Suliman  
[2018] ZASCA 118; 2019 (2) SA 185 (SCA) para 15.
- [10] Mashongwa v Passenger Rail Agency of South Africa [2015] ZACC 36; 2016 (3) SA 528; 2016 (2) BCLR 204 para 31.
- [11] Goliath v Member of the Executive Council for Health, Eastern Cape  
[2014] ZASCA 182; 2015 (2) SA 97 (SCA).
- [12] Cooper v Armstrong 1939 OPD 140 at 148.
- [13] See Mashongwa fn 10 above.
- [14] A N obo E N v Member of the Executive Council for Health, Eastern Cape  
[2019] ZASCA 102; [2019] 4 All SA 1 (SCA) para 4.
- [15] Minister of Police v Skosana  
[1977] 1 All SA 219 (A); 1977 (1) SA 31 (A) at 33E-G.
- [16] Oppelt v Head: Health, Department of Health, Provincial Administration: Western Cape  
[2015] ZACC 33; 2016 (1) SA 325 (CC); 2015 (12) BCLR 1471 (CC) para 37.
- [17] International Shipping Co (Pty) Ltd v Bentley

[1990] 1 All SA 498 (A); 1990 (1) SA 680 (A) at 700E.

[18] See also the minority judgment in *H A L obo M M L v MEC for Health, Free State*

[2021] ZASCA 149; 2022 (3) SA 571 (SCA) para 147.

[19] R Nair et al 'Gunshot injuries of the popliteal artery'

(2000) *British Journal of Surgery* vol 87, 602-607; M A Banderker et al 'Civilian popliteal artery injuries' (2012) *South African Journal of Surgery* vol 50 (4), dealing with salvageability of lower limb artery injuries; and H Obara et al 'Acute Limb Ischemia' (2018)

*Annals of Vascular Diseases* vol 11(4), 443-448.

[20] Paragraph 59 above.

[21] Footnote 20 above.

[22] H M Hafez, J Woolgar, & J V Robbs 'Lower extremity arterial injury: results of 550 cases and review of risk factors associated with limb loss' (2001) *Journal of Vascular Surgery* June 33(6): 1212-9.

[23] *Ibid* at 1217.

[24] *Ibid*.

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