THE RESEARCH FOUNDATIONS OF EXPERT OPINION EVIDENCE IN CRIMINAL PROCEEDINGS

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Expert witnesses provide courts with knowledge about the world outside the courtroom. In doing so, they often informally summarise large bodies of research. Prevailing expert evidence admissibility rules generally only require that witnesses have qualifications in their field rather than expertise in producing reliable research summaries. Moreover, summaries regularly go unchallenged in criminal proceedings. This approach contrasts with other domains of evidence-based decision-making, where professional research synthesists perform rigorous, transparently reported systematic reviews. Taking lessons from these fields, this article suggests two ways to improve expert witness research summaries. First, interdisciplinary groups should produce systematic reviews of common expert evidence topics. Secondly, existing expert codes of conduct should require fuller disclosure of the process behind expert witness research summaries.

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I Introduction

> The essence of 'specialised knowledge based on … training, study or experience' is that it draws on accumulated sources of information and the product of research of others recorded in professional publications.[1]

Expert opinions, as the above epigraph expresses, are typically based on the accumulated knowledge of others.[2] The legal system has an interest in seeing that knowledge is reliably, transparently and efficiently summarised for courts and other stakeholders to act on it. However, as research outputs grow at an increasing rate, it is increasingly difficult for expert witnesses to accurately and efficiently summarise research.[3] This article seeks to improve the current practice and legal regulation of expert witness research summaries used by experts

[1] *Aziz (a pseudonym) v The Queen* (2022) 110 NSWLR 317, 333 [77] (Simpson AJA, Lonergan J agreeing at 338 [108]) ('*Aziz*').

[2] See ibid. See also Edward J Imwinkelried, 'The "Bases" of Expert Testimony: The Syllogistic Structure of Scientific Testimony' (1988) 67(1) *North Carolina Law Review* 1, 9. Not all expert witnesses draw on accumulated knowledge. For instance, some jurisdictions allow 'ad hoc experts' to give evidence based on repeated viewing of case-specific evidence: see *Nguyen v The Queen* (2017) 264 A Crim R 405, 410 [15] (Basten JA); Jeremy Gans, Andrew Palmer and Andrew Roberts, *Uniform Evidence* (Lawbook, 4th ed, 2025) 211–12 [7.120]; Gary Edmond and Mehera San Roque, 'Quasi-Justice: Ad Hoc Expertise and Identification Evidence' (2009) 33(1) *Criminal Law Journal* 8, 8–14, 19.

[3] See generally Santo Fortunato et al, 'Science of Science' (2018) 359(6379) *Science* eaao0185:1–7, 1.

to found their opinions in criminal proceedings. In doing so, it draws lessons from the field of research and practice known as 'research synthesis', which has produced expertise and insights into summarising voluminous bodies of research.[4]

Experts play an important role in legal proceedings.[5] Courts expect them to assist the fact finder in drawing inferences from other available evidence by providing knowledge that the fact finder is unlikely to possess.[6] In criminal justice contexts, assistance involves providing opinions about topics such as the manner in which someone died,[7] whether a fingerprint can be associated with the accused[8] and the reasons why young complainants may not report a sexual assault at the earliest opportunity.[9] In many cases, this knowledge is relevant, and the relevant experts are demonstrably proficient at producing it.[10] However, researchers have documented many cases in which unreliable and miscommunicated expert evidence has reduced the accuracy of criminal proceedings, sometimes resulting in wrongful convictions.[11]

This article focuses on the part of the expert witness's task that involves searching, identifying and summarising research in their field of expertise.[12] Courts in Australia have only recently engaged in sustained analysis of the rules

[4] See generally Iain Chalmers, Larry V Hedges and Harris Cooper, 'A Brief History of Research Synthesis' (2002) 25(1) *Evaluation and the Health Professions* 12; Julian H Elliott et al, 'Decision Makers Need "Living" Evidence Synthesis' (2021) 600(7889) *Nature* 383; Helen Pearson, 'Giant "Evidence Banks" Could Lead to Policies That Actually Work' (2024) 634(8032) *Nature* 16.

[5] Ian Freckelton, *Expert Evidence: Law, Practice, Procedure and Advocacy* (Thomson Reuters, 6th ed, 2019) ix, xii. A particular focus of commentary and critique has been on forensic science in court: see Anna L Heavey and Max M Houck, 'Rethinking Scientific Communication in Courts: A Question of Credibility' (2024) 9 *Forensic Science International* 100483:1–4, 2.

[6] *Lang v The Queen* (2023) 278 CLR 323, 331–2 [8]–[10] (Kiefel CJ and Gageler J) ('*Lang*'); *R v Turner* [1975] 1 QB 834, 841 (Lawton LJ for the Court); *R v Abbey* [1982] 2 SCR 24, 42 (Dickson J for the Court); Gans, Palmer and Roberts (n 2) 203 [7.80]. See also *Lehrmann v Network Ten Pty Ltd* [2024] FCA 369, [114]–[115] (Lee J) ('*Lehrmann*').

[7] See, eg, *Lang* (n 6) 335 [19] (Kiefel CJ and Gageler J).

[8] See, eg, *JP v DPP (NSW)* (2015) 256 A Crim R 447, 450 [10] (Beech-Jones J) ('*JP*').

[9] See, eg, *Aziz* (n 1) 323–4 [21]–[26] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[10] See, eg, *Lang* (n 6) 329 [2]–[3] (Kiefel CJ and Gageler J); *JP* (n 8) 454 [26] (Beech-Jones J); *Aziz* (n 1) 323 [21], 325 [28] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[11] See Rachel Dioso-Villa, 'A Repository of Wrongful Convictions in Australia: First Steps toward Estimating Prevalence and Causal Contributing Factors' (2015) 17(2) *Flinders Law Journal* 163, 188–9; Emma Cunliffe, *Murder, Medicine and Motherhood* (Hart Publishing, 2011) 5–11.

[12] See, eg, *AJ v The Queen* (2022) 110 NSWLR 339, 357 [74] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]) ('*AJ*'); *Aziz* (n 1) 333 [77] (Simpson AJA, Lonergan J agreeing at 338 [109]).

and principles governing the use of research summaries as the basis for expert testimony.[13] This is despite legal commentary dating back to the 1980s discussing this aspect of expert evidence. Notably, Laurens Walker and John Monahan conducted foundational research on this topic, referring to research summaries of social scientific works as 'social frameworks'.[14] This was later broadened to 'empirical frameworks', acknowledging that these summaries go beyond the social sciences.[15]

However, both legal commentary and legal decisions have not been guided by the growing field of research and practice known as 'research synthesis'.[16] This field's work in developing methodologies to synthesise large bodies of research and to transparently represent what is known and unknown in a field has been important in guiding evidence-based healthcare decision-making.[17] Accordingly, this article relies on insights from the field of research synthesis to critically appraise and propose reforms for the way in which research summaries are prepared and presented for criminal proceedings. It also highlights limitations — areas in which research synthesis developments are unlikely to assist with expert evidence.

This article proceeds as follows. Part II introduces the growing field of research synthesis. Parts III–IV then evaluate the expert evidence rules and

[13] See, eg, *AJ* (n 12) 356–60 [72]–[85] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162], 378 [170]); *Aziz* (n 1) 331–5 [64]–[94] (Simpson AJA, Lonergan J agreeing at 338 [109]); *BQ v The King* (2024) 279 CLR 124, 135–42 [27]–[44] (Gageler CJ, Gordon, Edelman, Steward, Gleeson, Jagot and Beech-Jones JJ) ('*BQ*').

[14] Laurens Walker and John Monahan, 'Social Frameworks: A New Use of Social Science in Law' (1987) 73(3) *Virginia Law Review* 559.

[15] David L Faigman, John Monahan and Christopher Slobogin, 'Group to Individual (G2i) Inference in Scientific Expert Testimony' (2014) 81(2) *University of Chicago Law Review* 417, 423. Samuel R Gross and Jennifer L Mnookin prefer the term 'expert instruction': Samuel R Gross and Jennifer L Mnookin, 'Expert Information and Expert Evidence: A Preliminary Taxonomy' (2003) 34(1) *Seton Hall Law Review* 141, 163–74. See especially at 167. Edward Imwinkelried (n 2) uses the term the expert's 'major premise': at 2–4.

[16] See generally Chalmers, Hedges and Cooper (n 4); Shinichi Nakagawa et al, 'A New Ecosystem for Evidence Synthesis' (2020) 4(4) *Nature Ecology and Evolution* 498 ('New Ecosystem'). For legal commentary, see generally Faigman, Monahan and Slobogin (n 15). There are a number of recent decisions: see, eg, *AJ* (n 12) 357–8 [74]–[75] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]); *Aziz* (n 1) 333 [77]–[80] (Simpson AJA, Lonergan J agreeing at 338 [109]); *R v MK* [2020] NSWDC 658, [35]–[38] (McLennan DCJ) ('*MK*'); *R v Fortune* (2021) 34 District Court Law Reports, New South Wales 319, 323 [24] (Whitford DCJ) ('*Fortune*'); *R v MP* (2021) 34 District Court Law Reports, New South Wales 391, 396 [23] (Grant DCJ) ('*MP*').

[17] Chalmers, Hedges and Cooper (n 4) 27–8; Pearson (n 4) 16–17.

procedures that apply to research summaries (found in expert witness reports and testimony) in light of the move towards systematic reviews in other fields. Part III provides the legal framework, and Part IV discusses its application to a recent series of cases about the use of a research summary concerning the reporting patterns of child complainants. Gaps in current legal practices set the stage for the remainder of the article. In particular, Part V proposes mutually reinforcing reforms to the practice and legal regulation of research summaries. It suggests producing systematic reviews for regularly litigated areas of knowledge in which expert witnesses have little — and sometimes no — experience summarising research such as some areas of forensic science. Along with that reform to practice, Part V offers a framework for excluding reliance upon research summaries that do not meet basic requirements for rigour and transparency. Part VI concludes.

Regarding scope, this article will focus on research summaries relied upon by experts in criminal proceedings. As Part V describes, research summaries produced by forensic practitioners in criminal cases require urgent reform because such individuals often lack the training to reliably synthesise research. This article also focuses on the Uniform Evidence Law ('UEL'), whose instantiations apply in Australia's most populous states and several territories.[18] The UEL has also seen recent case law explicitly focused on the use of research summaries by expert witnesses.[19] Given this jurisdictional ambit, my recommendations generally seek to work within traditional adversarial strictures, notably

[18] The Uniform Evidence Law ('UEL') has been adopted by the Commonwealth, the Australian Capital Territory, New South Wales, Norfolk Island, the Northern Territory, Tasmania and Victoria: *Evidence Act 1995* (Cth) ('*Cth Evidence Act*'); *Evidence Act 2011* (ACT); *Evidence Act 1995* (NSW) ('*NSW Evidence Act*'); *Evidence Act 2004* (NI); *Evidence (National Uniform Legislation) Act 2011* (NT); *Evidence Act 2001* (Tas); *Evidence Act 2008* (Vic). Three states, Queensland, South Australia and Western Australia ('WA'), continue to be governed primarily by the common law (as supplemented by some evidence rules, procedures and rules of court): *Evidence Act 1977* (Qld); *Evidence Act 1927* (SA); *Evidence Act 1906* (WA). However, WA has introduced legislation that would largely adopt the UEL: Evidence Bill 2025 (WA). See generally Australian Law Reform Commission, *Uniform Evidence Law* (Report No 102, December 2005) <https://www.alrc.gov.au/wp-content/uploads/2019/08/ALRC102.pdf>, archived at <https://perma.cc/T2B6-4VMG>; Australasian Parliamentary Counsel's Committee, *Model Uniform Evidence Bill* (Model Bill, 29 November 2019) <https://pcc.gov.au/uniform/2019/Evidence_Model_Bill_Nov-2019.pdf>, archived at <https://perma.cc/FN4M-QEZC>.

[19] See, eg, *AJ* (n 12) 358 [77] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]), discussing *NSW Evidence Act* (n 18) ss 79, 108C; *Aziz* (n 1) 333 [80] (Simpson AJA, Lonergan J agreeing at 338 [109]), 337 [103] (Adamson J), discussing *NSW Evidence Act* (n 18) ss 79, 108C.

including the requirement that expert evidence be given by a witness who can be examined by the adverse party. However, as Part V discusses, systematic reviews also help advance existing proposals that challenge these norms. In particular, systematic reviews provide for transparency and examinability of pre-prepared research summaries not adduced through live witnesses.

II Transparent Research Synthesis

Over the last two decades, the field of research synthesis has developed knowledge and practices about how to more rigorously identify, select and summarise research. This Part briefly reviews that field's work, focusing on the insights and reforms that may be most helpful in improving research summaries in criminal proceedings. In short, it finds that: research synthesists rely on transparency to distinguish between lower and higher quality reviews; training and experience in research synthesis produces demonstrable proficiency in summarising research; and there is considerable danger in assuming that a research summary, even one that is purportedly 'systematic', is a reliable representation of the available research. Table 1 contains a glossary of the major terms used in this section.

Table 1: Glossary of Key Research Synthesis Terms

Term	Definition
Cochrane	An international network that creates systematic reviews (defined below) of healthcare research to inform decision-making. They also produce guidance and refine synthesis methodologies.
Living systematic review	A systematic review that is regularly updated.
Meta-analysis	A systematic review that quantitatively summarises existing research.
Preferred Reporting Items for Systematic reviews and Meta-Analyses ('PRISMA') statement	A set of guidelines and tools for improving the reporting of systematic reviews and meta-analyses.
PRISMA checklist	A list of standard reporting items for systematic reviews.
PRISMA flow diagram	A visual representation of a systematic review's search, identification and screening process.

Term	Definition
Publication bias	The bias towards research with certain characteristics (such as positive, interesting or newsworthy results) being over-represented in the published literature.
Registration	A public, time-stamped record of a systematic review's methodology.
Risk of bias	The potential for error in the design, conduct or reporting of studies.
Systematic review	A research review that follows formal, articulated methods.

A *The Rise of Systematic Reviews*

> [The standard approach to research summaries is] subjective, relying on idiosyncratic judgments about such key issues as which studies to include and how to draw overall conclusions. Studies are considered one at a time, with strengths and weaknesses selectively identified and casually discussed. Since the process is informal, it is not surprising that different reviewers often draw very different conclusions from the same set of studies.[20]

Commentators have expressed many concerns with informal research reviews.[21] An overriding worry, expressed in the above epigraph, is the subjectivity involved in the process. This subjectivity can give rise to bias such as a researcher's desire to portray a body of research as supporting a particular viewpoint.[22] In addition to subjectivity and bias, informal reviews can also be inefficient. Without thorough reporting about how research was searched and identified, future synthesists must start from scratch.[23]

The modern move towards tackling these problems took shape in the late-20th century, largely based on policymakers' needs for evidence-based

[20] See David B Pillemer, 'Conceptual Issues in Research Synthesis' (1984) 18(1) *Journal of Special Education* 27, 28.

[21] See Chalmers, Hedges and Cooper (n 4) 13–15.

[22] Ibid 19.

[23] Joshua R Polanin, Emily A Hennessy and Sho Tsuji, 'Transparency and Reproducibility of Meta-Analyses in Psychology: A Meta-Review' (2020) 15(4) *Perspectives on Psychological Science* 1026, 1028–9.

guidance.[24] It was around this time that the term 'systematic review' became more widely used to describe a research summary based on formal, articulated methods.[25] In the healthcare sphere, systematic reviews were quickly placed at the top of the hierarchy of evidence, sometimes referred to as the gold standard.[26]

Organisations and communities have since formed to guide the development of systematic reviews. For example, Cochrane is well-known for its synthesis work in the healthcare domain.[27] It has been instrumental in devising best practices, conducting systematic reviews, maintaining a database of systematic reviews that meet their standards and training synthesists.[28] Additionally, grassroots communities have come together in fields such as ecology and evolution and clinical epidemiology to improve synthesis among their members.[29] One of these groups' key functions is to create and update standards for reporting systematic reviews; I now turn to this function.[30]

B *PRISMA: Transparency and the Regulation of Systematic Reviews*

The rise of systematic reviews produced a need for fields of research to develop standards for reporting these reviews and mechanisms to regulate compliance

[24] See Chalmers, Hedges and Cooper (n 4) 26.

[25] Ibid 16; David Moher, Lesley Stewart and Paul Shekelle, 'All in the Family: Systematic Reviews, Rapid Reviews, Scoping Reviews, Realist Reviews, and More' (2015) 4 *Systematic Reviews* 183:1–2, 1.

[26] See Colleen Pawliuk et al, 'Librarian Involvement in Systematic Reviews Was Associated with Higher Quality of Reported Search Methods: A Cross-Sectional Survey' (2024) 166 *Journal of Clinical Epidemiology* 111237:1–11, 1. Within the ecosystem of systematic reviews, those produced by Cochrane are seen as especially robust forms of evidence: Maximilian Siebert et al, 'Assessing the Magnitude of Changes from Protocol to Publication: A Survey on Cochrane and Non-Cochrane Systematic Reviews' (2023) 11 *PeerJ* e16016:1–15, 2.

[27] Siebert et al (n 26) 2.

[28] See Chalmers, Hedges and Cooper (n 4) 29. See generally 'About Us', *Cochrane* (Web Page) <https://www.cochrane.org/about-us>, archived at <https://perma.cc/E2MY-S8RM>.

[29] The creation of reporting guidelines for ecology and evolution and epidemiological observational studies have been reported: Nakagawa et al, 'New Ecosystem' (n 16) 498–500; Rose E O'Dea et al, 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses in Ecology and Evolutionary Biology: A PRISMA Extension' (2021) 96(5) *Biological Reviews* 1695, 1715; Donna F Stroup et al, 'Meta-Analysis of Observational Studies in Epidemiology: A Proposal for Reporting' (2000) 283(15) *Journal of the American Medical Association* 2008, 2009.

[30] See Nakagawa et al, 'New Ecosystem' (n 16) 498–500; O'Dea et al (n 29) 1715; Stroup et al (n 29) 2009.

with those standards.[31] Of those standards, the PRISMA statement has been especially influential.[32] The PRISMA statement includes a reporting checklist, guidance on using that checklist and templates for reporting systematic reviews.[33] Journals have integrated the PRISMA checklist into their author guidelines, requiring that researchers fill it out and submit it along with their systematic review.[34]

The overarching purpose of PRISMA is to encourage and standardise the transparency of systematic review reporting with a view towards improving quality.[35] Transparency allows users to assess the comprehensiveness of the review's search and reproduce it as new research is conducted.[36] If reviews are reported more transparently, decision-makers can then prioritise those that use more robust bias-control mechanisms and that search the literature more thoroughly.[37]

To promote transparency, the PRISMA checklist asks synthesists to confirm that they have reported the search strategy (eg the Boolean search logic used), the information sources that were searched (eg Scopus) and the studies identified, excluded and included in the review.[38] Synthesists must also report whether and how they critically appraised studies for potential methodological flaws (eg a study's risk of bias).[39] PRISMA additionally requires that synthesists report whether the systematic review protocol was 'registered' and, if so, on

[31] See David Moher et al, 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement' (2009) 339(7716) *BMJ* 332, 332, observing that 'the reporting quality of systematic reviews varies, limiting readers' ability to assess the strengths and weaknesses of those reviews'. See generally Alexander Schniedermann, 'Shaping the Qualities, Values and Standards of Science: How Reporting Guidelines Improve the Transparency of Biomedical Research' (2022) 7 *Frontiers in Research Metrics and Analytics* 846822:1–12.

[32] Moher et al (n 31). The original Preferred Reporting Items for Systematic reviews and Meta-Analyses ('PRISMA') statement had been cited over 60,000 times and endorsed by over 200 journals: Matthew J Page et al, 'The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews' (2021) 372 *BMJ* n71:1–9, 1 ('PRISMA Statement').

[33] Matthew J Page et al, 'PRISMA 2020 Explanation and Elaboration: Updated Guidance and Exemplars for Reporting Systematic Reviews' (2021) 372 *BMJ* n160:1–36, 1–2 ('PRISMA 2020 Explanation').

[34] Schniedermann (n 31) 4–5.

[35] PRISMA has been referred to as 'a practical manifestation of transparency in scientific reporting': ibid 5.

[36] Page et al, 'PRISMA 2020 Explanation' (n 33) 1.

[37] See generally Page et al, 'PRISMA 2020 Explanation' (n 33).

[38] Ibid 4–9, 18–20.

[39] Ibid 20–1.

what public database.[40] Registration is a transparency mechanism whereby synthesists place their review protocol on a public repository prior to conducting the review.[41] This allows users to determine whether the synthesist's methodology changed as a result of what they found, thereby helping to detect and deter bias.[42] In medicine, a particular concern is whether syntheses funded by drug manufacturers are biased to show that a drug is effective, and registrations can be used to control such bias.[43]

The PRISMA checklist is supplemented by the PRISMA flow diagram (see Figure 1), which provides a visual summary of the review process, illustrating the process of identifying, screening and including research for a research synthesis. It starts with reporting the number of studies identified (and through which databases those studies were identified) and then visualises the process of winnowing down that work to the research eventually included in the review.

[40] Ibid 28–9.

[41] Ibid. '[A]s a minimum necessary requirement, review authors should create a review protocol that documents the various planned method decisions … and publish it in a public, versioned, timestamped, online registry': Polanin, Hennessy and Tsuji (n 23) 1029.

[42] Siebert et al (n 26) 2; Page et al, 'PRISMA 2020 Explanation' (n 33) 28–9.

[43] See Areti Angeliki Veroniki et al, 'Does Type of Funding Affect Reporting in Network Meta-Analysis? A Scoping Review of Network Meta-Analyses' (2023) 12 *Systematic Reviews* 81:1–10, 2, 7–8.

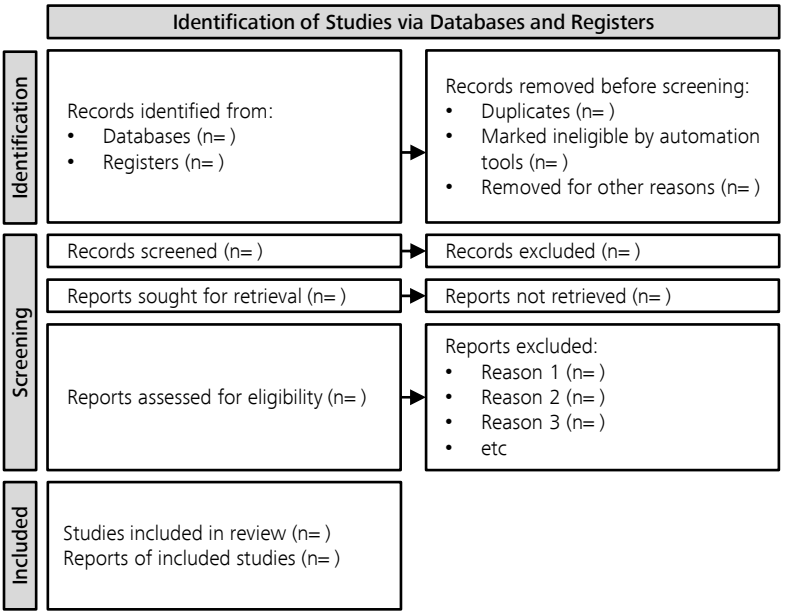

Figure 1: The PRISMA 2020 Flow Diagram[44]

As noted, transparency confers some straightforward benefits by allowing other researchers to assess the review methodology and reproduce it.[45] Beyond these advantages, commentators have suggested that transparency plays other roles. For instance, PRISMA and its ilk may promote public accountability by making systematic review practices more open to scrutiny by outsiders.[46]

C *The Expert Synthesist*

Research synthesis is now regularly described as a distinctive field of expertise.[47] It bears many hallmarks of an independent field, including having professional organisations, academic journals, university departments and annual

[44] Note that this figure has been adapted with modification from Page et al, 'PRISMA 2020 Explanation' (n 33) and it has been reproduced under a Creative Commons Attribution License: at 19; 'Citing PRISMA 2020', *PRISMA* (Web Page, 2025) <https://www.prisma-statement.org/citing-prisma-2020>, archived at <https://perma.cc/Q36P-XZBZ>.

[45] See above nn 35–7 and accompanying text.

[46] Schniedermann (n 31) 5–6.

[47] See Chalmers, Hedges and Cooper (n 4) 23.

conventions.[48] Incidentally, these are also the indicia that courts applying the UEL look at to determine whether a field of knowledge exists under the expert evidence rules.[49]

Moreover, training, study and experience in synthesis confer empirically supported benefits to the research review process. These benefits have been documented in studies examining systematic reviews in education,[50] medicine[51] and dentistry.[52] Some such benefits are that systematic reviews that include professional research synthesists (such as information retrieval specialists) are generally more transparent and based upon more thorough searches.[53]

Empirical evidence for synthesis expertise is reflected in the guidance of leading organisations who recommend that systematic review teams include a specialist.[54] For example, Cochrane's systematic review handbook says that '[r]eview teams should also include expertise in systematic review methodology'.[55] Some have argued that *only* review experts should be involved because

[48] See Elliott et al (n 4) 384.

[49] See *Tuite v The Queen* (2015) 49 VR 196, 210 [49] (Maxwell ACJ, Redlich and Weinberg JJA) ('*Tuite*'); *Murdoch v The Queen* (2007) 167 A Crim R 329, 350–1 [276] (Angel ACJ, Riley J and Olsson AJ).

[50] Diana Ramirez et al, 'Adherence to Systematic Review Standards: Impact of Librarian Involvement in Campbell Collaboration's Education Reviews' (2022) 48(5) *Journal of Academic Librarianship* 102567:1–11, 9.

[51] Pawliuk et al (n 26) 1–2, 5–8; Melissa L Rethlefsen et al, 'Librarian Co-Authors Correlated with Higher Quality Reported Search Strategies in General Internal Medicine Systematic Reviews' (2015) 68(6) *Journal of Clinical Epidemiology* 617, 622–4; Jonathan B Koffel, 'Use of Recommended Search Strategies in Systematic Reviews and the Impact of Librarian Involvement: A Cross-Sectional Survey of Recent Authors' (2015) 10(5) *PLOS ONE* e0125931:1–13, 2, 8–10.

[52] Jana Schellinger et al, 'The Effect of Librarian Involvement on the Quality of Systematic Reviews in Dental Medicine' (2021) 16(9) *PLOS ONE* e0256833:1–16, 1, 11–13.

[53] Reviews with specialists are more likely to search beyond standard databases and into grey literature: Koffel (n 51) 10. Additionally, reviews with specialists are more likely to report reproducible searches: Rethlefsen et al (n 51) 618, 622. See also Ramirez et al (n 50) 9; Pawliuk et al (n 26) 5; Koffel (n 51) 8–9; ibid 1, 7, 12.

[54] See Ramirez et al (n 50) 2.

[55] Toby J Lasserson, James Thomas and Julian PT Higgins, 'Starting a Review' in Julian PT Higgins et al (eds), *Cochrane Handbook for Systematic Reviews of Interventions* (Cochrane, 2nd ed, 2019) 5. See also the guidance on Campbell systematic reviews that a 'fundamental premise [of their guide] is that information retrieval is an essential component of the systematic review process, analogous to the data collection phase of a primary research study, and requires the expertise of TSC, an information specialist (IS) or a librarian': Shannon Kugley et al, *Searching for Studies: A Guide to Information Retrieval for Campbell Systematic Reviews* (Method Guide No 1, February 2017) 8 <https://onlinelibrary.wiley.com/doi/pdfdirect/10.4073/cmg.2016.1>, archived at <https://perma.cc/7WJF-EX8U>.

domain experts may introduce bias due to their preconceived notions about, for example, whether a particular therapy is effective.[56]

D *Limitations of Systematic Reviews*

Even among reviews that identify themselves as being 'systematic', rigour and transparency can still vary considerably.[57] These reviews are, in some ways, 'wolves in sheep's clothing' because decision-makers may be misled by their falsely systematic trappings.[58] This phenomenon has been documented in several areas of public significance, such as clinical psychology, nutrition research and the research underlying clinical practice guidelines for managing heart failure.[59] Notably, a 2022 review of purportedly systematic reviews in forensic science found failures to report key details, such as the search terms used and the date of the search.[60] As discussed in Part V, improving systematic reviews in forensic science is a logical focus for reform because failures of expert witnesses to cite contradictory literature have contributed to wrongful convictions. The availability of rigorous systematic reviews may help prevent such practices.

Finally, even transparent and thorough systematic reviews can be negatively affected by the inherent limits of the research and publication process. For instance, systematic reviews quickly become out of date.[61] This is especially the

[56] Peter C Gøtzsche and John PA Ioannidis, 'Content Area Experts as Authors: Helpful or Harmful for Systematic Reviews and Meta-Analyses?' (2012) 345(7882) *BMJ* 22.

[57] Lesley Uttley et al, 'The Problems with Systematic Reviews: A Living Systematic Review' (2023) 156 *Journal of Clinical Epidemiology* 30, 36–7.

[58] 'At their worst, [systematic reviews] are wolves in sheep's clothing: subjective with biased conclusions, hidden under coats of objective authority': see O'Dea et al (n 29) 1695.

[59] Elin Opheim et al, 'Poor Quality in Systematic Reviews on PTSD and EMDR: An Examination of Search Methodology and Reporting' (2019) 10 *Frontiers in Psychology* 1558:1–11, 9; Daniel M Maggin et al, 'Quality Indicators for Systematic Reviews in Behavioral Disorders' (2017) 42(2) *Behavioral Disorders* 52, 62; Maira Bes-Rastrollo et al, 'Financial Conflicts of Interest and Reporting Bias regarding the Association between Sugar-Sweetened Beverages and Weight Gain: A Systematic Review of Systematic Reviews' (2013) 10(12) *PLOS Medicine* e1001578:1–9, 3; Elizabeth Payton Garrett et al, 'Quality of Reporting among Systematic Reviews Underpinning the ESC/ACC Guidelines on Ventricular Arrhythmias and Sudden Cardiac Death' (2022) 27(6) *BMJ Evidence-Based Medicine* 352, 357.

[60] Jason M Chin et al, 'The Transparency and Reproducibility of Systematic Reviews in Forensic Science' (2022) 340 *Forensic Science International* 111472:1–11, 4–5.

[61] See Jon Brock, 'Out of Date before It's Published', *Nature Index* (Web Page, 30 July 2019) <https://www.nature.com/nature-index/news/living-systematic-reviews-emerging-solution-problem-superseded-research-zika-virus>, archived at <https://perma.cc/VK6A-4JJ7>.

case for areas of research that are swiftly moving.[62] For these topics, such as the research resulting from the COVID-19 pandemic, some synthesists have turned to 'living systematic reviews'.[63] These reviews, typically hosted on a webpage, use fully reproducible search methodologies and are updated periodically (eg every three months).[64] This allows for a relatively current view of the state of a research question.

Systematic reviews are also only as good as the research they synthesise. That is, if the available literature is biased or inaccurate in any way, those problems largely carry forward into the resulting review. For instance, publication bias plagues many fields; bodies of research tend to contain 'positive' findings such as trials finding that a particular intervention is effective (as opposed to 'null results' that are less publishable).[65] Similarly, systematic reviews sometimes contain research that was later retracted due to researcher error or fraud.[66] Accordingly, PRISMA requires that synthesists declare limitations in the review process.[67]

III Overview of the Legal Regulation of Research Summary Evidence

Not all research summaries are created equal and the expertise needed to produce them is not uniformly distributed. Rather, synthesis expertise develops with training and experience. We now turn to the regulation of research synthesis evidence in Australian criminal proceedings to identify possible gaps in the present regime. We ask, do the rules allow courts to exclude evidence of witnesses unlikely to have the knowledge needed to reliably summarise research? And do the rules promote transparency of synthesis such that fact finders can prioritise research summaries that are thorough and rigorous? This

[62] See, eg, Elliott et al (n 4) 383–4.

[63] Ibid 384–5; Pearson (n 4) 17.

[64] See Chin et al (n 60) 6; Elliott et al (n 4) 384–5.

[65] See AJ Sutton et al, 'Empirical Assessment of Effect of Publication Bias on Meta-Analyses' (2000) 320(7249) *BMJ* 1574, 1576; Shinichi Nakagawa et al, 'Methods for Testing Publication Bias in Ecological and Evolutionary Meta-Analyses' (2022) 13(1) *Methods in Ecology and Evolution* 4, 5, 17–19.

[66] Alison Avenell et al, 'A Randomized Trial Alerting Authors, with or without Coauthors or Editors, That Research They Cited in Systematic Reviews and Guidelines Has Been Retracted' (2024) 31(1) *Accountability in Research* 14, 18–20, 23.

[67] Page et al, 'PRISMA 2020 Explanation' (n 33) 26–7.

framework provides the context for Part IV's case study of a heavily contested research summary about the psychology of child complainants.

A *Research Summaries as Expert Opinion and Credibility Evidence*

The orthodox vehicle for introducing research summaries into legal proceedings is as part of the opinion of an expert witness.[68] As a result, they must comply with the UEL's expert evidence rules.[69] Expert evidence must satisfy s 79 of the UEL, which allows qualifying witnesses to provide an opinion despite the general bar on such evidence.[70] Specifically, s 79 requires that the purported expert have 'specialised knowledge based on the person's training, study or experience', with their opinion being 'wholly or substantially based on that knowledge.'[71]

Research summaries can also go to the credibility of a witness. For example, they may summarise social scientific research about memory or disclosure patterns that may be counterintuitive to some jurors.[72] In these cases, s 108C provides an exception to the general bar on credibility evidence if there is

[68] See *BI (Contracting) Pty Ltd v University of Adelaide* (2008) 6 DDCR 382, 389–90 [23] (Bell JA, Beazley JA agreeing at 385 [1], McClellan CJ at CL agreeing at 420 [125]) ('*BI (Contracting)*'). See also *Aziz* (n 1) 333–5 [77]–[93] (Simpson AJA, Lonergan J agreeing at 338 [109]); *AJ* (n 12) 356–8 [73]–[77] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[69] See, eg, *Cth Evidence Act* (n 18) ss 76, 79, 177. The Commonwealth Act is cited throughout as an example of a standard UEL-jurisdiction statute: see generally Attorney-General's Department, *Uniform Evidence Acts Comparative Tables* (Table) <https://www.ag.gov.au/sites/default/files/2020-03/Uniform-Evidence-Acts-comparative-tables.pdf>, archived at <https://perma.cc/4AFN-VLYS>.

[70] The general exclusion of opinion evidence can be found at *Cth Evidence Act* (n 18) s 76(1).

[71] Ibid s 79(1).

[72] *Dupas v The Queen* (2012) 40 VR 182, 249–51 [244]–[249] (Warren CJ, Maxwell P, Nettle, Redlich and Bongiorno JJ); *AJ* (n 12) 353–4 [65] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]); *Aziz* (n 1) 323–5 [21]–[28], 331 [63], 332 [72] (Simpson AJA, Lonergan J agreeing at 338 [109]); *MA v The Queen* (2013) 40 VR 564, 581–3 [78]–[88] (Osborn JA), 583–6 [89]–[100] (Redlich and Whelan JJA); *Lehrmann* (n 6) [113]–[115] (Lee J); *BQ* (n 13) 128 [1]–[2], 131–2 [12]–[15] (Gageler CJ, Gordon, Edelman, Steward, Gleeson, Jagot and Beech-Jones JJ); Jacqueline Horan and Jane Goodman-Delahunty, 'Expert Evidence To Counteract Jury Misconceptions about Consent in Sexual Assault Cases: Failures and Lessons Learned' (2020) 43(2) *University of New South Wales Law Journal* 707, 709–11.

specialised knowledge (such that s 79 is satisfied) and if the opinion goes substantially to credibility (and if the trial judge grants leave).[73]

In some cases, parties have argued that s 79's requirement of knowledge should involve some inquiry into the reliability of that knowledge.[74] This is the approach in some common law jurisdictions.[75] Whether s 79 requires reliability is a relevant question in the context of research summaries because many of the concerns that led to the development of systematic reviews arose from the poor reliability of informal research reviews.[76] However, courts applying the UEL have consistently rejected arguments that 'knowledge' requires a threshold level of reliability.[77] This position makes it difficult for courts to gatekeep research reviews that are of unknown reliability or that have been produced by individuals unlikely to have the knowledge needed to systematically search the relevant literature.[78]

B *Discretionary and Mandatory Exclusion*

Similarly, research summaries are susceptible, in theory, to general evidence rules that exclude evidence when its probative value is exceeded by factors such as the risk that it may be unfairly prejudicial or unduly add to the length of proceedings.[79] Once again, this rule could help manage the risks of research reviews mentioned above. For instance, we saw that even purportedly 'systematic' reviews frequently fail to engage with basic safeguards that allow users to verify their reliability (increasing their potential to be prejudicial because, while

[73] Both of those sections include subsections expressing that they facilitate the admission of expert evidence about child psychology: see *Cth Evidence Act* (n 18) ss 79(2), 108C(2). See also *BQ* (n 13) 136–9 [30]–[35] (Gageler CJ, Gordon, Edelman, Steward, Jagot and Beech-Jones JJ).

[74] *R v Tang* (2006) 65 NSWLR 681, 696 [55], 703 [82] (Spigelman CJ, Simpson J agreeing at 716 [159], Adams J agreeing at 716 [160]) ('*Tang*'); *Honeysett v The Queen* (2014) 253 CLR 122, 136 [37]–[38] (French CJ, Kiefel, Bell, Gageler and Keane JJ); *Tuite* (n 49) 198 [1] (Maxwell ACJ, Redlich and Weinberg JJA).

[75] See *Lang* (n 6) 387–8 [221] (Gordon and Edelman JJ).

[76] See above Part II(A).

[77] *Tang* (n 74) 712 [137] (Spigelman CJ, Simpson J agreeing at 716 [159], Adams J agreeing at 716 [160]); *Tuite* (n 49) 217 [70] (Maxwell ACJ, Redlich and Weinberg JJA); Gans, Palmer and Roberts (n 2) 214–17 [7.130]. For a critique of the evidence rules in New Zealand for their failure to consider reliability, see Carrie Leonetti, 'Ensuring the Reliability of Evidence in the New Zealand Criminal Courts: The Admissibility of Forensic Science' (2024) 53(4) *Common Law World Review* 197.

[78] See also *JP* (n 8) 465–6 [76]–[79] (Beech-Jones J).

[79] See *Cth Evidence Act* (n 18) ss 135, 137.

they are labelled systematic, they are effectively untestable).[80] This includes systematic reviews in forensic science, a field that has contributed to many wrongful convictions.[81] However, the High Court in *IMM v The Queen* ('*IMM*') weakened these general exclusionary rules by holding that judges must assume evidence is maximally reliable when assessing its probative value.[82] This assumption makes it difficult to exclude expert research summaries because it would require there to be danger of a great deal of unfair prejudice or other countervailing factors to overcome the probative value of a research summary assumed to be maximally reliable.[83]

C *Expert Reports and Expert Codes of Conduct*

Research summaries typically comprise part of the expert's report made in anticipation of the expert's testimony at trial.[84] The form, timing and delivery of expert reports are regulated by evidence Acts,[85] rules of court,[86] practice notes[87] and rules of procedure.[88] Particularly relevant are what are sometimes referred

[80] Uttley et al (n 57) 37; Chin et al (n 60) 3–4, 6–7.

[81] See Chin et al (n 60) 5–6. See above n 11 and accompanying text. See generally John Morgan, 'Wrongful Convictions and Claims of False or Misleading Forensic Evidence' (2023) 68(3) *Journal of Forensic Sciences* 908.

[82] (2016) 257 CLR 300, 314–17 [50]–[58] (French CJ, Kiefel, Bell and Keane JJ) ('*IMM*'). The holding of that case regarding taking the reliability of evidence at its highest has been subsequently applied to expert evidence numerous times: see, eg, *Chen v The Queen* (2018) 97 NSWLR 915, 923–4 [40] (Hoeben CJ at CL, Schmidt and Campbell JJ) ('*Chen*'); *Langford v Tasmania* (2018) 29 Tas R 68, 81 [41] (Brett J, Blow CJ agreeing at 70 [1], Wood J agreeing at 70 [1]).

[83] A lack of reliability can be considered under the unfair prejudice part of the balancing required by *Cth Evidence Act* (n 18) ss 135, 137: see *Xie v The Queen* (2021) 386 ALR 371, 457 [301] (Bathurst CJ, RA Hulme and Beech JJ).

[84] See Freckelton (n 5) 267 [5.0.01], 272 [5.0.60], 278 [5.0.115]. See generally Gary Edmond, Kristy Martire and Mehera San Roque, 'Expert Reports and the Forensic Sciences' (2017) 40(2) *University of New South Wales Law Journal* 590.

[85] See, eg, *Cth Evidence Act* (n 18) s 177.

[86] See, eg, *Supreme Court Rules 1970* (NSW) pt 75 r 3J; *District Court Act 1973* (NSW) s 171D.

[87] See, eg, Supreme Court of Victoria, *Practice Note SC CR 3: Expert Evidence in Criminal Trials*, 7 May 2025, 3–7 paras 6–8 ('*Vic Code*'). Many codes are based on the Harmonised Code of Conduct prepared by the Council of Chief Justices Australia and New Zealand: Federal Court of Australia, *Practice Note GPN-EXPT: Expert Evidence Practice Note*, 25 October 2016, annex A; 'Expert Witnesses', *Council of Chief Justices Australia and New Zealand* (Web Page) <https://ccjanz.gov.au/expert-witnesses>, archived at <https://perma.cc/6T29-SVTH>.

[88] See, eg, *Uniform Civil Procedure Rules 2005* (NSW) sch 7 ('*NSW Code*'); *Court Procedure Rules 2006* (ACT) rr 1241–6.

to as expert witness 'codes of conduct'.[89] These codes ask that experts acknowledge their overriding duty to the court and disclose various aspects of their process in their report.[90] In light of jurisdictional divergences, the online supplement contains an index of expert codes of conduct across Australia.[91]

Codes of conduct encourage, among other things, transparency in the way in which experts draft their reports such as by encouraging the disclosure of investigations conducted by the expert,[92] qualifications to their opinion[93] and any significant and recognised disagreement in the field.[94] As will be discussed in Part V, reporting items such as these can and should be readily applied not just to the expert's case-specific analysis but also to their research summary. In other words, they should be interpreted as requiring disclosures about how broadly the expert searched for relevant literature and how they decided what to include in their summary and what to exclude. However, there are two barriers to relying on codes to regulate research summaries. First, experts do not seem to interpret them as applying to research summaries.[95] And, following *IMM*, courts have found that failures to follow codes of conduct do not reduce the corresponding evidence's probative value and are not standalone grounds for exclusion.[96] Even being completely unaware of the code of conduct and a real possibility that the retaining lawyer drafted parts of an expert opinion have not been held as grounds to exclude such opinions.[97]

[89] See, eg, *Chen* (n 82) 918–24 [10]–[45] (Hoeben CJ at CL, Schmidt and Campbell JJ). See Jason M Chin, Mehera San Roque and Rory McFadden, 'The New Psychology of Expert Witness Procedure' (2020) 42(1) *Sydney Law Review* 69, 74–5.

[90] Chin, San Roque and McFadden (n 89) 74–5.

[91] Jason Chin, *The Research Foundations of Expert Evidence in Criminal Proceedings: Expert Witness Codes of Conduct* (Index, 5 June 2025) <https://osf.io/qhjz4>, archived at <https://perma.cc/3FHL-VUD2>. See generally Gans, Palmer and Roberts (n 2) 1–2 [1.10], 22–4 [1.150]–[1.160].

[92] See, eg, *Vic Code* (n 87) 3–4 para 6.1(g); *NSW Code* (n 88) sch 7 cl 3(1)(g).

[93] See, eg, *Vic Code* (n 87) 3–4 para 6.1(i); *NSW Code* (n 88) sch 7 cl 3(1)(j).

[94] See, eg, *Vic Code* (n 87) 4–5 para 6.2.

[95] See below Part V(B).

[96] *Chen* (n 82) 919–21 [19]–[20], 928 [72]–[75] (Hoeben CJ at CL, Schmidt and Campbell JJ); *R v Warwick [No 33]* [2018] NSWSC 1219, [42]–[43] (Garling J). Cf Tony Ward, '"A New and More Rigorous Approach" to Expert Evidence in England and Wales?' (2015) 19(4) *International Journal of Evidence and Proof* 228, 239.

[97] *Chen* (n 82) 918–19 [14]–[16], 919 [18], 923 [35]–[36] (Hoeben CJ at CL, Schmidt and Campbell JJ); *New Aim Pty Ltd v Leung* (2023) 410 ALR 190, 220–1 [121]–[132] (Kenny, Moshinsky, Banks-Smith, Thawley and Cheeseman JJ).

IV Case Study: A Contested Research Summary about the Reporting Patterns of Child Complainants

Despite the longstanding use of research summaries by experts in Australian courts, only recently have courts thoroughly explored the pathways by which they are incorporated into admissible evidence.[98] These explanations came in two appellate decisions, *AJ v The Queen* ('*AJ*') and *Aziz v The Queen* ('*Aziz*'), which considered and admitted the evidence of a prosecution expert that had been excluded in a series of New South Wales District Court cases.[99] That witness, Rita Shackel, is a law professor who studies (among other things) the psychology of children who have been sexually abused.[100] Her evidence in these cases reviewed the research underlying several interrelated topics, including the commonness of children not complaining immediately, children not disclosing everything all at once and their continuing to stay in contact with the alleged offender.[101]

As discussed throughout this Part, there is no reason to think that Shackel's synthesis was not thorough and representative of the relevant psychological research. Rather, the treatment of her synthesis provides a helpful case study due to the scrutiny the research summary underlying her opinion attracted.[102] As we will see, the reasons ultimately relied on to admit Shackel's evidence reflect many of Part II's insights. Those reasons acknowledge that synthesis expertise

[98] See *Trevorrow v South Australia [No 5]* (2007) 98 SASR 136, 283–5 [689]–[705] (Gray J); *AJ* (n 12) 356 [73]–[82] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]); *Aziz* (n 1) 332–6 [70]–[95] (Simpson AJA, Lonergan J agreeing at 338 [109]); Imwinkelried (n 2) 9.

[99] *AJ* (n 12) 352 [60], 356–60 [72]–[85] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130]); *Aziz* (n 1) 320 [4], 325–6 [37]–[39], 333 [80], 335–6 [96] (Simpson AJA, Lonergan J agreeing at 338 [109]). See also *AJ* (n 12) 376–9 [162]–[174] (Fagan J); *Aziz* (n 1) 336–8 [96]–[107] (Adamson J). A list of the cases and their admissibility outcomes was helpfully provided by Simpson AJA: at 325–6 [37]–[38].

[100] *Aziz* (n 1) 323 [21] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[101] Ibid 323 [21]–[22], 324 [26] (Simpson AJA); *AJ* (n 12) 353–4 [63]–[65] (Beech-Jones CJ at CL). This may help them better contextualise the complainant's behaviour. As discussed below, two grounds for excluding her evidence given by lower courts were that research summaries are not opinion (but rather fact) and that Rita Shackel, as a non-practitioner, did not have the expertise to give evidence about psychology: see below Part IV(A).

[102] Expert evidence supporting a witness's credibility has long been treated cautiously by courts, and these cases are no exception: see generally New South Wales Law Reform Commission, *Jury Directions* (Report No 136, November 2012) 99–103 [5.83]–[5.101] <https://lawreform.nsw.gov.au/documents/Publications/Reports/Report-136.pdf>, archived at <https://perma.cc/U3PZ-JKM7>.

need not draw from practice in a field; it can come from reviewing the literature in a field.[103] It is a task that requires skill and judgement.[104] Some reasons, however, sit uneasily with Part II (eg language suggesting that courts should 'infer' that any otherwise qualified expert can reliably conduct a research summary).[105]

A *Is a Research Summary an Opinion? Who Is Qualified To Summarise Research?*

The challenges to Shackel's evidence focused on two questions fundamental to the use of research summaries by expert witnesses: are they opinions and who is qualified to produce them? These questions were summarised in *AJ*:

> [The focus of the challenge] is the contention that Dr Shackel's report was no more than a 'literature review' that summarised the effect of the research of others and did not involve the expression of any opinions of her own or, if it did, *they were not opinions she was qualified to give*.[106]

The question about whether Shackel's synthesis constituted an opinion or not demonstrates the difficulty courts have in evaluating research summaries in relation to expert evidence law. This is noteworthy because research summaries are a foundation for much expert testimony.[107] Accordingly, one might expect widespread agreement about whether they are opinions or not. Here, the New South Wales Court of Criminal Appeal's decision in *Aziz*, departing from several lower court decisions, aligns with the idea that research synthesists produce valuable knowledge.[108] That is, the Court said that experts, when

[103] *Aziz* (n 1) 333 [77], [80] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[104] *AJ* (n 12) 356–8 [73]–[75] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[105] See ibid 358 [76] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[106] Ibid 357 [74] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]) (emphasis added). See also *Aziz* (n 1) 333 [80] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[107] See Imwinkelried (n 2) 9. Whether the summary was an opinion was at issue because, in order to meet the exception for credibility evidence of an expert witness, the evidence first had to be characterised as an opinion: *NSW Evidence Act* (n 18) ss 79(1), 108C(1), discussed in *AJ* (n 12) 359 [82] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]), *Aziz* (n 1) 331 [64] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[108] *Aziz* (n 1) 325–6 [37]–[39], 333 [80] (Simpson AJA, Lonergan J agreeing at 338 [109]).

summarising research, are not merely reciting facts but are providing an opinion by drawing judgements from their reading of the literature.[109] This characterisation is consistent with Part II, which showed that experience, judgement and skill are needed to summarise research. It does, however, seem to foreground synthesis expertise in *reading and interpreting* research. In this sense, it discounts specialist knowledge in *searching for and identifying* research.

Regarding the earlier question of qualifications, several lower courts had held that Shackel was not qualified because she was not a practising child psychologist but was, rather, a law professor with academic expertise in psychology.[110] Once again, the resolution of this issue in *AJ* was, in some ways, more sensitive to the underlying value research synthesists provide and the knowledge needed to provide it. Writing the lead opinion, Beech-Jones CJ at CL remarked that it is standard for experts to play the role of a 'librarian' — someone who finds and summarises the work of others.[111] This does not require hands-on experience and, in fact, research such as Shackel's may be preferable to the experience of many practitioners:

> Of necessity, 'study' involves scrutinising the work of others. … [I]t may be that specialised knowledge based on the study of a range of research undertaken across many countries concerning thousands of victims is superior to that derived from clinical experience …[112]

This view reflects the value many fields now place on research reviews and, as we saw above, the contributions of research synthesis specialists.[113]

Some of the additional reasoning related to qualifications in *AJ*, however, could be detrimental to the goal of promoting the use of high-quality research summaries in court. For example, part of *AJ* could be read to discount

[109] Ibid 332–3 [70]–[80] (Simpson AJA, Lonergan J agreeing at 338 [109]). In the case of research summaries, however, the 'facts' are of the 'accumulated sources of information and the product of research of others recorded in professional publications': at 333 [77] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[110] See, eg, *MK* (n 16) [35], [38], [45] (McLennan DCJ); *MP* (n 16) 393 [10], 395 [15], 396 [23]–[24], [28]–[29] (Grant DCJ). See also *Fortune* (n 16) 322 [14], [18] (Whitford DCJ).

[111] *AJ* (n 12) 357 [74] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]), quoting *BI (Contracting)* (n 68) 389–90 [23] (Bell JA, Beazley JA agreeing at 385 [1], McClellan CJ at CL agreeing at 420 [125]), quoting Sir Richard Eggleston, *Evidence, Proof and Probability* (Weidenfeld and Nicholson, 2nd ed, 1983) 153–4.

[112] *AJ* (n 12) 356 [73] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[113] See above Part II(C).

standalone research synthesis expertise: 'a person … who simply reads a series of papers concerning organic chemistry and summarises the conclusions of that research will not have acquired "specialised knowledge based on … study"'.[114] This reasoning could exclude research summaries produced by synthesist experts, who are not subject matter experts. It runs against some of the above advice that suggests that synthesist specialists may be preferable because content experts provide more biased research summaries.[115] And indeed, in *R v Bornyk*, an expert witness from a different field provided evidence based on a research summary that appeared less biased than that of the counter-expert who was more embroiled in the field in question.[116] Accordingly, these reasons from *AJ* are somewhat out of step with the idea of research synthesis as a valuable, standalone form of expertise (ie field of knowledge). However, it is not clear that the *AJ* Court had put its mind to this question of research synthesis as a standalone field of knowledge.

B *Gatekeeping Unreliable Research Summaries?*

Regarding reliability, *AJ* expressed the unfounded expectation that content expertise allows courts to 'infer' that the expert's resulting research summary is reliable and representative of the field:

> The court can infer that [expert witnesses] have critically applied the skills and knowledge they have derived from their academic studies (as well as training and experience) in their review of that research *to determine such matters as whether the research paper was from a respected source, reliable, representative of the entirety of the body of available research or only selective* and otherwise justifies extrapolating from the specific to the general.[117]

Recall, however, that it is the repeated violation of this assumption that produced the field of research synthesis — a field that may not be admissible on its own under the law set down by *AJ*. Given that research reviews vary

[114] *AJ* (n 12) 358 [77] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]), quoting *NSW Evidence Act* (n 18) s 79(1). See also *AJ* (n 12) at 358 [76] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[115] Gøtzsche and Ioannidis (n 56) 2–3. Cf Lasserson, Thomas and Higgins (n 55) 5.

[116] See [2017] BCSC 849, [88]–[109] (Crawford J) ('*Bornyk*').

[117] *AJ* (n 12) 358 [76] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]) (emphasis added).

considerably in their rigour and transparency,[118] and that the expertise to conduct them is unevenly distributed,[119] a sensible form of evidence law regulation would be to require some scrutiny of the synthesis methods themselves, perhaps following the approach taken in the research synthesis community.[120]

C *Residual Concerns and Alternative Approaches*

While some major concerns expressed by lower courts about research summaries were misguided, others have merit. For instance, Whitford DCJ in *Fortune* indicated that Shackel's research summary was of low probative value because it was general or 'pro-forma'.[121] That is, Shackel did not directly opine on the complainant's credibility but rather summarised general points of knowledge that the jury could then use in their credibility assessment.[122] Another concern was that Shackel's evidence could have prolonged the proceedings.[123] Additionally, Whitford DCJ observed that many studies in the literature review were outdated.[124]

While there is merit to these hesitations, they also reflect inherent features in the use of research summary evidence more generally. Research summaries are typically a step removed from the case facts themselves.[125] Accordingly, Shackel stayed within her expertise by summarising the research and leaving it to the jury to consider whether and how it applied to their assessment of the complainant's credibility.[126]

Moreover, it is true that expert evidence can prolong legal proceedings, especially if it is contested. In fact, the High Court would later note that summaries like Shackel's should be assessed on a case-by-case basis, taking into account, among other things, the time that the expert evidence may consume and the

[118] Uttley et al (n 57) 31, 36–8.

[119] Ramirez et al (n 50) 9; Pawliuk et al (n 26) 1–2, 4–8; Rethlefsen et al (n 51) 622; Koffel (n 51) 9; Schellinger et al (n 52) 13.

[120] See above Part II.

[121] *Fortune* (n 16) 320 [7] (Whitford DCJ). See also at 322 [15] (Whitford DCJ); *AJ* (n 12) 377 [166] (Fagan J).

[122] *Fortune* (n 16) 320 [7], 322 [15] (Whitford DCJ); *AJ* (n 12) 377 [166] (Fagan J).

[123] *Fortune* (n 16) 323 [26]–[27] (Whitford DCJ).

[124] Ibid 323 [24] (Whitford DCJ).

[125] See Chin et al (n 60) 2.

[126] See *Fortune* (n 16) 322 [15] (Whitford DCJ). Although psychology cannot always provide reliable case-specific opinions, it can provide useful knowledge about groups: see Faigman, Monahan and Slobogin (n 15) 432.

degree to which the relevant aspects of the complainant's credibility are at issue or have been conceded.[127] These statements signal that the High Court expects trial judges to maintain some control over research summary evidence, in large part through mandatory and discretionary rules that balance probative value and the danger of unfair prejudice.[128]

Given concerns with probative value and time consumption, it may not be surprising that some courts — in both the current case study and beyond — have preferred alternative approaches to bringing research summary evidence into the proceedings.[129] For example, judges sometimes include research summaries in their directions to the jury.[130] These summaries raise a different set of issues because judges are generally not permitted to refer to evidence unless it has been proffered by the parties.[131] As a result, explicit references to research can cause trials to miscarry.[132]

Another alternative is to accept propositions that are often the topic of expert opinion as 'agreed facts'.[133] In *Lehrmann v Network Ten Pty Limited* ('*Lehrmann*'), a high-profile civil case, Lee J relied on this method when it came to knowledge about the typical memory and disclosure patterns of those who experienced trauma.[134] His Honour considered that expert evidence would have

[127] *BQ* (n 13) 146 [59] (Gageler CJ, Gordon, Edelman, Steward, Gleeson, Jagot and Beech-Jones JJ), citing *NSW Evidence Act* (n 18) ss 108C(1)(c), 135, 137, 184, 192(1), (2)(a), (c).

[128] See, eg, *NSW Evidence Act* (n 18) ss 135, 137, 192.

[129] See *Fortune* (n 16) 322 [16] (Whitford DCJ); *CMG v The Queen* [2011] VSCA 416, [11]–[12] (Harper JA, Ashley JA agreeing at [1], Weinberg JA agreeing at [2]) ('*CMG*'); *NJB v The Queen* [2010] NTCCA 05, [10] (Martin (BR) CJ, Riley J agreeing at [27], Kelly J agreeing at [28]) ('*NJB*'). See also *Jury Directions* (n 102) 100–3 [5.88]–[5.101]. In the Canadian context, see *R v Lalonde* (1995) 22 OR (3d) 275, 281–5 (Trainor J).

[130] See, eg, *CMG* (n 129) [11] (Harper JA, Ashley JA agreeing at [1], Weinberg JA agreeing at [2]); *NJB* (n 129) [10] (Martin (BR) CJ, Riley J agreeing at [27], Kelly J agreeing at [28]).

[131] *CMG* (n 129) [13], [18] (Harper JA, Ashley JA agreeing at [1], Weinberg JA agreeing at [2]). Because research summaries are not matters of common knowledge or law, judicial notice provisions are of no avail either: see *Cth Evidence Act* (n 18) ss 143–4. On the general difficulties of judges relying on research not adduced by the parties, see Zoe Rathus, '"The Research Says …": Perceptions on the Use of Social Science Research in the Family Law System' (2018) 46(1) *Federal Law Review* 85, 98–104.

[132] See, eg, *CMG* (n 129) [18] (Harper JA, Ashley JA agreeing at [1], Weinberg JA agreeing at [2]); *NJB* (n 129) [16]–[17] (Martin (BR) CJ, Riley J agreeing at [27], Kelly J agreeing at [28]).

[133] *Lehrmann* (n 6) [117] (Lee J).

[134] Ibid [117]–[118]. See generally Jade Toomey, 'Federal Court Finds Bruce Lehrmann Raped Brittany Higgins: Defamation Case Fails', *ABC News* (Web Page, 15 April 2024)

been wasteful given that *Lehrmann* was a bench trial and that his Honour could self-instruct about these 'facts'.[135] The difficulty with this approach, however, is the same as it is with jury instructions: summaries of research about the psychology of complainants are not factual and they are not beyond dispute.[136] They rely on a careful search of the literature, identification of relevant research and a synthesis of those findings.[137] If the admissibility of this evidence had not been conceded, it is difficult to see how Lee J's decision would be consistent with existing law.[138]

V Improving Research Summaries Used in Criminal Proceedings

The preceding parts reveal tensions, fictions and inefficiencies in the ways in which research summaries enter criminal proceedings as a basis for expert testimony. In short, the legal system needs a more efficient and reliable way to summarise research relevant in legal proceedings, preferably with the assistance of people who specialise in this task. And, in the event that does not occur, evidence rules should step in to exclude reliance upon research summaries that are so poorly reported that fact finders will be unlikely to rationally assign weight to them. Accordingly, this Part begins with a proposal to reform the practice of expert research summaries commonly relied upon by experts by basing them upon systematic reviews co-produced with research synthesists. It then suggests ways to improve the legal regulation of research summaries in criminal litigation.

<https://www.abc.net.au/news/2024-04-15/bruce-lehrmann-defamation-trial-judgment/103706656>, archived at <https://perma.cc/44UK-XP2X>.

135 *Lehrmann* (n 6) [116]–[118].

136 Recall that, in *Aziz* (n 1), research summary evidence was characterised as opinion: at 331–3 [64]–[80] (Simpson AJA, Lonergan J agreeing at 338 [109]). 'The fundamental problem is that these matters are, in fact, evidence. They are not incontestable. They are not certain. They are also not findings that are ideally reduced to a single sentence or two': Jennifer L Mnookin, 'Constructing Evidence and Educating Juries: The Case for Modular, Made-In-Advance Expert Evidence about Eyewitness Identifications and False Confessions' (2015) 93(7) *Texas Law Review* 1811, 1841–2 (emphasis omitted).

137 See Ramirez et al (n 50) 2.

138 See *Lehrmann* (n 6) [117] (Lee J).

A *Improve the Practice*

To illustrate the value of systematic review methods for expert research summaries, I will begin with an area in which expert witnesses are especially likely to benefit from access to high-quality systematic reviews due to that field's systemic lack of research synthesis knowledge. Afterwards, I zoom out to the more general practice of founding expert research summaries on systematic reviews.

Forensic feature comparison practitioners pose a particularly stark challenge for *AJ*'s assumption that experts reliably summarise research.[139] This is because they are demonstrably adept at an important forensic task but often have little or no training, study or experience in searching for and summarising research.[140] Feature comparison practices are those that involve the practitioner comparing patterns in a found sample with those in a known sample.[141] Fingerprint examiners, for instance, compare a suspect's fingerprint with one found at the crime scene to determine whether they came from the same source.[142] Feature comparison experts do not, however, typically come from a 'research culture'.[143] Rather, training is often experiential, with practitioners embedded in law enforcement rather than in universities.[144] As a result, many forensic feature comparison experts would not have much training in searching for research, let alone in the systematic review ideal.[145]

This is a systemic issue that the *AJ* Court seemed not to fully contemplate. Recall that Beech-Jones CJ at CL acknowledged that those broadly studying a

[139] See *AJ* (n 12) 358 [76] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[140] See Chin et al (n 60) 7.

[141] President's Council of Advisors on Science and Technology, Executive Office of the President, *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature Comparison Methods* (Report to the President, September 2016) 1 <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf>, archived at <https://perma.cc/8CYZ-LUU4> ('*Forensic Science*'). See generally Jennifer L Mnookin et al, 'The Need for a Research Culture in the Forensic Sciences' (2011) 58(3) *University of California, Los Angeles Law Review* 725, 726–7.

[142] *Forensic Science* (n 141) 9.

[143] Mnookin et al (n 141) 744.

> A growing number of individuals within the pattern identification disciplines and other forensic fields do fundamentally embrace the values associated with a research culture. Nonetheless, at present, these values are not sufficiently widespread within the pattern identification communities.

[144] See ibid 749, 765–7, 775; Heavey and Houck (n 5) 1–2.

[145] See Mnookin et al (n 141) 759. See above Part II.

field (as Shackel had) will often be better placed than a practitioner to review the research in the field.[146] This understates the problem. It is not that forensic feature comparison practitioners would be outperformed by those more accustomed to conducting research reviews. Rather, many forensic feature comparison practitioners have almost no chance of living up to *AJ*'s expectation of creating reliable, representative research reviews.[147]

The consequences of this mistaken assumption are serious. In the United States ('US'), for instance, a 2023 National Institute of Justice report reviewed the over 700 exonerations associated with false or misleading forensic evidence tracked in that country.[148] It found that in over a quarter of the examinations in those cases the forensic practice and its underlying research foundations (or lack thereof) were miscommunicated in the expert's evidence.[149]

And, in Australia, Gary Edmond, Kristy Martire and Mehera San Roque used the case study of *JP v Director of Public Prosecutions (NSW)* ('*JP*') to document longstanding deficiencies in the standard-form expert certificates that accompany the forensic fingerprint comparison expert testimony of the New South Wales Police ('NSW Police').[150] Prior to the challenge in *JP*, NSW Police's report included only a bare description of the analysis procedure and no references to critical literature.[151] Compounding this problem, the practitioner in *JP*, a police sergeant, acknowledged in his testimony that he could not assist the court in supplementing his report because he 'had not read a lot of the literature'.[152] This should not be seen as an individual failing because, as the trial transcript indicates, practitioners do not have much time to stay abreast of the relevant research:

> Defence Counsel: Is it your evidence that in relation to your expertise and staying up to date with the fingerprint field you basically rely on whatever the New South Wales Police training section sends to you?

[146] *AJ* (n 12) 356 [73] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[147] See ibid 358 [76] (Beech-Jones CJ at CL, Harrison J agreeing at 370 [130], Fagan J agreeing at 376 [162]).

[148] Morgan (n 81) 913.

[149] Ibid 915, 922. 'More often, forensic reports or testimony miscommunicate results, do not conform to established standards, or fail to provide appropriate limiting information': at 908.

[150] *JP* (n 8), discussed in Edmond, Martire and San Roque (n 84) 602–4.

[151] The original certificate is reproduced in Edmond, Martire and San Roque (n 84) 627–9.

[152] See *JP* (n 8) 453 [23] (Beech-Jones J), quoted in ibid 608.

> Fingerprint Examiner: Updated versions and methodology yes.
>
> Defence Counsel: You don't do anything of your own initiative to remain up to date in the field, is that right?
>
> Fingerprint Examiner: Unfortunately time does not permit within my area.[153]

In the wake of *JP*, NSW Police developed a revised reporting template for its fingerprint analysis reports.[154] The revised template now provides a brief summary of some of the research underlying fingerprint expertise, including studies testing its validity.[155] While the revised template is an improvement, its research summary is still deficient. For instance, it fails to refer to independent reviews of the field and studies finding that fingerprint analysis is susceptible to cognitive bias when examiners are not appropriately blinded.[156]

Victoria Police also provides research summaries as annexures to its reports and does so in a way that addresses many of the concerns raised in *JP*.[157] This may be because Victoria Police's annexures were designed to comply with Victoria's expert witness code of conduct for criminal proceedings, which came into effect in 2014.[158] Their annexures contain sections such as 'cognitive factors'[159] and criticisms of forensic science that review research in those areas.[160] This information gives defence lawyers a basis to test the expert's evidence and may assist the trial judge in making admissibility decisions.

Pre-researched annexures may also take some of the burden off forensic examiners who do not have the proficiency to create research summaries themselves by leveraging other institutional resources within Victoria Police. This division of labour may produce efficiencies, allowing practitioners more time to devote to their casework.[161]

153 Gary Edmond et al, 'Forensic Science Evidence and the Limits of Cross-Examination' (2019) 42(3) *Melbourne University Law Review* 858, 902, quoting *R v JP* (Children's Court of New South Wales, Magistrate Mijovich, 27 January 2015) 18.

154 Edmond, Martire and San Roque (n 84) 591.

155 Ibid 630, 635–7.

156 Ibid 606–8, 613–16, 619.

157 See Kaye N Ballantyne et al, 'A Transparent Approach: Openness in Forensic Science Reporting' (2024) 8 *Forensic Science International* 100474:1–9, 2–3. See above nn 150–6 and accompanying text.

158 Ballantyne et al (n 157) 2, citing *Vic Code* (n 87). See at 1 para 1.3.

159 Ballantyne et al (n 157) 5.

160 Ibid 4–5.

161 See *Forensic Science* (n 141) 95.

Victoria Police's initiative appears to be the first of its kind, having produced 55 annexures to date.[162] However, it is not clear if this approach is sustainable. The field of forensic science has not stagnated since calls for the development of a research culture. Rather, some have taken external critiques on board and are now testing their methodologies and publishing the results of those studies in peer-reviewed journals.[163]

In light of this freshet of new work, forensic scientists have said: 'It has become a daunting task to keep track of the relevant literature.'[164] The field's rapid growth means that Victoria Police's annexures will quickly lose touch with the relevant literature, and many likely already have. This is a problem because legal disputes should be informed by up-to-date knowledge in the field rather than a summary written years ago. Moreover, Victoria Police does not seem to have used a reproducible search strategy (or at least they do not report such a strategy), making it impossible for it to re-run its initial searches to ensure that it is consistently searching the literature.[165] They also cannot defer to the field to produce systematic reviews because, as we saw, forensic science is lagging in this regard.[166]

Beyond these efficiency-based worries, there are other risks involved when the police, who are more clearly aligned with the prosecution in accusatorial proceedings, are the ones producing research reviews. Notably, we might have reasonable questions about why they disclosed some published critiques over others. And how thoroughly did they look for those critiques? The same goes for the error rates they report. Already the field has seen numerous studies

[162] Victoria Police, *Victoria Police Annual Report: 2021–2022* (Report, September 2022) 30 <https://www.police.vic.gov.au/sites/default/files/2022-09/Victoria-Police-Annual-Report-2021-2022.pdf>, archived at <https://perma.cc/XA8Y-37CP>. 'Forensic Services Department understands that these annexures are the first of their kind internationally and represent a significant step in promoting transparency and accountability in relation to forensic science practices.'

[163] See *Forensic Science* (n 141) 95, 98, 111; Bradford T Ulery et al, 'Accuracy and Reliability of Forensic Latent Fingerprint Decisions' (2011) 108(19) *Proceedings of the National Academy of Sciences of the United States of America* 7733, 7733; Nicole Richetelli et al, 'Accuracy and Reproducibility of Forensic Tire Examination Decisions' (2024) 358 *Forensic Science International* 112009:1–10, 1–2. On the growing research culture within forensic science, see Joanne Morrissey et al, 'Partnership between Academics and Practitioners: Addressing the Challenges in Forensic Science' (2023) 63(1) *Science and Justice* 74.

[164] Claude Roux and Céline Weyermann, 'From Research Integrity to Research Relevance To Advance Forensic Science' (2021) 6(4) *Forensic Sciences Research* 292, 292.

[165] See Ballantyne et al (n 157) 4–5.

[166] Chin et al (n 60) 3–4, 8.

measuring a practice's error rate.[167] As the research base increases, it will become progressively easier to selectively report these error rates. In short, the kind of information found in PRISMA would be useful to evaluate Victoria Police's research summaries.[168]

Here, a cautionary tale may lie in the reception of other informal reviews of forensic scientific practices. Beginning around 2010, learned academies, such as the US National Academies and the Royal Society, and government bodies, such as the US President's Council of Advisors on Science and Technology ('PCAST'), began publishing reviews of and primers on the research underlying several forensic practices.[169] These reviews have been vital in inspiring the reforms within forensic science mentioned above.[170] They have also proven useful in giving accused people, for instance, the accused in *Pentland v The Queen*, ammunition to challenge the prosecution's forensic case.[171]

However, even reviews such as these have seen their effects muted in a way that may have been prevented by more transparent methods. In particular, they drew allegations of bias from some stakeholders.[172] Recall here that one way to promote the legitimacy of a review is to ensure that its methodological

[167] See *Forensic Science* (n 141) 98, 111. See, eg, Ulery et al (n 163) 7733; Richetelli et al (n 163) 4–8.

[168] See above Figure 1.

[169] See, eg, Committee on Identifying the Needs of the Forensic Science Community, Committee on Science, Technology, and Law Policy and Global Affairs and Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council of the National Academies, *Strengthening Forensic Science in the United States: A Path Forward* (National Academies Press, 2009) ('*Strengthening Forensic Science*'); 'Courtroom Science Primers Launched Today', *The Royal Society* (Web Page, 22 November 2017) <https://royalsociety.org/news/2017/11/royal-society-launches-courtroom-science-primers/>, archived at <https://perma.cc/8BSG-S6DG> ('Courtroom Science'); *Forensic Science* (n 141). The American Association for the Advancement of Science, a large non-profit organisation, also produced two reviews: see 'Forensic Science Assessments: A Quality and Gap Analysis', *American Association for the Advancement of Science* (Web Page) <https://www.aaas.org/resources/forensic-science-assessments-quality-and-gap-analysis>, archived at <https://perma.cc/QR44-YP77>.

[170] 'The National Research Council of the National Academies and the legal and forensic sciences communities have called for research': Ulery et al (n 163) 7733.

[171] [2020] QSCPR 10, [47] (Lyons SJA) ('*Pentland*'), citing Gary Edmond and Kristy Martire, '*Forensic Science in Criminal Courts*: The Latest Scientific Insights' (2016) 42(3) *Australian Bar Review* 367, 371, citing *Forensic Science* (n 141) 23, 47; *Bornyk* (n 116) [88]–[89] (Crawford J), discussing *Strengthening Forensic Science* (n 169). See generally *Bornyk* (n 116) [1]–[3], [28], [39]–[55], [74], [81]–[85] (Crawford J); *Pentland* (n 171) [1], [15]–[40] (Lyons SJA).

[172] See Jonathan J Koehler, 'How Trial Judges Should Think about Forensic Science Evidence' (2018) 102(1) *Judicature* 28, 32–3, discussing *Forensic Science* (n 141).

decisions are transparent so that stakeholders can understand why some research was included versus excluded.[173] The next subsection suggests a way in which transparent synthesis procedures can help manage these risks and fulfil the promise of reliable, transparent research reviews in the context of some forensic practices.

1 *The Who, What and How of Systematic Reviews for Forensic Science*

Experiences from previous review efforts and guidelines from the field of research synthesis combine to provide a road map for reliable and efficient research summaries for courts. In short, lessons learned from applied, public-facing fields such as medicine suggest the need for: (a) interdisciplinary groups (*the who*) coming together to (b) synthesise the highest need and rapidly developing areas (*the what*), using (c) transparent and reproducible methods that can be repeated as new research is published (*the how*).

Starting with who should be involved in these reviews, Cochrane and others make clear that content experts alone are insufficient.[174] This may have been a substantial limiting factor in existing efforts driven by police agencies, learned societies and government bodies. In short, those groups overlooked a key player — people with expertise in synthesising research. The process should also include legal practitioners (prosecution lawyers, defence lawyers and judges), legal researchers and forensic scientists.

Here, I acknowledge that the involvement of each of these groups may introduce bias into the review process in the ways discussed in Part II.[175] For instance, the defence bar likely has negative preconceived views about the quality of the literature, whereas longtime forensic practitioners and researchers may be inclined to view the literature in a more positive light. If these collective biases are not efficiently resolved or outed in a transparent process (as discussed below), there may be detrimental effects on the resulting review.[176] In this case, however, the benefits may outweigh the costs. As we have seen, there is historic friction between forensic practitioners and the authors of critical commentaries.[177] Involvement of forensic practitioners may therefore avoid the case where some stakeholders reject the findings of the reviews for reasons

[173] See Schniedermann (n 31) 5.

[174] Lasserson, Thomas and Higgins (n 55) 5–7; Kugley et al (n 55) 8, 10, 20.

[175] See generally Gøtzsche and Ioannidis (n 56).

[176] See below nn 181–3 and accompanying text.

[177] Koehler (n 172) 32–3, discussing *Forensic Science* (n 141).

unrelated to their methodological rigour. Moreover, as I will now discuss, those seeing scientific issues arise in labs and in courts can provide valuable knowledge about what to review.

In terms of what practices should be prioritised, review authors should attend to the needs of the relevant stakeholders. Some criteria may be the frequency at which a practice is litigated (as identified by legal stakeholders) and the speed at which research is evolving (as identified by forensic scientists). As new practices emerge, authors may wish to conduct rapid reviews to respond to pressing litigation as a precursor to a more thorough review.[178]

Regarding how these reviews should be conducted, they should largely follow the road map set out in Part II by following reporting guidelines such as PRISMA. Synthesist specialists should lead search protocol development, contributing expertise notably absent from previous attempts.[179] Beyond reproducibility, the reviews should be conducted as living reviews with a commitment to re-run the search periodically to catch any new research.[180]

Review authors should also seek transparent external peer review. That is, peer review should occur prior to the search protocol being fully executed (as Cochrane requires), and those reviews should be published alongside the systematic review itself.[181] Transparency can promote accountability and will allow stakeholders to assess the review process so that they can understand for themselves the degree of critical appraisal exerted on the synthesis process.[182] And peer review occurring prior to executing the search is important so that the team can proactively make changes to their protocol before resources are expended. This type of early-stage feedback is correlated with higher-quality research methods.[183]

178 See generally Sara Khangura et al, 'Evidence Summaries: The Evolution of a Rapid Review Approach' (2012) 1 *Systematic Reviews* 10:1–9.

179 See Chin et al (n 60) 7.

180 See generally Elliott et al (n 4); Pearson (n 4).

181 See 'How To Write a Cochrane Protocol', *Cochrane* (Web Page) <https://www.cochrane.org/authors/how-write-cochrane-protocol>, archived at <https://perma.cc/L5CL-YUUN>; 'Check Your Work Meets Our Standards', *Cochrane* (Web Page) <https://www.cochrane.org/authors/check-your-work-meets-our-standards>, archived at <https://perma.cc/Y5XD-9B2M>.

182 See Schniedermann (n 31) 5.

183 Courtney K Soderberg et al, 'Initial Evidence of Research Quality of Registered Reports Compared with the Standard Publishing Model' (2021) 5(8) *Nature Human Behaviour* 990, 990, 993–4.

2 *Systematic Reviews as Evidence: Future Directions and Barriers*

Producing systematic reviews is only the first step towards seeing them influence the legal system. I now turn to the pathways by which systematic reviews may begin to inform expert evidence and the legal system more broadly. I also highlight barriers and limitations that will likely arise. Throughout this section, I do not claim that systematic reviews do not already provide the basis for some expert witness summaries. Rather, I suggest avenues by which the current approach in some areas of expertise may be improved.

In some cases, the process by which systematic reviews can improve expert research summaries is relatively straightforward. For example, Victoria Police already includes standard-form research summaries as annexures to their expert reports.[184] They have shown a willingness to include findings that demonstrate the limits and vulnerabilities of their practices.[185] However, their original searches were not systematic, and they have no stated plan for ensuring that future searches are conducted systematically.[186] Here, systematic reviews, especially living ones, can assist Victoria Police in ensuring that their summaries stay up to date and rigorous. Note that four additional Australian jurisdictions have adopted Victoria Police's annexures to some extent, further accentuating the need for those reviews to remain current.[187]

However, not all forensic service providers in Australia and abroad have shown such a willingness to proactively include critical research summaries as part of their evidence. More generally, forensic science, as a field, sits in an adversarial context, with frictions between providers, defence lawyers and critical commentators.[188] This is a serious barrier but one that is not entirely insurmountable. For instance, regularly updated systematic reviews can assist defence lawyers in cross-examining forensic scientists and thus assist the court in understanding the limits of the proffered expertise. Indeed, even informal research summaries, such as those in the PCAST report, have had such an effect.[189] Moreover, in the long run, adversarial pressures may encourage more

[184] Victoria Police (n 162) 30.

[185] Ballantyne et al (n 157) 4–5.

[186] See ibid; Victoria Police (n 162) 30.

[187] See Email from Kaye Ballantyne (Chief Forensic Scientist, Victoria Police Forensic Services Department) to Jason Chin, 16 October 2024.

[188] See Robert J Norris, *Exonerated: A History of the Innocence Movement* (New York University Press, 2017) ch 2.

[189] See *Forensic Science* (n 141) 65–6, quoted in *Pentland* (n 171) [41]–[42] (Lyons SJA). See also at [43] (Lyons SJA).

forensic service providers to rely on systematic reviews to buttress their research summaries.[190]

Outside of forensic feature comparison, high-quality systematic reviews on regularly litigated topics may be readily accepted by some experts. For example, social science more broadly has substantial experience in conducting and relying on systematic reviews.[191] Witnesses from these areas would, in many cases, likely welcome high-quality systematic reviews to assist with drafting and updating their research summaries. For instance, research about the psychological factors bearing on the reporting patterns of child complainants is moving quickly.[192] Courts and policymakers have acknowledged that research in these areas can provide valuable context in many cases.[193] On topics such as these, setting up a living systematic review could provide both efficiencies and a more reliable view of the current literature. Indeed, in other areas of society in which research is evolving and decision-makers need up-to-date guidance, research funders are prioritising living systematic reviews and related tools to help navigate incoming research.[194]

We may also find that systematic reviews eventually reduce some of the courts' apparent unease with social scientific evidence in cases where there is a concern that experts may be playing the role of advocates. For instance, an unstated reason for some opposition towards Shackel's evidence may have been concerns regarding her perceived allegiance with the interests of the children in those cases.[195] In fact, adversarial bias is an oft-cited reason to distrust expert

[190] Victoria Police's research summaries do not currently rely on systematic reviews: Email from Stephanie Summersby (Research, Development and Innovation Officer, Victoria Police Forensic Services Department) to Jason Chin, 25 June 2025. See generally Ballantyne et al (n 157).

[191] Chalmers, Hedges and Cooper (n 4) 29–30.

[192] See above Part IV. See also Vincent Denault and Victoria Talwar, 'From Criminal Interrogations to Investigative Interviews: A Bibliometric Study' (2023) 14 *Frontiers in Psychology* 1175856:1–16, 12–14. As Shackel put it:

> Yes, so that body of research [i]s a very rapidly expanding field. Over the last 15 or 20 years, we've seen an explosion in this area and the research has increasingly become much stronger and is utilising a wide array of different types of methodologies, both qualitative and quantitative methodologies.

BQ v The King [2023] NSWCCA 34, [249] (Davies, McNaughton JJ and RA Hulme AJ), quoting Transcript of Proceedings, *R v BQ* (District Court of New South Wales, 2014/297101, Letherbarrow DCJ, 21 August 2018) 408.

[193] *BQ* (n 13) 136–9 [32]–[35] (Gageler CJ, Gordon, Edelman, Steward, Gleeson, Jagot and Beech-Jones JJ); *Aziz* (n 1) 331 [63] (Simpson AJA, Lonergan J agreeing at 338 [109]).

[194] See Pearson (n 4) 17.

[195] See *AJ* (n 12) 377–8 [168]–[169] (Fagan J).

evidence in adversarial jurisdictions.[196] Similarly, concerns with bias can arise from an expert being exposed to evocative case facts such as a particularly heinous crime that needs solving.[197] However, if an expert is primarily reciting the findings of a systematic review created independently of the litigation, concerns with adversarial allegiance and cognitive bias are mitigated. The transparency of systematic reviews may also reduce challenges, thereby also decreasing efficiency-based reasons for excluding expert research summary evidence.

Looking even further ahead, systematic reviews may advance what Jennifer L Mnookin has called '"repeat-play" modular testimony'.[198] In short, she observed that the present system for research summary evidence is inefficient, with experts giving the same testimony about topics such as memory and confessions in case after case.[199] Accordingly, she suggested that a 'credible, nonpartisan, well-respected organization' should lead an effort to record an expert giving testimony on those repeat-play topics.[200] For instance, one module might briefly summarise research about the effect of stress on memory.[201] Systematic reviews help fill in a key gap in Mnookin's proposal: how the research process underlying modules should be conducted and reported such that courts and fact finders can have a sense of how thorough the process was.

In fact, note that one pushback to prerecorded modules — one akin to the difficulties we saw when judges attempt to include research summaries into their instructions — is the claim that they evade traditional adversarial processes.[202] That is, prerecorded expertise is, in theory, not as susceptible to adversarial testing as the typical system of live, party-led expert evidence.[203] This makes prerecorded expertise susceptible to exclusion under rules that promote

[196] See, eg, David M Paciocco, 'Unplugging Jukebox Testimony in an Adversarial System: Strategies for Changing the Tune on Partial Experts' (2009) 34(2) *Queen's Law Journal* 565, 574; *JP v British Columbia (Children and Family Development)* (2017) 1 BCLR (6th) 17, 71–2 [175] (D Smith JA, Bauman CJ agreeing at 142, Fitch JA agreeing at 142). David M Paciocco now sits on the Court of Appeal for Ontario: 'Judges of the Court', *Court of Appeal for Ontario* (Web Page) <https://www.ontariocourts.ca/coa/judges-of-the-court/>, archived at <https://perma.cc/2MSW-9A6Y>.

[197] See Barbara A Spellman, Heidi Eldridge and Paul Bieber, 'Challenges to Reasoning in Forensic Science Decisions' (2022) 4 *Forensic Science International* 100200:1–16, 6.

[198] See Mnookin (n 136) 1814.

[199] Ibid 1813–14, 1843.

[200] Ibid 1814.

[201] See ibid 1843.

[202] Ibid 1843–4. See above nn 130–8 and accompanying text.

[203] See Gans, Palmer and Roberts (n 2) 57 [2.110].

adversarial testing, such as the hearsay rule and various fair trial protections.[204] Girding modules with systematic reviews can ease these concerns to an extent and accordingly facilitate any necessary law reform. Notably, the transparency of systematic reviews allows all parties to assess the process by which research was searched and selected. In some cases, this transparency may even be an improvement to the current system of expert evidence. In many criminal proceedings, experts do not fully disclose their research process.[205] When that expertise is prosecution-led, it often further evades adversarial scrutiny due to systemic imbalances between the state and the defence.[206] However, systematic reviews as a basis for prerecorded modules provide at least some transparency that may allow the adverse party to point out limits in the research.

Still, these potential benefits must be weighed against the limitations related to wider reliance on systematic reviews in the legal system. These include the constraints inherent to systematic reviews mentioned in Part II, such as publication bias, the uneven quality of published research and the need to update systematic reviews as more research is published. Systematic reviews are also more costly than informal reviews, and, in the legal system, questions may arise as to who is funding them.[207] Ideally, to minimise the potential for bias (perceived or otherwise), funding for these reviews should come from bodies outside the adversarial context such as learned societies. In Australia, the Australian Academy of Science would be a natural fit, especially given that cognate societies abroad have been involved in summarising research for the legal system. [208] Other partners may include oversight bodies for the relevant

[204] See, eg, *Cth Evidence Act* (n 18) ss 59, 135, 137.

[205] See Edmond et al (n 153) 866; Morgan (n 81) 953.

[206] Ian Freckelton et al, *Expert Evidence and Criminal Jury Trials* (Oxford University Press, 2016) 115 [5.69]; Keith A Findley, 'Innocents at Risk: Adversary Imbalance, Forensic Science, and the Search for Truth' (2008) 38(3) *Seton Hall Law Review* 893, 897–907; Paul Roberts, 'Making Sense of Forensic Science Evidence' in Paul Roberts and Michael Stockdale (eds), *Forensic Science Evidence and Expert Witness Testimony: Reliability through Reform?* (Edward Elgar Publishing, 2018) 27, 34.

[207] See Chin et al (n 60) 5–6.

[208] See, eg, *Strengthening Forensic Science* (n 141); 'Courtroom Science' (n 169). The Australian Academy of Science could also play the role of hosting reports for long-term access and providing easy-to-understand summaries: see generally 'The Academy', *Australian Academy of Science* (Web Page) <https://www.science.org.au/about-us/the-academy>, archived at <https://perma.cc/7Y46-LZMJ>.

discipline.[209] Costs could be reduced by relying on new technologies for collaborating and identifying disagreement among synthesists.[210] To ensure that new tools are being used appropriately, review teams may wish to involve groups such as the evidence synthesis unit at Monash University and the 2 Week Systematic Reviews group at Bond University.[211]

More fundamentally, even rigorous, transparent research summaries cannot resolve entrenched scientific and research-based disputes. Consider, for example, research from forensic pathology about the indicia of whether a child has been violently shaken. This is a highly contentious field in which even the availability of transparent systematic reviews does not seem to have simplified criminal proceedings.[212] And while shaken baby syndrome is especially fraught, other fields of research that engage with law can attract diverging views.[213] These views can lead to disagreement about how to assess included studies for quality. This is challenging even in the healthcare field where there are more established norms for quality such as prioritising randomised controlled trials.[214] Consensus has been slower to build in other fields, including some forensic fields, even on very basic research design issues.[215]

B *Change the Regulation*

Not all areas of knowledge appear commonly enough in legal disputes to warrant a proforma systematic review. And not all experts lack the knowledge to provide a useful research review to fill in that gap. But this does not mean that

[209] For Australian forensic science, the National Institute of Forensic Sciences is a logical partner: see generally 'About NIFS', *Australia New Zealand Policing Advisory Agency* (Web Page) <https://www.anzpaa.org.au/nifs/about-nifs>, archived at <https://perma.cc/9JKS-6BV9>.

[210] See, eg, 'Faster Systematic Research Reviews', *Rayyan* (Web Page) <https://www.rayyan.ai/>, archived at <https://perma.cc/QRL5-HQF8>.

[211] '2 Week Systematic Reviews (2weeksSR)', *Institute for Evidence-Based Healthcare* (Web Page) <https://bond.edu.au/iebh/education-services/2-week-systematic-reviews-2weeksr>, archived at <https://perma.cc/7M8H-D2GY>; 'Evidence Synthesis, Qualitative and Implementation Methods', *Monash University* (Web Page) <https://www.monash.edu/medicine/sphpm/divisions/evidence-synthesis-qualitative-and-implementation-methods>, archived at <https://perma.cc/PA7U-3VQ5>.

[212] See *Vinaccia v The Queen* (2022) 70 VR 36, 82–8 [185]–[210] (T Forrest and Emerton JJA), 204–6 [673]–[682] (Walker JA).

[213] See, eg, Koehler (n 172) 32–3, discussing *Forensic Science* (n 141).

[214] See Jacob Stegenga, 'Is Meta-Analysis the Platinum Standard of Evidence?' (2011) 42(4) *Studies in History and Philosophy of Biological and Biomedical Sciences* 497, 498.

[215] See Koehler (n 172) 33, discussing *Forensic Science* (n 141).

courts should allow any otherwise qualified expert to summarise research and present that summary to the fact finder. To do so would allow selective, biased and untestable research summaries to affect legal outcomes.

Expert witness codes of conduct are a natural place to start when thinking about how courts might regulate research summaries. This is because codes promote transparency and evaluability, therefore aligning their purpose with the way in which research synthesists have chosen to regulate their work products.[216] Recall, for example, that PRISMA's primary aim is transparency, with its ultimate goal being to give other researchers and the public the ability to discriminate between higher and lower levels of synthesis reliability.[217] PRISMA can therefore provide knowledge about how to implement expert codes in the context of research summaries. It is also worth noting that Victoria Police's research summaries (ie their annexures) were designed to comply with that jurisdiction's code of conduct.[218] In other words, Victoria Police recognised that *Practice Note SC CR 3: Expert Evidence in Criminal Trials* ('*Vic Code*') carried with it disclosure requirements related to research summaries.[219] However, as I will now discuss, it did not fully appreciate the manner in which transparency is expressed when it comes to research summaries.

[216] See Schniedermann (n 31) 3–6.

[217] See ibid 5–7.

[218] Ballantyne et al (n 157) 3, citing *Vic Code* (n 87).

[219] See generally *Vic Code* (n 87).

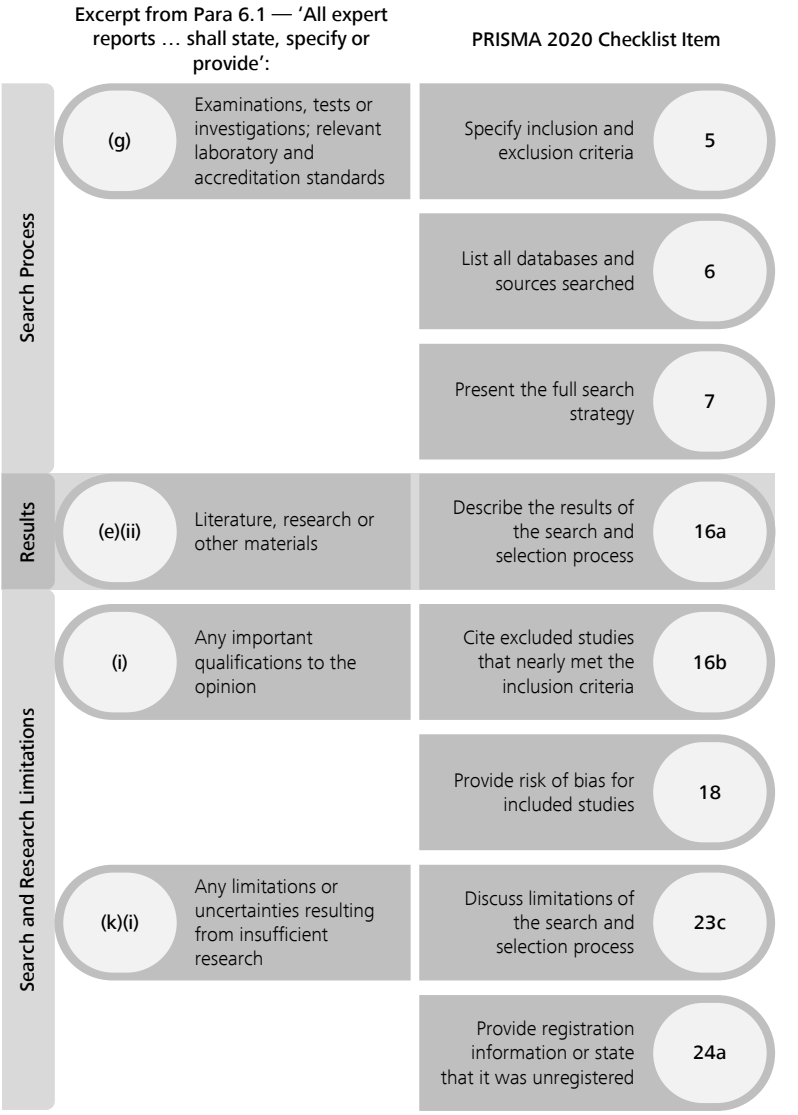

Figure 2: The Vic Code *Mapped onto the PRISMA Checklist*[220]

[220] See *Vic Code* (n 87) 3–4 paras 3.1(e), (g), (i), (k)(i); Page et al, 'PRISMA Statement' (n 32) 4.

The first column provides select items from the *Vic Code*, and the second column contains expressions of these items in the context of research summaries from the PRISMA 2020 checklist. From top to bottom, this figure is divided into items related to the research summary's search, results and limitations.

Figure 2 is an exercise in mapping the *Vic Code*'s reporting requirements to analogous reporting items in PRISMA. As can be seen in that figure, the *Vic Code* is drafted such that it can be applied to a wide range of expert tasks.[221] That is, beginning from the top row of Figure 2, the code requires general reporting of the expert's process, what they found and limitations to those findings. This level of abstraction is probably necessary for a code meant to apply widely. But it also makes it less likely that an expert witness will think to connect those items to their literature review process, results and limitations. That said, the code's general reporting items have clear correlates in what professional research synthesists find useful to report. Exploring those connections can reveal gaps in the current ways in which codes are drafted and enforced.

Starting with the top three rows of Figure 2, para 6.1(g) of the *Vic Code* requires that experts disclose 'investigations' and 'examinations'.[222] While this could be read narrowly to apply only to investigations of samples, recordings and the like, there is no reason that this needs to be the case. Rather, an investigation can also be a search through the literature to find similar cases or to find studies measuring the accuracy of a methodology.[223] However, it is perhaps understandable that experts (and organisations such as Victoria Police) do not immediately make that connection and thus do not report *how* the literature was searched and other aspects of that search.[224]

By interpreting 'investigations' to include searches for literature and research, we can see that para 6.1(g) engages several PRISMA items related to reporting the search process. For instance, the expert should report the databases that they searched and how they searched those databases (PRISMA item 6).[225] Having a sense of the expert's search breadth provides knowledge about the probative value of their summary. A fact finder would reasonably place more weight on the research summary of an expert who searched several

[221] See also the kin of the *Vic Code* (n 87): Chin (n 91).

[222] *Vic Code* (n 87) 4 para 6.1(g).

[223] See *Lang* (n 6) 335–6 [21] (Kiefel CJ and Gageler J), 286 [217] (Gordon and Edelman JJ), 453 [454]–[455] (Jagot J); Edmond et al (n 153) 901–4.

[224] See Ballantyne et al (n 157) 3.

[225] See above Figure 2. See also Page et al, 'PRISMA 2020 Explanation' (n 33) 5.

databases as compared to one who searched through continuing legal education material provided by their employer.[226] However, this information may be unreported and may not be probed in cross-examination.[227]

Interpreting investigations to include the literature search process then helps make better sense of *Vic Code* para 6.1(e)(ii) (the fourth row of Figure 2), which requires reporting 'any literature, research or other materials' supporting the opinion.[228] In other words, it is unlikely that the drafters of the *Vic Code* intended that experts would have to disclose their investigatory process for case-specific facts but not the investigatory process as it relates to the literature that *they are required to report*.[229] Additionally, the requirement to report 'literature' should itself be sensitive to best practices in research synthesis. Here, PRISMA requires more thorough reporting than often occurs in expert evidence, including through providing *all* of the literature relied on and an explanation for why other research was disregarded.[230]

Finally, the *Vic Code* includes items related to limitations and qualifications to the expert's opinion (the final four rows of Figure 2). These too should be applied to the limitations related to the expert's literature review. In particular, para 6.1(k)(i) refers to 'limitation or uncertainty' as a result of 'insufficient research'.[231] While this could be interpreted as simply saying that not much research has been conducted in an area — which, if true, should be proactively divulged — the code should also require divulging limitations in the research process itself. For instance, the expert should highlight for the fact finder any aspect of the search that may have limited their findings such as when that search was conducted. Similarly, para 6.1(i)'s generic statement about qualifications needed lest the report be misleading should include several items related to the synthesis, such as near misses (studies that just missed the inclusion criteria), PRISMA item 16b, risks of bias in included studies (such as studies

[226] See Edmond et al (n 153) 901–2.

[227] See, eg, *JP* (n 8) 466 [77] (Beech-Jones J); *Lang* (n 6) 335–7 [21]–[26] (Kiefel CJ and Gageler J), 386–7 [217]–[220] (Gordon and Edelman JJ), 453 [452]–[455] (Jagot J). See also Ballantyne et al (n 157) 1–2.

[228] *Vic Code* (n 87) 4 para 6.1(e)(ii).

[229] See ibid 4 paras 6.1(g), (e)(ii).

[230] See above Figure 2. See also Page et al, 'PRISMA 2020 Explanation' (n 33) 4–7, 19–20. Cf ibid 4 para 6.1(e)(ii).

[231] *Vic Code* (n 87) 4 para 6.1(k)(i).

being conducted with conflicts of interest), PRISMA item 18, and whether or not the review was registered, PRISMA item 24a.[232]

In summary, the analysis above suggests unfulfilled potential with respect to the *Vic Code* and its kin. Their general items can be mapped onto meaningful research-summary-related reporting items. However, experts do not seem to make this connection. Even Victoria Police's research summaries, designed to comply with the *Vic Code*, report the relevant literature without explaining how that literature was found and any limits in that process.[233] Seeing as almost all evidence could involve a research summary, it may be worthwhile for rule-makers to create a specific code of conduct (building on Figure 2) for research summaries. This will, however, need to be supplemented by other evidence law reforms making these codes enforceable.[234]

VI Conclusion

This article sought to apply findings and insights from the world of research synthesis to the law and practice of expert research summaries. It has revealed some concerning divergences. Courts infer from an expert's content expertise that they will be able to reliably summarise research. Moreover, there are few existing legal safeguards suitable for regulating expert research summaries. These problems will only worsen with research being published at an increasing rate. In response, I suggested two ways to improve the current manner in which research summaries are prepared and regulated: collaborations between content experts and synthesists to produce systematic reviews of topics that regularly appear in courts and straightforward extensions of expert codes of conduct to require fuller disclosure of the process behind expert witness research summaries.

[232] See above Figure 2. See also Page et al, 'PRISMA 2020 Explanation' (n 33) 19–20, 28.

[233] See Ballantyne et al (n 157) 4–5. See also at 2, citing *Vic Code* (n 87).

[234] Recall that *IMM* (n 82) requires that trial judges assume evidence is maximally reliable when assessing probative value and that this has been applied to failures to follow expert witness codes of conduct: at 314–17 [50]–[58] (French CJ, Kiefel, Bell and Keane JJ); *Chen* (n 82) 918–24 [10]–[45] (Hoeben CJ at CL, Schmidt and Campbell JJ). Moreover, codes have not been interpreted as evidence rules and, as a result, failure to follow them is not a standalone reason for exclusion: at 923 [34] (Hoeben CJ at CL, Schmidt and Campbell JJ). Accordingly, to see my recommendations succeed, reform is needed. This may include new provisions in the UEL clarifying the relationship between probative value and reliability or codes being reformed such that their items are more clearly established as conditions precedent for admissibility.