



AN CHÚIRT UACHTARACH
THE SUPREME COURT

Record No.: 2023/34
[2023] IESC 36

O'Donnell C.J.
Dunne J.
Charleton J.
O'Malley J.
Baker J.
Woulfe J.
Collins J.

Between:

THE PEOPLE (AT THE SUIT OF THE DIRECTOR OF PUBLIC PROSECUTIONS)

Respondent

v.

R.K.

Appellant

Judgment of Ms. Justice Iseult O'Malley delivered the 14th of December 2023

Introduction

1. The appellant was convicted in July 2018 of causing serious harm to two women, contrary to s.4 of the Non-Fatal Offences Against the Person Act 1997, by knowingly or recklessly infecting them with a serious disease. The prosecution case in the trial was that he infected both complainants with HIV by recklessly engaging in unprotected sexual intercourse with them, while knowing at the time that he himself had the disease. The seriousness of the harm caused by such an infection is not in issue – there can be no doubt that it comes within the statute. Equally, on the facts of the case there could be little dispute about whether or not the appellant acted recklessly. The main question in the case was always whether it had been proven that he in fact transmitted the disease to the complainants.
2. This appears to have been the first prosecution of its kind in this jurisdiction, involving scientific questions that have not previously been dealt with here by judges, legal practitioners, or juries. On top of that, the sequence in which the expert evidence was called meant that the evidential scenario presented to the judge, legal representatives and jury changed quite significantly over the course of the trial. These factors may need to be borne in mind when assessing the manner in which the trial ran.
3. In general terms, the appeal is principally based on the contention that the prosecution evidence was inadequate for the purpose of establishing beyond reasonable doubt that the appellant was the source of the complainants' infection. To put the case in context, it may be helpful to state at the outset that there is no scientific test, and no other form of direct evidence, by which it can be proved to the necessary criminal standard that a person with HIV was infected by any other particular person. Given that fact,

prosecution evidence from which transmission can be safely inferred beyond reasonable doubt must be such as to rule out any reasonable possibility that the infection came from any other potential source. It is therefore necessary to consider the nature and quality of evidence required.

4. Initially, the prosecution case was largely based on, firstly, the evidence of each of the complainants as to their previous history of sexual relationships and their relationship with the appellant prior to their respective diagnoses and, secondly, medical evidence from their treating consultant confirming their HIV status and that of the appellant. There was no other expert evidence. In particular, there was no scientific evidence concerned with examining any potential links between the virus carried by the appellant and that carried by either of the complainants.
5. HIV typically has a lengthy latency period, as short as four years or as long as twenty (although more usually around ten to fifteen), during which the infected person has no symptoms and if untested may be entirely unaware of the infection. Very few patients – in the order of 1% or 2% only – are diagnosed at an early stage of infection. It is also important to note that, although the probability of transmission is low in respect for any single act of sexual intercourse, transmission occurs as a result of such a single act. There is no cumulative effect with repeated intercourse. The use of condoms is a very effective means of reducing the risk of transmission but does not eliminate it entirely – this is mainly because of the possibility that a condom was not used correctly. Compliance with prescribed medication can reduce the viral load of an infected person to the point where transmission of infection does not occur.
6. In those circumstances, an inquiry into a complainant's sexual history must of necessity be detailed, if it is to be of probative value. Where the complainant is an adult

who has been sexually active for any appreciable length of time, the inquiry is likely to be far more intrusive and potentially distressing than would, for example, normally be permissible in a trial for a sexual offence.

7. It is apparent from the transcript that each of the complainants in this case found the experience of giving evidence and being cross-examined very upsetting. The defence argues in the appeal that the account given in the trial by each of them as to their own sexual history was unreliable. There is no doubt but that aspects of their evidence were problematic and indeed the trial judge gave a form of *Lucas* warning in that regard. That gives rise to an issue as to the appropriateness of giving such a warning in respect of untruths told in court by prosecution witnesses.
8. The medical evidence was given by the infectious diseases consultant who treated the complainants, who also had some dealings with the appellant. This witness had been the person who initiated the garda investigation by reporting his concerns to them. He confirmed in evidence that all three were HIV positive. Further, he was in a position to say that the appellant had untruthfully told him that he had not previously tested positive for HIV. He also stated his belief, based on the information that he had at the time regarding the sexual history of the complainants and the analysis of virus samples taken from each of the three, that the appellant had infected the women. It is relevant to note here that the appellant is of African origin, and that the consultant believed that all three were infected with an “African” strain of HIV.
9. In the application for leave to appeal to this Court, the appellant did not raise any issue as to Dr Lambert’s entitlement to give opinion evidence. When the Court considered the application, it was apparent from the transcript extracts furnished that he had

reported his concerns about the appellant to the Garda Síochána and that this had been the reason the investigation had commenced. It was not at all clear to the Court that the defence had been aware of this fact, and that the consultant's opinion evidence was given in response to deliberate and direct questions in cross-examination, rather than in evidence in chief or as a spontaneous contribution. In the circumstances known to it, the Court therefore queried whether the witness could, in circumstances where he had in effect initiated the investigation, be considered to be a sufficiently independent expert for the purpose of giving expert evidence on this issue. The appellant has argued in the appeal, albeit as a relatively minor point, that he was not independent and that the opinion was therefore inadmissible despite the circumstances in which it was elicited. More potentially significant in the appeal is the fact that the reliability of the opinion is in issue in circumstances where, as will be seen, both the evidence of the complainants and the subsequent evidence of expert witnesses undermined to at least some extent the grounds for the consultant's belief. In this respect, the adequacy of the trial judge's charge to the jury in relation to the consultant's evidence requires examination.

10. After late notice of expert evidence was served by the defence, the prosecution sought further scientific analysis of the results found in relation to the original samples. On foot of that analysis, evidence was adduced from the director of the National Virus Reference Laboratory ("the NVRL" or "the laboratory") that the three parties had the same subtype of HIV (one which was not prevalent in Africa). It should be noted here that the type of analysis routinely carried out in the NVRL was designed for the purpose of assisting in the choice of appropriate treatment for HIV patients, rather than for the purpose of tracing the source of an infection. Significantly, this witness agreed

with the defence expert that the data and the results of the analysis did not assist in answering the question whether the appellant had infected the complainants, and that at best it went no further than to say that he could not, on the available data, be excluded as a potential source.

11. The defence expert witness was of the opinion that the medical and scientific evidence was inadequate to sustain the prosecution case. In particular, this witness expressed the view that the tests carried out for diagnostic and therapeutic purposes were insufficiently sophisticated for forensic purposes. He considered that such data as was available could be seen as pointing against the appellant being the source of the complainants' infections. He stated that the subtype in question was unknown, or almost unknown, in the appellant's continent and country of origin. He considered that it would have been necessary, for the purposes of prosecuting an offence of this nature, to carry out a phylogenetic analysis. Such an exercise, it is agreed, is capable of establishing closer links between the viruses carried by different individuals and is also capable of positively excluding a suspect. The witness said that his own experience was that such an analysis was a prerequisite for such prosecutions in other jurisdictions, and he thought that it was a legal requirement. After a *voir dire*, the trial judge permitted the witness to be called but placed restrictions on the scope of his evidence. That ruling is the subject of dispute in the appeal.

12. The status of the appellant as having been HIV positive before he met either of the complainants was established by evidence from the medical practice attended by him at the relevant time. He had been tested in 2008, on arrival in the State as an unaccompanied minor asylum seeker. In interviews with the investigating gardaí he confirmed that fact, and accepted that he had been advised at the time about the

necessity to practise safe sex. He said that he was unable to provide names or dates of other sexual partners, and largely responded to questions about his sexual history by saying that he did not know or could not remember. He said that he had used condoms with Ms K, but accepted that he had on at least some occasions had unprotected sex with both complainants. He gave a voluntary blood sample. In charging the jury, the trial judge gave a form of *Lucas* warning in respect of the content of the interviews. The appropriateness of such a warning in respect of an offence of this particular nature will be considered in due course.

13. On conviction the appellant was sentenced to ten years imprisonment on each count. The Court of Appeal upheld the convictions (see *People (DPP) v R.K.* [2022] IECA 135). It subsequently dismissed the appeal against sentence.

Evidence in the trial

14. The evidence of Ms K, the first complainant to give evidence, was to the following effect. She first met the appellant in 2009, began a relationship with him in January of 2010 and lived with him for much of 2010. In late January of 2010, she discovered that she was pregnant and was referred to the Rotunda Hospital for antenatal care. A blood test revealed an abnormality and she was referred to Dr John Lambert, an infectious diseases consultant, who confirmed her diagnosis as being HIV positive. Ms K stated that when she informed the appellant of her diagnosis he was “not shocked” and may have said to her that he was sorry. The couple got married prior to the birth of a healthy daughter later in 2010 but Ms K said that the relationship broke down in January 2011.

15. In cross-examination, Ms K stated initially that prior to meeting the appellant, she had had only one boyfriend, with whom she had been in a sexual relationship between 2007 and mid-2008. However, later in her evidence she mentioned another boyfriend, an African man with whom she had been sexually involved with for possibly a number of months ending in and around January 2010, when she was also in a relationship with the appellant. She said that she had forgotten about this relationship and added that she had had no other sexual relationships before meeting the appellant.
16. Ms K was then asked about her statement to the gardaí. It is apparent from the cross-examination that she had told them that she had had other casual sexual relationships. In response to being asked about this, she said “... *that’s when I was younger, when I was like 16 or 17*” but asserted that she had had no other sexual encounters between 2007 and 2009. In that regard, the complainant on three further occasions in cross-examination denied the content of her statements to the gardaí regarding sexual contact with men whose names she did not know, before ultimately conceding that she had indeed made the statement. She said that she had meant one-night stands involving vaginal sexual intercourse. When asked as to why she had told the gardaí that she had engaged in oral sex with those other men, rather than sexual intercourse, Ms K said that she did not remember being with them.
17. The complainant then confirmed that these encounters had occurred in 2009 and, regarding her sexual partners, stated that: “*They could have been Irish, they could have been African*”. She said that she regretted having disclosed this information, that she should have kept it hidden, and she protested at having to now reveal previously hidden aspects of her sexual history. In her view, her behaviour was entirely normal for a

young, single person. She stated that as far as she could remember, she did not engage in oral sex during these casual sexual encounters. She did not use protection when performing oral sex. She said that she had never engaged in oral sex with her second boyfriend. However, when it was put to her that he had made a statement to the contrary effect she said that she did not know.

18. The complainant initially said that the relationship with the appellant had ended in January 2011. Later in her evidence she said that the last time she had had sex with him was just before February 2015. She had had sex with him on a number of occasions before that because, she said, he would not leave her in peace. She was then asked whether she had met and had engaged in sexual intercourse with the appellant on a specific date approximately one month prior to the trial. The complainant denied several times that this had happened, until it became apparent that the defence were in a position to prove it. She then admitted to having had sex with the appellant on the date in question. When it was put to her that she had lied previously, the complainant, after judicial intervention requiring her to answer, initially said that she had been unable to remember the event earlier. She then admitted that she had in fact remembered it when asked.

19. It was put to the complainant that she had met the appellant on three further occasions in 2016 and 2017 and had sex with him, which she initially denied before accepting that it might have happened.

20. It may be observed here that the evidence as to sexual contact after the date of diagnosis in 2010 can be relevant only to the credibility in general of the witness's account of her sexual history, since it is clearly irrelevant to the question of the source of infection.
21. The second complainant was Ms C. She said she first met the appellant in early 2009, having been introduced to him by a mutual acquaintance. The relationship quickly became intimate. They would meet approximately once per week and have sexual intercourse on every occasion, during which protection was not used. Ms C stated they were in a steady relationship until 2010, after which they were "*on and off*". In 2010 she began experiencing abdominal pains, attended her doctor and was referred for full STI testing at the Mater Hospital. There, she was diagnosed as HIV positive. Like Ms K, she was referred to Dr Lambert. She continued in what she described as an "on-again, off-again" relationship with the appellant.
22. Ms C gave birth to a healthy child in August 2012. A second healthy child was subsequently born to the pair in 2016, which was some time after Ms C had made her statement of complaint to the gardaí. In cross-examination, this complainant accepted that after the birth of the second child she would stay with the appellant in his home at weekends and continued to have sexual contact with him.
23. Again, the issue of post-diagnosis sexual contact is relevant only to the question of credibility.
24. The complainant confirmed that between July and November 2009 she had had a sexual relationship with another African man. When it was put to her that she had in

fact also had a sexual relationship with the African man who introduced her to the appellant, she initially denied this. However, upon further questioning of her denial, she admitted: *“Yes, I’m thinking. Yes, it was just once though... I just didn’t want to say that”*.

25. It was put to the complainant that through this friend she had met a number of other African men with whom she had sexual relations. Again, her initial denials were withdrawn after further questioning and she admitted that she had in fact had sexual contact with an unspecified number of men. When asked how many such sexual encounters she had had, she responded: *“I don’t know. ... I don’t know why I have to say how many”*.

26. Ms C agreed that she would attend private parties after attending nightclubs, and in this setting had had multiple sexual encounters. This statement was then, briefly, resiled from before she once again agreed that she had had a number of such sexual encounters prior to meeting the appellant. The complainant also initially denied having had oral sex during her sexual encounters with unnamed African men but then said that she had in fact engaged in oral sex with some of them.

27. It must be noted that both women remained adamant that protection had been used in sexual encounters involving vaginal intercourse with all men other than the appellant.

28. Dr John Lambert is an infectious diseases treatment specialist. He stated that Ms K had first been referred to him in May 2010 as a result of routine antenatal tests. Her diagnosis was confirmed later that month. She named the appellant in giving her sexual

history, so he was contacted and arrangements were made for him to have blood tests. A confirmed diagnosis of HIV was made in respect of him in June 2010. Dr Lambert said that the appellant told him that he had not previously received a HIV positive diagnosis.

29. Dr Lambert met the second complainant, Ms C, in June 2010. According to him, she had been informed by the appellant that she had been exposed to HIV. She was confirmed to be HIV positive. Dr Lambert continued to be the treating clinician of both complainants, including during their pregnancies.

30. The witness arranged for the viruses of the appellant and the complainants to be tested by the NVRL. He said that the appellant told him that he had only been tested once before, and had been negative. However, he then received information from the laboratory that the appellant had previously been diagnosed with HIV, in Ireland, in 2008.

31. Confirming that there are different strains (or clades) and subtypes of HIV, he said that a person carrying a particular clade could have a number of quasi species within them. In this case, he said, the results of the tests showed that all three had “*an African virus*”.

32. In cross-examination, Dr Lambert was asked about the varying subtypes of HIV. Although he engaged with the questions asked, and said that he had studied a number of textbooks as regards the science pertaining to HIV classification, he made it clear that he was a clinician rather than an expert in epidemiology. He accepted that a person from one continent could be infected by a strain that predominates in a different continent but stated that he had never come across an African patient with HIV who

did not have an African strain. However, he agreed in cross-examination that this was a “simplistic description”. He did not know how many African strains or subtypes of HIV there were.

33. Dr Lambert recounted the sexual histories given to him in 2010 by the two complainants. He said that Ms C had informed him she had been seeing the appellant for six months. She told him that prior to that, she had only had two sexual partners, for a few weeks each. The other complainant, Ms K, had informed him that she had only had one sexual partner prior to commencing a sexual relationship with the appellant in October 2009. Dr Lambert did not investigate these possible transmission sources as his focus was on treatment and not on contact tracing. He had asked the NVRL to carry out testing because Ms C was blaming herself for having transmitted the disease to the appellant. (The evidence on this aspect may be slightly contradictory. As noted, Dr Lambert had the impression that it was the appellant who alerted Ms C to her possible exposure, while she and her mother said that he had blamed her for infecting him.) The director of the NVRL had informed him that all three had an African virus. Dr Lambert agreed that if they had not been the same, he would not have linked them together. He had not actually seen the test results and therefore could not offer an interpretation of them. Dr Lambert also agreed that the type of analysis carried out by the NVRL could not exclude a person as a possible source of infection.

34. The witness stated that the science regarding transmission was very complicated:

“...there’s some viruses that are more transmissible and some viruses that are less transmissible ... And you know it’s actually quite complicated, so within so even with the one clade of virus, there’s lots of different quasi species of that particular virus. So

this is ... this is ... it's a very complicated, complicated science.” When asked whether this “*complicated work*” had been undertaken in this case, or requested by the Garda Síochána, he indicated that it had not. Asked further about transmission, he said that there was no transmission with oral sex. With vaginal intercourse, an infected man was far more likely to infect the woman than the other way around. The witness also stated the appellant had a viral count of 12,000 which in his view posed a significant risk of transmission.

35. Counsel for the defence put it to Dr Lambert that he believed that the appellant was “probably” the source of the infection. The witness did not adopt the word “probably” but ultimately confirmed that he believed that the appellant had infected the two women. He said that he based his belief on the sexual histories given to him by the complainants, the fact that the three individuals had the same “African” strain, and the fact that they all had chlamydia. (There was no further evidence as to the significance of the chlamydia infection.) However, he accepted that he had not been aware of the sexual histories of the complainants as given by them in evidence, which clearly differed from the histories he had been furnished with.

36. It is necessary to point out that, thus far, nobody involved in the case had any actual knowledge as to *which* strain, or subtype, of HIV might be in question.

37. The defence then applied for and was granted, outside the time limited for such matters, leave to call an expert witness, Professor Leigh Brown. Section 34 of the Criminal Procedure Act 2010, as it stood at the time of this trial, required an accused person to give notice of an intention to call expert evidence at least 10 days in advance of the scheduled date of the trial. The leave of the court was required to adduce such evidence, whether or not the notice was given in time. It was necessary for the trial judge to be

satisfied that, *inter alia*, the proposed evidence was in compliance with any enactment or rule of law relating to evidence. (The relevant notice period is now 28 days: s. 18 of the Criminal Procedure Act 2021.) It should be said that this late application, made at what was intended to be the end of the prosecution evidence, may have contributed to a degree of confusion about the expert evidence later in the trial.

38. Professor Leigh Brown is the professor of evolutionary genetics in the University of Edinburgh, and has carried out research in the field of HIV transmission for over 25 years. His initial report, which was largely concerned with his view of the requirements for prosecuting a charge of this nature in other jurisdictions, was provided to the trial judge. Copies were also furnished of the relevant policy statement of the Crown Office and Procurator Fiscal Service of Scotland and the guidelines issued by the Crown Prosecution Service of England and Wales. (These are both publicly available documents.)

39. Part of the professor's proposed evidence would have been to the effect that he understood these documents as constituting a legal requirement in those jurisdictions, imposed in the interests of fairness, to carry out phylogenetic analysis before bringing a charge of this nature. The prosecution objected to the admissibility of such evidence as far as the jury was concerned, on the basis that the witness's expertise was in scientific rather than legal matters and that the evidence did not relate to any issue to be determined by the jury. However, it was accepted that in the event of an application to stop the trial on *PO'C* grounds (which defence counsel had indicated that he would be making in due course) it could be relevant to the trial judge's consideration of the fairness of the trial. A *voir dire* was held on the admissibility of the proposed evidence.

40. In his evidence in the *voir dire* the professor explained that the HIV virus is highly variable. It has a genome, and the different strains can be identified by examining the nucleotide sequences that encode its genetic information. This process can be used to compare the viruses carried by different individuals. The virus evolves while within a person's body. At the beginning of the infection, it will be closely related in each of the two people concerned. Over time, the virus in each will become more individual but they will always be more similar to each other than to unrelated persons. It was not possible to say with scientific certainty that one person had infected another, but it could be said that the viruses were consistent with that having happened. However, it would be possible to say with scientific certainty that one person had not infected another.

41. Professor Leigh Brown said that in this particular case there had been no specific analysis carried out of the relationship between the viruses in the three individuals. The tests that had been carried out on the samples in the NVRL were designed to inform clinicians in relation to the aspects of the virus concerned with drug resistance, and therefore looked only at the sites that were of critical importance for that purpose. They were of no forensic value, because they did not include the sequencing data required to determine the origin and type of virus. He had looked at the summary results of the tests, which did not include the sequence data but did identify drug resistant mutations. There was not enough information to draw any inferences about the origin or type of virus involved. He had considered it as far as possible and had identified one common mutation in the three individuals. However, what he found surprising was that there were mutations that differed between them.

42. Counsel asked whether the material in the reports pointed towards the exclusion of the appellant as the source or towards a finding that his infection was consistent with the other two. The professor emphasised that the information was “*completely inadequate*” but stated that it pointed “*in the wrong direction for the prosecution*”. He would have expected the results to be more similar if the appellant was the source. It was therefore reasonably possible that he was not. He could not, however, exclude a connection because the data was not adequate for that purpose. He said that for a full phylogenetic analysis he would need samples from all other potential sources of infection, but he confirmed that with samples only from the three people directly concerned it would be possible to rule out a connection. This would take a matter of days if the raw data from the original tests was available.

43. Professor Leigh Brown was asked about his experience of giving expert evidence in other jurisdictions. In this context he referred *inter alia* to the prosecution policies and guidelines in Scotland and in England and Wales.

44. The Scottish policy document states that phylogenetic analysis is essential before taking proceedings. It is noted that because of the different nature of each sexually transmitted disease, the nature of the medical and scientific evidence will vary. However, it says that detailed medical and scientific evidence will always be required to demonstrate that the accused person transmitted the specific infection to the victim. Phylogenetic evidence may also demonstrate with certainty that the accused did not infect the victim, if it demonstrates that the strains are different. It is further noted that, at best, the scientific and medical evidence will prove that the infection in the victim is consistent with that in the accused and is compatible with the allegation that the

accused infected the victim. A strong factual case surrounding the scientific and medical evidence is therefore essential.

45. The guidelines for England and Wales refer to the need to pay detailed attention to the totality of the evidence before deciding to prosecute. Given the nature of the harm caused to the victim, it is stated to be “inevitable” that detailed scientific and/or medical evidence will be required. The nature of this evidence will be dependent upon the kind of infection involved. It is noted that the science on this subject is not as precise as with, for example, DNA matches and that a strong factual case must be built around the scientific/medical evidence.

46. It appears that such cases are prosecuted in England and Wales as the intentional or reckless infliction of grievous bodily harm. In respect of each, the guideline states that prosecutors should never proceed with a charge unless there is scientific and/or medical evidence which proves the contention that the defendant actually infected the complainant. A confession on its own is insufficient, and a plea should not be accepted unless it is “informed”, in the sense that the defendant has been furnished with the detailed scientific and medical evidence. The reason for this is that, while the defendant may know the content of his own medical records, he could not be expected to know more complex information relating to the strain of infection he has, or his level of infection at any particular time. A failure to rule out the possibility of another person being the cause of the infection will mean that there is insufficient evidence to proceed.

47. Unlike the Scottish policy, the England and Wales guideline does not express the need for scientific evidence in mandatory terms. It is noted that each case must be considered on its own facts and merits. It is said that a case may proceed without scientific evidence if, for example, the defendant admits being infected and provides a blood

sample, there is medical evidence that the two individuals had the same strain of HIV, and the complainant had no other sexual partners and never had a blood transfusion or used a shared needle. If a suspect refuses to give a sample, a case could still proceed if the factual evidence is such that other sources of infection can be ruled out.

48. Professor Leigh Brown's evidence in the *voir dire* was that as he understood it phylogenetic analysis was a legal prerequisite to a trial in Scotland. Such guidelines had been deemed necessary to ensure that "*the prosecution goes forward on a fair and just basis, that there is a clear link between the individuals as far as all the evidence... provides*". When asked by counsel for the appellant if he understood why he had been instructed to provide expert evidence in a number of trials in Scotland, Australia, and England and Wales, he responded, "*I think in those jurisdictions it is considered necessary to have this form of scientific analysis, this phylogenetic analysis...for the prosecutions to go ahead*". He said that the guidelines in England and Wales, as well as in Scotland, were based on experience and considerable discussion arising from the initial cases in both jurisdictions, in consultation with interested parties, namely lawyers, scientists and organisations representing those who live with HIV. Absent nucleotide sequencing and a complete history of risk transmission culminating in phylogenetic analysis, he did not believe a prosecution would be brought in the jurisdictions in which he had acted as an expert witness.

49. At the end of the *voir dire* the prosecution applied for an adjournment for the purposes of further analysis of the 2008 and 2010 test results. Counsel referred in particular to the professor's evidence about the mutations. It accordingly became necessary to adjourn the trial for a period of several days. (It may be noted here that this is precisely the sort of situation which the statutory time limit for the service of defence expert

reports is intended to avert.) The prosecution then reopened its case to call Dr Cillian De Gascun, the director of the NVRL.

50. Dr De Gascun is a specialist in clinical and diagnostic virology. He confirmed that this was the first time he had been involved in a case of this nature. He said that it was standard practice to send samples from newly-diagnosed HIV patients in Ireland to the NVRL for analysis. The purpose of the analysis was to identify possible drug resistance, which would be done by looking at the genetic sequence of the virus present in the sample in order to identify mutations that indicate resistance to different forms of medication. Mutations in the virus occur in response to pressure from the operation of the immune system, and since that differs from person to person the mutations present in an individual may vary.

51. It may be noted here that the mutations can change over time so that two samples taken some years apart can show different mutations. Similarly, if a newly-infected person infects a sexual partner shortly after acquiring the infection, their mutations may initially be very similar but can alter over time. The subtype itself remains the same.

52. Because the NVRL's analysis was carried out only for that purpose of identifying potential resistance to treatment, the only part of the genome of the virus to be examined was the region associated with resistance. (In very brief summary, this exercise is done by reference to a particular strain of HIV, (known, for that reason, as the "reference" strain), that has been established to be susceptible to all antiretroviral medications. Differences from that strain, in particular sites in the genetic sequence, can indicate resistance to particular treatments.) At the time when the requests were received from Dr Lambert in 2010, this form of analysis was carried out by the NVRL

with the aid of an online platform called Trugene. In that diagnostic context, it would not normally be necessary to identify the particular subtype of HIV and Trugene did not do so.

53. In relation to this particular case, the NVRL had examined five samples – two from the appellant (dating from 2008 and 2010), two from Ms C (from 2010 and 2012) and one from Ms K (from 2010). Having been consulted during the adjournment of the trial, Dr De Gascun took the relevant sequence data from the 2008 and 2010 Trugene reports and submitted it to another programme, hosted by Stanford University. He said that the finding from that source was that all three individuals had subtype B HIV. This subtype would account for only 10% to 12% of cases globally, but was common to approximately 50% of all people living with HIV in Ireland and was predominant in the USA, Western Europe, and Australia.

54. Dr De Gascun said that from a global perspective there were nine subtypes of the HIV virus, each of which had sub-subtypes. Within a subtype there may be different strains or quasi-species. In addition to that, there were a number of “circulating recombinant forms” which could be a combination of subtypes. That could come about because it was possible for a person to be infected by more than one subtype.

55. The witness said that the analysis performed by Trugene, although designed to assist in treatment, was capable of identifying mutations that were not necessarily relevant to the question of drug resistance. He was asked what was the possible variety of mutations that could occur – was it in the tens, hundreds, or thousands? The response was that, generally speaking, it would be in the tens in the drug resistance sites.

56. In relation to a sample taken from the appellant in 2008 the analysis identified four mutations (36B, D60E, I62B and L36P). Dr De Gascun agreed with counsel for the prosecution that these kinds of mutations were “not uncommon”. They were identified by the analysis simply because they differed from the reference strain. The appellant’s 2010 sample only showed one mutation (M36V). The difference between the two tests could possibly be explained by the fact that, with the technology used, the sequence generated by a sample typically covered about 80% of the virus present in a patient’s sample. (In cross-examination, he said that it could be as low as 70%, or as high as 90%.) It was possible that the other mutations were also present in the 2010 sample but perhaps at a lower population.

57. The analysis of the 2010 sample taken from Ms K identified her viral subtype as B. She had two mutations, being M36V and V106A. In relation to Ms C, samples from 2010 and 2012 both identified her viral subtype as B, with mutation M36V being identified as present.

58. When asked by counsel for the prosecution how helpful the sequencing information was in determining transmission between the parties, Dr. De Gascun said:

“It doesn't really tell us a huge amount. It means, say, a transmission event can't be excluded because they're the same sub type but other than that it doesn't tell us a huge amount else to be honest”.

59. Dr. De Gascun agreed with the trial judge that what he meant was that transmission could not be excluded but could not be confirmed. There was no scientific method for determining whether one person had infected another.

“So, the limitation of sequence data is that it can't ascertain directionality. So, you would need supporting information from other sort of say demographic data from the time of knowing when somebody was infected essentially and maybe that somebody else was not infected prior to that time or something like that.”

60. It was necessary to have a truthful history about an individual in order to determine what the exposure risk had been.

61. Asked about phylogenetic analysis (which can potentially give a detailed analysis of the relationship between viruses by comparing genetic similarities), the witness stressed that he was not a phylogenetics expert. In a diagnostic setting, phylogenetic analysis is not routinely performed for individual cases because it would not add much information of use for diagnostic purposes. He confirmed that the NVRL would have the capacity to carry it out, but said that it would not have been desirable to do it in a laboratory that was already familiar with the case under investigation because of the risk of confirmation bias. If it had been required, the NVRL could have done the sequencing and then sent the data, with some additional Irish sequences from the same time period, to an independent expert such as Professor Leigh Brown or alternatively to another centre of excellence in Belgium or England. However, the NVRL had never previously been involved in a case such as this. It would be necessary to do further

testing and sequencing to carry out such an analysis at this stage. The original samples were no longer in existence. He said again that Irish sequencing data related only to the part of the genome associated with drug resistance. Phylogenetic analysis required examination of other sites. It also required comparable data from a background population.

62. Dr De Gascun described Professor Leigh Brown and his colleagues as “very well established” in the area of phylogenetics while he himself was not an expert in it. Molecular epidemiology of HIV was an interest of his but not an expertise. He said that he had read the documents supplied by Professor Leigh Brown, and that he agreed with them. Asked what he meant by that, he referred to the guidance from the Crown Prosecution Service to the effect that sequence data was required for an investigation of this sort. He said that he had also familiarised himself with the evidence given by Professor Leigh Brown in the *voir dire* and agreed with his conclusions. At this point, the trial judge queried whether the witness meant technical conclusions. Dr De Gascun agreed and said that it was reasonable of Professor Leigh Brown to have expected subtype information to be available for the trial.

63. Counsel attempted to raise the professor’s point about not initiating charges without phylogenetic analysis, but the trial judge intervened to rule that it was not a matter for a technical witness whose expertise was in medicine and viruses.

64. This exchange came, of course, before Professor Leigh Brown had given any evidence before the jury. Thus, while the trial judge and counsel had seen Professor Leigh Brown’s report and the two policy documents in the *voir dire*, and Dr De Gascun had

read them and the transcript of the *voir dire*, it would not have been clear to the jury what exactly Dr De Gascun was agreeing with.

65. The witness agreed with the proposition that Trugene was out-of-date technology, insofar as it was no longer supported by its manufacturer and had not been upgraded since 2014. While it had been accepted as the international standard at one stage, it had been superseded. The NVRL was no longer using it. It was put to him that Professor Leigh Brown would say that the Trugene analysis of sequencing was not of high quality, and he responded that, while a person of the professor's expertise would have done more advanced sequencing, the Trugene analysis had been the standard of care for commercial platforms.
66. Dr De Gascun explained that the Trugene platform could process a sample, whereas Stanford did not. However, Stanford could analyse the sequencing data gathered by Trugene and could report on the subtype, which Trugene could not do. He agreed that the sequencing in this case had been done only once and that variations may be seen where the exercise is carried out more than once. If one sample was sequenced 100 times, for example, there could be a slightly different pattern of mutations in up to 30 results.
67. Asked about the feasibility of conducting phylogenetic analysis at this stage, Dr De Gascun said that it would take three to six months depending on resources. Since the available sequence data in Ireland related only to the drug resistance region of the genome it would be necessary to do additional testing to generate an accurate background population for the purpose of such analysis.

68. Professor Leigh Brown was then called. Before he commenced his evidence the trial judge ruled that he could give evidence only in relation to technical, scientific matters. He was not permitted to discuss his understanding of the prosecution guidelines in the United Kingdom, or to say that a prosecution of this nature could not or should not be mounted without phylogenetic analysis, but he could be asked whether it had been done in cases in which he had given expert evidence.

69. Professor Leigh Brown said that the statistical likelihood of HIV transmission per single act of vaginal intercourse was in the order of 1-in-1000. Post-infection, a person initially entered an acute phase with a high viral load, usually measured in 100,000s of viral copies per millilitre. However, this subsequently fell dramatically during a phase called "*clinical latency*", which could last for up to 20 years before entering the final stage of infection known as AIDS. Compared to the acute stage of infection, a viral load of 12,000 was rather low but a person with that load would nonetheless be infectious.

70. The witness described HIV as a virus that was extremely variable, resulting in various subtypes. He stated that sub-type B was not associated with the continent of Africa (except among men who have sex with men in South Africa). He had worked extensively in the appellant's country of origin over the past 10 years and subtype B was "unknown" or "almost unknown" there.

71. As regards phylogenetic analysis, the professor said that it involved analysing the genetic nucleotide data of a selection of viral strains to identify how different or closely related they were to one another. This analysis could be used to create what is called a phylogenetic tree, which he compared to a family tree. If one individual had infected

another, there would be an expectation that their viruses would be very closely related on the phylogenetic tree. The process could not determine that a particular person was definitely the source of infection but could result in a finding that was consistent with that possibility. Importantly, he said that it could also exclude a particular person as being the source, because the viruses would appear in different places on the phylogenetic tree. The witness said that he had never given an opinion in a case where such an analysis had not been carried out. This was the first time that it had happened, in his experience.

72. Turning to the sequencing data from the Trugene reports, Professor Leigh Brown commented that the quality of the sequencing data was not very high. He noted that its purpose was to assist in the choice of treatment and said that it was effective for that purpose. However, there was insufficient data to draw any conclusions regarding the connection or direction between the individuals. The witness was asked what, if any significance the evidence had in relation to the transmission of the disease and said:

“The appearance of mutations in these individuals suggested divergence rather than similarity, but I would emphasise that -- this is not adequate data -- on its own for drawing any conclusions with respect to the probable direction or connection between these individuals”.

73. In his view the data showed differences rather than similarities. He said that this could point in favour of the defence but repeated that the raw material he had seen was not sufficient for him to give an opinion that he could stand over. He stated that phylogenetic analysis was not merely an exercise in comparing the viruses of a defendant and complainant, as it required that all other possible sources of infection

must also be included in the analysis, in particular all other sexual contacts, which could then be assessed with the assistance of a database of suitable reference patients.

74. The professor said that the difficulty in determining the source of HIV infection lies in its long period of clinical latency, where an individual is not aware that they are infected and can transmit the disease. Relying solely on self-reported sexual history had proven to be inefficient, because clinical latency in the virus could mean that recent partners were not relevant. He gave the example of one study he had performed, where a married couple both carried different strains of the HIV virus. That meant that neither had contracted it from the other. However, this would not have been discovered without the use of phylogenetic analysis.

75. In cross-examination, Professor Leigh Brown confirmed that if he had been commissioned to perform phylogenetic analysis in this case and supplied with the necessary information, he could have performed it in a matter of days. In response to prosecution counsel's assertion that in the present case all three parties had been identified as carrying HIV subtype B, he said that he would not rely on the accuracy of that analysis. This was due to the fact that it had produced a rather unusual version of subtype B, and had done so on the basis of poor evidence. Subtyping was, in his view, a technical and difficult matter. His own practice was to classify a subtype using four different methods, of which at least three had to produce the same result for it to be accepted as accurate.

76. It is worth noting that prosecution counsel did not challenge the witness's view that the data was inadequate for the purpose of drawing any conclusions as to any

connection between the three individuals. Nor was it suggested to him that the one common mutation had any significance.

The *PO'C* application

77. At the close of the evidence counsel for the defence made an application for an order, pursuant to the jurisdiction discussed in the judgment of this Court in *People (DPP) v P. O'C.* [2006] 3 I.R. 328, preventing the trial from proceeding any further. In essence, the submission was that this was a circumstantial evidence case where the prosecution was asking the jury to convict on the basis of probabilities, based on the unreliable evidence of the complainants. Emphasis was placed on the evidence given by Professor Leigh Brown in the *voir dire* to the effect that no prosecution would be initiated in a similar jurisdiction without the type of analysis capable of excluding the suspect. Dr De Gascun's re-analysis of the data had not added anything to the prosecution case, and he was agreeing with Professor Leigh Brown.

78. Counsel for the prosecution submitted that Professor Leigh Brown was not saying that Dr Lambert was wrong, simply that there was insufficient scientific evidence to back up his opinion. The guidelines from the UK were not as prescriptive as the professor had believed. Phylogenetic analysis was seen there as desirable but not mandatory, and every case depended on its own facts. What could be done with phylogenetic analysis was perhaps a scientific ideal, but it would rely upon accuracy and truthfulness on the part of all concerned, and the appellant had not given an accurate account in his garda interviews. The analysis was therefore impossible in the "real world". The prosecution evidence was that the three persons had the same strain and, more than that, had one

mutation that was consistent, so the appellant could not be excluded as the source. The jury could convict if they believed beyond reasonable doubt the evidence of the complainants that it was impossible for anyone else to have infected them. That was the main factor. Another factor was that the appellant had pretended that he had not known he was infected.

79. Counsel submitted that it was a matter for the jury to decide whether or not it was a coincidence that the appellant had been infected in 2008 with a particular subtype and a particular mutation that, two years later, he shared with the complainants. (In fact, the analysis of the appellant's 2008 sample identified four mutations, none of which were found in the 2010 sample.)

80. Counsel said that, given the similarities shown by the analysis that had been done, the defence case invited the jury to speculate that some other person with the same subtype as the appellant had infected both women during the time when he was in a sexual relationship with them.

81. Refusing the application, the trial judge said that it was for the jury to decide whether the complainants were credible in all or any of the critical parts of their evidence. In a perfect world phylogenetic testing should have been done. He referred to the evidence of Dr Lambert to the effect that he had dealt with

“three parties who had HIV, who had a similar strain or sub strain and basically, he was aware that [the appellant had] sexual encounters with both of the complainants and he came to a certain conclusion.”

82. The trial judge referred to the fact that Professor Leigh Brown had seemed to have a problem with accepting that it was subtype B, but there was no doubt that the three viruses were the same or similar and they had a mutation in common. Professor Leigh Brown had indicated a view that there were contrary indications. But the question was whether the trial should be stopped in the absence of phylogenetic testing. The trial judge saw this question as equating to the question whether he could properly direct the jury in the absence of such testing. He considered that he could. The guidelines to which he had been referred were mere guidelines. One would like a perfect prosecution but in most cases the court did not have perfect prosecutions and perfect defences. The court's function was to ensure a fair trial.

83. The judge stated that he was satisfied that if properly directed the jury had enough evidence to convict in the absence of phylogenetic testing.

The judge's charge

84. While speeches by counsel to the jury obviously do not have the same status as the judge's charge, it may be relevant in this particular case to note some of the principal arguments put forward on behalf of the parties. In closing his case to the jury, counsel for the prosecution stated that while phylogenetic analysis might be the scientific ideal, criminal trials were carried out in "the real world". The analysis could not have been done in this case because the appellant had not given an accurate sexual history to the gardaí. If he had, all previous partners of each of the three would have had to be traced and tested. That was unrealistic. Counsel told the jury that they did have scientific and medical evidence that established that each of the three had the same subtype and the

same mutation. There was a consistency there, and the appellant could not be excluded. It was irrelevant that the subtype was not prevalent in Africa.

85. In this case, counsel said, there was direct evidence from the complainants. Each of them had had a limited number of sexual partners, and they were consistent in saying that condoms were always used. There was no evidence that any other partners had been HIV positive. Without evidence the jury could not speculate as to whether any of them might have been infected. The proportion of persons with HIV in Ireland was very small. The complainants had more regular sexual encounters with the appellant, which on the statistics increased the risk. The jury would not be entitled to speculate that either woman might have been infected by someone else. The “overwhelming inference” was that the appellant had infected them. The alternative hypothesis was that, somehow, they were infected with “the same strain of the same subtype of HIV with the same mutation”. That would require so many coincidences as to be unreasonable.

86. Counsel emphasised that the appellant had lied to the complainants, to Dr Lambert and to others about knowing that he was HIV positive and in garda interviews had consistently tried to minimise his responsibility. That attitude and behaviour was proof of recklessness.

87. Counsel for the defence said that he was not asking the jury to engage in speculation. The complainants had lied about their sexual history, and the prosecution was reliant on their evidence. They had not given a complete history to Dr Lambert, and such history as they had given had not been checked for possible sources of infection. Dr Lambert had been wrong in thinking that they had an African strain of HIV, because

subtype B was not African. Half of the people with HIV in Ireland had subtype B and they had not been excluded. Phylogenetic analysis could have excluded the appellant. Professor Leigh Brown had said that, so far as it was possible to see, the data pointed away from consistency and towards divergence.

88. The trial judge then charged the jury. He told them that the real question for them was that of causation. Primarily, the evidence was that of the two complainants who said that they had had unprotected sex with the appellant during this period of time and did not have unprotected sex with anyone else. Both had been inaccurate in their evidence, or gave misleading evidence, and it could be said that they had told lies. That had to be weighed in the balance. Their evidence had to be looked at dispassionately, with the question being whether their claims could be believed beyond reasonable doubt.

89. The judge said that it was accepted by everybody that the three individuals had the same subtype. It was also accepted that they had “some mutations” in common. He noted that Professor Leigh Brown had said that there were different mutations and that this leant against it being the same source of the virus, but the witness had admitted that he could not be sure. Even if further testing had been done in the case, it could only have excluded the accused. It could never have proved transmission conclusively. It was not a perfect situation, but the jury had to make a decision based on the state of the evidence.

90. The trial judge then gave a *Lucas* warning in respect of the evidence of the account given by the appellant to the gardaí. It was possible, he said, that the jury might decide that the appellant had told lies. That could be relevant to assessing the credibility of his

defence, but it was not the end of the matter. Even if the appellant had thought that he did infect the two women, that was not the central issue.

“The central issue is can you be satisfied beyond reasonable doubt that he did infect the two of them and that's basically the evidence of sexual activity between the parties as described by both complainants. Both complainants said they had unprotected sex with [Mr K] and this was the only time they had unprotected sex with any party and obviously the inference the prosecution are asking you to draw is clear, the only opportunity to get HIV was from the sex with [Mr K].”

91. The trial judge then turned again to the evidence of the complainants and said:

“Now, undoubtedly in relation to the lies, the misleading statements made by the two chief witnesses for the prosecution the same criteria applies. Just because they told lies to you, if you find it so, or they misled you doesn't mean that he should be found not guilty. Obviously if their behaviour and the way they behaved in court and the question they answered questions shakes your confidence to a sufficient degree in the assessment of their evidence in relation to critical matters, then take into account because the evidence of both parties, [Ms K] and [Ms C], is they had unprotected sex with this man and nobody else. Now, so that is the situation, the inference is being drawn because of two factors, let's say, the State said to you they had unprotected sex with Mr [K] over -- around this period -- around this time and they had no unprotected sex with anybody else and the virus is of similar -- same sub type. You can infer beyond reasonable doubt the only possible source for this transmission was Mr. [K].”

92. The judge said that the defence case was that there was a reasonable possibility that the complainants could have been infected by a different source. If the jury accepted that, they should acquit. To convict, they would have to believe beyond reasonable doubt that it was not a reasonable possibility, and that was where the credibility of the complainants came in.
93. In the final part of his charge the trial judge told the jury they should remind themselves of Dr Lambert's evidence. He did not refer to any of the content of that evidence.
94. Counsel for the defence raised a requisition objecting to the giving of a *Lucas* warning in respect of evidence given by prosecution witnesses. He submitted that if they had told lies, that should be assessed insofar as their credibility was concerned in relation to the central issues in the case. The trial judge declined to recharge on this aspect.
95. After some hours of deliberation, the jury informed the court that they were "looking for some clarification on a doctor's testimony" and asked if they could have transcripts of the evidence of the three doctors. The judge told them that they could not have the transcripts but that he could assist with any specific question. The foreman said that it involved "the mutation" and "clarification" of all the mutations that were mentioned. Did each of the three parties had the M36V mutation? If so, how likely it was that they could have got it from a fourth party? The trial judge confirmed the presence of that mutation in all three but informed the jury that the other question could not be answered because it had not been dealt with in evidence and the evidence had concluded.

96. Counsel on both sides became concerned to some extent that the jury should have been reminded as to the evidence relating to the differences as well as similarities in the sequencing results. The trial judge resolved this by permitting the jury to rehear the audio recording of Dr De Gascun and Professor Leigh Brown. It appears that they listened to the former (although whether they heard the whole of his evidence again is unclear – at a certain stage they simply agreed with the trial judge that they were “finished” with it) but did not want to listen to anything more. The trial judge did not direct them further.

The Court of Appeal

97. In a judgment delivered by McCarthy J., the first issue dealt with was the ruling restricting the evidence of Professor Leigh Brown. The Court held that, the evidence proposed to be adduced from in relation to the UK guidelines had been correctly excluded. It was not relevant to any issue that the jury had to decide, and was not a matter within the witness’s area of expertise.

98. Next, the Court summarised the evidence of Dr De Gascun and Professor Leigh Brown. Of note, it considered the effect of Dr De Gascun’s evidence to have been that genetic sequencing did not assist in ascertaining whether transmission had occurred from one person to another; that it could neither exclude nor confirm transmission; that phylogenetic analysis was useful at a population level but not at the individual level; that he did not concede that the sequencing carried out in this case was not of “a very high quality”; that resources and a period of three to six months would be needed to

carry out phylogenetic analysis and that it still would not prove that one person had infected another.

99. The Court then turned in more detail to the limitation imposed by the trial judge on the evidence of Professor Leigh Brown. It held that the trial judge had correctly ruled out evidence that amounted to expressions of opinion on legal issues and prosecution practices in other jurisdictions. These were of no relevance to a jury in this jurisdiction, whose task it was to decide the matter on the evidence in accordance with the principles of law applicable here. Furthermore, the witness had no expertise in such matters.

100. The absence of phylogenetic analysis could be of some relevance to the question whether there was a real risk of an unfair trial. However, there was no class of case where, in principle, scientific evidence was a *sine qua non*. The approach taken in other jurisdictions was seen by the Court as depending on the substantive and procedural law of those jurisdictions.

101. The Court noted the submission by counsel for the appellant that the ruling had had the effect that he could not establish the matters that were the subject of agreement between Dr De Gascun and Professor Leigh Brown, such matters being found in a document or documents. The Court stated that it could not speculate as to what those matters were and dismissed that ground of appeal.

102. I would note here that it is clear from the transcript that the trial judge had been furnished with Professor Leigh Brown's report and the two policy documents, and that Dr De Gascun had seen them and had also been furnished with a transcript of the *voir dire*. However, it seems that the documents must have been handed in informally, without that fact being recorded as such on the transcript. Thus, they were not on the

trial file and the Court of Appeal did not have them. I think it would be better practice to ensure that documents handed in for the purposes of a *voir dire* should be given an exhibit number so that they are on the court record and are available to an appellate court.

103. The next issue was whether the trial judge should have acceded to the application for a direction. The appellant's *PO'C* application was seen as being based on the proposition that the trial was unfair in the absence of phylogenetic analysis, such that no prosecution should be commenced without it. It was not possible to speculate as to what the results of such analysis might have been. As in cases concerned with missing evidence or missing witnesses, it was necessary to make a judgment, without speculation, as to the extent to which the missing evidence bore upon the fairness of the trial. That was something to be done on a case-by-case basis.

104. In the instant case, Dr De Gascun had said it could take three to six months to obtain all the necessary data for the analysis. Crucially, an accurate sexual history was required from the parties. The suspect could not be compelled to give information, whether accurate or not. There was, in the Court's view, no reasonable possibility of conducting the analysis on a meaningful basis in this case at all. An unreasonable standard was being posited. The Court did note that there were circumstances in which a given individual could be excluded without the conduct of a full analysis, "if the individuals did not have the same strain as the putative infecting party". However, as a matter of legal principle it was perfectly proper to prosecute without such evidence.

105. The credibility of witnesses was, in the first instance, a matter for the jury. It was only in wholly exceptional circumstances that a case should be withdrawn from a

jury where the prosecution evidence, taken at its highest, would permit a properly charged jury to convict. The evidence did not meet that standard. The credibility of the complainants as to their sexual relations might or might not have been relevant but that was a matter for the jury. It was not apparent to the Court that the evidence was necessarily untruthful at any point, and the discrepancies or supposed omissions could be explained by reference to forgetfulness or other error. The courts had on many occasions seen what one might describe as supposed infirmities in the evidence of crucial witnesses to the same extent as in this case. The jury could act on the witnesses' evidence, and the case was not confined to their evidence. Accordingly, the trial judge had been correct to refuse the defence application.

106. The next issue concerned the approach of the trial judge to the requisitions after the charge and to the jury question. On the question of the *Lucas* warning, the Court said that in this jurisdiction there was no need to give such a warning in relation to alleged lies by witnesses. However, it held, without further discussion, that what the trial judge had said had “enured to the benefit of the appellant”.

107. It was submitted on behalf of the appellant that the trial judge should have given the jury further instructions in responding to their question. The Court held that he had been right to refuse to add anything to the information he had given in response to their express enquiry. It was not the judge's business to do more than answer the question. The jury were plainly conversant with all of the evidence.

108. The appellant submitted that the verdict was perverse. In this regard the Court referred to *DPP v Alchimionek* (unrep, Birmingham P., 19th February 2019 and *DPP v Hearn* [2020] IECA 181 as examples of cases where verdicts were found to be

perverse because of some irrational inconsistency or a verdict which was rationally incapable of following from the evidence. An appellate court was not entitled to substitute its own subjective view of the evidence in place of the jury's verdict.

109. The final ground of appeal, which appears to have been added at the instance of the Court because of the submissions made by counsel in the *PO'C* application, was that the trial judge had failed to direct the jury concerning the circumstantial nature of the evidence. The prosecution submitted that this was not a case of circumstantial evidence such as would require a special form of charge. The Court stated that it was satisfied that the case was not based wholly or mainly on circumstantial evidence.

Submissions in the appeal

110. In case management, the parties agreed that the following are the issues to be addressed:

- a. The nature and quality of the evidence required to prove a charge of this nature to the criminal standard;
- b. The treatment of the evidence adduced by both prosecution and defence;
- c. The status of a witness (Dr John Lambert) who instigates a criminal investigation and also gives expert evidence;
- d. Whether an expert (Professor Andrew Leigh Brown) may give evidence from personal experience concerning the manner in which this type of charge is prosecuted in other jurisdictions;
- e. Whether or when it is appropriate to give a "*Lucas*" warning in respect of prosecution witnesses.

112. Under the first heading, the appellant submits that a safe conviction requires:

- a. Reliable and credible evidence from the parties who have been infected concerning their sexual history or other risk factors so as to include or exclude the possible sources of infection;
- b. Reliable medical and scientific evidence which allows a properly charged jury to determine whether a person could be the source of the infection. The evidence must be of a quality which allows for reasonable inferences to be drawn from the evidence and not of a kind which calls for impermissible speculation and supposition;
- c. Although there may be highly specific factual scenarios where it is not required — this case not being one of them — a phylogenetic analysis should be undertaken which objectively and impartially excludes (or not as the case maybe) the possible sources of HIV infection;
- d. Short of a phylogenetic analysis being conducted, the undertaking of even rudimentary investigations as regards other sources of infection to include whether any other sexual partners of those infected have HIV, for example, and/or whether they had unprotected sexual activity with the parties.

113. As far as (a) is concerned, the appellant lays emphasis on the frailties of the evidence given by each of the complainants. While both initially gave an account in evidence in chief of having a limited sexual history, both admitted under cross-examination that they had had sexual intercourse with a number of other men. It is argued that

this unreliability, in turn, called into question the accuracy of the medical evidence based on acceptance of the history given by them. This is particularly emphasised in relation to the evidence of Dr Lambert, who treated both complainants and who took a personal history from each of them that was significantly different to that which emerged in evidence. Dr Lambert is also criticised for having made incorrect assertions about the association between certain sub-types of HIV and particular areas of the world. It is pointed out that Dr De Gascun agreed with Professor Leigh Brown as to the standard of advanced sequencing required, and further agreed that the analysis carried out in this case used out-of-date technology. It could go no further than establishing general consistency.

114. The appellant accepts that a high standard is set in respect of a claim that a verdict was perverse. However, it is submitted that that standard has been reached. Reference is made to *People (DPP) v Tomkins* [2012] IECCA 82 where it was said:

“This court will only quash a decision as being perverse where there are very serious doubts about the credibility of evidence which was central to the charge, or where a guilty verdict, even by a properly instructed jury was against the weight of the evidence.”

115. It is submitted that neither the evidence of the complainants nor the medical and scientific evidence supported the verdict. On the second issue, the appellant contends that the jury was not properly instructed as to the prosecution evidence and was not told what the scientific evidence amounted to. The appellant refers here to the jury question about the mutation, and the submission made at the time that they should be

also reminded of the evidence about differentiations. They should further have been told that the evidence was that the mutation in question did not prove a link. An explanation was required, and not just a repetition of the evidence. The judgment of this Court in *People (DPP) v Wilson* [2019] 1 IR 96 is referred to as an example of the guidance to be given in cases with expert evidence.

116. Turning to the issue concerning the status of the opinion evidence given by the infectious diseases consultant, the appellant submits that this witness lacked expertise on matters such as the sequencing of a virus, had signed certificates of diagnosis for the purposes of s.25 of the Non-Fatal Offences Against the Person Act and had actually instigated the criminal investigation. A number of authorities are cited in relation to the requirements of expertise and independence. It is submitted that the fact that the evidence in question was adduced by a deliberate line of cross-examination is not relevant in this regard.

117. It is contended that the restrictions placed on Professor Leigh Brown's evidence meant that he was prevented from giving his expert opinion on the use of and necessity for phylogenetic analysis in cases concerned with HIV transmission. This is said to have had the effect of, *inter alia*, preventing him from giving a full explanation of his view that self-reported sexual histories were an inadequate basis for prosecution and that the guidelines were based on a considered assessment of the requirements of fairness. The jury were left with the impression that the scientific evidence they had received was of an acceptable standard.

118. The appellant says that the professor was not purporting to give an opinion about the substantive or procedural law of other jurisdictions, but about his practical experience

of what was considered to an appropriate baseline in those jurisdictions. This is said to be the same as, for example, an expert expressing a view that a particular field of science is no longer widely accepted.

119. The appellant takes issue with the finding of the Court of Appeal that the *Lucas* warning in respect of the complainants “enured to his benefit”. The purpose of such a warning is to alleviate the potential adverse impact of evidence of previous lies by an accused, by pointing out that he or she may have told lies for an innocent reason unrelated to the offence charged. It is submitted that it is wrong in law to treat the evidence of prosecution witnesses in the same fashion, especially where the dishonesty in their evidence relates to the central issue in the case.

120. The respondent submits that the evidence in the case as a whole, comprising the complainants’ evidence, the medical and scientific evidence and the appellant’s own admissions, was more than sufficient to ground a safe conviction.

121. Comment is made about the fact that the application for leave to call expert evidence was made by the defence after the trial had begun. The respondent also sees it as noteworthy that the appellant had not sought to have phylogenetic testing conducted on his own behalf. It is pointed out that there is no authority in this jurisdiction for the proposition that such analysis is a condition precedent to the initiation of a prosecution. It is not mandatory in England and Wales, depending on the facts of the case.

122. It is said to be entirely speculative to suggest that the analysis would have positively excluded the appellant. Exclusion is possible, but it was also possible under the analysis carried out in this case if either or both of the complainants had had a different subtype to that of the appellant. The jury were aware of the limitations of the evidence.

123. The respondent says that in the “real world” there are practical difficulties in relation to phylogenetic analysis. Counsel’s focus here is on the need for accurate sexual histories, and he emphasises the vagueness of the answers given by the appellant to garda questions.

124. It is not accepted that the criteria for a finding that the verdict was perverse have been met. The respondent repeats that the credibility of witnesses is a matter for the jury. It is argued that the appellant is contending for a reasonable doubt based on the possibility that each of the two women could have been infected by one of their previous sexual partners, but there is no evidence that either of them had had a partner who was infected with HIV.

125. The respondent rejects the claim that the jury were not properly instructed in relation to the scientific evidence and argues that the question about the common mutation was appropriately dealt with. The requisition of the defence is seen as another effort to impress upon the jury the views of Professor Leigh Brown, but the jury declined an opportunity to rehear his evidence. The respondent stresses that HIV is a virus that changes and replicates all the time, and queries whether statistical data would be of any use in such a context. Dr De Gascun had made it clear that identification of the common mutation did not either confirm or exclude the appellant as a source and the jury could not have thought that it was determinative.

126. In relation to the opinion evidence given by Dr Lambert, the respondent points out that it was given in response to a deliberate line of questions in which counsel conducting the cross-examination used the word “probably”, the purpose of which, presumably, was to tie the doctor’s views to the civil standard of proof. This was a tactical decision

on the part of the defence. The witness only answered the question when pressed to do so. No objection was raised to his independence in the course of the trial. The evidence of his belief was not relied upon by counsel for the prosecution in closing the case.

127. The respondent submits that the ruling of the trial judge in respect of the evidence of Professor Leigh Brown was appropriate. It would not have been appropriate to permit him to stray outside his area of expertise to give evidence of legal procedures, or to offer a form of legal critique as to the adequacy of the prosecution evidence. The jury was given the core information that phylogenetic analysis had been conducted in every other case in which the witness had given evidence.

128. As far as the *Lucas* warning issue is concerned, it is submitted that the trial judge was correct in ruling that the principal evidence in the case came from the complainants and that both had given evidence that was inaccurate and could be considered to be lies. The respondent reads the passage from the charge, quoted above, as conveying to the jury that untruths going to the core issues in the case (as the jury saw them) were matters about which they should take “a dim view” and resolve in favour of the accused through acquittal. The respondent also argues that the passage must be read in the context of the charge as a whole. However, counsel accepts that it is difficult to say how the direction “enured to the benefit” of the appellant.

Discussion

Circumstantial evidence

129. It seems to me that this case was in fact entirely dependent upon circumstantial evidence. Direct evidence proves the existence of a thing or fact, through testimony from a witness who says that they saw or heard or otherwise perceived it, or through actual production of the thing. Circumstantial, or indirect evidence, requires the

decision-maker to infer the existence of the thing or fact from direct evidence of other facts. That, as the trial judge said, is what the prosecution was asking the jury to do in this trial. In the absence of direct evidence of transmission (which, in the current state of scientific knowledge, will never be available), the primary basis of the prosecution case was that transmission should be inferred from the evidence of the complainants that the appellant was the only person with whom they had had unprotected sexual intercourse.

130. The second edition of *Charleton and McDermott's Criminal Law and Evidence* cites the following passage from Sandes *Criminal Law and Procedure in the Republic of Ireland* (3rd ed., 1951):

“Circumstantial evidence is very often the best evidence that the nature of the case permits of. It is evidence of surrounding circumstances which by undesigned coincidence is capable of proving a proposition with the accuracy of mathematics. It is no derogation of evidence to say that it is circumstantial, R v Taylor 21 CAR 21. A jury may convict on purely circumstantial evidence, but to do this they must be satisfied, not only that the circumstances were consistent with the prisoner having committed the act, but also that the facts were such as to be inconsistent with any other rational conclusion than that he was the guilty person...”

131. In this case, therefore, it was necessary for the prosecution to establish a factual basis for the proposition that there was no rational explanation for the complainants' HIV status other than that the appellant had infected them. It appears necessary to stress that

there was no burden on the defence to adduce evidence of sexual intercourse between the complainants and other persons who could have infected them. The argument made on behalf of the prosecution, to the effect that there was no evidence that any of the complainants' other sexual partners were infected, and that it would be impermissible for the jury to speculate that they might have been, was simply misconceived. The prosecution bore the burden of proving that there was no other reasonably possible source of infection.

132. It is in this context that the accuracy of the evidence of the complainants as to their other sexual encounters was crucial. Giving that evidence was manifestly an extremely difficult experience for them. This is entirely understandable – it can be one thing to tell a garda private information in the relative privacy of an interview, but quite another to be asked about it in detail in a courtroom full of lawyers, jurors, press and, perhaps, family members. I find it unclear whether either of them understood the purpose of the questioning to which they were subjected, but it must be emphasised that the objective was not to humiliate them or to hold them up for moral judgment by the jury, but to establish whether there could have been other sources of infection. Their attempts to minimise their sexual experience have to be seen in this light. I think it would be helpful if it were to be explained to complainants and to the jury that this is the purpose, and that it is not about shaming them or trashing their reputations.

Expert evidence

133. Turning to the expert evidence, I repeat what I said at the start of the judgment – this was the first such trial in this jurisdiction and involved scientific and medical questions not previously dealt with in the criminal courts. It was necessary, in that context, to pay particularly close attention to what the experts were saying, and indeed what they

were not saying. It was also necessary, in my view, to give some level of guidance to the jury. There is a general principle that expert evidence should be summarised for the jury and that they should be reminded of factors tending to affect its weight (see *The Judge's Charge in Criminal Trials*, Coonan and Foley, 1st ed., 2008). I would accept, of course, that the trial judge will legitimately feel in many cases that no detailed explanation is called for. However, I do not see this as being such a case. This is because, mainly, of the newness of this area of science in our criminal courts, coupled with the way in which the evidence developed over the course of the trial. There was a significant time-gap (almost two weeks) between the evidence given by Dr Lambert and the judge's charge to the jury, and in the intervening days much of what he had said had been overtaken or undermined by way of further evidence.

134. Expert witnesses should, in principle, give opinion evidence only on matters within their area of expertise. Accordingly, the trial judge was correct in refusing to permit Professor Leigh Brown to give evidence of his understanding of the legal requirements for prosecutions in other jurisdictions. That would have been a particularly relevant consideration in relation to the criminal law of Scotland is in question, since, as I understand it, that law has a broader requirement for corroboration than ours. However, in my view he was perfectly entitled to give evidence of his involvement in and experience of trials in those jurisdictions. In my view he would also have been entitled to explain to the jury that his involvement was as a result of the acceptance of the scientific consensus underpinning the prosecutors' guidelines in those jurisdictions. The guidelines are not legal rules, but are largely fact-based guidance developed as a result of experience and consultation with relevant bodies. A scientific expert is

entitled to give evidence that the relevant scientific community believes that Fact C can only be established with certainty by establishing Facts A and B.

135. That may sometimes seem a fine line, but it is one that is reasonably straightforward to apply in practice. As it happens, I do not think that the witness was unduly trammelled in this case. It seems to me that he was able to make the points that he wanted, short of discussing legal matters.

136. There is, undoubtedly, potential for confusion when a witness says in front of the jury that he agrees with evidence already given by another witness in a *voir dire*, when the jury knows nothing about that aspect. That is what happened here. It arose, primarily, from the fact that the defence was very late in seeking leave to call expert evidence and, secondly, from the fact that the proposal was that the expert should give evidence involving his understanding of the legal requirements in other jurisdictions. This obviously necessitated a *voir dire*. It therefore became necessary to ensure, by examination and cross-examination, that the jury could understand what the extent of the agreement was.

137. The prosecution had originally envisaged that Dr Lambert would be the only expert in the trial, and that he would establish that all three individuals were HIV positive and that the appellant had lied about his knowledge of his condition. Dr Lambert is clearly an expert in the treatment of HIV and other infectious diseases. He is not an expert in the sequencing of viral samples, although he would obviously have a greater knowledge about it than laypeople. He had not seen the test results and was not in a position to offer an interpretation of the analysis. However, by the time he finished his evidence he had made authoritative-sounding pronouncements to the effect that all

three had the same strain of HIV, that it was an African strain and that he had never met an African person with HIV who did not have an African strain. Whether, or to what extent, the third proposition had fed into his belief in the second is unclear. Finally, after repeated questioning from the defence, he stated his belief that the appellant had infected the complainants. As noted above, that belief was in turn based on the sexual histories given to him by the complainants (Ms K had told him she had had only one other sexual relationship, and Ms C had told him she had had only two), the fact (as he believed it to be) that they all had an African strain and the fact (never amplified upon) that they all had chlamydia.

138. I do not wish to criticise Dr Lambert for giving this evidence – he was answering questions put to him and made it clear at all times that he was a clinician and not a virologist. As already noted, expert witnesses should be asked for their opinions only on matters within their expertise. I also do not think that his belief evidence should be held to have been inadmissible, given that it was brought out by deliberate questioning by the defence. But that fact does not affect the situation that pertained at the close of the evidence in the trial. His opinion had by then been seriously undermined by certain matters. The sexual history of the complainants was, on their own evidence, considerably more extensive than he had been given to believe. The particular subtype of HIV concerned had not in fact been verified by the NVRL in 2010, because the Trugene programme did not have that capability. The subtype identified in 2018 was not considered by either of the prosecution or defence expert virologists to be associated with Africa. The further analysis carried out in the NVRL had identified it as one common to half of the people with HIV in Ireland, and prevalent in Europe and the USA. Dr Lambert was not given an opportunity to deal with this new information.

139. In those circumstances, the instruction to the jury that they should “remind” themselves of his evidence needed to be accompanied by an explanation to the effect that his opinion that the appellant was the source of the complainants’ infection was not based on analysis of the test results, but was based in part on incorrect information from the complainants and in part on a misapprehension as to the origin of the subtype. It should have been treated very cautiously indeed.

140. The evidence of Dr De Gascun and Professor Leigh Brown also needed careful assessment. With the benefit of hindsight and a full transcript, it seems to me that the trial judge and the lawyers on both sides may have misunderstood the evidence to some extent. What both witnesses were saying very clearly was that the type of analysis carried out by both Trugene and Stanford was designed for the purpose of assisting in the choice of treatment for the condition of HIV. While it was effective for that purpose, it was not designed for the more complex task of tracing the source of infection, and could be relied upon in the context of the trial only to a very limited extent. The results from the Stanford analysis indicated that the parties had subtype B, but Professor Leigh Brown doubted that proposition and said that the sequencing data as generated by Trugene was inadequate as a basis for it. Dr De Gascun had specifically deferred to Professor Leigh Brown’s expertise and agreed that he or another person with similar expertise could have carried out a more sophisticated sequencing. Dr De Gascun, it should be noted, also accepted that sequencing data could, if subjected to that more sophisticated analysis, exclude a person as a source. The NVRL data did not reach that level.

141. Dr De Gascun’s evidence that he had read the transcript of Professor Leigh Brown’s evidence in the *voir dire* and agreed with it was also important. In both the *voir dire*

and before the jury the professor had said, *inter alia*, that while one common mutation was found, there were differences that in his view pointed in favour of the defence rather than the prosecution. In those circumstances, it was in my view a mistake to present the matter to the jury on the basis that it was accepted by everyone that the three people concerned all had subtype B. The description of Professor Leigh Brown as “admitting” that he was not “sure” missed, I think, the point that he had made – that nobody could be sure, because the data was inadequate, but that there were indications of differences between the samples. The jury should have asked themselves whether his evidence and that of Dr De Gascun caused them to doubt the proposition that all three had the same subtype. If it did, that should have led to an acquittal.

142. In considering whether the prosecution case had established that there was no other reasonably possible source of infection, it would have been helpful to remind the jury of the evidence regarding the potentially lengthy latency period of the virus. It seems clear that at least some of the people involved thought that the issue related to a “relevant” period of time, in some instances meaning around the time during which the complainants were in a relationship with the appellant. For example, Ms K could not see that her sexual activities in her later teens had any relevance.

143. Finally, I would also be concerned about the line of argument to the effect that since the number of people with HIV in Ireland is small, it went beyond coincidence that the three individuals had the same subtype. There was no evidence to ground this. The Court does not know even the number of persons diagnosed with HIV in the country, and there is the further unknowable number who are in the period of clinical latency and have not been diagnosed. On the statistics, it is probable that half of them have subtype B. To suggest that relatively few infected people with subtype B are sexually

active in, for example, the greater Dublin area, would require something in the way of evidence.

144. I consider that, in general, juries are likely to need some level of guidance as to how to assess or apply expert scientific evidence in a case like this. It may have seemed unnecessary in a case where the experts on both sides were entirely, or almost entirely, in agreement with each other, but nonetheless the evidence was clearly capable of being misunderstood and/or misapplied. This is a new and presumably developing area of science that would not be as familiar to juries as, for example, fingerprints or DNA. It is generally perceived to be a risk with expert evidence on technical matters that juries might consider the expert to be infallible. Equally, there is a likelihood that if extensive scientific evidence is presented, the jury will naturally tend to assume that it is of relevance and that it will assist them in reaching a verdict. If no guidance is given, they may attempt an assessment of their own which is not well grounded in the evidence.

145. In particular, I am of the view that guidance was needed concerning the evidence about the mutations. The risk here is that the evidence concerning the common mutation may have been given a weight that it could not bear. It must be remembered that the NVRL analysis, and the two online platforms, were concerned only with the region of the genome associated with drug resistance. Dr De Gascun was clear that only a relatively limited number of mutations could be expected in that region. He was also entirely clear that the mutations found were common and that nothing of significance could be read into the data, so far as the question of transmission was concerned. Despite that evidence, the prosecution has at all times relied upon the presence of the common mutation as being of evidential significance, at least in so far as it is described as

demonstrating consistency with the prosecution case. It was also referred to in the judge's charge, along with the statement that all three had the same subtype.

146. Most significantly, in my view, the mutation was the subject of a question from the jury. That question clearly indicated a view that the mutation was potentially significant to the verdict, if it was not likely to have been acquired from a fourth party. I would not agree that a trial judge can only answer jury questions by reference to the express terms in which they are posed. If a question indicates a possibility that the jury are proceeding on an erroneous basis, the trial judge must seek to set them right. In this case, it appears possible that the question indicated a belief that the mutation must necessarily have been passed on by whoever transmitted the infection and could not have evolved independently within the body. More to the point, it appeared to indicate that the jury was seeking to assess the significance of the scientific evidence for itself and might be attributing to it a greater significance than either of the experts had intended to convey.

147. It is irrelevant (and, in my view, in any event unlikely) that the question might, as the prosecution posits, have been a matter of concern to only one juror – it still needed to be dealt with. In my opinion, the jury should have been reminded that the expert evidence called on behalf of the prosecution was, at a minimum, that no conclusions at all could be drawn from the presence of the mutations, while Dr De Gascun had specifically deferred to the greater expertise of the defence expert. The latter had stated that the data was of no forensic value, but that it raised the possibility that the mutations indicated differences between the samples, favouring the defence rather than the prosecution. I do not think that offering the jury the option of listening to the recordings of the two witnesses was a sufficient solution in this instance.

148. I note that this was the first time that Dr De Gascun had been called on to give evidence in a criminal trial. It might be helpful if, in future, scientific witnesses had an opportunity to consider for themselves whether, in the field concerned, it is possible to approach the issue by measuring the probability of their findings against *each* of the two competing claims in the case. (This approach is endorsed by the Association of Forensic Science Providers, of which Forensic Science Ireland is a member. For more, see Chapter 11 of Heffernan *Evidence in Criminal Trials*, 2nd ed., 2020 and the publications referred to therein.) In most cases, the prosecution will be saying that a particular event occurred. The competing proposition in at least some cases will be that it did not occur. An approach that assesses the probability of the findings in respect of both propositions is perceived to have the merit of focussing minds on the key issue.

149. An example can be seen in the decision of the Court of England and Wales in *R. v. George* [2007] EWCA Crim 2722, involving the man convicted of murdering TV personality Jill Dando. In his trial, the prosecution had relied to a significant extent on evidence that a single particle of firearm discharge residue, consistent with residue retrieved from the scene of the shooting, was found in a pocket of his coat when his home was searched a year after the shooting. In cross-examining the expert witness, defence counsel put a series of specified occasions on which contamination might have occurred – each was dismissed by the expert as being “highly improbable”. What he did not say at the time, because he was not asked, was that he thought that the possibility that the particle came from the gun used a year earlier was also unlikely. The trial judge summed up on the basis that it was unlikely that the residue came from an extraneous source.

150. In a review initiated by the Criminal Cases Review Commission, the Forensic Science Service considered two alternative propositions – a) that Mr George was the man who shot Ms Dando, and b) that he had nothing to do with it. The FSS reached the conclusion that the probability of finding a particle in his coat a year later would have been the same either way. The conviction was duly quashed.

The Lucas warning

151. Where it can be proved that the accused person told lies out of court, the lies may be capable of amounting to corroboration of other evidence of guilt. However, as Charleton and McDermott point out, this is a matter that requires to be handled carefully.

152. The case of *R. v Lucas* [1981] QB 720, from which the term “*Lucas* warning” derives, was one where the prosecution sought to rely upon lies told by the accused as corroborative evidence in a sexual assault case. It was held by the Court of Appeal of England and Wales that lies could amount to corroboration if four conditions were satisfied. The first two were that the lie relied upon had to have been deliberate and had to relate to a material issue. The third was that the motive for the lie must have been a realisation of guilt and a fear of the truth. In that regard the Court added that the jury should in appropriate cases be reminded that people sometimes lie, for example, to bolster up a just case, or out of shame, or out of a wish to conceal disgraceful behaviour from their family. The fourth was that it had to be proved to be a lie by evidence other than that of the witness whose evidence required corroboration.

153. These conditions, and the associated warning, have come to assume a broad importance beyond those limited cases where corroboration is a legal requirement. There is now an extensive body of case law discussing the circumstances in which such a warning may be appropriate and the terms in which it should be given in varying contexts. The leading authority in this jurisdiction is the judgment of MacMenamin J. in *People (DPP) v Solowiow* [2018] IESC 9. The case turned on the warning given in the context of a provocation defence to a murder charge, but some general observations in the judgment are of relevance here.

154. At paragraph 10, MacMenamin J. set out the rationale for a warning:-

“Seen in isolation from its own particular factual context, Lucas recognises a simple but vital principle. It is that juries must be warned that lies told by a defendant out of court should not be equated with guilt of the offence with which the defendant is charged in court, and that defendants may tell lies for reasons other than simply trying to exculpate themselves. The fact of telling lies, therefore, should not, of itself, be taken by a jury as corroboration of guilt. To make this illogical deduction or leap is, in the words of one commentator, ‘impermissible reasoning’.”

155. At paragraph 35 MacMenamin J. said that the core principle was that where an accused’s lies were capable of constituting corroboration (or, I would add, evidence supportive of guilt), the jury must be instructed that there were many possible reasons why people lie. If a lie is to be relied upon as evidence of guilt, the jury must be satisfied that the motivation behind it was a realisation of guilt and a fear of the truth.

156. These considerations do not necessarily arise in respect of a case of this particular kind.

As the UK guidelines point out, a suspect cannot “know” that they are responsible for infection unless the facts of the case very clearly demonstrate that there is no other possible source. In this context, it is entirely possible that suspects could believe themselves to be guilty, and might accordingly tell lies in the hope of evading responsibility, even though they did not in fact transmit the infection. The normal need for a *Lucas* warning arises from a concern that the jury may infer from the fact that the accused has told lies that they are attempting to cover up guilt. In this instance, the trial judge correctly told the jury that lies by the appellant were not the central issue and that what mattered was whether he had in fact infected the complainants. It might, in another case, be desirable to explicitly tell them that even if they are satisfied that the lies were motivated by a belief of guilt, that does not in any way prove the fact of transmission.

157. The rationale for a *Lucas* warning – a fear that a jury might infer guilt from lies – cannot, in any event, be seen as applying to prosecution witnesses. In this case, the credibility of the complainants was central to the issues to be determined by the jury. Certainly, it is legitimate to tell the jury that they can distinguish between trivial and important lies. However, to put it in a way that seems to equate a witness’s position with that of the accused risks, in my view, causing confusion in relation to the burden and standard of proof. Further, on the facts of this case I do not think it could be right to approach the witnesses’ evidence on the basis that any inaccuracies were explicable by reference to forgetfulness or other error. The explanation for inaccuracy was irrelevant (given that there was no question of malicious purpose), since, whatever the explanation, the question in this case remained the same – could the complainants’

evidence be relied upon as excluding, beyond reasonable doubt, the possibility of another source of infection?

158. Here, the judge said that the “same criteria” applied to the evidence of the complainants as to the accused. It is correct to say that lies or inaccuracies on the part of a prosecution witness do not necessarily mean that the accused must be acquitted, and that may have been all that the trial judge intended to convey. However, I consider that in this case it would have been necessary to emphasise that the only evidence upon which the appellant could have been convicted was that of the complainants, and that for that purpose their veracity on the key point – the exclusion of any reasonable possibility of another source of infection – would have to be accepted beyond reasonable doubt.

What kind of evidence is necessary?

159. It is important to note at the start of the discussion of this aspect that the Court is not here concerned with the criteria by which the Director of Public Prosecutions decides whether or not to proceed with a trial. Our concern is with the adequacy of the evidence actually presented. I would not suggest that this Court should adopt, as rules of law binding on the prosecution authorities, guidelines such as those of the United Kingdom. They are designed by the prosecution authorities there as guidelines for prosecutors and are not rules binding on the courts. That said, there is much common sense in them. In this relatively small jurisdiction, it may happen from time to time that a case raises issues that have not previously been dealt with here, where experience gained in other jurisdictions may provide assistance. It is, perhaps, surprising that the prosecution authorities do not appear to have sought information as to how cases of this kind are

prosecuted elsewhere. It certainly seems to be the case that other jurisdictions find it desirable to deploy accurate scientific evidence. That practice cannot be simply dismissed as not having been developed in the “real world”.

160. At the level of general principle, it is true that there is no authority for the proposition that scientific evidence is a *sine qua non* in any particular kind of prosecution. However, it is always necessary to prove the *actus reus* of the offence charged. In a case where it is alleged that the accused infected another person with a disease, the fact of transmission must be proved beyond reasonable doubt. Of its nature, that will, to begin with, involve evidence that each of the parties has the disease and that the accused had it at the time when transmission is alleged to have occurred.

161. It is clear from the evidence in this case that HIV is a highly variable disease, and that the differences between the viruses carried by two individuals may be such as to render it possible to say with certainty that neither of them transmitted it to another. To put this another way, if the alleged victim has a different subtype to that carried by the accused, that fact alone could demonstrate that the prosecution has not proved that the accused was responsible for the infection. In such circumstances, it is likely that there would be insufficient evidence to commence a prosecution, or to get a trial past the direction stage, if all that the evidence amounts to is that both have a medical diagnosis of HIV.

162. Accordingly, I am of the view that in the great majority of cases it would be necessary to prove, to a standard acceptable as scientific proof, that the parties have at least the same subtype and that the data does not show grounds for reasonable doubt as to that fact. The prosecution case, as it stood before the evidence of Dr De Gascun, would

certainly have been inadequate. The additional evidence was based on an *ad hoc* method utilising data created by one system for analysis by another, in circumstances where the primary objective of both systems was to assist in the treatment context. The Court does not have evidence as to the current form of analysis carried out in HIV cases, and cannot say whether it would be acceptable by the scientific community for the purpose of establishing the subtype.

163. I would not go so far as to say that the particular, full form of phylogenetic analysis, as carried out by Professor Leigh Brown, is essential in every case. It is clear that the data currently collected from virus analysis in this State would be inadequate for this purpose, since there is no data here relating to any part of the HIV genome other than the sites associated with drug resistance. It was in that context that Dr De Gascun spoke of needing three to six months, depending on resources, to carry out additional testing in order to generate a sufficient database. However, this is an area where, it may be presumed, scientific knowledge is continuing to advance, and it is possible that new or more refined techniques may have already emerged or be in the course of emerging since this trial.

164. It is likely however that the courts will still have to approach an offence of this nature on the basis that it is not possible for victims to prove by their own evidence that they have been infected by the accused, and it is not possible for accused persons to prove by their own evidence that they were not. It seems to me that, in those circumstances, the availability of an analysis that can exclude an individual as the source of infection should not be lightly disregarded. As I understand the evidence, that much at least can be done without the necessity for a full analysis of all of the prior sexual contacts of all the individuals concerned. Conversely, the more extensive the exercise carried out,

the clearer the evidence of similarity may become. If the viruses are relatively close on the phylogenetic tree, that fact may greatly strengthen the prosecution case.

165. In the absence of any such close scientific analysis, very particular attention will have to be paid to the surrounding factual evidence relied upon for the proposition that there was no other reasonably possible source of infection. I note here that the English guidelines suggest that such a case can be prosecuted if, for example, a) the accused admits they are infected and provides a blood sample, b) there is medical evidence that the parties concerned have the same strain of HIV, and c) the complainant had no other sexual partners and never had a blood transfusion or shared a needle.

166. In this case, a) was satisfied (the appellant having provided a blood sample to the investigating gardaí). It is possible, (although debateable), that b) was satisfied. However, the focus then turns to the evidence of the complainants. There were undoubtedly strong grounds for suspicion of the appellant's guilt in the two cases. However, if the proposition that there was no other reasonably possible source of infection is to be accepted, and there is no scientific evidence that can assist the prosecution to prove its case, there can be very little scope for tolerance of misleading evidence bearing upon that proposition. In this case, the picture presented by each of the complainants initially could have appeared sufficient to prove this aspect beyond reasonable doubt but by the time their evidence was complete that picture had changed very significantly.

Conclusions

167. The features of most importance in this case were the evidence of the complainants and the scientific evidence. Both, in my view, required to be addressed with greater care.

168. The case was almost entirely dependent on the complainants' evidence. It was necessary for that evidence to fulfil the difficult task of establishing beyond reasonable doubt that there was no reasonable possibility that either complainant could have been infected other than by the appellant. Their credibility in relation to their sexual history was absolutely crucial in this regard. The trial judge was correct to tell the jury that lies by the witnesses did not necessarily mean that the accused had to be acquitted. But he should not have done so in language that appeared to equate their position with that of the accused, and he should have emphasised that the jury could not convict unless they believed beyond reasonable doubt that the complainants had given fully truthful and accurate evidence when each said that she had never had unprotected sexual intercourse with any person other than the appellant.

169. At its height, the scientific evidence might have been accepted as establishing that the three parties had the same subtype. However, there was evidence from the defence expert that this could have been wrong, and the prosecution expert was prepared to accept that the former would have carried out a more sophisticated analysis than was available to him. The jury should, therefore, have been told to consider whether this evidence caused them to have a reasonable doubt as to whether it was or was not the same subtype in all cases. If they were indeed satisfied that it was subtype B, they should also have borne in mind the prevalence of this subtype in Ireland.

170. Finally, the trial judge should have given the jury at least some guidance in relation to the scientific evidence. It was clearly the view of both experts that the data did not

prove anything (other than, depending on the view taken, the subtype). In particular, the data regarding mutations was not seen by either expert as having any probative value. It seems highly likely that the question asked by the jury indicated a view on their part that the evidence was relevant to their verdict, and that the common mutation could be probative – that issue should have been addressed by the trial judge.

171. In the circumstances, it is not necessary to address the question whether the verdict was perverse. I would allow the appeal and quash the convictions.