Cross Examination of Expert Witnesses – when to be positive and when to be negative

Robert Milligan QC

Differences between cross examining expert witnesses as opposed to factual witness

Major advantage is that you will have much better idea of what the expert will be saying – reports, prior evidence, joint meeting of experts etc

Major disadvantage is that the expert knows more than you!

The general assumption is that your expert will be helpful to your case and the other side's expert will be unhelpful. Accordingly, the normal starting point for preparation of cross examination of the other side's expert is to see how they can be impugned. Usually this is on the basis of the underlying factual assumptions in their report but sometimes it extends to the inappropriate qualifications or perceived lack of objectivity and impartiality.

Standing *Kennedy v Cordia*, partiality goes to admissibility rather than just weight

Usually, however, there are at least parts of the other side's expert evidence that is positively helpful for your case. In that situation, the evidence will be all the more powerful if it comes from their expert rather than yours.

The first question in preparation, therefore, should be "Can I use their expert in a positive way?"

This will depend to a certain extent on the type of witness. Medical experts are more likely to be sufficiently professional that they will make appropriate concessions. Road traffic reconstruction experts less so.

How do you decide?

1. Background research. E.g. Professor Channer;
2. Reputation. E.g. Mr McMaster; are they still in practice; are they experts in this particular area
3. Ask your expert; small jurisdiction
4. Joint meeting of experts. Metal on metal hips – Professor Breusch and Professor Pandit. Catch more flies with honey than vinegar?
5. Careful consideration of their report and source materials. Have their reports altered as new facts come to light?

Medical expert
Leebody v Liddle 2000 SCLR 495

> Lord MacFadyen:
> "Mr McMaster rejected the facet joint theory, although he accepted that many orthopaedic surgeons would accept it. He expressed his views, as I have mentioned, in terms that might be thought to be arrogant or discourteous to professional colleagues, but undoubtedly held the views which he expressed very firmly and spoke from a position of great experience and indeed eminence in his profession."

Facet joint theory was the "last resort of the diagnostically destitute"

Dickie v Khandani [2012] CSOH 122

> "61. It was plain from the pursuer's evidence that she did not get on with Mr McMaster at the examination on 19 July 2011. She felt uncomfortable in his presence and was upset after the examination concluded. Mr McMaster claimed that he treated all his patients with the utmost respect. A nurse, he said, was always present during examinations. It is not difficult to see why Mr McMaster and the pursuer did not get on with each other. The pursuer is not academic, has no formal or professional qualifications and is a sales person as she described herself. She is also a positive, confident and forceful character; perhaps that is why she is suited to the sales world. Mr McMaster is steeped in professional life and academic studies. He is a large man with an imposing character with impeccable qualifications and vast professional experience in spinal injuries; he has had a full and distinguished career, although he acknowledged in cross examination that he was rarely instructed by pursuers' advisers and could not remember when he last prepared a report on instructions given on behalf of a pursuer. **In evidence in this case, however, I regret to say that he tended to be overbearing, domineering and dogmatic. He was somewhat dismissive of some of counsel's reasonable questions. At one stage, he asserted, in response to a question about the extent and effect of the impact of the collision, that he was an expert in motor vehicle repair costs.** He asserted that he knew as much about car repair costs as anyone else and the sum of £800 or so expended on repairs to the pursuer's vehicle following the accident indicated that there was not much of a collision making it unlikely that she suffered any significant back injury. **He did go on to explain the technical reason for his view on the significance of the impact on the pursuer's back, but the manner in which he gave this chapter of evidence could hardly be described as the balanced evidence of an**

independent expert. No doubt on most other occasions, he does provide such balanced, independent and weighty evidence commensurate with his very considerable expertise and skill. I should add on this point that both Mr Steedman and Mr Moran had no difficulty in concluding on the basis of their findings and the account of the accident given to them (which in substance is no different from the account the pursuer gave in evidence) that the pursuer suffered a soft tissue injury to her lower back. That conclusion seems to me to be entirely reasonable and consistent with common sense, and I accept it.

62. Further, there is an underlying inference in Mr McMaster's report that the medical records show that the pursuer has been inconsistent in her complaints and indeed did not make a complaint about her lower back until August 2010. The facts as I have found them to be show that this is not correct. I accept the evidence of the pursuer and her witnesses that she complained of low back pain from the outset. **She complained of such pain to Mr Steedman in September 2009 and to her GP in January 2010. Mr McMaster did not mention this in his report. Instead, he said in his report that**

"it was not until 6 August 2010 (16 months after the accident) when she attended the Orthopaedic Department of Roodlands Hospital that she complained of low back pain since the time of the accident." Had that statement been correct it might have given some credence to the view that the pursuer was fabricating the extent of her injuries.

63. I find that although there may be no organic basis for the pursuer's ongoing low back pain, it nevertheless exists and subsists and is attributable to the accident. This is by no means a unique state of affairs (see for example *Smith v Chief Constable of Central Scotland 1991 SLT 634* at 634H and *Callaghan v Southern General Hospital 2000 SLT 1059* at 1060 paragraph 43, cited by counsel for the pursuer). I find that the pursuer has not been and is not misrepresenting the presence of pain. She was not and is not fabricating or exaggerating her symptoms. To find otherwise would also require me to reject, or at least view with some suspicion the evidence of the pursuer's mother, the pursuer's partner Brian Morrison and her former work colleague, Leigh MacAuley. Alternatively, I would have to conclude that they, Mr Steedman and Mr Moran had been somehow hoodwinked by the pursuer.

64. I am not prepared to draw such conclusions from the evidence of the pursuer and her witnesses having regard to the general consistency of their evidence, the manner in which they gave it and my overall impression of each of them. All this is generally consistent with the medical records and the evidence of Mr Steedman and Mr Moran. I do not consider they have been deceived by the pursuer. **I acknowledge**

> **that these consultants are not as experienced as Mr McMaster; however, their reports and evidence were balanced and logical.** In particular, as already narrated, Mr Moran noted that he could not account for the exquisite tenderness felt to light palpation of the paravertebral muscles. He recorded that other signs of inappropriate symptomatology were negative and concluded that the pursuer had genuine ongoing symptoms in relation to her low back. That is consistent with the other evidence in the case."

Road traffic expert
Kennedy v Mackenzie [2017] CSOH 118

See photographs on separate handout

How to use the other side's expert to best effect?

One way is to put a series of propositions leading to your desired conclusion. At worst you will identify the point at which the experts diverge! Main advantage is you have little to lose from such a process

First example
D v Graham's Dairy [2016] CSOH 151

Familiar issue of extent to which injury to back has contributed to ongoing symptoms

Defenders' expert:

> 29. In cross-examination, he accepted the following propositions taken from an authoritative text by Professor Waddell, a highly respect expert in the field of back pain:
> "1. There is a poor correlation between degenerative change shown on X-rays, MRI and CT scans, and symptoms.
> 2. It is impossible to predict whether someone will suffer back pain just from evidence of degeneration on X-rays, MRI or CT scans.
> 3. Most people will have some degeneration in their lumbar spines by their 40s.
> 4. Most people who suffer back pain sufficient to cause them to see their general practitioner will still have some symptoms after three months.
> 5. Those who attend a healthcare provider complaining of constant pain have worse outcomes than those who complain of intermittent pain.
> 6. 70 — 80% of people who suffer back pain sufficient to cause them to see their general practitioner will still have symptoms after 12 months.
> 7. Those who complain of nerve root pain (sciatica or leg pain) have a worse outcome than those with low back pain alone.

8. Blue collar workers have a slower recovery than white collar workers.
9. The longer a patient is off work, the lower the chance they will return to work.
10. Once off work for six months, there is only a 50% chance of ever returning to a previous job.
11. Any patient who has been off work for more than two to three months with back pain is at serious risk of long term incapacity.
12. Where patients also develop psychological problems, that can lead to a vicious circle of pain and depression.
13. Psychosocial factors are very important in predicting prospects of recovery from back pain.
14. Table 7.8, at page 128 of 'The Back Pain Revolution' (2nd Edition), by Professor Waddell, is an accurate summary of social demographic and clinical and psychological factors as predictors of chronic pain and disability.
15. Everyone responds to back pain differently."
30. Although he accepted that, typically, people with degenerative change do not suffer back pain, he considered the degenerative change in the pursuer's thoracic spine to be particularly abnormal. He accepted that the condition of the pursuer's spine, as shown on MRI scan and X-ray was likely to have been present for a number of years before the index accident, but considered that the level of degeneration would have been increasing with time.
31. He accepted that before 2006 the pursuer had been free of back pain for some seven years since 1999.
32. He accepted that the back pain experienced by the pursuer around April 2006 had not been severe and had not been sufficient to cause him to be absent from work.
33. He accepted that the symptoms experienced by the pursuer in the period after 24 August 2014 were far more severe than those experienced by him before that date.
34. He accepted that the pain caused by the accident at work in October 2006 was associated with trauma and had not lasted long that, and that the pursuer had not again consulted his general practitioner in relation to back pain until 2014.
35. He accepted that prior to the index accident, when the pursuer had attended his general practitioner in early August 2014 he had attended for a reason other than back pain and had simply mentioned the accident at work on 5 April 2014 in passing. Notwithstanding that, Mr Adams considered that, at that time, his prognosis would have been that, although it was likely that the pursuer's symptoms would reduce to the level pre-existing prior to the accident, he was nevertheless at risk of multiple future recurrences of back pain, with a chance of severe persisting back pain developing in a short space of time.

36. He accepted that on his analysis, there was an implicit assumption that immediately before the index accident the pursuer was still suffering from the symptoms of back pain brought on by the accident of 5 August 2014.

Second example

Metal on metal hips

One major issue as to whether a slight difference in alloys gave rise to an increased risk of metal debris being released from the implants into the local tissues. Much depended on the extent and type of lubrication between the alloys. The defenders' position was that the pursuer's theory could not be proved by any practical experiment and did not take account of patient-specific factors

Professor Ritchie the biomechanical engineer for P

Dr Burke the biomechanical engineer for D

Transcript of cross examination of Dr Burke at the end of day 7:

Q. But there were problems developing with metal-on-metal implants?
A. Yes, absolutely.
Q. Both in terms of trunnion wear?
A. Yes.
Q. And with the articulating bearing surfaces?
A. Of the larger diameter stemmed, yes, not necessarily with resurfacing.
Q. I understand that. What I'm trying to get at is that at the time of writing your report you knew and Professor Gill knew that there is an unexplained problem here?
A. Yes.
Q. And Professor Gill has tried to explain it under reference to mechanical principles?
A. Correct.
Q. And you have rather gone down the route of looking at the literature?
A. Correct.
Q. As an engineer, would it not make more sense to adopt the approach that Professor Gill adopted?
A. Not really, because there's been a number of engineers out there that have written papers, trying to do

the same thing and they haven't come up with an answer, so I don't see how I could prove that. I can come up with a theory, but there is no evidence for it and without an implant to look at, I can only go on the literature.

Q. You can go with engineering principles?

A. But engineering principles don't always relate to in vivo situations.

Q. Let's look at the principles and just see which ones are dependent on patient characteristics.

The first proposition is that when stationary at best you with have boundary layer lubrication in the hip joint, and that is a simple application of the Stribeck curve, isn't it?

A. It is, but the Stribeck curve doesn't take into account boundary lubricants.

Q. Such as?

A. Such as proteins lipids, which I get might not be there all the time. The reason for using high carbide cobalt-chromium is because the carbides in the material act as a boundary lubricant as well, so there are -- what I'm saying is there are other things that can influence it.

Q. Can influence boundary layers?

A. No, it is absolutely boundary. It's in the boundary. It hasn't got an fluid film separating the bearing surfaces but boundary lubricants can still reduce the friction.

Q. The proposition I put to you was that when stationary at best you only have boundary lubrication?

A. Correct.

[THE EXPERT HAS TRIED TO OBFUSCATE – JUST STICK TO SIMPLE PROPOSITION]

Q. And that doesn't matter who the patient is, does it?

A. Not at all.

Q. That is not patient specific?

A. Not implant or patient specific.

[EXPLICITY UNDERMINE GENERAL PROPOSITION BY CONSTANT REFERENCE TO SPECIFIC CONTEXTS]

Q. The second proposition is that movement is required to entrain the fluid?

A. Correct.

Q. Do you know whether in practice full fluid film lubrication is ever

achieved?

A. Nobody knows that.

Q. The third proposition is that if the movement stops the fluid goes back to -- lubrication goes back to boundary layer at best?

A. Over time, but it will take time for the fluid to be squeezed out of the bearing, so if you stop for a second or two then possibly you might not be straight back to boundary.

Q. A second or two --

A. I don't know exactly, because we don't know what happens, but what I'm saying is it's not -- just because you stop doesn't mean when you start again it will just be boundary. But ...

Q. Just on that point, when you have large contact forces present when the joint is stationary, it is at least possible, isn't it, that initial movement could strip off those lipid and protein layers?

A. We need to understand the contact forces in the hip a bit better, I think. When we are walking, then there are two peak loads in a walking cycle. It's a cycle with heel strike and toe off and from the other foot again and you get two peak loads and when you are walking it is hard to proximate, but people have for it to be about four times body wait, but they are two peak loads that happen within the cycle, not the whole cycle is at that load. And you need that impact to generate that four times body weight so when you are standing still it probably isn't four times body weight so the loads aren't as high standing still as when you've got the heel strike and the and toe off.

Q. It is theoretically possible at least that that initial moment strips off the boundary layer protection?

A. It's possible, but nobody would know because we don't know what happens in vivo.

Q. If it did that would lead to direct metal-on-metal contact?

A. Yes, but you would still have the carbides in the material that act as a boundary lubricant.

Q. Was that a carbide layer that you referred to?

A. No, it's carbides that are within the material. They are not layers. They are carbides that are forming part of the material.

Q. But they would still be a high co-efficient of friction?

A. Again, unknown.

Q. The fourth proposition is that with a larger

diameter head you have a larger moment arm?

A. Yes, you do.

Q. Again, that is not patient specific --

A. Absolutely, yes.

Q. And for a given friction force, that would mean a larger frictional torque?

A. Correct.

Q. And again that is not patient specific?

A. Correct.

Q. The fifth proposition is that the lower flexural rigidity of a beam would result in greater deflection of the beam for a given loading?

A. Correct.

Q. And again, that doesn't matter on the patient, does it?

A. Well, the loads do matter on the patient, because the weight is important.

Q. But it's relative, so the weight will always give a higher deflection if there's lower flexural rigidity?

A. Yes, but it will be dependent, so if you have a patient high BMI, the loads will be higher than a low BMI.

Q. I follow that. Relatively it will --

A. Yes, yes.

Q. The sixth proposition is that with larger deflection there is a greater amount of stretching at the top of the surface of the beam and compression at the bottom surface of the beam?

A. Correct, if we are just looking at a beam, yes.

Q. Would there be a mechanical engineering reason if that would be different in this context?

A. If you change the profile of the beam the flexing can be different.

Q. When you talk about the "profile", what do you mean?

A. As in if you change the thickness of the beam, it will bend less.

Q. That is because it's then become more rigid?

A. Correct, but it's still the same material.

Q. You wouldn't have lowered the flexural rigidity then?

A. Sorry?

Q. This is all posited on the assumption that you are comparing two beams, one with a lower flexural rigidity than the other?

A. Yes, so if the beams are identical?

Q. Yes.

A. The one with the Young's modulus will bend more,

yes.

Q. And that will result in greater micromotion at the taper junction?

A. No, because now you've changed the beam into a taper.

Q. What is the difference?

A. It depends on the design. So now we are talking about design and where you can now in theory change a beam to be for example thicker.

Q. But we are -- remember we are talking about two identical product, just one --

A. Okay we are talking about two identical trunnions?

Q. Yes. The one with a lower Young's modulus.

A. Yes.

Q. That one will have less flexural rigidity. It will have greater deflection. It will have greater stretching and compression. It will have greater micromotion?

A. Correct.

[AGAIN THE EXPERT HAS TRIED TO OBFUSCATE BUT HAS BEEN BROUGHT BACK TO AGREE WITH THE INITIAL PROPOSITION]

Q. And in the context of a taper, that will mean greater micromotion at the taper junction?

A. Correct.

Q. And the next proposition I want to put to you is that given the cyclic nature of physiological loading you would get greater micromotion leading to greater removal of the oxide or passivation layer?

A. Correct.

Q. And that would logically lead to an increase in the risk of corrosion and material loss?

A. Yes.

Q. Would any of those be dependent on patient characteristics, those principles?

A. Yes, the loading of -- the loads that are acting on the trunnion would be dependent on a patient characteristic.

It would depend on their range of motion, what they do with it, jogging, running, yeah, so some of it would be dependent on patient characteristics.

Q. If you have the same -- that would be relative between the two different patients -- that is a terrible question.

[IF THE QUESTION GOES WRONG, DON’T TRY TO RESCUE IT, START AGAIN!!]

But it doesn't always work!

LT v Lothian NHS Health Board [2018] CSOH 29; [2019] CSIH 20

Several experts speaking to the CTG trace. A list of propositions put to each. Each one gave a different qualification. The list ended up as a mess.

In general, a pretty disastrous case for the pursuer!

We are all familiar with the question too far – probably the most common mistake, particularly in cross examination. Once you have your concession, move on.

However…

The pursuer's case was that the trace was pathological

The defender's expert maintained that the trace was normal.

Neither side argued that the trace was merely suspicious, but that could have given rise to an interesting question on consent. Should a mother be advised that a trace has become suspicious, when there are other delivery options available?

In her reports and evidence in chief, the defender's expert, Professor Murphy, maintained that the trace was normal or reassuring.

At the end of a fairly gruelling (for me at least) cross examination:

> In his role as cross-examiner, Mr Milligan put to Professor Murphy the part of the sentence in her conclusion which reads "there are likely to be obstetricians and midwives who would have interpreted the CTG as no more than suspicious". He followed up with the proposition that no one could be more confident than that; it was a suspicious trace. Professor Murphy answered:
> "Well the suspicious CTG would be fairly commonplace in the second stage of labour. Very few CTGs have all three features, or indeed four features in the second stage of labour. The majority of second stage CTGs are suspicious. You always, virtually always, get an occasional variable deceleration or early decelerations, they're really common in the second stage CTG." (MS742)

> Mr Milligan pressed his point: "You couldn't say it was better than suspicious, could you?" Professor Murphy answered:
> "Oh, I think they could've used the classification normal. Normal baseline, normal variability, accelerations, no decelerations. So, for the, certainly the last hour, you would … they would have been entitled to classify it as normal. … The previous hour they would have been entitled to classify it as normal." (MS743)
> There then came what Mr Milligan submitted to us was the concession by Professor Murphy upon which he founded. In response to his prompt: "… at 2230, somebody looking at the trace 2230 …", Professor Murphy said: "Suspicious". Mr Milligan then completed his question: "… should have classified it as suspicious", to which Professor Murphy responded: "Correct" (MS743).
> 52. Mr Milligan pointed to another answer by Professor Murphy in which he submitted she had repeated or reinforced her concession. In response to the question:
> "… do you accept that … no ordinarily competent registrar acting with reasonable skill and care could have interpreted this trace as reassuring at 2230 or thereby?"
> Professor Murphy had replied:
> "I would have expected them to interpret it as suspicious. Reassuring is a different word. Suspicious, I would expect that interpretation." (MS746)

The defenders positively relied on this apparent concession in their submissions:
Para 239 of the Lord Ordinary's opinion –
4) *Professor Murphy* : While she did the majority of her medico-legal work for defenders, and that in Scotland she had been instructed only by the CLO, this did not mean that she lacked independence. She also provided reports for pursuers. It was not, and could not properly have been, suggested that she preferentially accepted instructions from defenders. The decision whether to defend a case in court was a decision for the lawyers in the light of all investigations and taking other factors into account, and not a decision for her. **She was willing to make concessions - eg that at 22:30 the trace was properly to be interpreted as suspicious**

The Inner House took a different view

56. When one turns to these exchanges, it is not clear to us just what Professor Murphy is conceding, if indeed anything. The Lord Ordinary may have shared that view. In the first exchange Mr Milligan puts to the professor that "somebody looking at the trace … should have classified it as suspicious". Now at this point there were, or may have been (the question does not make it clear), at least two concepts in play. The first is what the trace in fact shows.

For present purposes, that is the same thing as the interpretation that Professor Murphy would put on it. Because she identified occasional decelerations the professor accepted that, in terms of the Guidelines, the trace fell to be classified as suspicious. In responding "Correct" to the proposition that "somebody looking at the trace…should have classified it as suspicious" Professor Murphy may have been saying no more than that: this is how she would classify the trace. The second concept is whether a classification of the trace as other than suspicious would be negligent. If that was the proposition Mr Milligan intended to put to Professor Murphy, it cannot be said to have been put very clearly. In the second exchange Mr Milligan did deploy the appropriate test for negligence by phrasing his question as "do you accept that no ordinarily competent registrar acting with reasonable skill and care could have interpreted this trace …" However, he rather confused the issue by choosing as his next word "reassuring". If he was intending to use "reassuring " in a technical sense, that is in the sense in which it is used in the Guidelines, then he misused it. In terms of the Guidelines, a feature of a trace may be categorised as reassuring but a trace is not categorised as reassuring; the categorisations of a trace are normal, suspicious or pathological. This use or misuse of technical terms and the need to clarify how they should be employed then became the focus of Professor Murphy's reply: "I would have expected them to interpret it as suspicious. Reassuring is a different word. Suspicious, I would expect that interpretation."