Episode 14: Summary

Episode Name: Statistics in Adjudicative Fact-Finding
Guest(s): Nicholas Lennings and John-Henry Eversgerd

What area(s) of law does this episode consider?

This episode considers the use of statistical evidence in judicial fact-finding; it focuses on evidence law.

Why is this topic relevant?

Traditionally, lawyers and the judiciary have been sceptical about the use of statistical evidence to prove material facts. However, statistical evidence – most notably, DNA evidence in criminal trials, and epidemiological evidence in toxic tort cases – is becoming more and more commonplace. As we continue to generate and collect data that is ripe for statistical analysis at a dizzying speed, we can expect this trend to continue.

This trend was predicted over a hundred years ago by Oliver Wendell Holmes, Jr. former Associate Justice of the Supreme Court of the United States, who once said that, "*For the rational study of the law the blackletter man may be the man of the present, but the man of the future is the man of statistics and the master of economics.*"

This episode explores bridging the gap between how lawyers view evidence, versus how scientists and statisticians view that very same evidence. After speaking to Nicholas, John-Henry Eversgerd helps us break down and understand statistics from the perspective of an expert.

What legislation is considered in this episode?

Evidence Act 1995 (Cth), specifically:

Tendency evidence: the tendency rule is covered in section 97 of the *Evidence Act 1995*. Tendency evidence refers to evidence that is adduced for the purpose of showing that a person has a tendency to act in a certain way or have a certain state of mind.

Coincidence evidence: the coincidence evidence rule is covered in section 98 of the *Evidence Act 1995*. Coincidence evidence refers to evidence that is adduced to show that it is unlikely that two or more events happened coincidentally having regard to their respective features.

Nicholas' thesis

The study of statistics is concerned with populations, not with individuals. The challenge lies in how to understand the population's (often referred to as 'N') contribution to the probability of an individual (often referred to as 'P') in light of all the evidence.

The dilemma for courts and the legal profession, as is explored in Nicholas' thesis, is how to take conclusions about N, the general population, and apply them to P, an individual.

What cases are considered in this episode?

Makita (Australia) Pty Ltd v Sprowles (2001) 52 NSWLR 705

- Nicholas mentions the 'Makita test'. That case considered the use of expert evidence, finding that expert opinion evidence has to be in a field of specialised knowledge to be admissible.

Crown v Galli (2001) 127 A Crim R 493

- In this case, Spigelman CJ referred to the danger that statistical outcomes suggest an exactness which a statistical distribution does not have, recognising the challenge of using mathematical probabilities as the basis for fact-finding. His Honour observed: *"Findings of fact in both civil and criminal cases require common sense judgment and the tribunal of fact is required to reach a level of actual persuasion on the whole of the evidence. This does not involve a mechanical application of the probabilities".*

R v Villalon [2014] NSWSC 725

- The defence tried to adduce evidence from three psychiatrists to the effect that Mr Vilallon, at the time of the murder, was suffering from undiagnosed and untreated paranoid schizophrenia.
- The Crown objected to such evidence, on the basis that the accused was attempting to adduce evidence that was statistically based – that people like the accused with his history of symptoms are much more likely to commit violent crime and therefore, supports a causal connection between the presence of symptoms and the likelihood of committing a violent crime. They argued that such evidence was would invite the jury to engage in tendency reasoning.
- The Court disagreed with the argument put forward by the Crown, stating that the anticipated evidence was not 'evidence of the character, reputation or conduct' of the accused, or a tendency that the accused has or had, as required by section 97 of the Act.

ALA15 v Minister for Immigration and Border Protection [2015] FCCA 2047

- Statistical evidence was sought to be used in this appeal, in an attempt to demonstrate that a judge's decision was impaired by bias. The appellant sought to rely on the fact that, in 252 out of the 254 immigration judgments (or 99.21%), the judge found in favour of the respondent Minister for Immigration and Border Protection, as evidence of bias.

- The Full Court of the Federal Court rejected the applicant's contentions stating that *"the mere fact that a particular judge has decided a number of cases, the facts and circumstances of which are unknown, one way rather than another, does not go any way to assisting the hypothetical observer making an informed assessment as to whether that judge might not bring an impartial and unprejudiced mind to the resolution of the question in a particular proceeding before that judge".*

Seltsam v McGuiness (2000) 49 NSWLR 262

- This case considered whether exposure to asbestos caused renal cell carcinoma.
- Spigelman CJ said: "*Courts must determine the existence of a causal relationship on the balance of probabilities. However, as is the case with all*

circumstantial evidence, an inference as to the probabilities may be drawn from a number of pieces of particular evidence, each which does not itself rise above the level of possibility. Epidemiological studies and expert opinions based on such studies are able to form "strands in a cable" of a circumstantial case.

- His Honour stated that evidence of possibility, in this case being statistical, epidemiological studies, should be regarded as circumstantial evidence, which may alone, or in combination with other evidence, be relied upon to establish causation.

What are the practical takeaways?

- Legal practitioners may be reluctant to use statistical evidence in proceedings because they are unfamiliar with the terminology, language or syntax used to express statistical conclusions. Statistical evidence is not conclusive and deterministic, but is probabilistic.
- The statistical determination that a particular proposition is true for the majority of persons cannot of itself amount to legal proof on the balance of probabilities that the proposition is true of any given individual. However, it is evidence of *possibility* – circumstantial evidence, which, in combination with other evidence, may be a 'strand in the rope' of proving a fact.