Regulating Decisions that Lead to Loss of Life in Workplaces

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Workplace deaths occur as a result of decisions made by a range of parties — employers, employees and the victim. These decisions can be seen to form the basis of regulatory efforts. This research proposes a categorisation of the decisions in terms of their timeframes — long-term, short-term and emergency — as well as non-decisions. The decisions will be explored through the use of decision-making theory, an engagement with the 'agency-systems' dichotomy, the conflict between the underlying policies of safety, efficiency and devolved decision-making, as well the concept of 'resilience engineering'. By way of contrast, there will be reference to the regulation of iatrogenic deaths to further probe the value of the approach. The outcome is a call for a focus on the regulation of decisions, and a step away from the traditional focus on fatalities as outcomes.

I Introduction

The law is concerned with the minimisation of death in society — most obviously, but not most effectively, in the criminal sanctions around murder. This is, of course, not law's exclusive purpose. In several areas, the law allows for a balancing of purposes against risks to life. An obvious example is road rules, which balance efficient transit against fatalities.[1] It is not clear, however, that the settings for such assessments are explicit and/or optimal. One avenue for interrogating this is to adopt a framework that can be applied in a range of areas of law. The framework proposed here focuses on the role of specific decisions, and non-decisions, that contribute to a loss of life.[2] The categories of decisions include long-term (or strategic), short-term and extreme short-term (or

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1 As I have explained elsewhere, it 'would be possible, for example, for a speed limit of 5 kilometres per hour to be enforced and for all vehicles to be preceded by a person carrying a red flag. Such requirements would make road travel safer; however, such restrictions would not facilitate the effective transportation of significant numbers of people every day': Chris Dent, 'Relationships between Laws, Norms, Practices: The Case of Road Behaviour' (2012) 21(3) *Griffith Law Review* 708, 712 n 16.

2 This idea, therefore, can be seen as building on the assessment that 'law ... [is] a social institution that coordinates the behaviour of organisational and human actors. Human behaviour is complex ... it is individually psychologically derived and driven': Benedict Sheehy and Donald Feaver, 'Designing Effective Regulation: A Normative Theory' (2015) 38(1) *University of New South Wales Law Journal* 392, 393.

DOI: 10.38127/uqlj.v43i2.8377

emergency) decisions;[3] and these categories will be considered in the light of current theories in psychology and other disciplines. This schema will, first, be expanded on in the context of occupational health and safety ('OH&S') regulation. The decisions made in this system include those of planners, employers and those made at the time of the incident that results in death (both those relating to the immediate cause of the incident and those of the person who lost their life). A consideration of decisions is implicit in the regulatory systems — for example, an inquest into a workplace death found that the 'controls' on the relevant machine were 'confusing and liable to produce an error'[4] — this analysis simply brings decisions to the fore.

In terms of statistics, there were 169 fatalities where the individual was at work in 2021.[5] From one perspective, given that there were over 12 million people in the Australian workforce in 2021,[6] the rate of fatalities is low, suggesting that it is a successful form of regulation.[7] From another perspective, 169 fatalities is close to the number of murder victims (193 in 2021, 65 of whom were victims of family and domestic violence[8]) with that level of crime not being seen as acceptable. Further, according to the Australian Institute of Criminology, there were 16 deaths in police custody in the financial year 2020–21,[9] which did not result from an intent to kill, as in the instances of murder. This was also deemed to be an unacceptable number. The framework presented here provides a more nuanced perspective on the context of decisions that may allow a better targeted approach to reduce the high number of fatalities in the workplace.

These ideas will be explored in another area of regulation — one that could be viewed from an OH&S perspective but is not. The area covers assessments of

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3 Long-term decisions in the area of road safety include driver education and car design; short-term decisions include those around the maintenance of vehicles and those made at the start of a journey (for example, choosing to drive when tired); and emergency decisions include those made when a tyre blows out when driving at speed.

4 *Inquest into the Death of Gareth Leo Dodunski* (Coroner's Court of Queensland, 31 August 2023) [226]. There was, for example, 'no emergency stop button' on the human-machine interface 'screen at the time': at [69]. The only explicit references to 'decisions' in that judgement were to the decisions of courts.

5 Safe Work Australia, *Key Work Health and Safety Statistics Australia 2022* (Web Page, 17 January 2023) <https://www.safeworkaustralia.gov.au/doc/key-work-health-and-safety-statistics-australia-2022>. In 2020, there were 194 fatalities: Safe Work Australia, *Work-related Traumatic Injury Fatalities, Australia* (Report, 2020) 6.

6 The Australian Bureau of Statistics reports that 12,049,900 were referred to as employed in the 2021 Census: Australian Bureau of Statistics, *Employment in the 2021 Census* (Web Page, 30 November 2022) <https://www.abs.gov.au/articles/employment-2021-census>.

7 That is not to say that the current regulatory settings are sufficient or as effective as they could be. That this is not the case is due, in part, to the fact that the risks of death and injury are not spread evenly across the workforce.

8 Australian Bureau of Statistics, *Recorded Crime — Victims* (Web Page, 29 June 2023) <https://www.abs.gov.au/statistics/people/crime-and-justice/recorded-crime-victims/latest-release>.

9 Laura Doherty, Australian Institute of Criminology, *Deaths in Custody in Australia 2020–21* (Report, 2021) 12. The figure does not include deaths in prison custody.

blame around 'iatrogenic deaths' in hospitals that result from the mistakes of practitioners.[10] These deaths can also be seen to occur within systems of regulation, and each are impacted by long-term, short-term and emergency decisions. These deaths also occur in a workplace, and the patients could be seen as known visitors to that workplace. Their current regulation, however, is not the same as OH&S regulation. Instead, iatrogenic deaths are the subject of professional regulation and some coronial investigations. This difference suggests that not all deaths are treated equally. It has been said, in the health sector, that there are two approaches to considering harm: the 'person approach and the systems approach'.[11] This understanding has relevance to OH&S more broadly. A focus on the decisions made by parties adds great context, and problematises, the distinction between 'individual agency' and 'systemic liability'. The argument here is that neither the OH&S, nor the health, systems pay sufficient attention to decisions. Using the relatively new concept of 'resilience engineering',[12] the conclusion is that the real harm in either is the making of a bad decision, regardless of whether the bad decision leads to personal injury or death.

II Systemic Decision-making within OH&S Regulation

Occupational health and safety regulation is a significant area of research in its own right.[13] The discussion in this Part focuses on how the categorisation of decisions can be understood with respect to the range of parties involved in that

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10 'Iatrogenic harm is harm to the person, including death, which arises in the course of medical or health care treatment caused by the application of treatment itself, rather than the underlying disease or injury': David J Carter, Deborah J Street and Stephen Bush, 'Building Public Confidence in Medical Registration Revalidation: Reform of Medical Registration Law in Australia, a New Risk-based Approach' (2018) 25(4) *Journal of Law and Medicine* 1009, 1009 (n 1).

11 Femi Oyebode, 'Clinical Errors and Medical Negligence' (2013) 22(4) *Medical Principles and Practice* 323, 325. This may be seen as related to, yet distinct from, the agency-structure analysis of Giddens. See, eg, Anthony Giddens, *The Constitution of Society: Outline of the Theory of Structuration* (University of California Press 1984).

12 With respect to the workplace regulation, it has been said that current trends in 'safety science' focus on 'resilience engineering [which] is about identifying and then enhancing the positive capabilities of people and organisations that allow them to adapt effectively and safely under varying circumstances': Johan Bergrström and Sidney Dekker, 'The 2010s and Onward: Resilience Engineering' in Sidney Dekker (ed), *Foundations of Safety Science: A Century of Understanding Accidents and* Disasters (Routledge, 2019) 391. This text was referred to, with approval, in *Dodunski, Gareth Leo* (2013/2231) [2023] QldCorC 30, 'Executive Summary'.

13 A leading text is Richard Johnstone and Michael Tooma, *Work Health and Safety Regulation in Australia* (Federation Press, 2022).

regulation.[14] The range of parties relevant to regulation includes the employers,[15] regulators and victims. This analysis proceeds on the basis that one of the underlying purposes of the regulatory systems is the devolution of decision-making to individuals.[16] One issue is the interaction between decisions made by different individuals. As such, the analysis first expands on the different timeframes of decisions and then highlights the role of both individual agency and systemic pressures in the area.[17]

In order to introduce some of the ideas that support the analysis, a brief overview of decision-making theory is warranted. Significant work has been carried out over the past few decades into how people make decisions.[18] Kim refers to three 'major types of decision-making models' being 'descriptive', 'normative' and 'prescriptive'.[19] A distinction that has entered the public consciousness is between System 1 (intuitive) and System 2 (rational analysis) thinking.[20] Research in this area is valuable because 'judgment and decision-making are pervasive, important intellectual activities engaged in by all of us in

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14 While some understandings of regulation focus on regulation as 'deliberate attempts … to influence socially valuable behaviour' (Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation* (Cambridge University Press, 2007) 3), other work has focused on the regulation of decisions themselves. See, eg, Chris Dent, 'The Role of Law in the Treatment Decisions of Doctors' (2022) 48(1) *Monash University Law Review* 94.

15 More properly, the law governs 'persons conducting a business or undertaking' (for example, *Work Health and Safety Act 2011* (NSW) s 19); however, in order to emphasise the inherent power of those making certain decisions, the article will refer to 'employers' rather than 'persons conducting a business of undertaking'.

16 The same research that highlighted the role of efficiency also highlighted the role of autonomous decision-making: see Dent (n 1).

17 It may be noted that Sheehy and Feaver argue for a 'systemic approach' to regulation: Donald Feaver and Benedict Sheehy, 'Designing Effective Regulation: A Positive Theory' (2015) 38(3) *University of New South Wales Law Journal* 961, 963–4.

18 A significant early model is the behavioural decision theory of Ward Edwards: see, eg, Ward Edwards, 'The Theory of Decision Making' (1954) 51(4) *Psychological Bulletin* 380. Under this model, decision-makers consider their subjective expected utility from the decision and reach the optimal solution for them.

19 Nancy S Kim, *Judgment and Decision-Making: In the Lab and the World* (Palgrave Macmillan, 2017) 9–10. More specific models are' 'rational choice', 'incrementalism', 'bounded rationality', 'naturalistic decision-making' and 'game' theories. These are by no means the only approaches in the literature. For example, a 'mixed scanning' model was proposed to address perceived shortcomings of the rational choice and incrementalist theories: Amitai Etzioni, 'Mixed-Scanning: A "Third" Approach to Decision-Making' (1967) 27(5) *Public Administration Review* 385. The mixed scanning understanding incorporates a perception that a decision-maker needs to assess the 'big picture' aspect of a decision. For an example of the 'mixed-scanning' approach applied to judicial decision-making, see Neil E Snortland and John E Stanga, 'Neutral Principles and Decision-making Theory: An Alternative to Incrementalism' (1973) 41 *George Washington Law Review* 1006.

20 See, generally, Daniel Kahneman, *Thinking, Fast and Slow* (Farrar, Straus & Giroux Inc, 2011). In a later text, this time co-written by Kahneman, there is a discussion of: 'decision hygiene principles' that are aimed at improving decision-making: Daniel Kahneman, Oliver Sibony and Cass R Sunstein, *Noise: A Flaw in Human Judgment* (William Collins, , 2021) 374.

academic, professional and social pursuits throughout every day'.[21] That is, specific decisions are behind many of an individual's actions in the world. Some of those decisions are rushed, some are based on reflection and others are never actually 'made'.[22] The framework proposed here engages with the range of decisions, and their circumstances, that are evident in the workplace.

A *Characterisation of Process in Terms of Decisions*

The analysis in this article is based on the assertion that decisions may be characterised as long-term, short-term or emergency decisions. For present purposes, mistakes are characterised as bad short-term/emergency decisions or the absence of decisions. Included in the analysis, then, are 'nondecisions' — that is to say, decisions that should have been made, but where the regulated individual did not realise that a decision had to be made.[23] Discussing decision-making in terms of time periods allows a greater engagement with the roles of different parties at different stages of regulation, and it allows for both intuition and rationality at all stages of decision-making.

1 *Emergency Decisions*

The first decisions to be discussed are emergency decisions — that is to say, those made at the time of the incident that led to a fatality. All other decisions need to be understood as contributing to the decision made in an emergency situation. In terms of the personnel involved, the victim may be a key decision-maker. This is not an exercise in victim-blaming. Instead, it is an acknowledgement that the victim may have made decisions in constrained circumstances, often under significant pressure, which may have played a role, however small, in their death. Other decisions are made by those in the victim's immediate vicinity. As an example, a significant number of workplace deaths happen on the road. In the period 2016–20, 39 per cent of all workplace fatalities involved a vehicle collision, with 70 per cent of those being on a public road.[24] Many of the collisions would have involved other road users, and so their decisions may have contributed to the fatality. In such cases, the employer can have no direct impact on the decisions made as the incident played out.

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21 Terry Connolly, Hal R Arkes and Kenneth R Hammond (eds), *Judgment and Decision Making: An Interdisciplinary Reader* (Cambridge University Press, 2nd ed, 2000) 2.

22 Kahneman discusses the interplay, in professional settings, between expertise, intuition, emotion and memory — demonstrating the complexity of decision-making in life: see Kahneman (n 20) ch 22.

23 A nondecision, therefore, is distinct from a decision to not take action.

24 Bureau of Infrastructure and Transport Research Economics, *Road Trauma Australia 2021 Statistical Summary* (Report, 2022) 27. This data is not provided on a year-by-year basis.

In emergency situations, decisions may also be made under high mental-load circumstances. Specifically, the timeframe for the decision is significantly compressed. There is very little time to weigh up the options and carefully decide the best path after the benefits and costs of each avenue are considered. These factors impact on the quality of any decision made. There is also the possibility that the decision-making will be impaired as result of the circumstances in which the worker finds themselves. As an example, in one incident a trainee welder was sent in to clean the inside of a tanker.[25] A release of argon gas from a welder reduced the level of oxygen in the tank, and so hypoxia may have impacted his decision-making in the tank.[26] Further, there is the possibility that the stress that comes with an emergency situation may also produce hormones that impact on the decisions made.[27] For example, in a review of past studies, it was concluded that 'stress favours … "habit" over … "cognitive" memory systems'.[28] This finding may have a particular impact on the role of training relative to personal experience in emergency situations. In other words, if training is minimal, its impact may be overwhelmed by the circumstances.

The understanding of these decisions may be enhanced through a consideration of decision-making theory. According to that theory, the circumstances of extreme short-term decisions may produce what is known as 'attention-driven choice'.[29] That is, when under high mental load,[30] the circumstances that capture the focus of the decision-maker disproportionately affect the resulting decision.[31] It is harder, then, for workers in emergency situations to recall instructions. Instead, they may rely on their own (professional) experience.[32] The workers in some industries are trained to deal

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25 *DPP v Marshall Lethlean Industries Pty Ltd* [2022] VCC 945.

26 'Hypoxia … is known to cause decrements in normal neural functioning': Phillip Lieberman et al, 'Cognitive Defects at Altitude' (1994) 372 *Nature* 325, 325. See also Stefania Pighin et al, 'Decision Making under Hypoxia: Oxygen Depletion Increases Risk Seeking for Losses but not for Gains' (2012) 7(4) *Judgment and Decision Making* 472.

27 See below Part III(B).

28 Lars Schwabe and Oliver T Wolf, 'Stress and Multiple Memory Systems: from "Thinking" to "Doing"' (2013) 17(2) *Trends in Cognitive Sciences* 60, 66.

29 Bryan D Jones and Frank R Baumgartner, 'A Model of Choice for Public Policy' (2005) 15(3) *Journal of Public Administration Research and Theory* 325, 334.

30 In a decision relating to a commercial helicopter pilot's capacity to fly, reference was made to the risks associated with a medical condition and decisions that he would have to make under circumstances of 'high cognitive load': *McSherry and Civil Air Safety Authority* [2014] AATA 119, [43].

31 The attention-driven nature of the decision means that 'some aspects of the world are unmonitored, unattended to; other aspects are incorporated into the decision process beyond their intrinsic merit': Jones and Baumgartner (n 29) 334.

32 See, eg, Rebecca Pliske and Gary Klein, 'The Naturalistic Decision-Making Perspective' in Sandra L Schneider and James Shanteau (eds), *Emerging Perspectives in Judgment and Decision Research* (Cambridge University Press, 2003) 559.

with time-limited circumstances, such as paramedics.[33] However, most workers are not.[34] Emergency decisions also may be unexpected, one-off decisions that were not raised in their training.[35] In short, when assessing the relative contributions of various decision-makers to a fatal incident, the decisions made in extremely short timeframes should not be judged in the same way as those made with the luxury of more time, in part because there are fewer opportunities for interventions to prevent bad emergency decisions.

2 *Short-Term Decisions*

Short-term decisions are the decisions made close to the time of the incident that had, or could have had, a material effect on the incident. An example, taken from the workplace, is the decision to place a barrier around a gap in the flooring that could cause a lethal fall.[36] These decisions are not necessarily made by the people, or person, involved in the incident.[37] As a more concrete example taken from the case above, the decision to leave a welder overnight inside a tank to be cleaned was a short-term decision.[38] It was not a decision of the victim and it was not a decision of the employer; it was the decision of a different employee (this is not to impute any blame at all on that employee).[39]

These decisions may be 'fast and frugal'.[40] This means that people use heuristics, or mental shortcuts, when making decisions. The 'fast and frugal' way

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33 See, for example, Stuart Donn, 'Expertise and Decision-Making in Emergency Medical Services', in Joseph R Keebler, Elizabeth H Lazzara and Paul Misasi (eds), *Human Factors and Ergonomics of Prehospital Emergency Care* (CRC Press, 2017) 71. Donn uses a workplace example — an engineer who had failed to return after completing an operational check of a mine pumping station. The paramedics needed specific decision-making skills in order to understand, and resolve, the life-threatening situation: at 76.

34 Where such training is involved, the 'naturalistic decision-making' model may be useful. Naturalistic decision-making 'researchers have been interested in domains that require high-stakes, time-pressured decision-making under conditions of uncertainty and competing goals': Jennifer K Phillips, Gary Klein and Winston R Sieck, 'Expertise in Judgment and Decision-Making: A Case for Training Intuitive Decision Skills', in Derek J Koehler and Nigel Harvey (eds), *Blackwell Handbook of Judgment and Decision Making* (Blackwell, 2004) 297.

35 These can be seen as 'singular decisions'. See, eg, Kahneman, Sibony and Sunstein (n 20) 34–8.

36 A recent report has stated that 63.5 per cent of 'serious crashes' involving trucks had 'human factors' (such as excess speed, distraction and fatigue) as 'dominant proximate contributing factors': National Transport Insurance and National Truck Accident Research Centre, *Major Crash Investigation 2022 Report* (Report) 7. A significant number of truck drivers are, of course, workers for the purposes of OH&S regulation.

37 An example of where a short-term decision was made by a party to the incident prior to the death was that of the unlicensed driver of a forklift to ask to use the forklift. Their use of the forklift contributed to the death that was the subject of *Baiada Poultry v The Queen* (2012) 246 CLR 92.

38 *DPP v Marshall Lethlean Industries* [2022] VCC 945, [23].

39 Johnstone points out that 'defence counsel' in workplace-related prosecutions 'regularly attempted to 'shift' blame onto the injured or deceased worker': Richard Johnstone, 'Work Health and Safety and the Criminal Law in Australia' (2013) 11(2) *Policy and Practice in Health and Safety* 25, 28.

40 Gerd Gigerenzer, 'Fast and Frugal Heuristics: The Tools of Bounded Rationality' in Koehler and Harvey (n 34) 63.

is to rely on 'limited knowledge' and necessarily limited 'empirical evidence'.[41] One assessment of fast and frugal decisions is that they lead to 'satisficing' behaviour — an understanding under the 'bounded rationality' model of decision-making.[42] Bounded rationality recognises that decisions 'cannot wait until everything is known … [the decision-maker] makes a decision which he or she hopes will be satisfactory and will suffice to meet the … needs at the moment'.[43] When a delivery driver chooses to enter a roadway in their vehicle, they do not have the time to know, precisely, how fast the oncoming traffic is going, or how much time they have before it is unsafe to proceed. Instead, they base their decision on their sense of the relative speeds, and their past experience in similar situations.[44] In the vast majority of cases, such decisions are 'good enough' and no crash happens.

To be clear, short-term decisions to be regulated will include 'non-decisions' — instances where an individual should have made a decision but did not. A delivery driver whose attention lapses before striking a pedestrian did not choose to make contact or choose to let their mind wander.[45] The driver would have realised, had their mind not wandered, that a decision to avoid the pedestrian needed to be made. A non-decision with respect to the use of warning signs, after a workplace spill, may have been the result of an initial focus on aiding an injured worker, with the need for signs slipping from a supervisor's mind after the injury had been attended to. The acknowledgement of the role of non-decisions does not mean that they cannot be assessed with respect to any liability, just that it is not a *decision* that can be sanctioned.[46]

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41 See generally, Gerd Gigerenzer and Daniel G Goldstein, 'Reasoning the Fast and Frugal Way: Models of Bounded Rationality' (1996) 103(4) *Psychological Review* 650.

42 Bryan D Jones, *Politics and the Architecture of Choice: Bounded Rationality and Governance* (University of Chicago Press, 2001) 61.

43 David Corbett, *Australian Public Sector Management*, 2nd ed (Allen and Unwin, 2nd ed 1996) 62. Expressed differently, the 'bounded' in bounded rationality 'can refer to constraints in the environment, such as information costs, and to constraints in the mind, such as limited memory': Gigerenzer (n 40) 65.

44 Research has, for example, shown links between 'cognitive economy' and the 'performance efficiency of habits': Wendy Wood, Jeffrey M Quinn and Deborah A Kashy, 'Habits in Everyday Life: Thought, Emotion and Action' (2002) 83(6) *Journal of Personality and Social Psychology* 1281, 1295.

45 An extreme example of this is where an individual who was found to be driving his car, despite the fact that there was uncontroverted medical evidence that he did so 'without any degree of consciousness': *Donovan v State of WA* (2017) 53 WAR 1, 13 [41] (Mazza and Beech JJA and Hall J).

46 This analysis is not intended to excuse nondecisions. Rather, it is intended to highlight their existence and the potential for the law to acknowledge their existence.

3 *Long-Term Decisions*

The third category of decisions is long-term decisions. These are typically decisions made significantly before the fatal incident.[47] They might concern the institution and content of training for workers, and they might concern the resourcing of workers and training equipment.[48] As such, the most obvious party making these decisions in the workplace is the firm itself. In the welder case, for example, it was the company that failed to engage a 'qualified welding inspector to routinely inspect and maintain its welding equipment'.[49] This, of course, may be an example of a non-decision. It is not clear from the decision whether the company that employed the welder considered the possibility of engaging an inspector and chose not to do so, or whether it did not occur to them that an inspector could be engaged.

Other parties, however, also have a role in long-term decisions that contribute to deaths. Whether or not an incident on the road occurs may, in part, be the result of the distractedness of the driver and the scheduling of the firm.[50] It may also be, in part, the result of the design and maintenance of the road itself.[51] These decisions, in turn, may be informed by professional expertise.[52] Such expertise, however, may be misapplied or misconceived. More relevantly for law, the decisions of workplace regulators may have an impact on the decisions of employers that potentially give rise to the deaths of workers.[53] Such regulators make a range of decisions. WorkSafe may release material that is aimed at informing employers and employees.[54] Systems may be changed that impact on

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47 They may also be made after the incident. Prosecutors, for example, can make 'strategic choices' when proceeding with enforcement actions: Toni Schofield, Belinda Reeve and Ron McCallum, 'Australian Workplace Health and Safety Regulatory Approaches to Prosecution: Hegemonising Compliance' (2014) 56(5) *Journal of Industrial Relations* 709, 724.

48 They also can be around the design and construction of equipment and structures in the workplace — for example, as considered in *Slivak v Lurgi* (2001) 205 CLR 304. These decisions can also be around cost-cutting to improve profitability — and these could be either short-term or long-term decisions.

49 *DPP v Marshall Lethlean Industries* [2022] VCC 945, [23] (Trapnell J).

50 The repeated use of delivery drivers as the basis for an example is, in part, because it is an example that connects with the experience of most readers.

51 The role of road design as a key part of the regulatory system was raised in Chris Dent, 'Taking the Human Out of the Regulation of Road Behaviour' (2018) 40(1) *Sydney Law Review* 39.

52 'Expertise' in decision-making is also part of the, above-mentioned, 'naturalistic decision-making' analysis: Taryn Elliott, *Expert Decision-Making in Naturalistic Environments: A Summary of Research* (Research Paper, Land Operations Division, Department of Defence, May 2005) 8.

53 Of note is the fact that that the only reference to 'decision-making' in Gunningham and Johnstone's discussion of principled reforms to the OH&S system is to the decision-making of 'inspectors and prosecutors' (Neil Gunningham and Richard Johnstone, *Regulating Workplace Safety: System and Sanctions* (Oxford University Press, 1999) 329) and not to the decision-making of employers or victims.

54 WorkSafe Victoria, for example, makes available posters that can be put up in the workplace: see Work Safe Victoria, *Posters for your workplace* (Web Page) <https://www.worksafe.vic.gov.au/posters>.

employers.[55] Most obviously, the issuing of an improvement notice represents a specific instance of the employer being informed of better practice.[56] Even the prosecution of an employer, particularly where there are media reports of the prosecution, may have an educative role for other employers.[57] Behind all of these outputs is a range of long-term decisions aimed at reducing the incidence of death and injury in the workplace.

There is often a policy-based tension in long-term decisions. The target outcome for these decision-makers may, for example, not be the absolute least number of deaths, but the optimal number of positive outcomes, given the policies. For example, mandating one-on-one supervision of new staff by experienced workers (such as a constant shadowing of the new worker) may dramatically reduce workplace deaths, but it would make many businesses unprofitable. A key provision in the regulations is that people in the workplace be 'given the highest level of protection against risks to their health and safety that is *reasonably practicable* in the circumstances'.[58] Reasonably practicable does not require that the risks be 'eliminate[d]'; rather, the 'employer is obliged to *reduce* that risk so far as reasonably practicable'.[59] That reduction does not have to be sufficient to prevent all possible injuries. The obligation reflects a tension in that a director of a company in an industry with known OH&S risks may have a desire to reduce the chance of death and injury, while also wanting to maintain profitability to ensure that their workers remain employed.[60]

The policies in OH&S law are evident in the 'objects' clauses of the legislation.[61] It is in these clauses that the 'reasonably practicable' standard sits.[62] Other relevant statements include that the law is aimed at 'protecting workers and other persons against harm … through the elimination or minimisation of risks';[63] 'promoting the provision of advice, information, education and

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55 As of late 2022, for example, employers in Victoria have specific obligations with respect to any workers who may be in contact with crystalline silica dust: *Occupational Health and Safety Regulations 2017* (Vic) r 319R.

56 Eg, *Work Health and Safety Act 2011* (NSW) s 191.

57 Linked with this is the notion of deterrence. Empirical research has shown that '[d]eterrence … was a taken-for-granted, though unexamined, effect of reserving prosecution for criminal culpability or workplace injuries and deaths that raised public concern or outrage': Schofield, Reeve and McCallum (n 47) 725. The authors, however, did not discuss the role of the media in generating 'public concern or outrage'. Further, Gunningham and Johnstone refer to 'moral and political pressures' and 'maximum publicity' of any 'successful prosecution', but they do not discuss the role of the media: Gunningham and Johnstone (n 53) 328, 335.

58 *Occupational Health and Safety Act 2004* (Vic) s 4(1) (emphasis added). The regulation of OH&S is substantially uniform across the country, and the test of 'reasonably practicable' is common.

59 *Deal v Father Pius Kodakkathanath* (2016) 258 CLR 281, 305–6 [71] (Gageler J) (emphasis added).

60 They also may have a more selfish desire to personally profit from an efficiently run company (and therefore may be less focused on negative OH&S outcomes than they could be).

61 The statutes are substantially uniform across most of the country. For a discussion of the development, and enactment, of the Model Law see Johnstone and Tooma (n 13) ch 1.

62 See, eg, *Work Health and Safety Act 2011* (NSW) s 3(2).

63 See, eg, *Work Health and Safety Act 2020* (WA) s 3(1)(a).

training';[64] and 'securing compliance with this Act through effective and appropriate compliance and enforcement measures'.[65] Again, not all risks need to be eliminated. Further, there is an implicit intention in the legislation to impact on the decision-making of parties through the provision of knowledge. There is also the implication, in the last-listed object of the Act, that the regulators will, themselves, make decisions around the prioritisation of enforcement because only 'appropriate', and not all, measures will be undertaken. The legislation in the only state that has not enacted the Model Law, Victoria, states that one of its objects is 'to eliminate ... risks'.[66] However, the 'principles' section of that Act refers to the 'reasonably practicable' requirement three times,[67] and includes the phrase 'to eliminate or reduce ... risks'.[68] Decisions of regulated parties, then, can be seen as central to the system and these decisions are made by individuals.

B *Agency vs System Approach*

This section will explore how a decision-based understanding of OH&S enhances the understanding of its regulation. Two aspects will be highlighted here. First, the fact that all regulatory decisions are made in relationships; and second, the OH&S regulatory system may usefully be understood as the sum of all relationship-embedded decisions.

1 *Decisions Made in Relationships*

No decision in the workplace is made in isolation — save, in some cases, for emergency decisions in circumstances where the decision-maker is by themselves[69] — so most decisions are made in the context of known relationships. Decision-makers, then, can, or should, have others in mind when considering an action or an inaction. At the highest level, the purpose of regulators, such as WorkSafe, is to consider risks to employers, workers and others. Other regulators, including employees with a supervisory role, should also bear in mind workers and others; and all should consider the risks that their decisions may pose to

64 See, eg, *Work Health and Safety Act 2011* (NSW) s 3(1)(d).

65 See, eg, *Work Health and Safety Act 2020* (WA) s 3(1)(e). There is an object in the WA Act that does not exist in all the others — 'providing for the formulation of policies ... relating to work health and safety': s 3(1)(i). This makes explicit the incorporation of policy goals into the operation of the OH&S system.

66 *Occupational Health and Safety Act 2004* (Vic) s 2(1)(b). It also refers to the 'formulation and implementation of standards': s 2(1)(d).

67 Ibid s 4(1)–(3).

68 Ibid s 4(4).

69 For example, a truck driver reacting to a kangaroo on a country road, at dusk, when no other road user is in the vicinity. Even in that scenario, however, the truck driver's short-term decisions may have been impacted by decisions and actions of others.

others.[70] Most obviously, each firm should make its decisions around OH&S with its workers, and others, in mind. This is made clear with the reference to 'protecting workers and other persons' in the objects clause. In order to 'protect', the employer needs to be aware of the existence of the workers and of the potential for others, who are not workers, to be present in the workplace. More specifically, the law imposes 'onerous proactive duties on officers of companies to exercise due diligence to ensure compliance by their companies'.[71] While the law considers that officers do make decisions,[72] it does not classify these decisions in terms of their timeframe. Further, at a base level, the concept of 'duty' reflects the law's concern with known relationships — some personal, some commercial — where one party should have the interests of the other in mind.[73] Unsurprisingly, then, the OH&S obligations of a firm are sited with the relationships within the workplace (though not limited to the physical confines of a particular place of work).

There are, of course, limits to the consideration that the employer must pay to others. As noted above, the High Court has said that, with respect to the 'reasonably practicable' requirement, the 'duty does not require an employer to take every *possible* step that could be taken'.[74] This means that employers can, to an extent, privilege the obligation to turn a profit over putting in place every safety mechanism available to them. For companies that are not sole traders, the decisions that the officers make are also made in the context of their relationships with the owners (whether or not the company is listed on the stock exchange). Officers cannot, then, divert *all* the firm's available resources to protect workers and visitors, even if they wanted to. The long-term decisions of officers, with respect to training and provision of safety equipment, are constrained by the needs and expectations of others to whom they must have regard.[75]

Just because the employer has a higher level of responsibility does not mean that workers do not need to think of others when in the workplace. The law also imposes duties on workers. For example, in the NSW Act, there is the requirement that '[w]hile at work, a worker must … take reasonable care that his or her acts or

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70 Mirroring the basics of negligence — people 'ought reasonably to have [their neighbours] in contemplation … when … directing [their] mind to the acts or omissions which are called in question': *Donoghue v Stevenson* [1932] AC 562, 613 (Lord Atkin).

71 Johnstone and Tooma (n 13) 137.

72 'An officer of a corporation (other than a CCIV) is: (a) a director or secretary of the corporation; or (b) a person: (i) who makes, or participates in making, decisions that affect the whole, or a substantial part, of the business of the corporation': *Corporations Act 2001* (Cth) s 9AD.

73 See generally, Chris Dent, 'The Introduction of Duty into English Law and the Development of the Legal Subject' (2020) 40(1) *Oxford Journal of Legal Studies* 158.

74 *Baiada Poultry Pty Ltd v The Queen* (2012) 246 CLR 92, 101 [15] (French CJ, Gummow, Hayne and Crennan JJ) (emphasis in original).

75 The decisions of officers may, in some workplaces, be impacted by input from unions. Some unions, such as the CFMEU have dedicated OH&S officers who engage with employers over safety matters. Any legal liability for the decisions, however, rests with the employer.

omissions do not adversely affect the health and safety of other persons'.[76] This reads like the duty of care in negligence law generally and so reinforces the idea that, when workers are making decisions around safety, they are doing it in the context of known relationships. The precise scope of the provision has not been 'authoritatively determined';[77] however, it has been said that it is a 'duty not to expose those persons to a risk of injury as a result of the immediate conduct of the worker'.[78] While Scott DCJ does not discuss 'conduct' in terms of decision-making, the reference to 'immediate' conduct does accord with the analysis that workers may make short-term decisions that can impact on the risks faced by others in the workplace.

A key aspect of the relationships in question is, in most cases, an implicit power imbalance, most obviously (but not exclusively) between worker and employer (where the latter is making decisions that will impact on the former). Notably, the worker is reliant on the employer for an income. They might also lack the knowledge and experience of their employer. So, a worker may be constrained, given their weaker position, when engaging with the long-term decisions of their employer. This means that the weaker party often does not have full agency in their actions. A worker may also be in a weaker position relative to others around them when making an emergency decision. As a specific example, the driver of a B-double truck (a worker) may, in fact, feel disempowered in their interactions with car-drivers, given the inertia of their vehicle,[79] should a car-driver take an unexpected action. If a car-driver changes lane in front of the truck, without ensuring there is a safe distance between the two, and then brakes to turn a corner, the truck-driver has few options. Their emergency decision is prompted by the decision of the car-driver — a known relationship — and could lead to the death of the latter, at no fault of the truck-driver.

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76 *Work Health and Safety Act 2011* (NSW) s 28(b). This is in addition to the obligations to '(a) take reasonable care for his or her own health and safety … (c) comply, so far as the worker is reasonably able, with any reasonable instruction that is given by the person conducting the business or undertaking to allow the person to comply with this Act, and (d) co-operate with any reasonable policy or procedure of the person conducting the business or undertaking relating to health or safety at the workplace that has been notified to workers': s 28.

77 Johnstone and Tooma (n 13) 158, citing *SafeWork NSW v Scharfe* (2021) 37 DCLR(NSW) 75.

78 *SafeWork NSW v Scharfe* (2021) 37 DCLR(NSW) 75, 92 [96] (Scott DCJ).

79 A B-double truck may be up to 26m long and have a mass of up to 50 tonnes: National Heavy Vehicle Regulator, *National Class 2 B-double Operator's Guide* (2022) 2–3. These limits are set under the Heavy Vehicle (Mass, Dimension and Loading) National Regulations of each participating jurisdiction. The website for the Regulator includes a range of material to guide the decisions of those in the industry: National Heavy Vehicle Regulator (Web Page) <https://www.nhvr.gov.au/>. There is also substantially uniform law that regulates heavy vehicle use: eg, *Heavy Vehicle National Law 2013* (NSW).

2 *System as Sum of Individual Decisions*

The car-driver in the preceding example may have had, in their mind, good reasons for deciding to change lanes and brake hard.[80] The truck-driver being at that point of the road and driving at the speed they were was also the result of different factors and the decisions of other third parties. There may have been a schedule set by their employer.[81] There may have been a delay at their last meal-break (due to understaffing, or as a result of the location of the stop). There might have been a tyre blowout that required a tyre change (with the blowout occurring as a result of the road condition). They may have slept in (or risen unusually early). They may have pulled over to let traffic past that had built up behind them (because there had been no designated overtaking lane for a significant distance). Most of these decisions are not legally regulated;[82] however, they all contributed to the fatal crash happening. To focus, then, on just the decisions of the two drivers, at the time of the incident, does not acknowledge the range of factors, and preceding decisions, that contributed to it.

Nevertheless, the focus of the current system is on the long-term decisions of one category of party — the employers.[83] The regulators attend workplaces to ensure compliance. Regulatory websites target employers. For example, the first statement on WorkSafe WA's page on 'How do I get started' is: 'As an employer, you have a responsibility to provide a high standard of safety and health at your workplace'.[84] That the agency promulgates guidelines, and even the website itself, implies that it is aimed at enabling the establishment of a safe workplace — a long-term strategy. The creation of training materials is aimed at facilitating effective short-term and emergency decisions of workers. The idea of the training is to ensure that workers know what to do when faced with an unsafe situation. The approach is valuable; however, it is also incomplete.

That is not to say that there are no short-term decisions embedded in the regulatory system. The entry of union representatives, for example, may reflect such decisions.[85] Under the legislation, a union has a right of entry, if they are a WHS entry permit holder, for the 'purpose of inquiring into a suspected

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80 They may have been uncertain of where they were going, they may have had an unexpected fault in their car, or a bee may have flown in the window (and they are allergic to stings).

81 There are legislative requirements around limiting, and monitoring, the fatigue of drivers; for example, *Heavy Vehicle National Law 2013* (NSW) pt 6.3. There is also a specific obligation on drivers to avoid driving while fatigued: s 228.

82 There are requirements around sufficient rest and having a roadworthy vehicle (not driving with a burst tyre).

83 That said, the incorporation of workers and unions into the legislation allows their perspective to be included in the long-term decisions of employers.

84 See Department of Energy, Mines, Industry Regulation and Safety, *How to Get Started* (Web Page) <https://www.commerce.wa.gov.au/worksafe/how-get-started>.

85 There are also the decisions of health and safety representatives to 'investigate complaints' and make enquiries into potential risks; see, eg, *Work Health and Safety Act 2011* (NSW) s 68(1).

contravention of this Act that relates to, or affects, a relevant worker'.[86] The law also gives workers the right to 'cease, or refuse to carry out, work if the worker has a reasonable concern that to carry out the work would expose the worker to a serious risk to the worker's health or safety, emanating from an immediate or imminent exposure to a hazard'.[87] These decisions are not about setting up training; instead, they are a process of accountability with respect to the obligations of employers to run safe workplaces. That is, they are decisions of non-employers to facilitate the better decision-making of employers.

Of course, the decisions of all parties are also not made in a vacuum. As noted above, workers do not have full agency with respect to responding to actions of their employers.[88] Unions have limited power, but their own agenda, with respect to the decisions of employers.[89] Even the decisions of employers are constrained. There is a need for them to turn a profit.[90] The broader capitalist functions of a modern economy, then, act as a driver of decisions of employers. The broader consumerist aspects of society also act as a driver for employees; people may be able to survive on welfare, but life is more comfortable when a higher than subsistence-level income is earned. In addition, specific industries may have other relevant regulatory obligations — such as animal welfare obligations for farmers[91] — that may impact on the decision-making of employers and workers.

All decisions, then, are systemic. Each individual is making their choice (whether conscious or unconscious) in the light of their obligations, the decisions of others and even general societal discourses. None should be seen as having radical agency. Perhaps the only group that has unregulated, rather than radical, agency is 'outsiders' — the visitors to the workplace, the other drivers on the road

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86 See, eg, *Work Health and Safety Act 2011* (NSW) s 117(1).

87 See, eg, ibid s 84.

88 It has been noted, citing union submissions to Senate Committees investigating the application of the *Fair Work Act 2009* (Cth), that '[a]ccording to the AMWU, employees who exercise their workplace rights are regularly intimidated by employers. Similarly, the CEPU state that union activists or safety representatives are often labelled troublemakers and struggle to gain future employment': Jason Raftos, 'Don't Come Around Here No More: Union Right of Entry Under the *Fair Work Act 2009* (Cth). The First Ten Years' (LLM Thesis, Murdoch University, 2023) 98 (footnotes omitted).

89 For example, an 'inference open to the Court is that … the [Construction, Forestry, Mining and Energy Union] and the [Builders' Labourers' Federation] have employed a strategy of using alleged workplace health and safety problems at the site as a pretext for interfering with the construction schedule of the M&A Project': *Laing O'Rourke Australia Pty Ltd v Construction, Forestry, Mining and Energy Union* [2013] FCA 133, [38] (Collier J). It should be noted, though, that this dispute was under the *Fair Work Act 2009* (Cth), rather than any of the State OH&S legislation.

90 As an example, directors and other officers of corporations 'must exercise their powers and discharge their duties: (a) in good faith in the best interests of the corporation; and (b) for a proper purpose': *Corporations Act 2001* (Cth) s 181(1). 'It may be readily accepted that directors and other officers of a company must act in the interests of the company as a whole and that this will usually require those persons to have close regard to how their actions will affect shareholders': *Pilmer v Duke Group Ltd (In liq)* (2001) 207 CLR 165, 178–9 [18] (McHugh, Gummow, Hayne and Callinan JJ).

91 See, eg, *Animal Welfare Act 2002* (WA).

— who may have minimal exposure to the regulatory efforts of the employer. This is not to excuse the actions (or inactions) of all. An employer will always have more capacity to institute a range of long-term strategies than an employee (or a visitor) will have options in their short-term or emergency decisions. The acknowledgement is to allow, instead, for an engagement with the systemic concerns at play. More importantly for this analysis, it maintains a focus on *decisions*. That they are dependent on a particular individual's role is not surprising; however, there are benefits to be gained from considering how decisions are impacted by the specific circumstances evident at the time that it was made.

III Contexts of Systemic Decisions

The circumstances that impact on systemic decisions include those that relate to (1) what the decision-maker knew (or should have known); (2) the individual *qua* an individual; and (3) their appetite for risk. Each of these will be discussed in this Part. To round it out, there will be an engagement with public policy — specifically that multiple policies constrain regulation and they are in tension.

A *Role of Knowledges (Practical and Expert) and Risk in Decisions*

It is self-evident that specific knowledges inform decisions. Whether the decision-maker is an employer making long-term decisions, a worker making a short-term decision or a visitor making an emergency decision, knowledge is involved. The knowledge applied may be expert, it may be practical, and it may be wrong. Some knowledge is conscious, while some is so well-known that its impact on decisions is unconscious. And, of course, knowledge is known to be incomplete — with the effect that many decisions are made in the context of some risk.

Decisions within systems may be made based on expert knowledge. A safety data sheet for a chemical may form the basis of safe work practices in a workplace[92] — that is, expert knowledge from a manufacturer may delimit the long-term decisions of management around that chemical's use.[93] Such expert knowledge may be the result of a tertiary qualification and may even include legal

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92 More prosaically, '[u]nder various legislative regimes in Australia, a manufacturer, importer or supplier of hazardous substances and dangerous goods must provide a material safety data sheet (an MSDS) which sets out prescribed categories of information about the product in question. Employers and the occupiers of certain premises using, or having on site, products of these kinds must have ready access to a copy of the relevant MSDS for each such product': *Acohs Pty Ltd v Ucorp Pty Ltd* (2012) 201 FCR 173, 175 [1] (Jacobson, Nicholas and Yates JJ). It may be noted that this decision is a copyright case about the 'authorship' of automatically-generated data sheets.

93 The 'Safe Work Method Statement' and the relevant 'Material Safety Data Sheets' are highlighted in *Harris v Lend Lease (WorkCover)* [2016] VMC 16, [5].

advice sought by a party before making a decision. Practical knowledge may not be linked with formal education. It could, for example, be the 'tweaks' that get the best out of a piece of machinery or vehicle.[94] Practical knowledge, then, may not be reduced to writing (or other form of data storage). Practical knowledge may also either be conscious or ingrained to the extent that it is unconscious. Such knowledge may be based on task-related training — with that training including the use of safety manuals. There may, of course, also be a degree of tension between expert and practical knowledge, both at the level of the workplace and at the individual level.

Practical knowledge may, in part, be gained from personal experience. Experience is, necessarily, limited (and gives rise to biases to be discussed below). The subjective nature of personal experience also means that there may be gaps in knowledge. Gaps also exist with respect to expert knowledge. There is material that was never known. There is knowledge that was once known but, at the point it was needed, was forgotten (or knowledge that should have been known, if all their training had been learned). There is misremembered knowledge (which may include inaccurate assessments of data taken out of context). And, finally, there is incorrect knowledge — material that the individual thinks may be correct but is not. Some of these gaps may be the responsibility of the individual, and some may be the responsibility of the firm that trained or employs them, or both. All, potentially, impact on the decisions that can lead to death.

A specific aspect of knowledge with respect to decision-making is the awareness and quantification of risk.[95] Risk, here, is about a 'mode of treatment of certain events capable of happening'.[96] From this perspective, there is no necessary value judgment of those 'certain events'. For a firm, there is a risk both of an end-of-year profit, as well as a risk of an end-of-year loss. As such, in every area of human activity, there are risks as 'certain events' may occur as a result of any decision or non-decisions. Some possible events are known, some are not known, but are knowable, and there are some that are not knowable.[97] When it comes to regulation, there is a focus on those risks (both known and knowable)

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94 It can therefore be seen to have links with the concept of 'know-how'. The latter term has been defined as including the 'special skills, experience and knowledge of individuals, in the performance of teams and in organisational architecture and routines specific to particular workplaces or enterprises': Laurie Hunter, 'Intellectual Capital: Accumulation and Appropriation' (Working Paper No 22/02, Melbourne Institute of Applied Economic and Social Research, 2002) 13.

95 See generally George Wu, Jiao Zhang and Richard Gonzalez, 'Decision under Risk' in Koehler and Harvey (n 34).

96 François Ewald, 'Insurance and Risk' in Graham Burchell, Colin Gordon and Peter Miller (eds) *The Foucault Effect — Studies in Governmentality* (Harvester Wheatsheaf, 1991) 197, 199.

97 There are links, then, with the well-known statement of former US Secretary of Defence Donald Rumsfeld about 'known knowns, known unknowns and unknown unknowns'. This is discussed, from a more theoretical perspective, in David Dunning, 'The Dunning-Kruger Effect: On Being Ignorant of One's Own Ignorance' (2011) 44 *Advances in Experimental Social Psychology* 247.

that may cause injury or death to someone.[98] Of course, the likelihood of any particular event may be known, unknown or being incorrectly known. Decision-making around any risk also has a personal aspect — to be discussed next.

B *Personal*

The personal aspects of decisions impact on all parties — employers, workers and outsiders. This has, to an extent, been noted by others:

> [N]ot every person is motivated by rational objectives or calculative decision-making. Rather, individuals often have imperfect knowledge of the law and its consequences. In addition, they may have bounded willpower and cognitive biases, which can lead to the perception that the offending will lead to higher short-term benefits, not future penalties.[99]

People have their own interests and preferences, they are subject to specific decision-making practices (many of which are unconscious), and there are physiological aspects to their decisions. Any consideration of how the law engages with the different categories of decisions should, at least, acknowledge these factors.

Research in law has considered how a range of other motivators can impact on the decisions of an individual.[100] These are conscious and/or unconscious *reasons* that a person has for a given action (or inaction). Motivators may be internal, external or reputational. The first category includes those bases of decisions that relate to how an individual sees themselves. For example, if they see themselves as risk-averse, they will tend to avoid risk; if they see themselves as driven to help others, their decisions will tend to be pro-social. The external motivators focus on punishment and reward. Here, the possibility of prosecution, and a fine, would be seen as a negative external motivator. Finally, there are the reputational motivators — those who desire to be seen as different from others and to look better in the eyes of others.[101] A young worker, for example, may engage in risky behaviours in the workplace because they want to show off. Again, this is not an excuse, but it is added context. Motivators, then, can either be an immediate, or an underlying, prompt for a problematic decision — with any legal obligations potentially having only a limited impact.

Next, biases and heuristics feed into the deployment of knowledge. Incomplete and inaccurate knowledge may lead to overconfidence (which, in

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98 For an example discussion of what risks should be considered and the role of the decision of the victim, see *Deal v Father Pius Kodakkathanath* (2016) 258 CLR 281.

99 Tess Hardy, John Howe and Melissa Kennedy, 'Criminal Liability for Wage Theft: A Regulatory Panacea?' (2021) 47(1) *Monash University Law Review* 174, 188.

100 See, eg, Uri Gneezy, Stephan Meier and Pedro Rey-Biel, 'When and Why Incentives (Don't) Work to Modify Behaviour' (2011) 25(4) *Journal of Economic Perspectives* 191.

101 For a more complete discussion of these, and links with the literate from behavioural economics, see Chris Dent, 'A Regulatory Perspective on the Interests and Motivators of Creative Individuals' (2013) 23(2) *Asia Pacific Media Educator* 265.

turn, can be seen as inaccurate risk assessment).[102] Confirmation bias is based on the idea that certain situations will be interpreted in terms of an individual's learned ideas of the world[103] — meaning that an individual's own experiences may have an involuntary impact on the decision. Mental shortcuts facilitate the avoidance of knowledge that is highly contextualised.[104] Biases, generally, are at odds with rational decision-making. Expressed differently, after assessing biases and heuristics, West, Toplak and Stanovich conclude that, if critical thinking is to be pursued, 'heuristic response must be inhibited and replaced with a more normatively appropriate response'.[105] The argument in this article is that expecting critical, or overtly rational, analysis and decision-making is too high a standard for many of the situations that lead to unintended deaths. There is not the time, there is too heavy a mental load, and/or there are too many adverse circumstances for that to happen.

Further, risk assessment is, in part, outside an individual's control. Studies have indicated that gonadal hormones — of particular relevance to teenagers — impact on risk-taking in both males and females.[106] Further, 'neurobiological models of adolescent brain development highlight the impact of pubertal hormones on reward-related regions, resulting in strong reward-approach behaviour … [including] increased risk-taking and impulsivity'.[107] More specifically for females (and not limited by age), 'estradiol played a positive role in effort expenditure and cognitive control during action selection … [and] augmented the hedonic qualities of the reward'.[108] With respect to males, research using the Iowa Gambling Task has shown that 'financial decision-making is

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102 For a discussion of overconfidence in managerial decision-making (particularly relevant for workplace deaths and the role of hospital systems in iatrogenic deaths), see Max Bazerman and Don A Moore, *Judgment in Managerial Decision-Making* (John Wiley & Sons, 8th ed, 2017) ch 2.

103 Expressed differently, the bias relates to the 'testing or evaluating a hypothesis such that inappropriately high confidence in the hypothesis is the systematic result': Craig R M McKenzie, 'Hypothesis Testing and Evaluation' in Koehler and Harvey (n 34) 200, 204.

104 More generally, past knowledge itself (which may or may not be accurate) is a heuristic — see Michael R P Dougherty, Scott D Gronlund and Charles F Gettys, 'Memory as a Fundamental Heuristic for Decision-Making' in Schneider and Shanteau (n 32) 125.

105 Richard F West, Maggie E Toplak and Keith E Stanovich, 'Heuristics and Biases as Measures of Critical Thinking: Associations with Cognitive Ability and Thinking Dispositions' (2008) 100(4) *Journal of Educational Psychology* 930, 937.

106 For example, '[r]emoval of ovarian hormones increased risky choice in females … while removal of testicular hormones decreased risky behaviour in males': Caitlin A Orsini et al, 'Regulation of Risky Decision Making by Gonadal Hormones in Males and Females' (2021) 46 *Neuropsychopharmacology* 603, 611.

107 Corinna Laube and Wouter van den Bos, 'Hormones and Affect in Adolescent Decision-Making' in Sung-il Kim, Johnmarshall Reeve and Mimi Bong (eds), *Recent Developments in Neuroscience Research on Human Motivation* (Emerald Group, 2016) 259, 274.

108 Aiste Ambrase et al 'Influence of ovarian hormones on value-based decision-making systems: Contributions to sexual dimorphisms in mental disorders' (2021) 60 *Frontiers in Neuroendocrinology* 1, 12.

related to circulating levels' of testosterone.[109] The same study also suggested that because 'androgen receptors are present in relevant regions, by which testosterone binds to exert its physiological effects, it seems plausible that testosterone in adulthood, or during foetal development, or both, might affect brain areas and neurotransmitter systems'.[110] As such, the hormones may have an impact on the structure of the brain itself. If that is the case, then decision-making more broadly may be affected.[111]

Hormones, notably stress hormones, also impact on value judgements — that is to say, how individuals assess possible outcomes.[112] One study has shown that the 'effects of stress expressed by cortisol levels are associated with both utilitarian and deontological decisions, depending on the focal goal of achieving certainty'.[113] Another showed that 'acute stress can exert both positive and negative effects on prosocial behaviour … [including the] activ[ation of] self-serving motivations'.[114] A different area of research looks at the impact of the hormones on cognition and memory. Research has shown, for example, that 'exogenously administered cortisol impairs cognitive reflection and potentiates a shift from deliberative to intuitive information processing'.[115] Another study has shown that 'acute stress … disrupted working memory performance at a behavioural level … [and that] it also had a detrimental effect in working memory at a cognitive neural level'.[116] This, then, indicates that decisions made in emergency situations are physiologically different from those made when the individual is not stressed. As a result, long-term decisions in the workplace could, and should, account for this difference.

In short, any decisions by parties in the system will be impacted by a range of factors, most of which are outside the control of policy makers. Best practice training could be put in place, but it may not sufficiently guide emergency

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109 Kelly L Evans and Elizabeth Hampson, 'Does Risk-Taking Mediate the Relationship Between Testosterone and Decision-Making on the Iowa Gambling Task?' (2014) 61–62 *Personality and Individual Differences* 57, 60.

110 Ibid 61.

111 The highest fatality rate among road users was 7.4 per 100,000 for the 17–25 age group: BITRE (n 24) 32. Further, in all categories of road users, other than as passengers, males significantly outnumbered females: ibid 8–9. This could suggest that hormones play a role in the decisions of drivers, or it could reflect their relative lack of experience, or both.

112 For a review of the literature, from a few years ago, see D Lupien, F Maheu, M Tu, A Fiocco and T Schramek, 'The Effects of Stress and Stress Hormones on Human Cognition: Implications for the Field of Brain and Cognition (2007) 65 *Brain Cognition* 209.

113 Malgorzata Kossowska et al, 'Cortisol and Moral Decisions Among Young Men: The Moderating Role of Motivation Toward Closure' (2016) 101 *Personality and Individual Differences* 249, 251.

114 Silja Sollberger, Thomas Bernauer and Ulrike Ehlert, 'Stress Influences Environmental Donation Behaviour in Men' (2016) 63 *Psychoneuroendocrinology* 311, 318.

115 Zsofia Margittai et al, 'Exogenous Cortisol Causes a Shift from Deliberative to Intuitive Thinking' (2016) 64 *Psychoneuroendocrinology* 131, 134. Of note is the fact that the authors place their work within the literature of decision-making theory — specifically, that of Kahneman: at 131.

116 Caihong Jiang and Pei-Luen Patrick Rau, 'Working Memory Performance Impaired after Exposure to Acute Social Stress: The Evidence Comes from the ERPs' (2017) 658 *Neuroscience Letters* 137, 140–1.

decisions made in circumstances of high mental load. Short-term decisions may also be delimited by the 'satisficing' behaviour discussed above — with confirmation biases unconsciously reducing the risks of a negative outcome in the decision-maker's mind.[117] Attitudes to risk are, in part, personal, as are attitudes to, and retention of, knowledge by individuals. This understanding of decision-making does not, itself, offer solutions; however, effective regulation should take it into account.

C *Public Policy*

The final context of decisions made within systems is the policy setting applied by the Executive arm of government. Some of these are explicitly stated, whereas others are implicit. Key public policies include safety, efficiency and autonomous decision-making.[118] The first is a stated purpose of OH&S regulation, and has been discussed above. The latter two are implicit. As such, they need further explanation, although the underlying assertion is that the regulatory system could not work as it does without an emphasis on efficiency and devolution of responsibility. The process by which all three policies come together may be understood in terms of risk *management*.

Efficiency is key, in part, because limited resources — either time or finances — drive key players. Available funding is a key factor in the availability of resources (or the perception of availability) for the quality, and frequency, of training in workplaces, the quality of monitoring systems and the quality and maintenance of safety equipment. Public road funding also impacts on the quality of the road infrastructure (including road surface, design, capacity and signage) and individual finances impact on the quality, and maintenance, of vehicles. This is relevant for the workplace deaths that occur on the roads. With respect to workplace safety, it is more efficient to have individual firms make long-term decisions about procedures and so forth, than to have a government agency step in and make the decision for them. In a finite world, unlimited funds are not available; those charged with decision-making around safety have to bear cost in mind when making their decisions. Finances are not an excuse, and the 'reasonably practicable' test allows for an objective assessment; however, the same test acknowledges that funds for safety may be limited.

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117 This may be despite publicity around fatalities and prosecutions. For example, media reports of the workplace death described above at n 38 include: Pat McGrath, Jeremy Story and Sarah Curnow, 'Family Distraught after Apprentice Dies in Worksite Employer AI Group knew was unsafe' *ABC News* (online, 14 November 2018) <https://www.abc.net.au/news/2018-11-14/ai-group-apprentice-dillon-wu-dies-in-unsafe-worksite/10429356>; Danny Tran, 'Transport Company Fined $600k over Suffocation Death of Apprentice Dillon Wu' *ABC News* (online, 24 June 2022) <https://www.abc.net.au/news/2022-06-24/company-sentenced-over-apprentice-death/101179706>.

118 These have been discussed as the three core regulatory purposes of the road rules: Chris Dent, 'Laws, Norms, Practices' (n 1). The efficiency in that system relates to the efficiency of transit.

With respect to the second implicit policy — autonomous decision-making — individuals are trained, or disciplined, to make decisions for themselves, in the light of the obligations and requirements of their respective institutions. That is, a significant purpose of the regulation that they are subject to is to make them self-regulating. It has been said that '[i]ndividuals should do more for themselves, paying greater attention, for example, to their diets and driving habits'.[119] The road transport system would not operate if individual drivers were not responsible for the control of, and for making decisions about, their vehicle.[120] And, of course, the obligations on workplaces are generalised. First, the above-mentioned object of 'education and training' indicates an assumption that workers should think for themselves. As a further example, the Victorian OH&S 'Duties of employers' include that

> An employer must, so far as is reasonably practicable — (a) monitor the health of employees of the employer; and (b) monitor conditions at any workplace under the employer 's management and control; and (c) provide information to employees of the employer (in such other languages as appropriate) concerning health and safety at the workplace.[121]

In other words, the OH&S legislation cannot set out, in detail, all of the possible requirements of employers across all possible workplaces in the State. This is an obvious point, but one that emphasises the importance of taking account of the decision-making of individuals who are subject to regulation.

Risk management is also systemic and is tied to finances.[122] While there are many risks associated with each of the interactions considered here, the key one is, of course, the risk of death. Decision-makers, however, are balancing that risk against the other risks. As has been noted, '[p]eople change their preferences in favour or against risk seeking (vs risk aversion) depending on whether a situation

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119 Richard J Zeckhauser and W Kip Viscusi, 'Risk Within Reason' in Connolly, Arkes and Hammond (n 21) 476.

120 That, however, does not mean that they have sole responsibility. A death that occurs when the worker is commuting either to, or from, work may still be considered a workplace death — with the decisions around shift-length and rest periods being considered when assessing the circumstances of the death. In one case (though one that resulted in a permanent brain injury rather than death), a worker lived 430 km from the mine site, and commuted from home for each 12-hour shift. Unsurprisingly, fatigue, and work procedures around the availability of an on-site room for workers, were issues explored: see *Kerle v BM Alliance Coal* [2016] QSC 304.

121 *Occupational Health and Safety Act 2004* (Vic) s 22(1).

122 As has been noted, '[i]n everyday parlance, the term "risk" is used as "a synonym for danger or peril, for some unhappy event which may happen to someone"': Gabe Mythen, *Ulrich Beck: A Critical Introduction to the Risk Society* (Pluto Press, 2004) 13. Risk is also used in a wider, yet more specific, sense in academic circles. Beck coined the term 'risk society' to privilege the understanding that the production of risk accompanies the production of wealth in society: Ulrich Beck, *Risk Society: Towards a New Modernity*, tr Mark Ritter (Sage Publishing, 1992) 19. The use of the term risk in this article reflects the former, more everyday, use of the term.

is presented in terms of gains or losses'.[123] This framing means that people can be seen to weigh up, at the point of decision, the positive and negative outcomes (linked, necessarily, with their personal motivations around the decision). This, of course, only applies to conscious decisions. Actions that result from habit (or ingrained training), or bias, do not engage with risk, and nor do non-decisions.

To be clear, managing risks means engaging with them, rather than avoiding them altogether. At one level, autonomous decision-making is a regulatory goal because it is the individual that has the clearest knowledge with respect to risk assessment and management. At another, the goal is an 'optimal' level of death, rather than zero deaths. The need for risk management, rather than risk elimination is because there are other purposes that attach to each area of regulation. The regulation of the workplace, for example, includes an acknowledgement of the need for the profitable existence of the workplace. Again, the above-mentioned objects include the 'minimisation' and not elimination of risks.[124] That there are sound reasons for not banning all behaviours that may lead to deaths (driving at a speed that can cause death, having machinery in workplaces that can cause death, police officers carrying guns) means that the risks of deaths cannot be fully expunged.

However, merely noting that the law accommodates risk management, and the knowledges embedded within risk assessment, does not provide a complete answer for the assessment of decision-making. That is, acknowledging that the different risks should be considered does not set out what standard of decision-making is sufficient, let alone what standard of risk assessment is sufficient. Take, again, the practical example of a driver wanting to enter a busy roadway. They have to decide when it is safe enough to do so — when the risk of a collision is low enough to proceed. Their assessment of what is safe is based on their perceptions and their past experiences. It also may be linked with their self-image. If drivers see themselves as safe they are more likely to recall similar incidences when they have acted safely, rather than unsafely.[125] A driver entering a road is balancing safety and transit; and a firm, when implementing work practices, is balancing worker safety and profitability. These are not excuses for the deaths that occur. Instead, they are a reminder that human society is complex and inter-related — individual safety competes with money, the safety of others, uncertain knowledge and the need for interactions that enable our communities.

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123 Eric R Igou, 'The When and Why of Risky Choice Framing Effects: A Constructive Processing Perspective' in Gideon Keren (ed), *Perspectives on Framing* (Routledge, London, 2011) 231, 233.

124 Of course, the public sector may also pose risks to the lives of workers. For an overview of the issues, see Victorian Law Reform Commission, *Criminal Liability for Workplace Death and Serious Injury in the Public Sector* (Report, 2002).

125 See the discussion of the intersection of 'motivational theories' and self-image in Kim (n 19) 73.

IV Systemic-Decisions Approach for Regulating Medical Decisions

The raw number of workplace deaths cannot indicate whether OH&S regulation is effective. Nor can it show whether the classification of regulatory decisions offered here facilitates a better understanding of the system. There is value, then, in applying the framework to a different regulatory system that can be seen to limit the number of decisions that can cause loss of life. That system covers iatrogenic deaths. It is not common to consider the deaths of patients from an OH&S perspective.[126] Patients are, nonetheless, visitors to a workplace who are 'at risk from work carried out as part of the business or undertaking'.[127] Instead of focusing on driving down the number of iatrogenic deaths, the regulatory system places its emphasis on the factors that contributed to those deaths that are investigated.

The analysis here centres on those deaths that occur in hospitals, as those institutions are most clearly examples of regulated workplaces. Broadly, it has been claimed that 'more than 18,000 people die in Australia from "avoidable medical adverse events"'.[128] A more recent estimate suggests that 'up to 27,000 people die from iatrogenic harm per annum in Australian hospitals'.[129] A more 'conservative' estimate, from 29 years ago, is that 'around 4,500 preventable deaths … occur in hospitals each year as a result of mistakes and inappropriate procedures'.[130] Further, it is estimated that 0.3 per cent of hospital patients die as

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126 Johnstone and Tooma, for example, do not mention patients — as either controversial or uncontroversial inclusions — in their discussion of the 'Primary Duty to "Others"' owed under the OH&S legislation: see (n 13) 68–71. In one Health Law textbook, the only reference to state OH&S legislation is as examples of 'public health law', rather than as a mechanism for regulating conduct in the health system: Sonia Allan and Meredith Blake, *The Patient and the Practitioner: Health Law and Ethics in Australia* (LexisNexis Butterworths, 2014) 694. Further, there are no references to hospitals in the *Review of the Model Work Health and Safety Laws* undertaken for Safe Work Australia and the only reference to medical practitioners was with respect to the definition of 'psychological injury': at 160.

127 Johnstone and Tooma (n 13) 71.

128 Ian Dobinson, 'Medical Manslaughter' (2009) 28(1) *University of Queensland Law Journal* 101, 101. A 2013 USA study found that a significantly higher number of up to 400,000 patients were dying each year from preventable harm: John T James, 'A New, Evidence-based Estimate of Patient Harms Associated with Hospital Care' (2013) 9(3) *Journal of Patient Safety* 122. This would equate to up to 30,000 deaths in Australia — though the differences in treatment practices across the two countries may vary this figure to an extent.

129 Carter, Street and Bush (n 10) 1025. The authors discuss the derivation of the figure at 1025 (n 113).

130 Productivity Commissioner, Australian Government, *Annual Report 2003–04* (Report, 2004) 16–17, citing Jeff Richardson, 'Priorities of Health Policy: Cost Shifting or Population Health' (Conference Paper, Australian Health Care Summit, 17 August 2003). Further, the Report of the Queensland Public Hospitals Commission of Inquiry cited Ranson's calculation of 'up to 14,000 patients a year died as a result of hospital treatment errors': Queensland Government, *Queensland*

a result of an 'adverse event',[131] although, given the lack of centralised statistics, it is difficult to be certain. Regardless of the precise figure, the numbers of iatrogenic deaths are at least one order of magnitude greater than road deaths[132] and two orders greater than workplace deaths. Even if the number of iatrogenic deaths were closer to road deaths, the effectiveness of the current regulatory system could still be called into question.

A *Medical Decisions as Systemic*

Prior to analysing the possibility of patient death in terms of the framework above,[133] it is necessary to provide an overview of the current regulatory system that applies to doctors in Australia.[134] The National Law,[135] the key regulatory system, emphasises the role of their training.[136] Under that Law, there are the National Boards that set out their necessary qualifications, continuing education needs and the promulgation of a Code of Conduct.[137] With respect to sanctions, the

Public Hospitals Commission of Inquiry (Report, 30 November 2005) 393 n 164, citing David Ranson, 'How Effective? How Efficient?' (1998) 23 *Alternative Law Journal* 284, 285. On the other hand, the Royal Australasian College of Surgeons is reported to have said that 'deaths' of '100 patients are avoidable surgical deaths': Amanda Gearing, 'Patients Dying Daily Due to Poor "Soft Skills" Among Australian Surgeons, Experts Warn', *Guardian Australia* (online, 22 Oct 2022). The College may, however, have an interest in downplaying the number of deaths.

131 Judith Healy and Paul Dugdale, 'Regulatory Strategies for Safer Patient Health Care' in Paul Dugdale and Judith Healy, *Patient Safety First: Responsive Regulation in Health Care* (Routledge, 2010) 1, 4.

132 There were 1,123 crash deaths on the road in 2021: BITRE (n 24) 2. This works out at a rate of 4.4 per 100,000 population: at 30. A different indicator of the relative safety of road transport is the fatality rate per billion vehicle kilometres travelled, which for 2020 was only 2.9 across Australia (for four-wheeled vehicles): at 35.

133 For an application of the above-mentioned Systems 1 and 2 thinking in the medical context: see Louise Bate et al, 'How Clinical Decisions are Made' (2012) 74(4) *British Journal of Clinical Pharmacology* 614.

134 Decisions that give rise to patient deaths may be made by other practitioners; for the sake of simplicity, the focus will be on the decisions of doctors.

135 More fully, health practitioners are regulated under the *Australian Health Practitioners Regulatory Agency Act* of the State or Territory in which they work: see *Health Practitioner Regulation National Law 2009* (Cth); *Health Practitioner Regulation National Law Act 2009* (Qld); *Health Practitioner Regulation National Law* (NSW); *Health Practitioner Regulation National Law (Victoria) Act 2009* (Vic); *Health Practitioner Regulation National Law (ACT) Act 2010* (ACT); *Health Practitioner Regulation (National Uniform Legislation) Act 2010* (NT); *Health Practitioner Regulation National Law (Tasmania) Act 2010* (Tas); *Health Practitioner Regulation National Law (South Australia) Act 2010* (SA); *Health Practitioner Regulation National Law (WA) Act 2010* (WA).

136 The National Law covers a range of practitioner professions including, in a hospital setting, doctors, nurses, midwives, radiologists and paramedics.

137 These requirements are set out in the National Law itself: see, eg, *Health Practitioner Regulation National Law* (Queensland) ss 35, 53, 128. The National Law may be included as a schedule to a state law — for example, in the *Health Practitioner Regulation National Law Act 2009* (Qld).

primary penalty is financial,[138] in the form of a suspension of registration of a practitioner (which would limit their capacity to earn an income).[139]

In terms of the regulation of medical decisions that have led to the death of patients, there have been rare instances of doctors being prosecuted under the criminal law for causing the deaths of patients, with such cases focusing on actions with immediate effect.[140] Carter notes the role of systemic issues in his analysis of medical manslaughter cases.[141] Other research has also discussed the impact of 'organisational systems', 'workload', 'time pressure', 'teamwork', 'individual human factors', and 'case complexity' on medical errors.[142] Few would argue that the decisions of doctors in hospitals are not embedded within a broader system.[143]

With respect to the regulation of decisions that may lead to the loss of life of a patient, decisions are made within relationships — primarily between the doctor and patient and between the doctor and the hospital. The decisions themselves fit within the long-term, short-term, emergency and non-decisions categories. With respect to the first category, there are the long-term decisions of the National Boards (in terms of the required, and continuing, education), the hospital (with respect to their policies and the allocation of funds within the institution[144]), the doctors themselves (with respect to their attention to training materials and policies) and, to an extent, the patients (where their admission is the result of their lifestyle). The short-term decisions of practitioners include the tests that are run, the treatments that are prescribed and the triaging of patients

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138 Of course, there is also the possibility of an insurance-funded negligence payout. For example, in the recent decision of *Wilson v Gold Coast Hospital and Health Service* [2023] QSC 135, compensation was ordered as a result of the actions of a nurse. Of relevance to this analysis is the fact that there was no criticism of the decision not to call a 'Code Black', even though this led to the harm suffered.

139 That is not to say that a suspension is the only, or most common, penalty. Other sanctions include a condition being placed on the practitioner's registration or a reprimand: see, eg, *Health Practitioner Regulation National Law Act 2009* (Qld) s 191. In rare cases, such as for professional misconduct, a practitioner may be referred to a 'responsible tribunal'. That tribunal has the power to cancel a practitioner's registration: at s 196.

140 A very small number of practitioners have been convicted, in Australia, for errors. One case is that of Dr Arthur Gow, who prescribed morphine tartrate instead of morphine sulphate. This led to the patient overdosing. Gow was convicted of manslaughter and was also subject to sanctions under the *Medical Practice Act 1992* (NSW): see *Health Care Complaints Commission v Gow* [2008] NSWMT 2.

141 David J Carter, 'Correcting the Record: Australian Prosecutions for Manslaughter in the Medical Context' (2015) 22(3) *Journal of Law and Medicine* 588, 601–3.

142 Alicia M Zavala et al, 'Decision-Making Under Pressure: Medical Errors in Uncertain and Dynamic Environments' (2018) 42(4) *Australian Health Review* 395.

143 More broadly, research has shown that 'professional hierarchies, organisational positioning, ethical issues writ large and gatekeeping in its various forms, especially how issues of proximity versus distance and subordination versus autonomy shape healthcare workers' access to information and ability to act on it': Elizabeth Chiarello. 'How Organisational Context Affects Bioethical Decision-Making: Pharmacists' Management of Gatekeeping Processes in Retail and Hospital Settings' (2013) 98 *Social Sciences & Medicine* 319, 327.

144 And, of course, there are also the government decisions with respect to health funding for public hospitals and the per-patient funding of private hospitals that comes from the government and health insurers.

in the emergency department.[145] The decision of the patient to seek medical help, and its timing, can also be a short-term decision.[146] Emergency decisions may be limited to 'true' emergencies — a code blue (for example, where a patient is in cardiac arrest) and life-threatening presentations in the emergency department. Finally, non-decisions, most obviously, cover situations where tests could have been run but were not, and treatment regimes that could have been started but were not considered.[147]

Knowledge, therefore, plays a significant role in these decisions. There is the general medical expertise common to all doctors, and the more focussed expertise of specialists.[148] And, in theory, there is knowledge behind the decisions that set out the necessary education for qualification as a doctor.[149] There is also the policy knowledge, with respect to the allocation of resources, within the hospital administration.[150] Further, the health system could not function if doctors did not make treatment decisions based on their own knowledge and experience. Their job is to use their expertise to diagnose, and treat, their patients.[151] One example of knowledge that may be conscious, or ingrained to the extent to which it is unconscious, is task-related training (such as the continuing education that doctors need to undertake).

Given the nature of healthcare, risk, and risk assessment decisions, are central to the processes. Hospitals with retrospective data on past incidences will be aware of known risks, such as dosage errors (potentially caused by overwork) or the transmission of antibiotic resistance bacteria, although they may not know how specific remedial strategies targeted at those risks will impact on the fatality rate. More generally, effective risk assessment requires specific knowledge of the

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145 Long-term decisions, unsurprisingly, have an impact on short-term ones. For example, there are forms that assess the urgency of patents for triage purposes — referred to, for example, in *Investigation into the Death of Chavittupara, Aishwarya Aswath* [2023] WACOR 10, [50].

146 As an example of an interplay of these decisions, a coronial investigation into a suicide highlighted a patient's willingness (despite a fear of possible treatment options) to attend hospital and the 'failure to adhere to a number of policies and accepted standards of practice' (short-term decisions), as well as the possibility of a different outcomes if the '[h]ospital had been more respons[ive] to [the patient] as an Aboriginal man' (failure of long-term decisions): *Inquest into the Passing of Mathew James Luttrell* (Coroners Court of Victoria, 16 May 2023) 68–72.

147 Here the focus is on the failure to institute any treatment regime. A decision to institute a sub-optimal regime is, for this analysis, an example of a (bad) short-term decision.

148 See generally Gretchen Chapman, 'The Psychology of Medical Decision Making' in Koehler and Harvey (n 34) 585.

149 To link it with law, there is a requirement that all law graduates have passed courses in the so-called 'Priestley' subjects. It is not clear that the minimum standards of the content of the Priestley units have been set based on sound educational theory or a thorough assessment of the relevance of the content for all graduates undertaking a career in legal practice.

150 For an analysis of decision-making with respect to resources, see Kim (n 19) pt III.

151 They do, however, have access to technology to assist the process. For an analysis of the effectiveness of a specific diagnostic tool in US Emergency Departments: see Eui Jin Hwang et al, 'Deep Learning for Chest Radiograph Diagnosis in the Emergency Department' (2019) 293 *Radiology* 573.

risks. This is formalised for decisions made by patients in the health system as they must give consent to treatment.[152] It is not clear that all patients admitted to hospital admissions are provided with information, by the referring practitioner, that includes an explicit reference to the risk of iatrogenic death. Regardless, doctors, even if only because they seek consent, are aware of the role of risk in their decision-making.[153]

Turning to the personal aspects of health decisions, it is not controversial to assert that doctors as a group tend to be pro-social in orientation — that is to say, they typically get into medicine because they want to help others. This, however, could lead to a desire to see as many patients as possible in a day — potentially impacting on the depth of engagement, the practitioner's finances (the external motivator), as well as their levels of exhaustion. More broadly, 'stress, fatigue, personal problems and other factors would all … result in disturbances of affect and, in turn, decision-making'.[154] Reputational motivators have been raised in discussions of medical decisions;[155] however, they do not appear to impact on the individual treatment decisions of doctors. Further, there are heuristics and biases that are, to an extent, personal. Kim observes that there is an 'availability heuristic' with respect to 'likelihood' judgments in medical diagnoses,[156] with the heuristic based on the number of similar instances that a decision-maker can recall. Additionally, a review of the literature has shown that 'paramedics apply sub-conscious (intuitive) and conscious (analytical) thought processes … drawing on information from multiple sources culminating from both professional and personal experiences'.[157] This complexity could, and perhaps should, warrant greater regulatory investigation.

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[152] This is stipulated in both the Code of Conduct and case law. With respect to the former, 'consent is a person's voluntary decision about medical care'; and that '[g]ood medical practice involves … [p]roviding information to patients in a way they can understand': Medical Board of Australia, *Good Medical Practice: A Code of Conduct for Doctors in Australia* (2020) cls 4.5, 4.5.1. With respect to the case law, '[c]onsent ordinarily has the effect of transforming what would otherwise be unlawful into accepted, and therefore acceptable, contact': *Secretary, Department of Health and Community Services v JWB* (1992) 175 CLR 218, 233 (Mason CJ, Dawson, Toohey, Gaudron and McHugh JJ).

[153] Key cases around consent in Australian law are *Rogers v Whitaker* (1992) 175 CLR 479 and *Rosenberg v Percival* (2001) 205 CLR 434. The latter case confirms that the 'subjective' interests of the patient are also relevant for information they need to make the decision about treatment.

[154] Louise Bate et al, 'How Clinical Decisions are Made' (2012) 74(4) *British Journal of Clinical Pharmacology* 614, 617–18.

[155] Chris Dent, 'Treatment Decisions of Doctors' (n 14) 122.

[156] Kim (n 19) 27. She also raises 'framing' processes (at 193) and 'anchoring' (at 55).

[157] Meriem Perona, Muhammad Aziz Rahman and Peter O'Meara, 'Paramedic Judgment, Decision-making and Cognitive Processing: A Review of the Literature' (2019) 16 *Australian Journal of Paramedicine* 1, 9.

Finally, there are broad policy considerations that might bear upon medical decisions. Safety, or at least freedom from harm, is seen as central to healthcare.[158] As noted above, the system also relies on individual practitioners making their own decisions about patients. All diagnoses and treatments *could* be made by a committee, but that would not be efficient. Given that the health system in Australia is substantially public funded,[159] governments have an interest in optimising the returns from their spending. The corollary of this is that an efficient system may have to accept some patient deaths.[160] The need to optimise returns places limits both on the tests that can be run for every patient and on the drugs that can be subsidised through the Pharmaceutical Benefits Scheme.[161] Unsurprisingly, then, the decisions of doctors in hospitals are just as systemic (with respect to the agency–systems dichotomy) as individuals in other workplaces. It is not clear, however, that the decisions of doctors are so different, conceptually, that they should not be regulated in the same way as other OH&S decisions are, or that OH&S decisions could not be regulated as those in the health system are.

B *Distinguishing Medical Decisions from Other OH&S Decisions*

This section will draw together the preceding material with two purposes in mind. The first is to determine whether, with respect to the categorisation of decisions offered here, doctors should be regulated differently. The second purpose is to investigate whether the highlighting of decisions in the hospital setting calls into question any aspects of the framework. A key difference is the implicit understanding of the relationships embedded in the two systems. Most obviously, patients (the victims) are seen as generally passive — other than the need for

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158 The Hippocratic Oath, for example, holds, in part, that 'I will prescribe regimens for the good of my patients according to my ability and my judgment and never do harm to anyone': see Sonia Allan and Meredith Blake, *The Patient and the Practitioner: Health Law and Ethics in Australia* (LexisNexis Butterworths, 2014) 28.

159 Individuals support their own care in hospitals through their insurance premiums and may pay, at point of service delivery, in private institutions.

160 In the same way that the 'reasonably practicable' standard in OH&S generally also can be seen to accept some deaths.

161 'For the purpose of deciding whether to recommend to the Minister that a drug or medicinal preparation, or a class of drugs and medicinal preparations, be made available as pharmaceutical benefits under this Part, the [Pharmaceutical Benefits Advisory Committee] shall give consideration to the effectiveness and cost of therapy involving the use of the drug, preparation or class, including by comparing the effectiveness and cost of that therapy with that of alternative therapies, whether or not involving the use of other drugs or preparation': *National Health Act 1953* (Cth) s 101(3A).

them to give their consent to treatment.[162] Workers are seen to be more active, with a capacity to engage with the safety policies and procedures of the workplace. There may also be a different relationship between doctors and the hospital than there is between most workers at risk of a workplace fatality and their employer.[163] Leaving aside the potential for some doctors to be independent contractors, rather than employees, hospitals rely on the years of training of doctors in a way that many other institutions cannot. That is, an engineering firm cannot expect that employees at the beginning of their careers will already have expert knowledge and significant risk assessment capacities.

As a result, neither the current workplace nor the medical approach to regulation engages with short-term decisions. The OH&S system focuses on the long-term decisions of employers (because there is more variation in the knowledge and experience of workers) and the approach to liability in the medical sphere emphasises the systemic impacts on the short-term decisions of doctors. With respect to the latter, there may be some biases in the decisions of those tasked with investigating deaths. In a recent inquest, for example, the coroner had the 'impression' that the doctor was 'caring and professional … [but that he] simply did not write 'SR' [slow release] against the doses of veramapil'.[164] This non-decision caused the death. The coroner also noted that the doctor 'could not say if he was busy, distracted or rushed … He made an error which he frankly admitted and which he did not … seek to rationalise, minimize or explain away'.[165] In contrast, it is not clear that a truck driver, if they were unable to say whether they were 'busy, distracted or rushed', would be free from liability if they killed a co-worker.[166] With respect to patient deaths, more weight is placed on systemic issues such as the lack of 'outposted pharmacies in the wards' and its impact on the safeguard for doctors' errors.[167]

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162 It is not clear, however, that doctors ensure that consent has been given. See, eg, Vanessa Raymont et al, 'Prevalence of Mental Incapacity in Mental Inpatients and Associated Risk Factors: Cross-Sectional Study' (2004) 364 *Lancet* 1421; R Murphy et al, 'Who Can Decide? Prevalence of Mental Incapacity for Treatment Decisions in Medical and Surgical Hospital Inpatients in Ireland' (2018) 111(12) *QJM: An International Journal of Medicine* 881.

163 There is also a different role for the unions. On a building site, a union is there to further the interests of those who are most likely to be the victim in a workplace death; in a hospital, while the unions have an interest in patient safety, their primary obligation is, again, to the workers and not to the likely victim of an iatrogenic death.

164 *Inquest into the Death of Patricia (Jill) Croxon* [2023] ACTCD 3, [35]. 'Veramipil was known to be a problem drug because of choices that had to be made as to the form (slow release or immediate release) in which it should be administered': at [36]. Despite the knowledge around the drug, the doctor's failure to indicate which form was minimised by the coroner.

165 Ibid [35]. The frankness of the admissions could be the result of an assumption that doctors are not often singled out as being personally liable for an iatrogenic death.

166 Just as there are biases in the decisions of workers, employers and doctors, there are also likely to be biases in coroners — though there is no evidence that bias is behind the decision to which this comment is appended.

167 *Inquest into the Death of Patricia (Jill) Croxon* [2023] ACTCD 3, [37](e).

A further key difference is, of course, the decisions that are regulated. The emphasis in OH&S is on the actions of the employer, whereas the emphasis in the health system is on the decisions of doctors. That said, the current regulatory processes in the health system acknowledge the systemic nature of practitioner decisions, which might unduly favour medical staff. As an example, another recent coronial investigation resulted in a finding that the patient's 'treatment … was sub-optimal … [but] I make no criticism of individual clinicians'.[168] The coroner identified 'systemic failings', listing, inter alia, 'inadequate or *poorly applied* sepsis treatment protocols' and a 'hesitancy in escalating a patient care issue and the lack of culture that encouraged staff to raise care concerns'.[169] From the perspective adopted here, the inadequacy of the protocols may be the result of bad long-term decisions in the hospital, but the poor *application* of the protocols that had been developed is a short-term decision of the clinician. Further, the coroner's reference to the culture that is "lacking" may be best seen in terms of a series of short-term decisions by all relevant staff (as any expression of any culture is based on individual decisions). In a hospital setting, however, the specific decision to not escalate the care was a short-term decision made by a specific individual. Going against poor culture does not attract formal sanctions. A decision to go along with the culture may be understandable, but that does not make it defensible.

With respect to external processes, there is no equivalent in the health sector to the WorkSafe organisations that carry out inspections under the OH&S system.[170] There are Health Complaints Commissions. However, they do not have all the functions and powers of a WorkSafe organisation. Health care complaints are aimed at investigating the practitioners,[171] and if a complaint is upheld, the practitioner may be referred to regulatory processes under the National Law.[172] There is no educative, institutional or data-gathering role.[173] The lack of outcry around iatrogenic deaths could be the result of a lack of knowledge about the

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168 *Inquest into the Death of Maarouf El-Cheikh* [2023] ACTCD 1, [59]–[60].

169 Ibid [63] (emphasis added).

170 It may be pointed out that this research has not focused on these organisations as they do not directly impact the decisions of parties, given that they are either supportive of, or reactive to, the actions of the parties, principally, employers. The regulator's functions, for example, include: advising the relevant Minister; monitoring compliance; investigating OH&S matters; providing advice to parties; collecting statistics; fostering cooperation; promoting education and training; and conducting proceedings under the Act: *Work Health and Safety Act 2020* (WA) s 152.

171 For example, the 'primary object of this Act is to establish the Health Care Complaints Commission as an independent body for the purposes of (a) receiving and assessing complaints under this Act relating to health services and health service providers in New South Wales; and (b) investigating and assessing whether any such complaint is serious and if so, whether it should be prosecuted, and (c) prosecuting serious complaints, and (d) resolving or overseeing the resolution of complaints': *Health Care Complaints Act 1993* (NSW) s 3(1).

172 See, eg, *Health Care Complaints Act 1993* (NSW) s 39.

173 This would not prevent any of the relevant unions — such as the Health Services Union and the Australian Nurses and Midwifery Federation — from raising safety concerns, either privately with the hospital or more publicly through the media.

statistics or an unquestioning acceptance of the profession's claims to systemic, rather than individual, failings.[174] WorkSafe organisations, therefore, generate a specialised, regulatory knowledge that is absent the health complaints process. Again, despite the deaths happening in a workplace, and despite most workplaces operating within their own systems of specialised knowledge, doctors and their employers are treated differently.

Overall, both systems adopt an approach that does not include the victim in the regulatory process. This is particularly problematic when the victim's own decision materially contributed to their death. This may be a result, in OH&S law, of the assumptions inherent in the law of vicarious liability (the employer has control over the activity and the resources to remedy any damage that it causes), and in medicine, a view of patients that potentially limits their agency. The repeated example here emphasises the point. A truck driver may cause a death on the road, but their decisions are treated differently in law to a worker who dies in a factory (as a victim) or to a doctor (as material cause of death). One view of this is that, as they are on the road, they have a greater degree of autonomy than others, but this only reflects a narrow understanding of the constraints of all decision-makers. The assertion here is that the relative autonomy of all decisions made that lead to deaths can, and should, be revisited.

V Potential Application of Decision-Focused Understanding of Regulation

A simple acknowledgement of the range of, and constraints on, decisions made around workplace safety (including in hospitals) is not enough. There is value in what the acknowledgement can mean for regulation in that space. To this end, the following Part begins by examining the distinction between the 'regulation' and 'criminalisation' of behaviour. It then argues that the regulatory system need not focus exclusively on decisions that lead to negative outcomes in the workplace.

A *Limits of Law: Regulation vs Criminalisation*

At one level, the division between 'regulation' and 'criminalisation' is relatively loose.[175] While it may be clear that offences under the criminal law are 'criminalised', most of the decisions considered here are not prosecuted under

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174 It appears that the driving public accepts that a certain number of road deaths will happen (though they may not accurately assess the risk of them, as individuals, becoming such a statistic).

175 That is, most understandings of regulation only relate to actions by State regulatory bodies, such as WorkSafe. They do not, necessarily, apply to the regulation of professionals (such as doctors or lawyers) or of individuals.

those provisions — although, in some cases, they could be.[176] Similarly, Sheehy and Feaver, in their recent analyses of regulation, do not discuss the criminal form of regulation[177] — despite the fact that the criminal law falls within their definition of the 'purpose of regulation', which is 'to alter social practices to achieve a different social effect'.[178] Their definition, however, still has value here. The key point in the present research is to consider the extent to which the decisions of individuals can be seen as relevant for achieving a specific social effect, namely, a reduction in workplace deaths. The purpose in this section is to engage, at a higher level, with how society engages with these issues. As such, there is value in considering the two dominant terms of regulation and criminalisation, as well as the implicit expectations of the public around each.

A key difference between the two classifications is how they are perceived. Criminalised behaviour is seen as 'worse' (morally and socially) than a regulatory breach.[179] It has been said that the 'ultimate principle … of criminal law … is the requirement of doing justice to individuals … [with there being] an intrinsic connection between criminal punishment and individual justice'.[180] Regulation, on the other hand, is, in the vein of Sheehy and Feaver, more 'facilitative … as an instrument for shaping social behaviour'.[181] As such, the former may seem to operate more as a deterrent, whereas the latter is aimed at establishing norms of expected behaviour. That said, the extent to which the criminal law can act as a deterrent in the high-mental-load circumstances of an emergency (such as may surround a police shooting) is not entirely clear, despite such decisions having the highest profile. The perceptions and expectations of the public are also relevant to how the regulated decision-makers are sanctioned.

Regulation can be understood as focussing on long-term decisions; for example, 'regulation seems to change an undesirable social effect by mandating,

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176 That said, prosecution under OH&S legislation may still use the 'beyond reasonable doubt' standard of proof: see, eg, *Baiada Poultry v The Queen* (2012) 246 CLR 92, 95–6 [1].

177 See Sheehy and Feaver, 'Normative Theory' (n 2); Sheehy and Feaver, 'Positive Theory' (n 17). The former article, however, does use murder as an example of the distinction between regulating a 'social practice' and regulating a 'social effect': at 395–6. The example, however, is not returned to in either of the articles.

178 Sheahy and Feaver, 'Normative Theory' (n 2) 396.

179 Significant publicity can attach to prosecutions of police officers. Albeit to a lesser degree, at least some media attention may be paid to traffic prosecutions for fatal crashes. While there may be reports about workplace deaths, there are fewer around any prosecution — though there is limited analysis of this. For a discussion of the over-reporting of incidents, relative to adjudications, in Canada, see Bob Barnetson and Jason Foster, 'Dead Quiet in the Hinterlands: the Construction of Workplace Injuries in Western Canadian Newspapers, 2009–2014' (2016) 26(2) *Labour and Industry* 75. One of the few examples of a practitioner's liability being assessed in the public eye is the case of Jayent Patel. For an overview of the basic facts, see *Patel v The Queen* (2012) 247 CLR 531. Perhaps surprisingly, there is a dearth of academic analysis on the media commentary around his trial.

180 Alan W Norrie, *Crime, Reason and History: A Critical Introduction to Criminal Law* (Cambridge University Press, 3rd ed, 2014) 13.

181 Morgan and Yeung (n 14) 6.

prohibiting, modifying, guiding or disciplining social practices'.[182] These are all processes that are deployed anterior to potential instances of the 'undesirable social effect'. OH&S laws, as noted above, emphasise the provision of training and risk-management strategies aimed at limiting the chance of fatal incidents occurring. In health, the regulation is focused on the system of factors that may have, in the long term, contributed to the death. Criminal prosecutions, on the other hand, can focus on short-term decisions (and are rarely deployed in the health setting).[183] Given the contemporaneity of decision and death, an alternative way of understanding this is to say that criminalised acts focus on the physical impact (or outputs) of a bad decision. With respect to sanctions, a primary penalty in regulation is financial — such as in the form of a fine for an OH&S infraction. There is the capacity for workplace deaths to be prosecuted under the relatively recent 'industrial manslaughter' provisions.[184] Here, the penalty may be financial for the firm; however, there is the capacity for an 'officer' of the entity to be jailed if successfully prosecuted. Of course, penalties for criminal offences can include incarceration.

The advantage of the classificatory framework proposed here is that it includes the decisions of all those who are sought to be regulated by the system. That is, generally speaking, regulation does not explicitly engage with those who are making the short-term decisions that lead to the 'undesirable social effect' and the criminal law may not look at the long-term decisions that facilitated the criminal act. Sheehy and Feaver, for example, limit their analyses to the State, regulators, regulatees and 'third party inspectors and auditors'.[185] The role and/or decisions of the victims are not included in either form — except to the extent that it was the victim, themselves, who breached the road rules or workplace regulations.[186] A consequence of this is that, as both forms of control assess decisions, a lack of consideration of victims means that the standards of behaviour against which they may be judged are ignored. While the specifics may be mentioned in court — for example, whether the victim threatened a police officer or were not compliant with the road rules — this is not the same as assessing their decisions. There is the potential for the victims to have their

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182 Sheeny and Feaver, 'Positive Theory' (n 17) 965.

183 For an engagement with OH&S from a criminal law perspective see Johnstone (n 39). He notes that 'obstacles' to criminal prosecutions include officers of an employer do not owe a 'duty' to the workers and that 'an omission or failure to act is not 'act'' for the purposes of the prosecution: at 34. Focusing on the decisions of officers avoids these issues; however, the suggestion here is not to criminalise all bad decisions.

184 For example, under the name 'workplace manslaughter': see *Occupational Health and Safety Act* (Vic) s 39G.

185 Sheeny and Feaver, 'Positive Theory' (n 17) 967. The definitions they use are: the 'state … the ultimate source of power'; the 'regulator, which is granted authority to exercise power on behalf of the state' and the 'regulatee, being the actor subject to the exercise of that power': at 967. In the OH&S context, unsurprisingly, the regulator is WorkSafe and the regulatees are the firms.

186 Though, of course, given the power imbalance, the decisions of patients in hospitals should not be part of the regulatory analysis — save for the possibility of further supporting the need for them to make informed decisions about their treatment.

decisions measured against the standard of reasonableness,[187] or against a minimum (or maximum) standard of awareness and/or cognition. The point here is the legislation is silent about such an assessment; this is despite the potential that the victims materially contributed to their own deaths.

B *Stepping Back from the Focus on Outcome*

Expressed differently, both regulation and criminalisation have a focus on outcomes — or, as Gunningham and Johnstone put it, the 'traditional approach' of 'prosecution[s] has generally been reactive'.[188] This is not surprising, as the origins of the criminal law itself was on the outcome of an action, rather than on the thinking (or lack of it) behind the action. More fully, the assessment of 'criminal responsibility', even in the eighteenth century, 'did not lie in findings about the defendant's cognitive or volitional capacities … Rather it lay in an evaluation of the defendant's conduct' that gave rise to the demonstrated harm.[189] As such, the history of workplace deaths did not involve criminal offences in cases where there was no direct (or intentional) act by the employer that led to the death.[190] Further, without an intentional act, even if the act does not meet the formal standards of criminality, it is difficult to assess the act from a moral perspective.[191]

The focus on decisions central to the present analysis offers a different possibility. Instead of the application of regulatory, including criminal, responses being substantially contingent on a bad outcome, their application could be based on bad *decisions*, regardless of outcome. It has been noted that, when it comes to understanding safety, the 'number of things that go wrong is tiny'.[192] So, even where an incorrect decision was made, no overt harm occurs. For example, a worker may regularly drive a taxi on little sleep; and in a majority of cases, the journey is completed without a crash.[193] If the regulation of driving is based on

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187 An example of this would be where a driver who caused the death was sued in negligence, and they, in response, argued that, at the very least, the victim had been contributorily negligent.

188 Gunningham and Johnstone (n 53) 325.

189 Nicola Lacey, *In Search of Criminal Responsibility: Ideas, Interests and Institutions* (Oxford University Press, 2016) 38.

190 Contrary to the view expressed by some commentators, then, OH&S law has not been *de*criminalised because it was never criminalised to begin with: see, eg, Johnstone (n 39) 26.

191 Hardy, Howe and Kennedy discuss the moral aspects of wage theft in terms of intentional acts: Hardy, Howe and Kennedy (n 99) 184–7. As such, non-decisions do not easily fall within this analysis.

192 Bergrström and Dekker (n 12) 392.

193 This is not surprising. Driving after being awake for over 17 hours has had an 'effect on neurobiological performance' that is equivalent to 'moderate alcohol consumption': Nicole Lamond and Drew Dawson, 'Quantifying the Performance Impairment Associated with Fatigue' (1999) 8(4) *Journal of Sleep Research* 255, 261. The increased chance of having a crash, as a result of

deaths alone, then the majority of bad decisions would not be engaged with. Further, because most instances of driving fatigued do not have a negative outcome, this informs the confirmation bias of the tired driver. More broadly, given the annual number of workplace deaths, any fatality is an outlier, and so cannot be the focus of regulation. A move away from outcome also means a move away from a focus on liability. Regulatory strategies aimed at improving decisions, regardless of outcome, may offer a more useful way forward.[194]

Focusing on the assessment of bad decisions alone, however, does not guarantee improved outcomes. With respect to iatrogenic deaths, those in the health system (with expert medical knowledge) judge others in the same system.[195] Health professionals judging health professionals means that there is less opportunity for external viewpoints to be considered. More broadly, long-term decisions, such as the development of training programs, can be seen as a process of establishing workplace norms. Norms, themselves, do not always account for the short-term decisions of others; they may, of course, reduce deaths, but they may not allow for the abnormal circumstances that lead to a fatality or serious injury. A more complete understanding of the role of norms in short-term decisions, and the role of other factors in the decision-making of workers (and those around the workers) will enhance the effectiveness of the training.

This work, then, can be seen as aligning understandings in law with the concept of 'resilience engineering'.[196] This concept has been described as being 'concerned with assessing organisational risk, that is the risk that holes in organisational decision-making will produce unrecognised drift toward failure boundaries'.[197] Resilience engineering, then, focuses on decisions and the extent to which unseen issues impact on both decisions and safety. Bergrström and Dekker refer to seven specific strategies:[198]

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alcohol consumption, is 25 per cent per 10 g increase in consumption: B Taylor et al, 'The More You Drink the Harder You Fall: A Systematic Review and Meta-Analysis of How Acute Alcohol Consumption and Injury or Collision Risk Increase Together' (2010) 110(1) *Drug and Alcohol Dependence* 108, 113. The figures provided above indicate that there is, for four-wheeled vehicles, one fatality per 340 million kilometres driven: BITRE (n 24). This suggests that being awake for over 17 hours means that there may be one fatality per 270 million kilometres driven — still a very low chance.

194 Of course, inspections of workplaces do not occur only after a death or serious injury. It has been argued, however, that 'monitoring and compliance … do not predict safety outcomes': Bergrström and Dekker (n 12) 407.

195 An example of this assessment may be apparent in a quotation from a leading surgeon, after a colleague had been suspended after a review of the colleague's actions linked to four patient deaths: 'This is the worst day of my professional career, We've lost one of our own': see N Robinson, 'The Heart of a Problem', *The Australian* (16 November 2019).

196 Bergrström and Dekker (n 12) ch 11.

197 Ibid 398, quoting David Woods. Woods was an advisor to the NASA investigation into the 2003 destruction of the *Columbia* and the deaths of the seven crew members.

198 Ibid 408–9.

- 'Diversity of opinion and the possibility to voice dissent';
- 'Keeping a discussion on risk alive and not taking past success as a guarantee for safety';
- 'Deference to expertise' — this can include practical expertise, 'signals of potential danger, after all, and of a gradual drift into failure can be missed by those who are not familiar with the messy details of practice';
- 'Ability to say stop .... a "key difference between incidents that ended badly and those that did not was the extent to which individuals voiced their concerns about the early warning signs"';[199]
- 'Broken down barriers between hierarchies and departments';
- 'Do not wait for audits or inspections to improve ... you cannot inspect safety or quality into a process'; and
- 'Pride of workmanship ... is linked to the willingness and ability to improve without being prodded by audits or inspections'.

Each of these strategies relate to decisions to be made by a range of actors in the workplace — some long-term and some short-term — with an acknowledgement of the interaction between decisions made by different people. Interactions are key, as no decision is made in perfect circumstances (or with perfect knowledge). Virtually all decision-makers are time-poor (as a result of a quest for profit or insufficient funding in the public sector) and they exist within structured positions in an organisation with restricted capacities to learn from those in other positions.

Linking this with the material in Parts II and III above, the obvious connection is that decisions are made in relationships — the need for dissent requires multiple voices, breaking down barriers supports co-operative decision-making and the capacity to say 'stop' requires empowerment of those close to the potential incident (as does the suggestion not to defer to inspections). Adding a layer of decision-making theory allows the assessment that one person's 'fast and frugal' decision may not satisfice all parties in the system. There is also the acknowledgement of knowledge, including practical knowledge of risks, rather than academic or business-focused knowledge. There is the reference to bias — the mere existence of 'past success', or lack of previous incidents, does not mean that past decisions were optimal. And, finally, there is an engagement with 'motivators': 'pride of workmanship' accords with the internal 'proper conduct' motivator. Workplace safety, from the perspective of resilience engineering, requires decision-making that accounts for, and incorporates, the complexities of workplaces, along with the siting of the

[199] See Michelle A Barton and Kathleen M Sutcliffe, 'Overcoming Dysfunctional Momentum: Organisational Safety as a Social Achievement' (2009) 62(9) *Human Relations* 1327, 1339.

workplace within the broader society (such as is the case with visitors to sites or the sharing of roads by workers and others).

There is, of course, less room in this analysis for law, although there is no suggestion that regulatory inspections should be stopped. The law, instead, should be more flexible. The way that the law is thought about can also be more flexible. The well-known 'regulatory pyramid' implies rigidity with its hierarchy of regulatory responses.[200] In any workplace, a number of regulatory strategies may be deployed to target the range of individuals whose decisions need to be constrained. Workers, managers and officers may be 'persuaded' (by the law, or by their training); the same groups may be subject to 'warnings' (from without or within the workplace) and to the threat of penalties ('civil penalties' for officers, workplace sanctions for workers and managers); and more punitive state-based sanctions may be applied to the firms.[201] A regulatory 'rope', on the other hand, allows for different strands to intertwine — with different processes for different parties — with the regulation all the stronger for its structure. Some strands bind short-term decisions and others reflect long-term decisions; together, they may support better emergency decisions and reduce non-decisions. Individual fibres allow for different knowledges to be learned, expressed and deployed by the various actors in the workplace, with the potential for specific acknowledgement of deliberate active processes for the gathering of knowledge by all actors (highlighting the mental, rather than physical, aspects of decisions). The metaphor of fibres also allows for individual parties to be seen as self-regulating (so that they can 'take pride' in their own practices) and for them to be seen as operating within relationships (in which all parties should have an understanding of those with whom they are embedded). It is a more complex view of regulation, but one that fits with the increasingly complex technologies, workplaces and economies.

VI Conclusion

Overall, the approach suggested in this article is less about the number of deaths, and more about the clearer regulation of decisions (and non-decisions) that may lead deaths. The proposed categorisation, based on long-term, short-term and emergency decisions, offers a broader perspective than a more traditional focus on the regulators and the firms. This shift in regulatory emphasis away from outcomes to decisions may allow for a greater level of accountability for all in the system — without a recourse to victim-blaming, shifting the focus away from unthinking employers or overcriminalisation — on the basis that all decisions can

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200 For an early iteration, see John Braithwaite, 'Convergence in Models of Regulatory Strategy' (1990) 2(1) *Current Issues in Criminal Justice* 59. See also Morgan and Yeung (n 14) 196–9.

201 For a detailed breakdown of the pyramid, see Ian Ayres and John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford University Press, 1992) ch 2.

be seen as constrained. Constraints, themselves, do not obviate responsibility, but they may encourage a more effective sharing of obligation and liability.[202] The approach taken here is not meant to suggest that the current regulatory systems be removed. There remains a role for fines and inspections; however, the number of fatalities that still occur suggests a broader approach is necessary. The focus can, now, shift from outcomes to the mental processes (including those that ignore a need for positive actions on the part of the individual) — because society has moved on from need for the spectacle of punishment for bad actions to improve behaviour.

[202] Given the statutory compensation schemes in places, the injured parties, or their families, can receive financial assistance, even where liability is not established — reducing the need for apportioning blame. That does not mean that the compensation schemes are effective or cannot be improved. See also Joanna Howe, 'Possibilities and Pitfalls Involved in Expanding Australia's National Workers' Compensation Scheme' (2015) 39(2) *Melbourne University Law Review* 472.