Limitations in health professionals’ knowledge of end-of-life law: a cross-sectional survey

Ben P White,1 Lindy Willmott,1 Rachel Feeney,1 Penny Neller,1 Shin-Ning Then,1 Jamie Bryant,2 Amy Waller,2 Patsy Yates3

ABSTRACT

Background Insufficient knowledge about end-of-life law can impede the provision of safe and high-quality end-of-life care. Accurate legal knowledge across health professions is critical in palliative and end-of-life settings given the reliance on multidisciplinary care. Most research has focused on doctors, finding significant knowledge gaps. The limited evidence about other health professions also suggests legal knowledge deficits.

Objective To determine and compare levels of knowledge about end-of-life law across a broad sample of Australian health professionals and medical students, and to identify predictors of legal knowledge.

Methods An online pre-training survey was completed by participants enrolled in a national training programme on end-of-life law. The optional survey collected demographic data and measured baseline legal knowledge and attitudes towards end-of-life law.

Results Response rate was 67% (1653/2456). The final sample for analysis (n=1564, 95% of respondents), included doctors, medical students, nurses and a range of allied health professionals. Doctors and nurses had slightly higher levels of legal knowledge than did medical students and allied health professionals; all had critical knowledge gaps. Demographic and professional characteristics predicted knowledge levels, with experience of end-of-life law in practice, confidence applying the law and recent continuing professional development being positively associated with legal knowledge.

Conclusions This study provides new evidence about legal knowledge across a broad range of health professions. While knowledge levels varied somewhat across professions, knowledge gaps were observed in all professional groups. Education and training initiatives to enhance knowledge of end-of-life law should be tailored to meet the specific needs of each profession.

INTRODUCTION

Safe and high-quality end-of-life care is an integral part of an effective health system. Law is one tool that most western countries use to pursue this objective.1–7 Law establishes decision-making frameworks, creates minimum standards of conduct to guide practice,8 provides certainty and protection for health professionals acting lawfully and establishes processes for resolving otherwise intractable disputes.8,7 In the palliative...

Key messages

What was already known?
- Doctors have knowledge gaps about the law that governs end-of-life decision-making.
- There is very limited evidence about knowledge of end-of-life law among health professionals other than doctors.

What are the new findings?
- Doctors and nurses had slightly higher levels of knowledge about end-of-life law than did medical students and allied health professionals, however, all professional groups had knowledge gaps.
- Demographic and professional characteristics predicted knowledge levels, with experience of end-of-life law in practice, confidence applying the law and recent continuing professional development being positively associated with legal knowledge.

What is their significance?
- There is a need for further education and training initiatives for all health professions, and at all levels (eg, from undergraduate university through to continuing professional development).
- Allied health professionals, medical students and health professionals who are new to end-of-life care or only practise it rarely are most likely to benefit from legal training.
and end-of-life care context, this includes protecting health professionals providing appropriate palliative care, facilitating patient participation in end-of-life decisions, empowering substitute decision-makers to decide for patients who lack capacity and recognising advance care directives.

Better knowledge by health professionals of end-of-life law can enhance decision-making processes, help avoid adverse outcomes (eg, unwanted, burdensome and costly treatment or dying in pain and reduce legal risk. Community members also rely on health professionals as a trusted source of information about end-of-life law. It is therefore critical that health professionals know the law governing their end-of-life practice. Yet this can be challenging as end-of-life law is often complex and difficult to understand, especially in countries such as Australia where laws vary across states and territories.

The limited research to date assessing legal knowledge of health professionals has focused on doctors. It found significant legal knowledge gaps about withdrawing and withholding life-sustaining treatment, advance care directives, substitute decision-making and futile or non-beneficial treatment. There is also some research assessing nurses’ legal knowledge, with studies finding knowledge gaps about advance care directives and advance care planning (with some limited focus on substitute decision-making and palliative medicine). Evidence about other health professionals and students in the health professions is even more sparse. An Australian study found that paramedics generally had sound knowledge of the law relating to decision-making and treatment/transport refusals, but held some misconceptions relating to applying the presumption of capacity in certain situations. Another study assessed health professionals’ knowledge of aspects of end-of-life law before and after a legal education session, but aggregated results across professions: doctors, nurses and allied health professionals (AHPs). Previous medical student studies have found knowledge gaps relating to interpreting advance care directives, withdrawing medical treatment and the legality of various end-of-life practices (eg, withholding and withdrawing life-sustaining treatment, palliative sedation, physician-assisted suicide).

Given the multidisciplinary nature of end-of-life care, reliable evidence about legal knowledge across health professions is needed to inform the design of training and education. To address current gaps in the evidence, this paper reports on a survey undertaken with a broad sample of health professionals in Australia: doctors and medical students, nurses and AHPs.

**METHODS**

Study design

The study involved an online survey of health professionals and medical students enrolled in an Australian government-funded national training programme on end-of-life law. This paper reports on the analysis of data collected as part of the pre-training survey measuring participants’ baseline legal knowledge and attitudes towards end-of-life law and its role in medical practice. Data were collected between 31 January 2019 and 30 June 2020 (the training programme’s first funded round).

Sample

The training (and embedded survey) was promoted to:

1. Medical specialists and trainee specialists providing end-of-life care.
2. Junior doctors (interns, registrars) in the hospital setting.
3. Students from any year of an entry-level medical degree.

Relevant stakeholders (organisations and individuals) across the palliative care and medical sectors were approached to help publicise the training. The training was, however, publicly available and therefore was also accessed by other clinicians including nurses and AHPs.

Survey development

The survey was designed by the project team in collaboration with an expert advisory committee and the project’s external evaluator. Some questions drew on two authors’ previous survey (with others) of doctors’ knowledge of end-of-life law.

The survey contained seven sections: demographics (seven items); perspectives on law and end-of-life decision-making (10 items); self-perceived knowledge of end-of-life law (one item); actual knowledge of law (10 items); experience in applying the law in practice (seven items); recent continuing professional development (CPD) training in end-of-life law (one item) and self-assessed confidence in the ability to apply the law in practice (one item).

Ten questions assessed legal knowledge related to capacity and consent (three questions), withdrawing and withholding life-sustaining treatment (three questions), substitute decision-making (two questions), advance care directives (one question) and palliative medication (one question). Response options were true, false or ‘I don’t know’ in relation to participants’ relevant state or territory law. Participants received a score of one for each correct answer (‘I don’t know’ as incorrect), resulting in a score of 0–10.

Data collection

Training participants were asked to complete the optional pre-training survey before commencing training. Survey completion was prompted on the training website homepage and in the first training module. A reminder email was sent if participants had not completed the survey within one business day of registration. Surveys were completed online via Key Survey.

Data analysis

Data were analysed using SPSS V.25. Three variables were recoded:

1. Confidence in applying the law in practice (1. not at all confident; 2. not confident; 3. confident; 4. very confident). Fewer than 1% of participants reported being very
confident, so ‘confident’ and ‘very confident’ response options were combined.

2. Attitudes to end-of-life law: participants rated the extent to which they agreed or disagreed with 10 statements about end-of-life law and its role in medical practice. For example, strongly disagree; 2. disagree; 3. not sure; 4. agree; 5. strongly agree). An ‘attitude to the law’ score was calculated (reverse scoring negative statements), with a maximum score of 50 indicating a more positive attitude.

3. Experience of end-of-life law in practice: participants rated the frequency with which they had been professionally involved in seven end-of-life scenarios involving legal issues (0. never; 1. a few times; 2. several times; 3. many times). An ‘experience of the law’ score was calculated, with a maximum score of 21 indicating more experience.

Statistical significance was set at p≤0.05. Following initial descriptive analysis, bivariate associations between knowledge scores and potential predictors were examined using t-tests, analysis of variance and correlation matrices. Potential predictors of knowledge were gender, age, profession, main work setting, years of practice, experience of the law, attitudes to end-of-life law, self-perceived knowledge of the law, confidence applying the law in practice and recent CPD training on end-of-life law.

Variables which were significantly associated with knowledge at the bivariate level were included in the multivariate model. Comparison of mean scores for subgroups with the sample average was performed using the SPSS General Linear Model procedure (and SPSS Complex Samples General Linear Model procedure for weighted analysis).

To account for different legal regimes across states, sample data within each profession were weighted to represent state population distributions (using Health Workforce Data from the Australian Government Department of Health for doctors, nurses and AHPs, and the Census of Population and Housing from the Australian Bureau of Statistics for AHPs). AHPs are inconsistently defined in Australia but here refers to university-qualified health professionals other than doctors and nurses working in direct patient care roles. Weighted and unweighted analyses were compared. Weight values for Queensland medical students were large (7.67); hence the multivariate model was run using trimmed and untrimmed weights. The model using an untrimmed weight (presented) yielded smaller mean square errors.

RESULTS

Sample characteristics

Response rate was 67% (1653/2456 total training registrants). The final sample for analysis was 1564 cases (95% of respondents). Seventy-eight non-health professionals were excluded, and 11 nursing and allied health students were excluded (these groups were too small to analyse).

The sample comprised nurses (37%), doctors (31%), medical students (22%) and AHPs (10%) (table 1). AHPs included social workers, paramedics, occupational therapists, physiotherapists, speech pathologists and others. All professions comprised more women than men. Respondents were evenly distributed across age groups, except for fewer in the youngest (<25 years) and oldest (65+ years) categories. Most common work settings were hospital (38%) and residential aged care facility (11%); 22% were medical students with no current work setting. Participants reported an average of 15 years of clinical practice (range 0–52 years).

Survey responses

The mean correct score for legal knowledge questions was 5.34 (of a possible 10, SD 1.89, weighted mean 5.50) (table 1). Most participants self-reported having some (54%) or moderate (22%) legal knowledge (table 2).

On average, participants reported fairly low levels of experience with situations involving end-of-life law in practice. The mean ‘experience of the law’ score was 7.98 (of a possible 21, SD 5.73, weighted mean 7.93). Many participants were not confident (55%) or not at all confident (9%) in their ability to correctly apply the law in their clinical practice. Most (82%) reported they had not undertaken any other education or training about end-of-life law in the last 12 months.

Participants demonstrated slightly positive attitudes toward end-of-life law and its role in medical practice (unweighted and weighted means 33; potential and actual range 10–50). Two-thirds of participants agreed or strongly agreed it was important for them to know end-of-life law and wanted to know more about it.

Bivariate analyses

Doctors had the highest knowledge scores, followed by nurses, then AHPs and medical students (pairwise differences were statistically significant except between AHPs and medical students). Of the potential predictors of legal knowledge, only gender was not significantly associated with knowledge at the bivariate level. The remaining variables were then included in the multivariate model, except for main work setting. This variable was excluded due to it being too highly correlated with the profession variable (consistently, when this variable was dropped from the model, issues of singularity resolved). At the bivariate level, participants who primarily worked in a specialist palliative care service or hospital had significantly higher knowledge levels than participants who primarily worked in general practice, community health, residential aged care facility or other work settings (all p≤0.05). As we were unable to examine the impact of work setting in the main analysis, we ran an alternate multivariate model excluding medical students (who do not have a work setting) and found that work setting significantly predicted knowledge (p=0.002).

White BP, et al. BMJ Supportive & Palliative Care 2021;0:1–8. doi:10.1136/bmjspcare-2021-003061

3
Original research

Multivariate analyses
In the multivariate model, age, profession, years of practice, experience of end-of-life law in practice, confidence applying the law in practice and recent CPD training significantly predicted legal knowledge (all p≤0.05) (table 3). Attitudes to end-of-life law and self-perceived legal knowledge did not predict actual knowledge.

Where categorical variables significantly predicted knowledge, further tests were conducted to determine which adjusted means differed significantly from the sample average (table 4).

Profession was a strong predictor of knowledge (F(3, 1526)=13.30, p<0.001), with doctors having significantly higher knowledge levels (mean=5.94) than average (p<0.001), and AHPs having significantly lower knowledge levels (mean=5.00) than average (p=0.004). There was a significant effect of age on knowledge levels (F(5, 1524)=4.05, p=0.001). Participants aged 25–34 years had significantly higher knowledge levels (mean=5.83) than average (5.48, p=0.001), and participants aged 65 years and over had significantly lower knowledge levels (mean=4.58) than average (p<0.001). Confidence applying the law in practice positively predicted legal knowledge (F(2, 1527)=15.54, p<0.001), with participants who were confident or very confident having significantly higher knowledge levels (mean=5.97) than average, and participants who were not at all confident having

Table 1 Sample characteristics and mean knowledge scores

| Variable                        | Frequency | Percent | Mean knowledge score (SD) | Weighted mean knowledge score (SD)* |
|---------------------------------|-----------|---------|---------------------------|-------------------------------------|
| Total                           | 1564      | 100.0   | 5.34 (1.89)               | 5.50 (1.85)                         |
| Profession                      |           |         |                           |                                     |
| Doctor                          | 478       | 30.6    | 6.13 (1.75)               | 6.20 (1.77)                         |
| Nurse                           | 582       | 37.2    | 5.27 (1.72)               | 5.38 (1.74)                         |
| Allied health                   | 158       | 10.1    | 4.80 (1.75)               | 4.83 (1.74)                         |
| Medical student                 | 346       | 22.1    | 4.60 (1.99)               | 5.01 (1.86)                         |
| Gender                          |           |         |                           |                                     |
| Female                          | 1164      | 74.4    | 5.37 (1.82)               | 5.50 (1.80)                         |
| Male                            | 400       | 25.6    | 5.25 (2.06)               | 5.51 (1.99)                         |
| Age                             |           |         |                           |                                     |
| <25 years                       | 197       | 12.6    | 4.56 (1.94)               | 5.00 (1.90)                         |
| 25–34 years                     | 345       | 22.1    | 5.28 (2.04)               | 5.68 (1.91)                         |
| 35–44 years                     | 320       | 20.4    | 5.48 (1.96)               | 5.49 (1.99)                         |
| 45–54 years                     | 340       | 21.7    | 5.53 (1.73)               | 5.61 (1.72)                         |
| 55–64 years                     | 293       | 18.7    | 5.58 (1.69)               | 5.59 (1.74)                         |
| 65 years and over               | 69        | 4.4     | 5.25 (1.62)               | 5.17 (1.61)                         |
| State                           |           |         |                           |                                     |
| New South Wales                 | 389       | 24.9    | 5.42 (1.75)               |                                     |
| Queensland                      | 409       | 26.2    | 5.17 (1.66)               |                                     |
| Victoria                        | 350       | 22.4    | 5.24 (2.18)               |                                     |
| South Australia                 | 134       | 8.6     | 6.17 (1.80)               |                                     |
| Western Australia               | 218       | 13.9    | 5.02 (1.97)               |                                     |
| Northern Territory              | 11        | 0.7     | 5.55 (2.30)               |                                     |
| Tasmania                        | 26        | 1.7     | 5.42 (1.70)               |                                     |
| Australian Capital Territory    | 25        | 1.6     | 6.20 (1.15)               |                                     |
| Main work setting               |           |         |                           |                                     |
| Hospital                        | 588       | 37.6    | 5.78 (1.83)               | 5.85 (1.87)                         |
| Not applicable (medical student)| 346       | 22.1    | 4.60 (1.99)               | 5.01 (1.86)                         |
| Residential aged care facility  | 179       | 11.4    | 5.16 (1.62)               | 5.27 (1.65)                         |
| Specialist palliative care service| 124     | 7.9     | 5.94 (1.73)               | 6.11 (1.70)                         |
| Community health                | 103       | 6.6     | 5.25 (1.75)               | 5.38 (1.75)                         |
| General practice                | 87        | 5.6     | 5.29 (1.81)               | 5.33 (1.79)                         |
| Private practice                | 30        | 1.9     | 5.70 (1.93)               | 5.76 (2.01)                         |
| Other                           | 107       | 6.8     | 4.92 (1.72)               | 4.99 (1.71)                         |

*Mean scores were weighted for state.
†Two participants had missing data on this variable.
significantly lower knowledge levels (mean=4.68) than average (both p<0.001). There was a significant positive effect of recent CPD training (F(1, 1528)=19.19, p<0.001), experience of end-of-life law in practice (F(1, 1528)=10.10, p=0.002) and years of practice (F(1, 1528)=5.11, p=0.024) on knowledge levels.

**DISCUSSION**

The study results suggest that Australian health professionals and medical students have only moderate knowledge of end-of-life law. Consistent with previous research on doctors’ levels of end-of-life legal knowledge, this broader sample of diverse health professions answered only approximately half of the questions correctly. This lack of knowledge is problematic and may lead to improper decision-making processes and suboptimal care, conflict with patients and families, and result in legal risk for health professionals.

There was variation across professions, with doctors having the highest knowledge scores, followed by nurses, then medical students and AHPs. While the factors that may account for professional differences were not explored in this study, results may reflect different scopes of practice and associated educational opportunities. Doctors carry the legal responsibility for much end-of-life decision-making and so may have a greater need for this knowledge. Next, nurses, who have significant direct care delivery responsibilities on a day-to-day basis, also have responsibility for decisions within their scope of practice, and with implementing decisions made by doctors. AHPs have a more focused scope of practice in relation to end-of-life decision-making, involving particular aspects or settings (e.g., paramedics and the emergency context).

---

**Table 2** Participants’ perceived knowledge of the law, confidence in applying the law in practice and recent CPD training

| Variable                        | Frequency | Percent | Mean knowledge score (SD) | Weighted mean knowledge score (SD)* |
|---------------------------------|-----------|---------|---------------------------|-----------------------------------|
| **Perceived knowledge of the law** |           |         |                           |                                   |
| Very little                     | 336       | 21.4    | 4.53 (1.81)               | 4.71 (1.79)                       |
| Some                            | 843       | 53.9    | 5.33 (1.81)               | 5.45 (1.77)                       |
| Moderate                        | 348       | 22.3    | 6.03 (1.84)               | 6.19 (1.78)                       |
| Considerable                    | 37        | 2.4     | 6.57 (1.88)               | 6.60 (1.49)                       |
| **Confidence in applying the law** |           |         |                           |                                   |
| Not at all confident            | 143       | 9.1     | 3.92 (1.87)               | 4.09 (1.72)                       |
| Not confident                   | 868       | 55.5    | 5.13 (1.77)               | 5.26 (1.74)                       |
| Confident or very confident     | 553       | 35.4    | 6.03 (1.79)               | 6.17 (1.75)                       |
| **Recent CPD training**         |           |         |                           |                                   |
| No                              | 1290      | 82.4    | 5.22 (1.86)               | 5.35 (1.82)                       |
| Yes                             | 274       | 17.5    | 5.91 (1.90)               | 6.08 (1.85)                       |

*Mean scores were weighted for state.
CPD, continuing professional development.

---

**Table 3** Overall test results for factors associated with knowledge of end-of-life law

| Variable                        | df | Wald F | Sig.  | Estimated marginal mean |
|---------------------------------|----|--------|-------|-------------------------|
| **Profession**                  |    |        |       |                         |
| Doctor                          | 1  | 32.29  | <0.001| 5.94                    |
| Nurse                           | 1  | 0.52   | 0.470 | 5.29                    |
| Allied health                   | 1  | 8.10   | 0.004 | 5.00                    |
| Medical student                 | 1  | 0.82   | 0.365 | 5.21                    |
| **Age**                         |    |        |       |                         |
| <25 years                       | 1  | 3.33   | 0.068 | 5.81                    |
| 25–34 years                     | 1  | 10.89  | 0.001 | 5.83                    |
| 35–44 years                     | 1  | 0.30   | 0.582 | 5.29                    |
| 45–54 years                     | 1  | 1.05   | 0.305 | 5.46                    |
| 55–64 years                     | 1  | 1.89   | 0.169 | 5.18                    |
| 65 years and over               | 1  | 13.37  | <0.001| 4.58                    |
| **Confidence in applying the law** |    |        |       |                         |
| Not at all confident            | 1  | 21.93  | <0.001| 4.68                    |
| Not confident                   | 1  | 0.84   | 0.359 | 5.43                    |
| Confident or very confident     | 1  | 31.10  | <0.001| 5.97                    |
| **Recent CPD training**         |    |        |       |                         |
| No                              | 1  | 19.19  | <0.001| 5.02                    |
| Yes                             | 1  | 19.19  | <0.001| 5.70                    |

*Perceived knowledge of the law did not predict knowledge levels (data not shown).
CPD, continuing professional development.
speech pathologists and decisions about palliative dysphagia). As such, AHPs may know some areas of law well but lack broader legal knowledge.

Variation across professional groups may also reflect differential training and focus on end-of-life law in their undergraduate and continuing training. In Australia, consideration of end-of-life law is routine (although uneven) in medical students’ training and common in nurses’ training. However, a preliminary examination of online information about AHP programmes by the authors suggests that exposure to end-of-life law is highly variable across and within professions and appears to absent from some courses. Our finding that recent CPD training in end-of-life law was associated with higher levels of legal knowledge, together with previous research undertaken with doctors and health professionals supports the inclusion of legal education within health professional training programmes.

This study highlights the importance of knowledge gained through practical experience in aspects of end-of-life care involving legal issues, with relevant clinical experience being associated with higher knowledge levels. Similarly, participants’ confidence in applying the law in clinical practice was positively associated with knowledge levels. These findings are consistent with research reporting that doctors who had made decisions working in palliative and end-of-life care. While we found some variation in knowledge levels across professions, knowledge gaps were observed among all participants.

Results suggest the need for further education and training initiatives for all professions, and at all levels (eg, undergraduate university, specialist training, in CPD). Encouragingly, participants felt it was important to know the law and wanted to know more about it, consistent with earlier research.

Findings can be used to identify certain groups in need of targeting for further education and training. This study found that AHPs and medical students, in particular, may benefit (although recognising that medical students are still completing their training). Further, the association between experience of end-of-life law in practice and knowledge suggests that health professionals who are new to end-of-life care or only practise it rarely are also likely to benefit from legal training.

Regarding the design of education and training initiatives, the types of legal issues encountered are likely to vary across health professions due to differences in scope of practice. To optimise learning outcomes, education and training initiatives should be tailored to the issues encountered by each profession, particularly for AHPs. Education and training should be ongoing, ensuring that health professionals’ legal knowledge remains current. Content also needs to accurately reflect local law; in the case of Australia, accounting for legal differences across eight states and territories.

Concerns have been previously raised about the separation of teaching of law within university programmes and experience within the clinical context, with suggestions that it is desirable to embed learning about law within clinical practice. Case-based learning is a teaching tool which situates learning in a clinical context and could be a feasible method to support this. This approach is also consistent with traditional medical and health training methods, further, medical specialists previously nominated case-based workshops as a preferred method of CPD delivery.

The link between recent CPD and knowledge levels, and lack of access to relevant CPD among participants
also highlights the need for further education and training at this career stage.

CONCLUSION

This study of a broad range of health professions found, consistent with existing research on doctors and nurses, that AHPs and medical students also have significant gaps in their knowledge of end-of-life law. Demographic and professional characteristics significantly predicted health professionals’ knowledge, along with experience of end-of-life law in practice, confidence applying the law and recent CPD training. This study directly assessed legal knowledge across several areas of end-of-life law; future research could explore knowledge levels within these specific legal areas. To support the provision of safe and high-quality end-of-life care, tailored and ongoing education and training initiatives for all surveyed health professional groups are needed to enhance their legal knowledge.

Funding End of Life Law for Clinicians (ELLC) is funded by the Australian Government Department of Health under the Public Health and Chronic Disease Grant Program. It is administered by the Australian Centre for Health Law Research (ACHLR), Faculty of Business and Law, Queensland University of Technology (QUT), in partnership with the Faculty of Health, QUT.

Competing interests We disclose that BPW, LW, S-NT and PY were funded to develop ELLC and that RF and PN are employed on ELLC, a training program designed to enhance clinicians’ knowledge of end-of-life law.

Patient consent for publication Not required.

Ethics approval The study was approved by the Queensland University of Technology University Human Research Ethics Committee (1800000124) and the Griffith University Human Research Ethics Committee (2018/746). All participants were given prior written information about the study. Submitting a completed survey was accepted as informed consent to research participation.

Provenance and peer review Not commissioned; internally peer reviewed.

Data availability statement As data collection is ongoing, data from the study are not available. However, additional information regarding the findings presented can be requested from the corresponding author.

ORCID iDs
Ben P White http://orcid.org/0000-0003-3365-939X
Lindy Willmott http://orcid.org/0000-0002-9750-287X
Rachel Feeney http://orcid.org/0000-0002-8306-1030
Shin-Ning Then http://orcid.org/0000-0002-8211-1868
Jamie Bryant http://orcid.org/0000-0001-9378-5852
Amy Waller http://orcid.org/0000-0002-0987-9424
Patsy Yates http://orcid.org/0000-0001-8946-8504

REFERENCES

1 Meisel A, Cerminara KL, Pope TM. The right to die: the law of end-of-life Decisionmaking. 3rd ed. New York: Wolters Kluwer, 2020.
2 Herring J. Consent to treatment. In: Herring J, ed. Medical law and ethics. 8th ed. Oxford: Oxford University Press, 2020: 151-232.
3 Herring J. Dying and death. In: Herring J, ed. Medical law and ethics. 8th ed. Oxford: Oxford University Press, 2020: 532-622.
4 White B, Willmott L, Then S-N. Adults who lack capacity: substitute decision-making. In: White B, McDonald F, Willmott L, eds. Health law in Australia. 3rd ed. Sydney: Thomson Reuters, 2018: 207–70.
5 White B, Willmott L, Then S-N. Withholding and withdrawing life-sustaining medical treatment. In: White B, McDonald F, Willmott L, eds. Health law in Australia. 3rd ed. Sydney: Thomson Reuters, 2018: 371-624.
6 Pope TM. Legal fundamentals of surrogate decision making. Chest 2012;141:1074-81.
7 Carnow K. End-Of-Life decision-making in a health services setting: an access to justice lens. J Law Med 2016;23:864-86.
8 Shah ND. The teaching of law in medical education. AMA J Ethics 2008;10:332-7.
9 Willmott L, White B, Close E, et al. Futility and the law: knowledge, practice and attitudes of doctors in end of life care. QUTLR 2016;16:55-75.
10 Willmott L, White B, Yates P, et al. Nurses’ knowledge of law at the end of life and implications for practice: a qualitative study. Palliat Med 2020;34:524–32.
11 Willmott L, White B, Piper D, et al. Providing palliative care at the end of life: should health professionals fear regulation? J Law Med 2018;26:214-45.
12 White B, Willmott L, Cartwright C. Withholding and withdrawing life-sustaining medical treatment from adults who lack capacity: the role of law in medical practice: final report. Brisbane: Australian Centre for Health Law Research, Queensland University of Technology, 2017.
13 Tilsé C, Wilson J, White B, et al. Community knowledge of law on end-of-life decision-making: an Australian telephone survey. J Law Med 2019;27:399-414.
14 White B, Willmott L, Cartwright C, et al. Doctors’ knowledge of the law on withholding and withdrawing life-sustaining medical treatment. Med J Aust 2014;201:229-32.
15 Schildmann Jet al. Decisions at the end of life: an empirical study on the involvement, legal understanding and ethical views of preregistration house officers. J Med Ethics 2006;32:567–70.
16 Toller CAS, Budge MM. Compliance with and understanding of advance directives among trainee doctors in the United Kingdom. J Palliat Care 2006;22:141–8.
17 Corkie C, Milnes S, Oxford N, et al. The influence of medical enduring power of attorney and advance directives on decision-making by Australian intensive care doctors. Crit Care Resusc 2009;11:122.
18 Shepherd J, Waller A, Sanson-Fisher R, et al. Knowledge of, and participation in, advance care planning: a cross-sectional study of acute and critical care nurses’ perceptions. Int J Nurs Stud 2018;86:74–81.
19 Ryan D, Jezewski MA. Knowledge, attitudes, experiences, and confidence of nurses in completing advance directives: a systematic synthesis of three studies. J Nurs Res 2012;20:131-41.
20 Duke G, Thompson S. Knowledge, attitudes and practices of nursing personnel regarding advance directives. Int J Palliat Nurs 2007;13:109–15.
21 Jezewski MA, Brown JK, Bill YW, et al. Oncology Nurses’ Knowledge, Attitudes, and Experiences Regarding Advance Directives. Oncol Nurs Forum 2005;32:319–27.
22 Betts BE. Patient refusal of Paramedic treatment: promoting Paramedic decision making through use of a legal framework to assess the validity of refusals in the pre-hospital setting. PhD thesis, Queensland University of technology, Brisbane, Australia, 2020. Available: https://eprints.qut.edu.au/200321/
23 Craig DP, Thompson F. Clinicians’ consent law knowledge: the case for education. Focus Health Prof Educ 2020;21:65-77.
24 Mirarchi FL, Ray M, Cooney T. Triad IV: nationwide survey of medical students’ understanding of living wills and DNR orders. J Patient Saf 2016;12:190–6.
Original research

25 Moehring B, Schildmann J, Vollmann J. End-Of-Life decisions: a comparative survey on (teaching) experiences, views, and ethico-legal knowledge of final-year medical students in Germany and France. *J Palliat Med* 2011;14:1206–10.

26 Anneser J, Jox RJ, Thurn T, et al. Physician-Assisted suicide, euthanasia and palliative sedation: attitudes and knowledge of medical students. *GMS J Med Educ* 2016;33:Doc11.

27 [dataset] Australian Government Department of Health. Data from: National Health Workforce Dataset & Medical Education and Training, 2020. Available: https://www1.health.gov.au/internet/main/publishing.nsf/Content/health_workforce_data

28 [dataset] Australian Bureau of Statistics. Data from: occupation, 2016. Available: https://auth.censusdata.abs.gov.au/webapi/jsf/login.xhtml

29 Allied Health Professions Australia. What is allied health? 2020. Available: https://ahpa.com.au/what-is-allied-health/ [Accessed 20 Sept 2020].

30 Ries NM. *Choosing wisely: law’s contribution as a cause of and a cure for unwise healthcare choices*. University of Technology Sydney Law Research Series, 2017.

31 CRELS Project Working Group. *Conflict resolution in end of life settings (CRELS)*. Sydney: Office of the Chief Health Officer, 2010.

32 Gravier S, Erny-Albrecht K. *Allied health in Australia and its role in palliative care*. Adelaide: CareSearch, 2020.

33 Parker M, Willmott L, White B, et al. Law as clinical evidence: a new Constitutive Model of medical education and decision-making. *J Bioeth Inq* 2018;15:101–9.

34 Ranse K, Delaney L, Ranse J, et al. End-Of-Life care content in postgraduate critical care nursing programs: structured telephone interviews to evaluate content-informing practice. *Aust Crit Care* 2020;33:181–6.

35 Preston-Shoot M, McKimm J. Towards effective outcomes in teaching, learning and assessment of law in medical education. *Med Educ* 2011;45:339–46.

36 Preston-Shoot M, McKimm J. Prepared for practice? law teaching and assessment in UK medical schools. *J Med Ethics* 2010;36:694–9.

37 McLean SF. Case-Based learning and its application in medical and health-care fields: a review of worldwide literature. *J Med Educ Curric Dev* 2016;3;JMECD.S20377.

38 Thistlethwaite JE, Davies D, Ekeocha S, et al. The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME guide No. 23. *Med Teach* 2012;34:e421–44.