REPUBLIC OF SOUTH AFRICA
THE HIGH COURT OF SOUTH AFRICA, GAUTENG DIVISION, PRETORIA

02/03/2015

Case no: 65228/2012

(I) REPORTABLE: NO
(2) OF INTEREST TO OTHER JUDGES: NO
(3) REVISED

2 March 2015 .....

In the matter between:

M., P. P.
(on behalf of K. N. M.) **Plaintiff**

and

MEMBER OF THE EXECUTIVE COUNCIL FOR HEALTH **Defendant**

JUDGMENT

AC SASSON, J

Introduction

[1] This is a case about alleged medical negligence. The plaintiff has instituted action on behalf of her minor son (K. M. – "K.") against the defendant both in her personal and representative capacity as the natural mother and guardian of her minor son who was born on [.....] 2005.

[2] The defendant is the Member of the Executive Council for Health for the Provincial Government of Gauteng and is responsible for the acts by the Department of Health and its employees acting within the course and scope of their employment in the Health Department.

[3] K. was born at the Natalspruit Hospital ("the hospital") which is a hospital falling under the jurisdiction and control of the defendant.

[4] In brief, the plaintiff is claiming damages for the alleged negligent medical treatment received at the hospital. More in particular, it is alleged that the nursing staff at the hospital was in the negligent breach of their duty of care to the plaintiff and K. in that they failed to provide medical services at a standard that would be expected from such hospital; that they failed to monitor and observe the plaintiff during labour and that they left the plaintiff unattended at a time when it should reasonably have been foreseen that she was about to give birth. The plaintiff further alleged that as a result of having been left unattended when she was admitted to the labour ward of the hospital, the nursing staff allowed the new-born infant to fall to the floor after the plaintiff had given birth to K. whilst she was lying in the so-called lithotomy position on the delivery bed. As a result of having allowed the baby to be born whilst the head and neck of the baby were not managed and/or supported whilst exiting the birth canal and falling to the floor under the forces of expulsion and gravity, K. suffered a permanent and total impairment in the form of a dense hemiplegic "Presumed Perinatal Ischaemic Stroke" resulting in cerebral palsy. (I will return to a more detailed summary of the facts hereinbelow.)

[5] This Court is only seized with the merits and causation. In the event that the plaintiff is successful with the initial merits, the issue pertaining to the quantum for the alleged damages will stand over for later determination.

[6] K. was born on [.....] 2005 at 7h35. It is common cause between the parties that there were no nursing staff present at the time when the plaintiff delivered K.. The height of the bed on which the plaintiff was lying was 1,2m at the time of the birth. Although it was common cause that the plaintiff delivered her baby unassisted, it was in dispute whether the birth took place whilst the plaintiff was lying in a lithotomy position on the bed (as alleged by the plaintiff) or whether the birth took place when the plaintiff was in a squatting position on the floor (as alleged by the respondent). The respondent pleaded that the plaintiff gave birth on the floor whilst in a squatting position and that it was, therefore, unlikely that K. could have suffered from a stretch injury to his neck.

[7] It is also common cause that the notes pertaining to the labour and perinatal care are scant and that they are also contradictory. (I will return to this aspect herein below where I refer to the evidence of Ms Hanrahan.)

[8] At approximately 20:15 - shortly after his birth - K. was examined by a medical practitioner who found nothing abnormal. No visible injuries to the head were found and no congenital abnormalities were noted. Although the extent of limb movement is not clear from the doctor's notes, nothing untoward was noted. It was common cause that the examination at that stage is basic from a neurological perspective in the sense that essentially brainstem functions were assessed but not cortical functions. Dr Edeling, the expert neurologist who testified on behalf of the plaintiff explained that the cerebral cortex is concerned with learning, movement, concentration and decision-making. Typically, these functions are more associated with adults. When a baby is born, it is difficult to determine whether the baby's cortical functions are functioning because they are not actually active at that stage.

[9] It is common cause that K. had suffered from a "Perinatal Arterial Ischaemic Stroke". It was also not in dispute that K. suffers from cerebral

palsy as a result of the stroke. It is for this reason that Dr Edeling explained why the doctor would only have been examining essentially brainstem functions. The examination was therefore confined to brainstem functions and not to the status of the baby's cerebral cortex. It is for this reason that lesions in a child's brain will only manifest or be noticed at a later stage. As will be pointed out herein below, the two CT brain scans that were taken of K. on 14 March 2006 and 7 August 2012 show extensive right side cerebral infarction.

[10] A perinatal stroke may result in damage to cerebral tissue and may result from a disruption to blood flow in a major cerebral artery caused by a thrombosis or embolism. A stroke which occurs within the first 28 days after the birth is normally referred to as a Perinatal Stroke.[1]The incidence of PAIS is reported as one in 2 300 – 2 400 deliveries.[2] These figures show that this kind of a strike is considered to be rare.

[11] In the event that this Court finds as a fact that the plaintiff delivered K. whilst lying on the bed in a lithotomy position, the question then arises whether the unassisted delivery of K. and his subsequent falling on the floor caused a stretch injury to K.'s right carotid artery and whether this injury (by falling from the bed onto the floor in an unassisted birth) caused the perinatal stroke suffered by K.. It, therefore, falls to be decided whether the conduct of the nurses in failing to assist the plaintiff during the delivery process is causally linked to the subsequent Perinatal Stroke suffered by K. which resulted in him suffering hemiplegic cerebral palsy.

[12] The dispute in this case essentially hinges on what caused the Presumed Perinatal Ischemic Stroke: Was the stroke suffered by K. as a result of respondent's negligence in that the plaintiff was left alone by the nursing staff

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[1] MA Rutherford, LA Ramenghi and FM Cowan *Neonatal Stroke* Downloaded from fn.bmj.com on 18 October 2012 at page F377.
[2] *Ibid.*

of the Natalspruit Hospital when she gave birth to K. on [.....] 2005 or was the stroke was caused by medical factors unrelated to the unassisted birth. Experts called on behalf of both sides differed on the cause or most likely cause for the stroke although, as already indicated they are *ad idem* that K. did suffer a stroke at the time of his birth. What makes this matter difficult to decide is the fact that no medical personnel was present when the plaintiff gave birth and therefore no direct evidence of an excessive deflection of the head to the shoulder which may have caused the injury to the carotid artery in K.'s neck exists.

Facts pertaining to the delivery of K.

[13] It is common cause that on 21 April 2005 at 11h33, the plaintiff (who was 42 years old at the time) was admitted to the Nelspruit Hospital after she was referred to the hospital by her local antenatal clinic. The plaintiff testified that she suffered from diabetes which, as will be pointed out hereinbelow, is considered by the experts on behalf of the respondent to be highly relevant in determining the most likely cause of the injury to K.'s carotid artery. If regard is, however had to the records of the antenatal clinic, the plaintiff's urine was tested on at least four occasions in the months prior to her confinement. All of the records indicate that the plaintiff did not suffer from maternal diabetes. No medical evidence was therefore placed before the Court apart from the plaintiff's say so. Despite the fact that no medical evidence of diabetece was placed before the Court, the defendant still insisted that diabetece could have been a likely course for the stroke. (I will return to this aspect hereinbelow).

[14] On admission the plaintiff was admitted to the main ward. The last entry made on 21 April 2005 was made at 15h00. On [.....] 2005 – approximately eighteen hours later - an entry appears on the "Doctor's/ Midwives' Notes" stating that the plaintiff was seen by Dr Pitsoe and given a drug called

"Cytotec" to induce her labour. The next entry shows that the plaintiff was transferred to the labour ward at 18h50.

[15] When the plaintiff was transferred to the labour ward she was placed on a (hospital) bed. It is common cause that the bed was approximately 1.2 meters from the ground. According to the plaintiff she was placed in a lithotomy position which involves the positioning of a patient's feet in stirrups above or at the same level as the hips. She testified that she was shifted to the front edge of the bed. The plaintiff testified that one of the nurses mentioned that she (the plaintiff) was already 6cm dilated and that she was already pushing with each contraction. The plaintiff was discouraged from pushing and was thereafter left unattended until the plaintiff "felt the urge to pass a stool". When she pushed it resulted in the spontaneous delivery of the infant. According to the "Summary of Labour" the second stage of the delivery took two minutes. The plaintiff explained that because her feet were in stirrups, she was unable to move and was particularly unable to move her body upwards on the bed. Because her buttocks were on the edge of the bed, K. fell to the floor. She testified that she screamed but that no one came to assist her until after K. was born and had fallen to the floor. She testified that the umbilical cord had torn when K. fell to the floor. (I have already referred to the fact that it was common cause that the birth was unassisted and that the plaintiff was completely alone at the time of the delivery.)

[16] The defendant disputed that the plaintiff was placed in the lithotomy position and contended that there was no reason for her to have been placed in a position reserved for difficult births where the doctor/midwife must have unrestricted access to the patient's pelvic area. The plaintiff was, however, adamant that she was lying on the bed in the lithotomy position when she gave birth and denied that she was in a squatting position on the floor (as alleged by the defendant) when the baby was born. (I will return to this dispute herein below.) According to the plaintiff the sisters were lying about the fact that she had been placed in the lithotomy position to cover up the fact that she

had been left to give birth unassisted and that as a result of her having been unassisted, the baby fell from the bed to the floor.

[17] The plaintiff testified that she did not notice anything wrong with K. at the time of his birth and that she only noticed after a month that something was wrong with him. She was then referred to the hospital where x-rays were taken of K.'s head. It was then that she wrote a letter to the hospital. In this undated letter, the plaintiff directed a complaint to the hospital. She states that she was 6cm dilated at the time and that she could not stand the pain anymore and that she then pushed. The baby was delivered whilst she was unattended. By the time the sisters came, the infant was already on the floor. She further states that she later found that the infant could not use his left arm and that the arm was twitching. She wanted to know what the hospital was going to do about this. In this letter of complaint, the plaintiff makes no mention of the fact that she delivered the baby whilst lying on the bed in a lithotomy position.

[18] When Sister Sikhakane return to the labour ward, she discovered that the plaintiff had already delivered the baby. The baby was picked up from the floor by Sister Sikhakane and wrapped. As already pointed out, the baby was examined by a medical practitioner who found nothing abnormal and was found to be active and alert. There is no recording on any medical records of any external visible traumatic injuries to the head and no congenital abnormalities were noted.

[19] Sister Sikhakane completed a few forms immediately after the birth. I have already pointed out that the hospital records are scant and in some aspects even contradictory. Conspicuously absent from the hospital records is any reference that a partogram was taken which should be used to record sequential vaginal dilation. In fact, it was common cause that this form was not kept by Sister Sikhakane (or any other nurse) during the labour process

despite the fact that it was common cause between experts that the information recorded on this form is vitally important to monitor the progress of labour. (I will return to this aspect hereinbelow.)

[20] Sister Sikhakane also competed the so-called APGAR score chart which is used to monitor/score the heart rate, respiratory efforts, muscle tone, reflexes and colour of the neonate at a one minute, five minute and 10 minute interval. Each of the aforementioned indicators should be evaluated separately at each of the three intervals. Sister Sikhakane merely gave an overall score and not a separate a score as is required for all three periods. She gave K. a 10/10 score - a perfect score. (I will return to the defects in the APGAR scoring in more detail hereinbelow.)

[21] It is not necessary to refer to all the hospital records in detail as they are in general not helpful in deciding the dispute. However, the following two extracts from the hospital records are important: The plaintiff - in her own handwriting -made an entrance on "Doctor's/Midwive's Delivery Notes" where she stated as follows:

> "I Prudence Molefe would like to confirm that on this date of delivery I felt if I want to take stools only to find out that the baby came out."

She also signed the statement. Immediately after this entrance, Sister Sikhakane records that the plaintiff "delivered herself unattended, Baby fell on the floor an alive male".

Ms Hanrahan

[22] Ms Hanrahan was the first expert called on behalf of the plaintiff. She is a qualified nurse and has been a midwife for the past 35 years. She is also a

nurse and perinatal educator and holds a Master's Degree in midwifery. She is currently busy with a PHO in Midwifery and teaches midwifery at the University of the Witwatersrand. She explained that her expertise is limited to midwifery care that is given prenatally and during labour and that she is not a Neonatologist.

[23] She testified that she had access to the hospital records and that it was her opinion that the notes were very intermittent and that, according to her, there appeared to have been no continuity of care. According to her, the plaintiff received insufficient monitoring and generally that there is evidence of sub-standard practices. The notes show that there was very limited foetal heart monitoring. In fact, according to her, the hospital records were in general not accurately completed.

[24] Ms Hanrahan confirmed that the lithotomy position was normally only reserved when there was a complication and where there was a need to assist the baby's delivery using a forceps of a vacuum. She explained that this position was not an automatic position a woman would be put in as this position meant that a patient had to move her buttocks to the edge of the bed which then restricts her movement. A patient would only normally be placed in the lithotomy position if she had an epidural or if she was considered to have a high risk birth. This position does not allow a patient to give birth in a fairly normal position on the bed. She also explained the importance of a partogram during the progress of labour as this is used to monitor maternal foetal wellbeing, the progress of labour and will indicate whether any extraordinary care was needed. She also explained that a partogram monitors whether the cervix is dilated and the progress of cervix dilatation. Especially where there is a prolonged labour, the partogram will be able to show whether there are any problems with the mother and/or the baby. The partogram will also be used to assess how quickly the birth was progressing and whether it was anticipated that the birth was progressing at an accelerating pace.

[25] Ms Hanrahan expressed her concern about the fact that a women who was only 6 cm dilated would have been placed in a lithotomy position because this position makes it very difficult for the patient to control her breathing and the actual birth of the baby. Because this position opens up her pelvis position the baby will be born if she pushes.

[26] She also explained the process of delivering the placenta with reference to the South African National Guidelines for Maternity Care. If the placenta is "actively" delivered, the mother is given an Oxytocin injection to induce the delivery of the placenta. In the case of a "passive" delivery of the placenta, the mother is not injected with Oxytocin and the placenta will be delivered without any drugs assisting the uterus to contract. In the case of a passive delivery, the midwife has to take extra care to ensure that the mother does to suffer from postpartum haemorrhage. She explained with reference to Sister Sikhakane's notes that it is difficult to determine whether the placenta of the plaintiff was delivered actively or passively as the notes show on the one hand that there was an active delivery but on the other hand that there was a passive delivery. Dr Hanharan explained that not only is this contradictory, it also does not show an accurate recording of the third stage of labour.

[27] According to the expert opinion of Dr Hanharan as a midwife, a baby should be supported when he is born and that the midwife or doctor should support the neck of the baby and then the head will turn and allow the shoulders' delivery. She explained that this method of delivery is a national standard. She explained that a woman can deliver independently without a midwife present if it is a completely straightforward, uncomplicated delivery. It does not therefore follow that where a woman gives birth unassisted that the neck of the baby is likely to be injured. She also explained that because many births are unattended by skilled birth attendants, it is not known if there was an injury to the neck and therefore the extent of the injury per population is not known. She also testified that no evidence was presented to her to confirm that upon exiting the birth canal, there was an excessive deflection of K.'s

head towards his shoulder (and which resulted in an injury). She, however, insisted that it was possible that the baby's neck could have been injured during an unattended birth.

Dr Herman Edeling

[28] Dr Edeling was the second expert witness called on behalf of the plaintiff. He has an MBBChB degree from Witwatersrand University and holds has a fellowship from the South African College of Medicine in Neurosurgery.

[29] Dr Edeling explained that he had perused all the documents pertaining to K.'s birth and that he had noted that the birth was unattended by medical personnel. He also confirmed that the notes pertaining to the labour and perinatal phase were scant and in fact contradictory. He referred to the records of the examination of K. by a general practitioner shortly after his birth and noted that the general practitioner found no congenital abnormalities. Dr Edeling explained that this type of examination was a basic one from a neurological perspective in that only essential brainstem functions would have been assessed and not cortical functions. I have already referred to the evidence of Dr Edeling where he explained that when the baby is born, one cannot really determine whether the baby's cortical functions were in fact functioning because they are not actually active at that stage. In other words, no conclusions can be drawn from the fact that the examination of K. shortly after his birth showed him to be normal as this examination gave no information about the status of a child's cerebral cortex. Dr Edeling explained that it is in fact possible that brain damage, although it had already occurred at the time of the birth and examination in the hospital, only manifests at a later stage.

[30] Dr Edeling referred to two CT brain scans that were done on K.: One was done on 14 March 2006 and the other one on 7 August 2012. Both scans showed extensive right side cerebral infarction. The 2012 scan particularly

shows tapering of the right middle cerebral artery distally and shows that the posterior and anterior cerebral arteries are decreased in size compared to the normal left side.

[31] Dr Edeling explained that the areas of K.'s brain that are damaged/infracted normally receive their blood supply from three arteries: the right anterior cerebral artery, the right middle cerebral artery and the right posterior cerebral artery. These three arteries provide blood to the portions of the brain that had been shown in three consecutive studies to be the damaged infracted area of the brain. He explained that this infarction came about as a result of lack of blood flow. In his expert opinion the brain damage was not caused by a direct blow to the head or as a result of other trauma or as a result of haemorrhage but as a result of lack of blood flow in these three arteries. Put differently, the brain damage occurred as a result of a *vascular injury* which affected the posterior, middle and anterior cerebral arteries on the right side of K.'s neck and not as a result of an injury.

[32] In respect of the anterior cerebral, middle cerebral and posterior cerebral arteries which are affected, Dr Edeling explained that these three arteries are all supplied with blood by the right common carotid and internal carotid arteries. In other words, blood flows from the heart into the aorta and from there into the common carotid artery which leads into the internal carotid artery. From there the carotid artery splits into the three arteries referred to herein above.

[33] Referring to MRI scan Dr Edeling testified that the most likely cause of brain damage was a vascular injury to the right common carotid artery and also the right internal carotid artery. He referred to the fact that it was common cause that the scan showed extensive right side and cerebral infarction (or brain damage due to a lack of blood supply). He explained that he had eliminated the possibility that the brain damage could have been the result of another

traumatic event on the basis that no evidence of such a traumatic event is present: If there was some kind of brain concussion at the time of the birth or shortly thereafter, the baby would have been drowsy or sleepy or even unconscious. In any event, an injury could not have caused direct damage to these three arteries without also causing damage to the brain surrounding these three arteries. No such evidence exists. He also pointed out that there are also no evidence of instruments having been used such as forceps or vacuum during the birth that may have been the cause of the injury to K.'s neck.

[34] Dr Edeling, accordingly, concluded that, because the common point of origin of these three arteries is the internal carotid artery that comes up from the neck, it was pathologically more likely that damage had occurred to the internal carotid artery and that this damage caused downstream damage to the interior, middle and posterior cerebral arteries. In K.'s case, three consecutive studies have shown that these three arteries provide blood to the portion of the brain that had been shown to be the damaged brain. The damage to the brain is a cerebral infarction which came about as a result of a lack of blood flow.

[35] Dr Edeling explained that an infraction means brain damage through lack of blood supply. In this case, the cause of the brain damage is as a result of a lack of blood flow in the three arteries referred too. He concluded that the most likely cause of brain damage is a vascular (or stretch) injury to the right common carotid artery and/or right internal carotid artery. Stretching of the neck can cause artenal stenosis (narrowing) of the carotid arteries. Small tears form in the innermost lining of the arterial wall. Blood is then able to enter the space between the inner layer and the other layers of the vessel wall, causing narrowing or even complete occlusion (blockage). Blood flow to the brain is then compromised and can cause lshcaemia (lack of delivery of oxygenated blood to the brain). As already pointed out, he arrived at this conclusion as there is no evidence of haemorrhage or fractures of the skull

which would have pointed to direct blunt force trauma. He also explained that the radiological picture of the brain is consistent with vascular damage to the three arteries referred to. Pathologically it is therefore in his opinion more likely that the damage occurred to the internal carotid artery (although it could have been the common carotid artery but more probably the internal carotid artery) and that this injury to the internal carotid artery caused downstream damage to the anterior, middle and posterior cerebral arteries.

[36] Having eliminated the possibility that the injury could have been caused by trauma to the head Dr Edeling explained what may have caused this lack of blood flow to these arteries. He explained that an excessive deflection or twisting of the head and neck in relation to the shoulders could have placed of necessity some stretching on the neck and it is considered that such movements have probably caused a stretch injury to the right carotid artery in its course through the neck. He explained that if the amount of deflection of the head in relation to the shoulders is sufficient, it can cause stretch injury of the carotid artery:

> 'Such injuries can arise for example, from stretching of the neck in a newborn when the head is not supported as gravity pulls it down, or where the neck is stretched by an external force to the head, (e.g when jerked to one side. *In casu* a head abutting the floor while the rest of the body continues to move)'

[37] Dr Edeling explained that he had regard to the following facts presented to him in arriving at this conclusion: The birth was unattended whilst the mother was on the birth table with her legs spread and strapped. Due to the fact that the birth was unassisted, the head would have been unassisted when it exited the birth canal. When K. emerged from the birth canal, he fell to the floor. Dr Edeling's explained that if this is what had actually happened a stretch injury was more likely than any other potential cause for the injury especially

in circumstances where the birth was rapid and unattended. Although a stretch injury can be cause by a mechanical birth there is no evidence of a mechanical birth in this case: Where a forceps or vacuum is used in assisted delivery a stretch injury can occur. An arterial stretch injury is also associated with precipitate vaginal birth without the involvement of instruments. In both these cases, an injury can result if there is an unnatural stretch of the neck. According to the hospital records the birth was extremely rapid.

[38] Dr Edeling was therefore of the view that the most likely diagnosis of K.'s condition was one of "perinatal ischaemic stroke". He explained that a stroke is an encompassing term and that it can also include a stroke referred to as a "haemorrhagic stroke". In K.'s case, he did not suffer from a haemorrhage stroke but from an lschaemic Stroke. In K.'s case, he suffered from a Presumed Perinatal lschaemic stroke: If the stroke occurs in the perinatal period, then the stroke will be referred at as a confirmed perinatal stroke. Where the hemiparesis is only noticed a month or two months later (as in the case here) and if it is believed that it was as a result of an event that occurred around the time of birth (although it only manifested later), this type of stroke will be referred at as a "presumed" perinatal stroke. In K.'s case, the onset of paralysis was only noticed later.

[39] Dr Edeling concluded that the fact that the birth occurred unassisted makes it reasonable to conclude that the head would have been unsupported when it exited birth canal. An unsupported head would have brought about a number of mechanisms for an arterial stress injury to have arisen. The rapid progress in second stage of labour - as was documented in this case - would have increased the risks as the forces of expulsion of the foetus would have been greater. This type of injury can also occur if the head hit the floor as this will cause the neck to be stretched following the impact. Dr Edeling explained that considering the radiological evidence and examination findings of the doctor at birth, he was of the view that the brain damage did not, however, occur as a result of a direct blow to K.'s head when he hits the floor. The injury

was as a result of vascular stretch injury to the neck. He considered this cause of the injury as highly possible. In this regard Dr Edeling explained in detail what happens when a baby emerges from the birth canal whilst the mother is lying on her back. He explained that when the head of a baby clears the birth canal the head will be pulled down to the left by gravity as gravity pulls the head down. Because the shoulders of the baby are not yet free as they are still in the birth canal, the head will deflect. The direction of the head deflection is brought about by gravity which will cause the neck to stretch on the right side of the neck especially in cases where the birth is rapid (as in this case). This may result in the soft tissue in the right side of the neck to stretch including the carotid arteries. He explained that the fall of the baby may have been broken by the traction of the umbilical cord and that this may explain why there were not any visible injuries to K..

[40] Dr Edeling further concluded that the fact that all three cerebral blood vessels were damaged and were on the same side makes it highly unlikely that the causative pathology was systemic: If there were systemic factors present, that risk would have applied equally to the left and right sides of the brain and both sides of the brain would likely have been affected.

[41] Dr Edeling was asked to explain how he arrived at his conclusions. He explained that although it may not be immediately evident what the cause of cerebral palsy is, because in many cases the cause of cerebral palsy is unknown, paediatricians and neurologists will take a history of the patient and will investigate possible causes of the stroke. By applying a scientific process of exclusion and probability the doctor will come to a diagnosis and in many cases a doctor will, on the balance of probabilities, be able to conclude what cause of the stroke was. In this particular case, experts for both the plaintiff and the defendant agree that K.'s cerebral palsy falls within the ambit of Presumed Perinatal Ischaemic Stroke. Because it is agreed between the experts that this stroke falls within this ambit, the investigation as to the cause of the stroke can be limited to what is referred to as Presumed Perinatal

Ischaemic Stroke. He acknowledged that the incidence of Perinatal Arterial Ischaemic Stroke is about one in 2300 to 4000 live births and that it is therefore a rare kind of neurological disorder. He also confirmed that there are certain other risk factors that can also cause a Perinatal Arterial Ischaemic Stroke. One of these factors is gestational diabetes. Dr Edeling explained that diabetes on its own would not have caused a vascular stretch injury to the carotid artery but accepted that it could have primed the baby to be more susceptible to the vascular effects of a stretch injury. Dr Edeling also explained that in light of the anatomical origin of the three vessels from the internal carotid artery, he was of the view that it was most unlikely that diabetes was the sole cause of damage to the three major cerebral blood vessels on the one side of the brain only. In fact, he regarded it as extremely unlikely that, if the plaintiff had diabetes, that this was the cause of the vascular injury. Furthermore, as already pointed out, it was his view that, in light of the fact that the three damaged cerebral blood vessels on the same side of the brain, it was highly unlikely that the causative pathology was systemic.

Professor Jacklin

[42] The third expert witness for the plaintiff was Prof Jacklin who is a paediatrician. She also has a sub-specialist certificate in Developmental Paediatrics. She also runs a service for children that have been abused. She explained that she sees many children with perinatal stroke. She also examined K. with a view of forming an opinion as to whether K. presents a medical condition that could be compatible with and as a result of a fall at birth.

[43] Prof Jacklin explained that on the evidence presented, the plaintiff did not test positive for diabetes at the time of the delivery of K.. Her urine was tested on numerous occasions and there is no evidence of her being diabetic. At the time when K. was delivered, the plaintiff was 42 years of age and

referred to her as a "multigravida". She explained that if the plaintiff had been diabetic, it would have been critical in both the plaintiff's management and the management of the newborn baby.

[44] She referred to the hospital notes where it was noted that the second stage of the delivery (which would be from full dilation of the cervix to completion of the delivery of the baby) took only two minutes. According to literature, the usual time is about 2 to 3 hours. In light of these facts, the delivery (which took approximately two minutes) was a very short time especially when one had to consider that the whole infant had to come through the birth canal within a time span of two minutes.

[45] Apart from the fact that the birth was fast, Prof Jacklin testified that it should also be considered that the plaintiff was at the time a 42-year-old woman and that the baby weighed 3.8 kg which is considered to be a big baby. In these circumstances, she as a paediatrician would have been concerned about the forces required to expel the baby so fast. She explained that given the speed of the birth, the birth under these circumstances, could not have been considered to be a normal delivery in light of the fact that the baby was abnormally propelled through the birth canal. She explained that it was a "significant possibility" in these circumstances that, given the stresses caused by this abnormal birth, and given the fact that the baby was propelled through the birth canal with stresses which are not normal particular on the baby's head, that an injury known as a stretched injury could possibly have arisen in this instance.

[46] Prof Jacklin also agreed that the injury sustained by K. is a Presumed Perinatal Ischaemic Stroke. Because it was assumed on the available evidence that the stroke happened in the perinatal period which is within the first month of life (28 days), this condition is referred to as a Presumed Perinatal Ischaemic Stroke. She confirmed that ischemia means that the

injury was arterial in nature where there is decreased oxygenated blood going to a certain part of the brain.

[47] Prof Jacklin was of the view that maternal smoking, maternal diabetes and cord abnormalities, which are all factors that could be proved statistical significant, were not relevant to K.. It was her opinion that this was a traumatic delivery in the sense that it was neither a normal assisted delivery nor a controlled delivery. In light of the fact that there is evidence that the baby did in fact fall, the delivery was a traumatic delivery, and that this caused the damage to the internal carotid artery.

[48] Prof Jacklin also agreed with the view of Dr Edeling that a baby can fall with no external injuries visible. In fact, she has seen babies with intracranial bleeds where there is no external evidence of damage and that this may lead to a decrease of oxygenated blood in the brain.

[49] Prof Jacklin testified that the literature confirms that a baby can suffer from stretch injury simply as a result of a precipitate delivery and it was her view likely that this had occurred in this case. She acknowledged that although a stretch injury to the neck is rare, it was equally rare for babies to be left to be delivered from a lithotomy position without anybody there. She stressed that one cannot ignore the fact that the mother was 42 years old, that the baby was big, that the plaintiff was in a lithotomy position and that K. fell to the floor. According to Prof Jacklin, all of this point to a traumatic delivery. If the plaintiff had delivered from squatting position, K. would have been at a much lower risk as this is considered to be the traditional way of delivering a baby.

[50] Professor Jacklin was asked about her experience with children with prenatal stroke. She explained that she sees many children with perinatal stroke and that it is her job to do an evaluation at the causation of the stroke. This would

include doing MRI scan. The vast numbers of these children have long term disabilities. She confirmed that it is now known that K. has an anterior, middle and posterior cerebral artery thrombosis and that this was caused by damage to the internal ceratoid artery. The baby would not necessarily show signs of this infarction soon after birth as it may take time to manifest. Prof Jacklin also confirmed that the umbilical cord would not necessarily have broken and that the cord may have gradually stretched and broken. In her opinion therefore, having regard to the MRI scan and having regard to the archival anatomical damage seen on the MRI scan, there is a significant possibility or a stretch injury. She testified that in order to explain this type of damage to the internal carotid artery, one must look at the mechanism of delivery. There would have been an extension of the baby's head with traction on the internal carotid artery and stretching damage to the intimae of the internal carotid artery for which there is scientific documented evidence in the literature.

CT scans

[51] The two radiologists for the plaintiff and defendant are in agreement that K. had suffered an extensive hypoxic ischemic event that resulted in the destruction of the right cerebral hemisphere.

[52] The two radiologists agreed that K. has a dense right hemiplegia and that he has a condition described in the literature as Presumed Perinal Ischaemic Stroke. They are in agreement that this condition does not present clinically in the neonatal period (which is considered to be the first 28 days after birth) and that this condition often presents weeks to months later.

Professor Bolton

[53] Prof Bolton, a retired paediatrician, was the first witness called on behalf of the defendant. He was a professor and the head of the Department at Rahima Moosa, Mother and Child Hospital. He held this position for 15 years.

[54] Prof Bolton explained that although his experience is confined to the care of newborns, he is not a registered Neonatologist. His experience, however, has largely been that of a Neonatologist. He explained that a neonatologist will hand over a baby recognised with stroke or other damage to doctors like Prof Jacklin. He explained that Prof Jacklin is recognised as an expert, *inter alia,* in the rehabilitation of children with strokes. In the joint minutes, Prof Bolton and Prof Jacklin agreed that K. had a dent right hemiplegia and that K. has a condition described in the literature as Presumed Perinatal lschaemic Stroke. It was also agreed that this condition does not present clinically in the neonatal period, which is the first 28 days. There was, however, no agreement as to the cause of the stroke. It was also agreed upon that the plaintiff was not attended to by the nursing staff in the second stage of the delivery.

[55] Prof Bolton explained that per year, between 20, 000 - 25, 000 are born at the Baragwaneth Hospital. At Rahima Hospital, approximately 10,000 to 12,000 babies are born per year. Some babies are even born before they arrive at the hospital. Some of these babies are born in pit toilets and have to be rescued; some are born in taxis and some are born at home. Most of these babies are born unassisted. Many babies are also born unassisted in the hospital and some are even born on the floors of hospitals because of lack of facilities and space. He confirmed that babies face many risks when they are born and that they can get injured when they are born.

[56] He confirmed that the perinatal stroke is very rare and that one in 2500 babies may experience a perinatal stroke. He also confirmed that in a large proportion of these babies, the signs of the stroke having occurred may only present later. He explained that the incidence of perinatal stroke seems to be on an increase the reasoning being that more such cases are now being diagnosed with MRI scans, CT Scans and ultrasound scans which are now able to make a diagnosis more accurately. He explained that the causes for Perinatal Arterial lschaemic Stroke are poorly understood and that the risk factors are complex and multiple. Often the definite cause for the stroke is not found. He referred to three kinds of stroke, firstly, the haemorrhagic stroke, secondly, the venous thrombotic stroke and, thirdly, the most common stroke which is referred to as the ischaemic stroke where the blood supply to the brain via the arteries is interrupted. He explained that although hemiplegic cerebral palsy is a common outcome of perinatal arterial stroke a stroke does not always manifest in hemiplegic cerebral palsy.

[57] Prof Bolton stated that he has never seen a single case of Neonatal Stroke occurring in a baby where it was associated with an unassisted delivery. Prof Bolton did, however, concede that this is not to say it cannot happen and that it is possible that in this case there could be an association between an unassisted delivery and a presumed perinatal artenal stroke.

[58] Prof Bolton also confirmed the evidence of Dr Edeling and Prof Jacklin that the patient will only be placed in the lithotomy position where there is a complication in the delivery of the baby and where there is a need to manipulate the baby in some way or another or where there is a need to use a vacuum extractor or a forceps. In other words, he confirmed that this position is reserved for complicated deliveries. Referring to the facts of this case, Prof Bolton confirmed that he could find no reason why the plaintiff would have been placed in the lithotomy position. Prof Bolton agreed that a two-minute second stage delivery was unlikely although it is recorded as such in the notes of the hospital. It was put to Prof Bolton that the plaintiff had a

prolonged labour and that it was reasonable for the nurses to have placed her in the lithotomy position because she has been in labour for a number of hours. Prof Bolton did not agree that she would have been placed in this position simply because there was a prolonged first stage labour.

[59] Prof Bolton also confirmed evidence of Dr Edeling that it would be difficult to test the various functions of the brain immediately after the birth and that the test normally used only gave an idea of the function of the brain and the motor functions. Prof Bolton also agreed that it is quite possible for baby to have fallen and sustain an injury yet there will be nothing clinically present at the stage of examination. He also confirmed that about 30 to 40% of patients who have had strokes displayed no signs or symptoms in the early neonatal period, although the event that caused this stroke occurred around the time of the birth.

[60] Prof Bolton also found that the medical records in this case are scanty and that the standard of obstetric care was often sub-optimal. One of the examples of inadequate care includes the apparent failure to recognise that the plaintiff was at high obstetric risk with regard to her age, her previous obstetric outcomes, hypertension, the prolonged rupture of the foetal membranes and unattended delivery per se. Prof Bolton also agreed that there is always a danger that the baby will be injured if it is dropped from a distance such as from a bed.

[61] With reference to K.'s brain injury, he is of the view with reference to the multiple arteries in his brain were occluded that such a pattern may suggest multiple emboli from an external cranial source such as the placenta. Maternal hypertension and prolonged rupture of membranes as occurred in the plaintiff may also predispose to patient to damage the the placental arteries and the development of clots which may then enter the foetal circulation across the patient's foramen ovale and cause cerebral infarcts. He explained that

maternal smoking; maternal diabetes and cord abnormalities could be proven statistically significant. Prof Bolton, however, states in his report that none of these factors is relevant to K..

[62] With reference to the presence of diabetes, Prof Bolton initially was of the view with reference to a study in which it was concluded that maternal smoking, maternal diabetes and cord abnormalities could be proven statistically significant, that none of these factors were relevant to K.. However, subsequent to having been alerted to the fact that the plaintiff had testified that she has diabetes, he adjusted his report to provide for this risk factor. In this regard Prof Bolton testified that diabetes has a profound effect in pre-pregnancy on the mother and on the baby and that diabetes can also contribute to clotting in the blood. Diabetes, according to him, is associated with and can be associated with abnormal clotting in the placenta on the foetal side as well as the maternal side and that this increased the risk of placental clotting and the risk of embolus to the foetus including the foetal brain.

[63] In cross- examination, Prof Bolton was, however, confronted with the fact that the plaintiff was tested on four occasions for diabetes and that in each case there was no record of sugar in her urine. Prof Bolton had to concede that diabetes was therefore unlikely and that he could not find any evidence of diabetes in the hospital records. In cross examination, Prof Bolton was also questioned about certain comments that he had allegedly made during one of the adjournments after he was informed that the plaintiff had diabetes. It was put to him that his answer was "that it is wonderful". Prof Bolton replied that it was unlikely that he had said this but he said that he will not deny it because he could not remember what he said. It was accordingly put to Prof Bolton that he was not an independent witness, which he disputed. In cross examination, Prof Bolton also suddenly explained that he did not know whether the mother smoked and that he did not study the umbilical cord despite the fact that he had stated at the time that none of these factors were relevant.

[64] Prof Bolton confirmed that the second stage of labour is unpredictable in the speed in which it occurs. This period can vary from minutes to an hour but it is very difficult to predict. He was also of the view that it was indefensible to leave a high-risk mother such as the plaintiff unattended in advance labour.

[65] Prof Bolton was thereafter of the view that the stroke originated in the placenta where a clot had developed and that the clot had travelled up the umbilical cord vein and that it may have blocked off the internal carotid artery or may have blocked off the posterior cerebral artery, the middle cerebral artery and the anterior cerebral artery and caused the stroke. His view therefore was that there is a thrombotic and embolic cause for the stroke. In this additional report, Prof Bolton now advocates that the probable cause of the stroke was the association of hypertension and prolonged rupture of the membranes.

[66] In conclusion, it was his view that the cause of traction injuries to the arteries in the neck as a cause for the stroke was unlikely because traction in itself requires somebody to pull. Prof Bolton, however, conceded that it is possible the damage could have occurred in the manner contended by the plaintiff although he was of the view that it was not the most likely cause for the injury. He therefore conceded that an excessive deflection of the head and neck in relation to the shoulders and the way in which the baby was delivered could have been a possible cause of the injury, although he was of the view that it was not the most likely cause. He testified that it was normal for babies to twist during the birth process and the twisting does not result in his opinion in damage to the carotid arteries and result in a stroke. Although Prof Bolton conceded that he has speculated as to what would be on a balance of probabilities the most likely cause for the stroke in K.'s case, he still maintained that the plaintiff's scenario is not the most likely cause for the stroke.

Sister Sikhakane

[67] Sister Sikhakane is employed by the defendant at the Natalspruit hospital labour ward. She confirmed that she had left the plaintiff lying on the bed because she was of the view that she was not needed at the time. She confirmed that the plaintiff was 6 cm dilated at the time. She explained that it was not normal to place the patient in the lithotomy position and that a patient was only placed in that position when there was an emergency. She therefore disputed that the plaintiff was placed in this position.

[68] According to her, she heard a baby cry and that she then rushed to the plaintiff. Further according to her, she found the plaintiff in a squatting position on the floor. She then clamped the umbilical cord and checked the baby. The plaintiff then got back onto the bed and was then placed in the lithotomy position so that she could be stitched up. She confirmed that she had left the plaintiff alone for approximately 37 minutes.

[69] Sister Sikhakane confirmed with reference to her notes that she did in fact note in the hospital records that the baby had fallen to the floor but explained that she wrote this because she found the baby on the floor.

[70] In respect of whether the bed was raised after the plaintiff was placed on the bed, Sister Sikhakane testified that the bed was not raised. She admitted, however, that the bed in the labour ward at the time of the incident was similar to the ones depicted in photos shown to her: These are beds that can be automatically raised or lowered by manual foot pedal. In cross examination, she told the court that the beds are only raised for the sole purpose to clean under them. She steadfastly refused to concede that these beds are used for the convenience of the nursing staff. She even went as far as to dispute Prof Bolton's evidence that the bed is raised to make delivery easier. It was only when she was pressed that she later conceded that beds were adjusted for

the convenience of the nursing staff. Thereafter she testified that the staff never raised the bed.

[71] When Sister Sikhakane was asked why she did not keep a partogram when the plaintiff was admitted to her ward, she testified that this was only requirement at the later stage of labour. However, in cross examination, she conceded that the plaintiff was 6 cm dilated on admission and that she knew that a portogram should have been kept from 3 cm dilation. Sister Sikhakane was also vague about the need to monitor the patient. First Sister Sikhakane stated that the patient need only be monitored every two hours. When it was put to her that in fact guidelines state that the patient must be monitored at least every 30 minutes, her answer was that this was only relevant to obstetric cases having abnormalities such as hypertension and stated that the plaintiff's case was not an abnormality. When it was pointed out to her that the plaintiff was in fact hypertensive, she said it was only when a patient was booked into a High Care bed that this rule would apply. Sister Sikhakane tried to justify her actions by saying that every hospital has its own protocol which is a version that was never put to Ms Hanharan.

[72] Sister Sikhakane conceded that her notes in respect of the time of onset of labour were not based on any factual evidence and that it merely was an estimation. She also conceded that she incorrectly recorded the method of delivery as being "passive". She also admitted that the APGAR score of 10 was not accurately recorded as per protocol and that it was merely an estimation at the time. She also admitted that the records were not up to standard.

[73] It is important to point out that Sister Sikhakane admitted that she did not ask the plaintiff how the baby was born and that she had merely arrived at the conclusion that the baby was born from a squatting position in light of the fact that the baby was at that time she arrived there on the floor. She explained

that she used the word "fell" because all babies fall upon being born. She denied that she used the word "fell" because the baby had in fact fallen from the bed.

[74] It is also important to point out that Sister Sikhakane stated in evidence that when she heard the baby cry she was actually at High Care to check whether it was possible to place the plaintiff in High Care. According to Sister Sikhakane there was therefore a need to place the plaintiff in high care.

[75] With reference to the notes written on the hospital records by the plaintiff herself Sister Sikhakane explained that she had required the plaintiff to make a statement on the hospital records as this is required in circumstances where the birth had occurred without the nurses being present. She also conceded that it was preferable to support the neonatal's head at birth to prevent the risk of injury.

Dr Karan

[76] Dr Karan was the third witness on behalf of the defendant. He explained that he is a neurosurgeon and that he normally treats surgical conditions of the brain and the spine. He confirmed that the injury was of a vascular type but testified that he has never encountered a case of Perinatal Arterial Ischaemic Stroke. He also conceded that this condition did not fall within his expertise and that a neurologist would be able to comment on this condition. Dr Karan was therefore not able to assist the Court in any meaningful way in light of his evidence that most of the issues put to him did not fall within his expertise.

Professor Buchman

[77] Prof Buchmann is an associate professor in the Department of Obstetrics and Gynaecology of University of the Witwatersrand with many years of

experience in labour wards. He also explained that he was the Chairman of the Committee which compiled the Departmental Nursing Guidelines. He explained that these guidelines are accepted as being the standard for nursing care in State hospitals. He confirmed that he would not have been satisfied with the nursing standards as having been applied to his patients as testified to by Sister Sikhakane and pointed out that these guidelines are there to prevent injury to patients. Prof Buckhmann was in general critical of the standard of care in the Natalspruit hospital.

[78] Prof Buchmann confirmed that the lithotomy position is reserved for difficult deliveries and that it was improbable that professional nurses would have placed a woman in the lithotomy position when her cervix was 6cm dilated and then walk out of the delivery room. According to him, most babies were delivered whilst the mother was standing or sitting on the floor next to the bed with a baby on the floor. In all the cases of that he has seen there were no injuries to the babies although the main concern was that the babies could get cold.

[79] Prof Buchmann testified that he could not comment on whether a fall to the floor could have caused injury to arteries serving the brain as such opinion should be sought from neurosurgeons or trauma specialists with a paediatric interest or paediatric neurologists. With regard to the question what caused the injury to K., Prof Buchmann was of the opinion that it was unlikely that an unsupported head would easily be injured during delivery as babies have tone in their neck's. He did, however, conceded that it was preferable to support the neck of the baby to minimise the risk of injury. He also explained that some deliveries are rapid and that the head of the baby can "shoot out". This has the effect that the head is flexed and released quickly. Whether it was possible that the head and neck of the baby could be jerked to one side if the head hit the ground during a fall from a height and result in a stretch injury, Prof Buchmann testified that he preferred to defer to the opinion of an expert in this regard. In fact, when confronted with the expert opinion of Dr

Edeling that a stretch injury caused the stroke in the present matter, Prof Buchmann conceded that it was possible and conceded that he was not an expert on this kind of injury.

[80] In respect of whether diabetes could have contributed to the stroke, Prof Buchmann again deferred to the opinion of a paediatrician. He, however, confirmed that there was no indication in any of the hospital records that pointed to maternal diabetes.

Dr Naidoo

[81] Dr Naidoo is a forensic pathologist with extensive experience in the field of forensic pathology. He testified that he was in a position to diagnose a perinatal stroke. Dr Naidoo appreciated the fact that there were certain uncertainties and vagueness in the medical history as obtained from the hospital records in this case. It is important to point out that the radiological forms of the CT scans and the MRI scans were not made available to Dr Naidoo. Dr Naido also conceded that he had no special qualifications in either radiology or neurosurgery and that the opinions of duly qualified experts in those fields would carry more weight.

[82] Dr Naidoo was of the view that the delivery of a baby with the mother in a squatting position is unlikely to be the cause of major or significant injury to newborn infant and that this consideration can be confidently ignored in terms of causation of the brain damage. With regard to the possibility of a fall from the labour delivery bed causing the brain damage to the newborn baby, he was of view that, although this cannot be excluded as a possibility, a vascular event in utero before delivery was a possibility.

[83] A large part of Dr Naidoo's evidence related to the possibility of a fall having occurred based on the presence or absence of external injuries. He referred

to the fact that there were no physical signs of any injury present. He could, however, not dispute the evidence that a baby could fall without an injury being present. In this regard, Dr Naidoo pointed out that his focus was more on the pathology side of the injury and not so much on the clinical side of the injury. With regard to whether an injury to the carotid artery can occur without any external mechanical trauma at birth, Dr Naidoo stated that although it was biologically possible, medical literature did not support this as a common tendency. However, in cross-examination, Dr Naidoo did not dispute the evidence of three experts who had conceded that a stretch injury to the carotid artery can occur in a spontaneous delivery without the use of a forceps or a vacuum. When he was referred to the following extract in article by C Ruddick, M Ward Platt and C Lazaro "Head trauma outcomes of verifiable falls in newborn babies", Dr Naido conceded that he was not aware of this and that this may be possible if the article supports such a view:[3]

> '5. Spontaneous dissection of cervicocephalic arteries due to minor trauma. This mechanism causing brain infarction is has been described by Schievink et al in childhood and adolescence. It can occur in neonates as illustrated in our case 2. The section in this neonate occurred possibly due to precipitate delivery. Even then one has to rule out the section of the carotid and vertebral arteries.'

[84] According to Dr Naidoo the injury to K.'s brain was as a result of direct force to the middle cerebral artery but later conceded when faced with the opinion of Dr Edeling - who stated that it was highly unlikely that direct trauma could have caused the infarction so deep in the brain – that these arteries would only have been injured if the forceps had penetrated the brain.

[3] Arch Dis Child Fetal Neonatal Ed 2010;95:F144-F145 doi: 10 1136/adc.2008. 143131.

Expert witnesses

[85] Numerous experts witnesses were called by both parties. Although the law is clear, it is necessary briefly restate what the role of an expert witness is particularly in the context of this matter where the experts of the plaintiff and defendant gave conflicting evidence as to the likelihood of the cause of the injuries to K..

[86] An expert witness does not assume the role of an advocate nor does the expert give evidence which goes beyond the logic which is dictated by the scientific knowledge, which that expert claims to possess. See in this regard:[4]

> 'In this connection it is necessary to deal with the role of an expert. In Zeffertt, Paizes and Skeen The South African Law of Evidence at 330, the learned authors, citing the English judgment of *National Justice Compania Naviera SA v Prudential Assurance* Co *Ltd (The 'lkarian Reefe')* [1993] 2 Lloyd's Rep 68 at 81, set out the duties of an expert witness thus:
>
> "1. Expert evidence presented to the court should be, and should be seen to be, the independent product of the expert uninfluenced as to form or content by the exigencies of litigation.
>
> 2. An expert witness should provide independent assistance to the court by way of objective, unbiased opinion in relation to matters within his expertise.... An expert witness should never assume the role of an advocate.

[4] *Schneider No and Others v AA and Another* 2010 (5) SA203 (WCC) at 211 - 212:

3. An expert witness should state the facts or assumptions upon which his opinion is based. He should not omit to consider material facts which could detract from his concluded opinion.

4. An expert witness should make it clear when a particular question or issue falls outside his expertise.

5. If an expert opinion is not properly researched because he considers that insufficient data is available, then this must be stated with an indication that the opinion is no more than a provisional one. In cases where an expert witness who has prepared a report could not assert that the report contained the truth, the whole truth and nothing but the truth without some qualification, that qualification should be stated in the report."

In short, an expert comes to court to give the court the benefit of his or her expertise. Agreed, an expert is called by a particular party, presumably because the conclusion of the expert, using his or her expertise, is in favour of the line of argument of the particular party. But that does not absolve the expert from providing the court with as objective and unbiased an opinion, based on his or her expertise, as possible. An expert is not a hired gun who dispenses his or her expertise for the purposes of a particular case. An expert does not assume the role of an advocate, nor gives evidence which goes beyond the logic which is dictated by the scientific knowledge which that expert claims to possess.'

[87] Where expert medical evidence is sharply divided, the Court must attempt to resolve these differences of opinion and where possible make findings on the

issues, based upon the probabilities. [5] Where dispute turns on an election between the opposing views of two expert witnesses, determination of the dispute rests with Court and not with expert witnesses. The determination of the dispute will depend on an analysis of cogency of underlying reasoning which led experts to their conflicting opinions. [6] In the end the Court will assess which of the conflicting views is to preferred. See *Michael and Another v Linksfield Park Clinic (Pty) Ltd and Another.* [7]

'[34] In the course of the evidence counsel often asked the experts whether they thought this or that conduct was reasonable or unreasonable, or even negligent. The learned Judge was not misled by this into abdicating his decision-making duty. Nor, we are sure, did counsel intend that that should happen. However, it is perhaps as well to re-emphasise that the question of reasonableness and negligence is one for the Court itself to determine on the basis of the various, and often conflicting, expert opinions presented. As a rule that determination will not involve considerations of credibility but rather the examination of the opinions and the analysis of their essential reasoning, preparatory to the Court's reaching its own conclusion on the issues raised.

[36] That being so, what is required in the evaluation of such evidence is to determine whether and to what extent their

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[5] *Blyth v Van Den Heever* 1980 (1) SA 191 (A): 'These questions raise a number of issues upon which the expert medical evidence was again sharply divided. It will, therefore, be necessary for this Court to attempt to resolve these differences of opinion and where possible to make findings on the issues, based upon the probabilities.'

[6] *Buthelezi v Ndaba* 2013 (5) SA 437 (SCA): '[14]... I have said at the beginning that the outcome of the dispute as to whether or not the appellant's performance of the surgery, which led to the respondent's injury, could be described as negligent, ultimately turns on an election between the opposing views of two expert witnesses. It is true, of course, as the court a quo accentuated in its judgment, that the determination of negligence ultimately rests with the court and not with expert witnesses. Yet that determination is bound to be informed by the opinions of experts in the field which are often in conflict, as has happened in this case. In that event the court's determination must depend on an analysis of the cogency of the underlying reasoning which led the experts to their conflicting opinions.'

[7] 2001 (3) SA 1188 (SCA).

opinions advanced are founded on logical reasoning. That is the thrust of the decision of the House of Lords in the medical negligence case of *Bolitho v City and Hackney Health Authority* [1998] AC 232 (HL (E)). With the relevant dicta in the speech of Lord Browne-Wilkinson we respectfully agree. Summarised, they are to the following effect.

[37] The Court is not bound to absolve a defendant from liability for allegedly negligent medical treatment or diagnosis just because evidence of expert opinion, albeit genuinely held, is that the treatment or diagnosis in issue accorded with sound medical practice. The Court must be satisfied that such opinion has a logical basis, in other words that the expert has considered comparative risks and benefits and has reached 'a defensible conclusion' (at 241G - 2428).

[40] Finally, it must be borne in mind that expert scientific witnesses do tend to assess likelihood in terms of scientific certainty. Some of the witnesses in this case had to be diverted from doing so and were invited to express the prospects of an event's occurrence, as far as they possibly could, in terms of more practical assistance to the forensic assessment of probability, for example, as a greater or lesser than fifty per cent chance and so on. This essential difference between the scientific and the judicial measure of proof was aptly highlighted by the House of Lords in the Scottish case of Dingley v The Chief Constable, Strathclyde Police 200 SC (HL) 77 and the warning given at 890 - E that

> "(o)ne 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.'"

The law

[88] In order for the plaintiff to be successful in this matter the plaintiff must prove the following:

1. K. suffered a brain injury.
2. The brain injury was caused by a blockage either total or partial of the right carotid artery.
3. The blockage was caused by an injury to the right carotid artery
4. The injury was caused by an event.
5. The event was due to the negligence of the defendant.
6. The negligence caused the injury.

Assessment

[89] It was common cause that the plaintiff gave unassisted birth, that K. was found on the floor by Sister Sikhakane and that K. suffered from a stroke. It is also common cause that that K. suffered from a stroke in the perinatal phase and that this stroke can be considered as being a "Presumed Perinatal Ischemic Stroke". It was also common cause that no physical injuries were noted which could have pointed to an external trauma to the head. Also, no congenital abnormalities were noted. It was also accepted by

the experts that although no physical injuries were present at the time of birth it was possible that (although the brain damage had already occurred at the time of the birth) the injury only manifest at a later stage. It was also common cause that the radiological scan (of 2012) showed narrowing of the anterior cerebral, middle cerebral and posterior cerebral arteries on the right side of K.'s brain if this side is compared to the normal left side of his brain. The brain damage occurred therefore as a result of a vascular injury. I will return to my findings of what is the most likely cause of the vascular injury and subsequent brain damage to K.'s brain.

Was the plaintiff placed in the lithotomy position?

[90] The first question to be decided is whether the plaintiff was placed in the lithotomy position. The answer to this question is crucial because an injury such as that suffered by K. would have been considerable less likely if the plaintiff had given birth whilst in a squatting position *vis a vis* giving birth in a lithotomy position on a bed approximately 1.2 meters from the ground and the baby falling to the ground from that height.

[91] It was common cause that the plaintiff was alone at the time of the birth and that no one but she knows what happened at the time she gave birth. The plaintiff was adamant that she was in a lithotomy position despite the fact that the expert witnesses opined that it was unlikely that she would have been placed in this position because this position was normally reserved for high risk deliveries. The defendant was adamant that the plaintiff gave birth in a squatting position although the evidence presented on behalf of the defendant regarding the actual delivery was not only circumstantial but also speculative.

[92] Although it is accepted that only high risk patients are normally placed in a lithotomy position, I am of the view that it is on the probabilities not improbable that the plaintiff had in fact been placed in the lithotomy position. Apart from the fact that this was the evidence of the plaintiff who was in all respects a

credible witness, Sister Sikhakane admitted in her evidence that she herself had regarded the plaintiff as a high risk patient and in fact, that she went to High Care to find a bed for the plaintiff precisely because she regarded the plaintiff as a high risk delivery. It should further be noted that Prof Bolton in his medico legal report also regarded the plaintiff as a high obstetric risk.

[93] Furthermore, Sister Sikhakane admitted that she did not ask the plaintiff how she had delivered the baby and that she merely assumed that the plaintiff had delivered in a squatting position because she found the baby on the floor when she returned from High Care to the labour ward where the plaintiff was.

[94] I also find Sister Sikhakane's notes instructive: In her own handwriting Sister Sikhakane records that the baby fell on the floor. If the baby did not fall, why did she record that the baby had fallen? I also find her explanation that all babies fall even when they are delivered from a squatting position unpersuasive. If K. did not fall she would not, in my view, have recorded that the baby *"fell on the floor" .* Furthermore, if nothing out of the ordinary had taken place during the deliver, why did Sister Sikhakane request the plaintiff to make, in her own handwriting, an entry on hospital records reserved for Doctors and Midwives? Her explanation that she was required to do so in circumstances where the birth had occurred without the nurses being present was not put to any of the plaintiff's witnesses especially to Ms Hanrahan who is qualified to comment on such a practice.

[95] Lastly, it should also be pointed out that Sister Sikhakane was in general not a good witness. Not only was she vague about many aspects in her evidence, she did not hesitate to concoct a far-fetched story about a trivial issue namely whether or not hospital beds could be adjusted. Furthermore, it is in my view, improbable that the plaintiff, who at the time of birth had no reason to believe that her baby had suffered from an injury at the time of birth, would have concocted a story that she had given birth from a lithotomy position.

[96] Having regard to the available evidence and the evidence of the plaintiff who was in all respects a more credible witness than Sister Sikhakane, I find that the plaintiff's version must be accepted as the most reasonable on a balance of probabilities.

Did the plaintiff suffer from maternal diabetes?

[97] On the medical evidence presented to this Court it can safely be concluded that the plaintiff did not suffer from any maternal diabetes which could have made K. more susceptible to a stroke. In fact, if regard is had to the medico legal opinion of Prof Bolton on behalf of the defendant, he himself noted that the urine of the plaintiff was tested and found to be normal. Prof Bolton identified maternal smoking, maternal diabetes and cord abnormalities to be proven to be statistically significant but concluded that none of these factors is relevant to K.. Maternal diabetes can, therefore, in my view be excluded as a possible cause (although Dr Edeling was of the view that diabetes on its own could not cause a stroke) or possibly a contributing factor to K. having suffered a stroke.

Negligence on the part of the defendant

[98] It is accepted that the defendant was negligent in the manner the nursing staff - especially Sister Sikhakane - had executed their duty of care towards the plaintiff and K.. In fact, the parties are in agreement that the nursing staff at the Nelspruit Hospital kept inadequate records and that the records pertaining to the labour and perinatal care are scant and contradictory within themselves. Furthermore, the defendant's own expert witness, Prof Buckmann, testified that he would not have been satisfied with this level of care if it had been applied to his patients.

[99] All the relevant experts also concurred that it was unacceptable for the nurses to have left the plaintiff who was in an advanced stage of labour, who suffered

from hypertension, who had already been induced in order to expedite delivery and who was already bearing down to give birth, alone. The fact that Sister Sikhakane herself regarded the plaintiff as a high risk deliver to such an extent that she had gone to High Care to arrange for a bed and the fact that she left the plaintiff alone for approximately 37 minutes, only compounds the negligent conduct on the part of the nursing staff. Further compounding the negligence on the part of the defendant is the fact that the plaintiff was placed and left alone in a lithotomy position at a time when she was already bearing down to give birth.

[100] On the evidence it is concluded that had the nurses been present at the time of the deliver, K.'s head would have been supported during the delivery process and more importantly, K. would not have fallen to the floor.

The most likely cause o the brain injury

[101] Having accepted that the plaintiff had delivered from a lithotomy position and that as a result, K. fell to the floor and having accepted that the nursing staff were negligence in their caring obligations towards the plaintiff and K., it still needs to be determined whether this method of delivery caused the injury to K.'s brain and whether the injury was not caused by something else.

[102] What is clear from the records is that the birth (the second stage) was rapid. According to the records completed by Sister Sikhakane – which is the only records available - and the own evidence of the plaintiff, the birth was rapid. In fact, it was estimated that the birth took about two minutes. On all accounts this is considered by the experts as a very rapid birth. The baby was also considered to be a big baby. In this regard the evidence of Dr Jacklin that considerable forces must have expelled K. through the birth canal, was not disputed.

[103] The possibility that the injury to K. was as a result of a direct force of blow to the head can safely be excluded. It is clear from the evidence, and accepted by the experts, that there is no indication that the brain damage was caused by a blow to the head. Although a stretch injury to the vertebral and cerebral arteries can arise as a direct result of mechanical trauma involving forceps and vacuum assisted deliveries when the head and neck are manipulated, it is clear from the facts that the delivery was not mechanically assisted.

[104] Although there is no direct evidence that the head of the baby jerked to one side in the sense that there was an excessive deflection towards the shoulder with the result that the neck of K. was stretched and consequently injured, it can, in principle be accepted that, although this condition is rare, a stretch injury during the birth process may cause an injury to the brain.

[105] Both Dr Edeling and Prof Jacklin stated that the most likely cause of the blockage was due to a stretch injury to K.'s right carotid artery. This evidence could not be disputed by the experts for the defendant. It can therefore, in my view, safely be accepted that damage to the brain (such as that suffered by K.) can be caused in circumstances where there is excessive deflection of the head and neck in relation to the shoulders and that this type of injury can occur as a result from a stretching of the neck of a newborn when the head is not supported as gravity pulls it down or where the head abuts the floor while the rest of the body continues to move.

[106] Prof Edeling explained in great detail why he was of the view that a stretch injury had caused the damage and why he was of the opinion that the damage was not as a result of injury or other systemic causes with reference to the specific location of the injury in the brain and the fact that the surrounding areas of the brain are not damaged. I can find no reason to reject the evidence of Dr Edeling and Prof Jacklin. In respect of Prof Jacklin it is

noteworthy to point out that she personally examined K. and that she has extensive experience with children with perinatal stoke. Her considerable expertise was not placed in dispute by any of the expert witnesses. It is also noteworthy that Prof Buckmann, who clearly is an expert in the field of obstetrics and gynaecology, deferred to the expertise of Prof Jacklin in respect of the most likely cause of the injury. In fact, he conceded that it was possible that where a birth was rapid (as in K.'s case) that it was possible that the head can jerk and that a stroke can occur as a result of a stretch injury. He also conceded that he was not an expert on this kind of injury.

[107] I have already pointed out why the other expert evidence presented on behalf of the defendant is not particularly helpful to the Court: Dr Karan readily conceded that most of the questions posed to him fell outside of his expertise. The highlight of Prof Bolton's evidence was the presence of maternal diabetes which he had to concede in the end was not present in this case. Dr Naidoo's evidence was of a general nature and of little assistance to the Court especially if his experience with strokes in children is compared to that of Prof Jacklin who has extensive experience in this field. Dr Naidoo also conceded that he has no qualifications in either radiology or neurosurgery and conceded that the opinion of those experts would carry more weight than his own. He also conceded that he did not see the actual MRI or any other radiological images.

[108] In conclusion therefore, save for the explanation of Dr Edeling and Prof Jacklin, there is no other reasonable explanation to explain why the damage to K.'s brain only occurred in the right side of the brain. Furthermore, in light of the fact that the plaintiff delivered from a lithotomy position, the fact that K. fell to the floor from a height of 1.2 meters to the floor, the fact that the birth was extremely rapid (in fact two minutes), and the fact that considerable gravity forces must have been present at the time of the birth due to the rapidity of the birth of a big baby, it is accepted that this traumatic event caused K. to suffer a stretch injury which resulted in brain damage.

Had the nurses been present and not negligently in breach of their duty of care, they would have assisted the plaintiff in the delivery process and would have prevented K. from falling and suffering a permanent and total impairment in the form of a dense hemiplegic "Presumed Perinatal Ischaemic Stroke" which resulted in him suffering from cerebral palsy.

[109] In the circumstances I find that the plaintiff has established on a balance of probabilities that the defendant acted negligently in failing to treat the plaintiff and K. with the required level of care and skill required of them during the delivery and that this negligence resulted in the damage to K..

Order

[110] In the premises the following order is made:

1. The defendant is liable to compensate the plaintiff in respect of any such damages as the plaintiff is able to prove in due course.

2. The defendant is ordered to pay the plaintiff's costs of suit, as taxed or agreed on a party and party High Court scale, such costs to include the qualifying and reservation fees of the following expert witnesses: Dr Edeling, Prof Jacklin, Ms Hanrahan and Prof Lots.

JUDG **AC BASSON**
E OF THE HIGH COURT

For Plaintiff: GW Austin of Gary Austin Jordaan Inc
c/o Geyser van Rooyen Attorneys

For Defendant: Adv N Dukada SC
Adv M Zulu
Instructed by the Office of the State Attorney