HLWB513: Research Project

Enforcement and promotion of work-related ill health in New Zealand: Have we made progress under the Health and Safety at Work Act 2015?

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Contents

Contents ii
Tables v
Figures v
List of abbreviations v
Abstract vi
Introduction 1
The New Zealand health and safety landscape recently underwent significant changes 1
The shift from the Health and Safety in Employment Act 1992 to the Health and Safety at Work Act 2015 1
Work-related ill health carries a greater burden of harm than workplace injuries in New Zealand 3
Work-related ill health covers a wide range of conditions, but can be difficult to attribute to workplaces 4
Have the legislative changes made a difference to work-related ill health? 5
There is little research into New Zealand enforcement activities for work-related ill health 6
Literature review 7
Why is it so important to manage work-related health? 7
Changes in the way people work suggest a new approach may be needed 8
A shift from 'health and safety' to 'health and wellbeing' 9
What are the components of a good health and safety regulatory system? 11
Legislation and regulations are the backbone of the health and safety system 12
Inspectorate resourcing and expertise to manage current and emerging issues 12
Robust surveillance systems are needed to accurately determine the size of the problem 13
Consideration of the complex systems at work 14
What works when improving work-related health? 15
Effectiveness of traditional enforcement activities 15

Awareness campaigns 16
Health and safety training in workplaces 16
Integrated approaches to health and safety: combining prevention and promotion 17
A possible shift upstream to eliminate hazards at the source 18
Smaller businesses can have a harder time managing risks 18
Nudge theory 19
Evaluation of interventions are limited 20
Summary 20
Methodology and methods 23
Methodology 23
Prosecutions 24
Data cleaning 24
Enforceable undertakings 25
Campaigns 25
Organisational documents 26
Rapid literature review 26
Summary 26
Results 27
What are the enforcement and promotion activities undertaken by WorkSafe in relation to work-related health in New Zealand compared with injuries? 27
New Zealand's legislative system under which WorkSafe operates 27
WorkSafe's 10-year strategic plan to improving work-related health 27
The Inspectorate 28
WorkSafe campaigns 29
How did enforcement activities change between the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015? 33

Number of work-related ill health prosecutions under the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015 34
Average fines for work-related health vs injury 35
Summary 36
Discussion 37
Summary of results 37
How did enforcement activities change between the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015? 37
What are the enforcement and promotional activities undertaken by WorkSafe in relation to work-related health in New Zealand compared with injuries? 38
Does New Zealand have the required components of a good system to manage work-related health? 38
Regulations are still focussed on substances, not health 38
Shortage in skill and resources in inspectorate, and a lack of surveillance systems 38
What is WorkSafe doing right? 40
How can we make the enforcement and promotion of work-related health more prominent? 40
Establishing a shift to workplace health and wellbeing, rather than health and safety 40
WorkSafe as a leader of research and innovation into the effectiveness of interventions 41
Factors we need to consider when improving the system 43
New Zealand is a country of small businesses 43
Future considerations 44
Limitations 46
Conclusion and recommendations 49
References 53
Appendix One: Relevant sections of the Health and Safety at Work Act 2015 65
Section 30 Management of risks 65
Section 36 Primary duty of care 65

Section 156 Release on giving of court-ordered enforceable undertaking 66

Tables

Table 1 Activities under WorkSafe 28
Table 2 WorkSafe Campaigns since formation..... 31
Table 3 Cases included in analysis..... 33
Table 4 Health-related prosecutions..... 33
Table 5 Average fine amounts under the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015, by injury or health..... 35

Figures

Figure 1 Burden of harm estimates from work-related injury and ill health 4
Figure 2 Cases heard solely under the Health and Safety in Employment Act 1992 or the Health and Safety at Work Act 2015, according to type (n=504)..... 34
Figure 3 Cases heard solely under the Health and Safety in Employment Act 1992 or the Health and Safety at Work Act 2015, by type, as percentage of total cases (n=504) 35

List of abbreviations

ACC	Accident Compensation Corporation
DALY	Disability-Adjusted Life Year
EU	Enforceable Undertaking
MBIE	Ministry of Business, Innovation and Employment
NOHSAC	National Occupational Health and Safety Advisory Committee
PCBU	Person Conducting a Business or Undertaking

Enforcement and promotion of work-related ill health in New Zealand: Have we made progress under the Health and Safety at Work Act 2015?

Abstract

The health and safety regulatory system was recently overhauled in New Zealand. The shift represented an opportunity for an increased focus towards work-related ill health, historically receiving less attention than work-related injuries under old regimes, despite carrying a greater burden of harm. The overhaul included the replacement of the Health and Safety in Employment Act 1992 with the Health and Safety at Work Act 2015 and the establishment of WorkSafe New Zealand, a standalone Crown Agency tasked with the role of enforcing and educating on workplace health and safety matters. Since this overhaul, the number of work-related ill health deaths has not reduced.

This research used prosecution data, enforceable undertakings and campaigns to investigate WorkSafe's current promotion and enforcement activities of work-related health compared to work-related injuries. It also compared work-related health and injury prosecutions with the previous regulatory regime under the Health and Safety in Employment Act 1992. The data shows that the number of work-related health prosecutions as compared to work-related injuries did not increase between the two regulatory regimes and remains low. The current regime's other enforcement and promotional activities (enforceable undertakings and campaigns) are also more focussed on work-related injuries.

The system in which WorkSafe operates has limitations that may prevent the shift in focus from work-related injuries to work-related health, for example, the lack of inspectorate resourcing and training and the lack of a national surveillance system to monitor work-related ill health issues. Due to the recent changes in how people work (e.g., working multiple jobs, working from home more often, and the gig economy) and the increasing focus on psychosocial risks in the workplace, there is a case for WorkSafe to focus on more holistic approaches to enhance workers health and wellbeing both at work and at home. As part of this shift, WorkSafe could establish themselves as a research leader in New Zealand to ensure a strong evidence base of 'what works' when improving worker health and wellbeing.

Enforcement and promotion of work-related ill health in New Zealand: Have we made progress under the Health and Safety at Work Act 2015?

Introduction

The New Zealand health and safety landscape recently underwent significant changes

As a result of the Pike River mine disaster where 29 workers lost their lives in 2010, the Minister of Labour formed the Independent Taskforce on Workplace Health and Safety in 2012 to take a critical look at the current workplace health and safety system (Independent Taskforce on Workplace Health & Safety, 2013).

As part of the Taskforce findings, a standalone Crown Agency was set up – WorkSafe New Zealand – to take the role of enforcing and educating on health and safety matters in the workplace (New Zealand Government, 2013). WorkSafe replaced the functions of the Department of Labour, which itself became part of the Ministry of Business, Innovation and Employment (MBIE). MBIE maintains the policy and legislative functions of workplace health and safety matters (New Zealand Government, 2013).

Another part of this overhaul of New Zealand's workplace health and safety system was the replacement of the Health and Safety in Employment Act 1992. This was the primary legislation relating to health and safety in New Zealand. In its place, the Health and Safety at Work Act 2015 was created (Duncan, 2016).

The shift from the Health and Safety in Employment Act 1992 to the Health and Safety at Work Act 2015

The Health and Safety in Employment Act, promulgated in 1992, consolidated all the occupational health and safety services into one place in the Department of Labour (Peace et al., 2019). The Health and Safety in Employment Act 1992 required employers to take 'all practicable steps' to ensure safety of their employees (Health and Safety in Employment Act 1992, s 6). Once a hazard was identified, employers were required to follow a hierarchy of steps: eliminate the hazard; and if that was not possible, isolate; and if that was not possible, minimise the hazard (Health and Safety in Employment Act 1992, ss 8-10).

The Act was created while New Zealand was undergoing significant government deregulation, and an increasing culture of self-regulation (Independent Taskforce on Workplace Health & Safety, 2013). In addition, falling levels of union membership meant fewer opportunities for employees to engage with employers on hazard management (Independent Taskforce on Workplace Health & Safety, 2013).

Combined with significant resource constraints, this meant an Act that was not supported by businesses and was under-resourced in terms of implementation and the inspectorate (Independent Taskforce on Workplace Health & Safety, 2013). As a result of the 'eliminate, isolate, minimise' requirements, hazard identification became the main activity of employers, rather than the proactive management of risks (Peace et al., 2019).

The replacement, the Health and Safety at Work Act 2015, emphasises the management of risks, by requiring a Person Conducting a Business or Undertaking (PCBU) to ensure the health and safety of workers, 'as far as is reasonably practicable' (Health and Safety at Work Act 2015, s 36). A PCBU is required to eliminate risks as far as is reasonably practicable, and if that is not possible, they are required to minimise risks as far as is reasonably practicable (Health and Safety at Work Act 2015, s 30).

Funding of the health and safety activities of a regulator comes partly from employers. This funding reflects the obligation of employers to take responsibility for their employees' health and safety (Sakowski & Marcinkiewicz, 2019). In New Zealand, this funding comes from the Accident Compensation Corporation (ACC) Working Safer levy, collected by ACC on behalf of WorkSafe, at a rate of eight cents per $100 of liable income from every business that employs workers (Accident Compensation Corporation, 2021).

WorkSafe has an Enforcement Policy that sets out its approach to enforcement (WorkSafe New Zealand, 2017b). The policy is used by inspectors to guide decision-making and choose the most appropriate enforcement tool. WorkSafe inspectors have a number of options when it comes to enforcement of health and safety at work. These include enforceable undertakings (EUs), infringement and prohibition notices and prosecutions (WorkSafe New Zealand, 2017a).

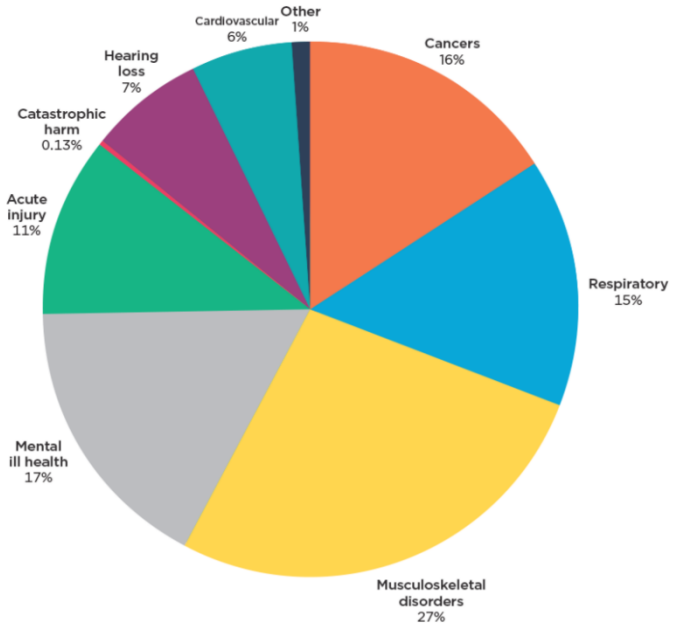
EUs are a new tool introduced under the Health and Safety at Work Act 2015 as an alternative to prosecution (WorkSafe New Zealand, 2017b) where there has not been reckless conduct as set out in section 47 of the Health and Safety at Work Act 2015. An EU is a binding agreement between the duty holder and WorkSafe and is applied for voluntarily by the duty holder where WorkSafe decides whether to accept it i.e., an EU is not imposed by WorkSafe (WorkSafe New Zealand, 2017b). In addition, Courts are able to order an EU under section 156 of the Health and Safety at Work Act 2015. EUs carry a required spend by the duty holder, which can cover a wide range of matters such as reparation to victims, supporting wider industry health and safety, and spend towards training and equipment for workers (WorkSafe New Zealand, 2017b).

Work-related ill health carries a greater burden of harm than workplace injuries in New Zealand

As part of the review, the Independent Taskforce questioned why work-related ill health receives less attention than acute-harm incidents, even though work-related ill health has greater human and financial impacts (Independent Taskforce on Workplace Health & Safety, 2013).

There are approximately 750-900 deaths due to work-related ill health in New Zealand each year (Butchard, 2019). These far outnumber the deaths from occupational injuries, for example, 63 occupational injury deaths in 2018, 110 in 2019 (including fatalities from the Whakaari volcanic eruption) and 66 deaths in 2020 (this includes time in lockdown due to the COIVD-19 pandemic) (WorkSafe New Zealand, 2021c). In addition to deaths, work-related ill health also carries a significant burden of harm, compared to injuries (WorkSafe New Zealand, 2019a). According to Figure 1, only 11 percent of the disability-adjusted life years (DALYs) lost due to work-related injuries and ill health were caused by acute injuries. Work-related ill health caused more lost DALYs, for example, 16 percent to work-related cancer and 17 percent to mental ill health (WorkSafe New Zealand, 2019a).

Figure 1 Burden of harm estimates from work-related injury and ill health



Note. From *What is Work-related Health?,* by WorkSafe New Zealand, 2019. (https://www.worksafe.govt.nz/topic-and-industry/work-related-health/about-wrh/).

WorkSafe notes in their strategic 10-year plan for managing work-related health that 10 times more workers die each year from work-related ill health than those who die in work-related safety accidents, alongside thousands more workers who suffer from work-related ill health (WorkSafe New Zealand, 2016).

Work-related ill health covers a wide range of conditions, but can be difficult to attribute to workplaces

Section 16 of the Health and Safety at Work Act 2015 defines health as covering both mental and physical health. This covers any risk to a worker's health, including bullying and other psychosocial risks, physical, chemical and biological risks (WorkSafe New Zealand, 2019b). In other countries, work-related health can also be known as occupational health.

Compared with an obvious connection between, for example, unguarded machinery and a hand injury, work-related ill health conditions are not as easily linked to a workplace. They can have a long latency period, often over many years, between being exposed and symptoms appearing (Peace et al., 2019). Workers are likely to have at least several jobs over their lifetime, meaning that attributing exposure to one specific workplace is difficult (Peace et al., 2019).

To add to these difficulties, diseases can also have a number of causes. This means it is sometimes hard to link a specific workplace to the development of symptoms, particularly if there is also a potential non-workplace cause (Butchard, 2019). For example, cardiovascular disease is an issue which may be increased by certain work-related exposures, e.g., sedentary work, stress and shift work (Rushton, 2017). However, there are also well-known lifestyle risk factors that also relate to the possibility of developing cardiovascular disease (e.g., diet and exercise), meaning it can be hard to attribute a condition to an exposure at work (Rushton, 2017).

Have the legislative changes made a difference to work-related ill health?

The National Occupational Health and Safety Advisory Committee (NOHSAC) estimated that, in 2004, there were between 700 and 1000 work-related ill health fatalities in New Zealand (National Occupational Health and Safety Advisory Committee, 2004). This equates to between 17 and 24 deaths per 100,000 population using a September 2004 population estimate of 4,100,600 (Statistics New Zealand, 2021b). This is compared with the 100 deaths caused by work-related injury in 2004 (National Occupational Health and Safety Advisory Committee, 2004).

WorkSafe revised NOHSAC's estimates in 2019, taking into account newer data, and estimated there were between 750 and 900 work-related ill health deaths per year (Butchard, 2019). This equates to between 15 and 18 deaths per 100,000 population using a September 2019 population estimated of 5,006,900 (Statistics New Zealand, 2021b). As the estimates per 100,000 population in 2004 and 2019 overlap, this suggests that work-related ill health deaths do not appear to have significantly improved over the 15-year time period.

This higher burden of work-related ill health compared with work-related injury is not distributed evenly across the working population of New Zealand. Māori and Pacific Peoples are over-represented in high-risk industries (Independent Taskforce on Workplace Health & Safety, 2013). Due to the higher potential exposure to occupational risk factors (e.g., chemicals, noise, heavy lifting or dust), Māori have a higher risk of developing work-related health conditions (e.g., work-related hearing loss or musculoskeletal conditions) (Denison et al., 2018).

There is little research into New Zealand enforcement activities for work-related ill health

Enforcement activities, such as inspections and prosecutions, can have a strong effect on the reduction of workplace injuries (Andersen et al., 2019; Tompa et al., 2007, 2016). However, there are limited studies on enforcement activities for work-related ill health under the Health and Safety at Work Act 2015. Due to the high burden of work-related ill health in New Zealand, this research will investigate how WorkSafe enforces and promotes work-related health to help inform future WorkSafe activities and development of policy. This report will look at three research questions:

1. How did enforcement activities change between the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015?
2. What are the enforcement and promotion activities undertaken by WorkSafe in relation to work-related health in New Zealand compared with injuries?
3. What is the state of New Zealand's current health and safety system that WorkSafe operates in?

Literature review

This literature review is in three parts. First, it discusses the importance of managing work-related health, identifies recent changes in the way people work and due to this, suggests that a departure from traditional approaches may be needed.

Secondly, the review identifies the components needed for a well-functioning health and safety regulatory system. While this research report is focussed on the promotional and enforcement activities of WorkSafe, consideration is also given to the overall system in which it operates. Without an enabling system, any initiatives aimed at improving WorkSafe activities towards improving work-related ill health may not be fully realised.

Finally, this review looks at what works at improving work-related health, with a view towards identifying whether these initiatives can be used in the New Zealand environment to improve the way work-related health is managed here. Traditional enforcement activities, integrated approaches, upstream shifts and nudge theory are discussed. Possible limiters are identified, including considerations of smaller businesses and the lack of well-designed evaluations of initiatives.

While this research is focussed on work-related health, it is sometimes impossible to separate health issues and safety issues when considering the literature, particularly when considering the system as a whole. While some literature included in this review is focussed only on work-related health, other literature will cover both health and safety matters. Additionally, some studies are focussed only on the reduction of injuries as a measure, however these are still useful to include in this review.

Why is it so important to manage work-related health?

As defined by the World Health Organization in 1948, “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1948).

Unhealthy workplaces do not just affect those that work there - it goes much wider. Workers inadvertently bring hazardous substances such as asbestos home and expose their families; people walk past construction sites and are exposed to dust; stressed and burnt-out healthcare workers make mistakes in the care of a patient (Finkel, 2018).

It is estimated that globally there are approximately 2.3 million deaths per year attributed to work, with 2 million of these deaths related to occupational diseases such as cancer and circulatory disease (Rushton, 2017). In addition to deaths, occupational injuries and diseases also cause an estimated 2.3% of all DALYs worldwide, with most of these DALYs being related to injury and ergonomic exposures (Driscoll et al., 2020).

The costs of work-related ill health are significant both in terms of human and economic (e.g., loss of productivity, healthcare, administration) costs. A study in the UK estimated that the costs of work-related cancer in 2010 were £12.3 billion, and individuals bear 98% of these total costs due to either loss of life, or loss of quality of life (Health and Safety Executive, 2016).

Changes in the way people work suggest a new approach may be needed

Recent years have seen a shift in the labour market. People may hold more than one job or work extended hours, they may only work part-time when they want full-time hours, they may change jobs more frequently, and they may feel less secure in their employment (Julià et al., 2017). These conditions may affect workers health and quality of life, including mental health (Julià et al., 2017). This shift in the way people are employed will make it harder to track workplace exposures and attribute any work-related ill health conditions to a specific workplace.

An increasing number of people are now working in a 'gig economy', a task-based, short-term, and informal form of employment where the workforce is generally younger and uses the gigs to supplement existing jobs (Health and Safety Executive, 2019). The gig economy brings with it specific health and safety risks, likely around stress and other psychosocial issues, with weaker evidence around an increased risk of fatigue and other occupational injuries (Health and Safety Executive, 2019).

There has also been a shift in the way people perform their workplace duties. Due to the effects of the COVID-19 pandemic, there has been a large shift in the way people work, with more people working from home or away from the office (Parker, 2020). This has required employers to consider how best to monitor their employees' health in this new working environment. Due to the COVID-19 pandemic, employees may experience heightened levels

of stress, and employers need to take this into account when discharging their duty of care (Parker, 2020).

It is becoming more common for people to continue working past statutory retirement age (Sewdas et al., 2017). This phenomenon means that workers will have more chance for exposures to unhealthy work environments. Additionally, older people are more likely to have comorbidities which may require special considerations in the workplace and may be more at risk of developing work-related ill health conditions, for example, musculoskeletal disorders (Meehan et al., 2021; Okunribido et al., 2011; Smith & Berecki-Gisolf, 2014).

There are suggestions that these changes in the way people work mean that the traditional distinction between work and non-work exposures should be removed (Kim et al., 2016), and instead interventions should focus on more holistic, public health approaches (Peckham et al., 2017). This is because it can become harder to ensure workers are safe at their 'workplaces' e.g., through people working from home more often, or working multiple jobs.

A shift from 'health and safety' to 'health and wellbeing'

In terms of organisational practice, the focus is still largely on work-related safety, rather than work-related health. Verra et al., (2019) found that while 73% of organisations have measures to protect against physical harm, only 30% had measures to promote health and only 35% took measures to prevent psychosocial risks. This 'safety, not health' effect is also seen in researchers. A systematic literature review of 21 occupational health and safety management systems across the world that found that the studies themselves (i.e., the researchers) also placed more of an emphasis on safety, rather than worker health (da Silva & Amaral, 2019).

Combining prevention and promotion

Traditionally, workplace health and safety and workplace health promotion were considered separate specialties, with separate initiatives aimed at improvements (Cooklin et al., 2017). However, combining the two disciplines can enhance workers health and wellbeing and improve their safety at the same time, creating a more efficient way to ensure employees are safe and healthy at work (Cooklin et al., 2017). This can require a shift in thinking, as shown by Verra et al., (2019), who looked at health and safety policies across EU countries and linked them to how organisations within each member state practice health and safety.

The authors found that, overall, policies are focused on prevention of harm, not promotion of health and safety (Verra et al., 2019).

Shifting from health and safety to health and wellbeing

Going a step further than the approach noted by Cooklin et al., (2017) above, Verra et al., (2019) urged European Union member states to adopt policies that aim to actively improve the health and well-being of workers. As stated by Duncan (2016):

> The…shift in thinking required to regulate for chronic occupational health problems is to accept the need to regulate working conditions that lead to poor worker health, including potentially management practices, job design, working hours, social interaction in the workplace, worker autonomy and participation, performance and remuneration systems. This shift is likely to be much more difficult than determining 'how' to regulate for worker health (Duncan, 2016, p. 99).

As identified by Peckham et al., (2017), the shift towards a more public health approach would involve looking after the health of workers, their families and their communities by combining management of physical and psychosocial risk factors at work with non-work conditions that may have resulted, at least partly, from work:

> …a reconceptualization of 'occupational health' towards a more comprehensive and public health-oriented model addressing 'worker health'. In doing so, we need to retain the central insight of occupational health, which identifies the structural work environment as the key focus for health intervention, through meaningful participation by workers in enhancing their working lives. Through the lens of worker health, we can integrate specific conditions found at the workplace, including traditional physical, chemical, and biological hazards and psychosocial stressors, with the economic and social conditions created for individuals and communities through work. This integrated approach more directly addresses the role of work and work conditions in public health, including those giving rise to stark health disparities throughout society (Peckham et al., 2017, p. 13).

To achieve this shift, Kim et al., (2016) suggests that the system needs to move from a traditional 'safety culture' to a 'prevention culture', which is driven by government rather than workers. A prevention culture is aimed at reducing not only work-related risks, but also looks at non-work-related risks e.g., those at the national and society level (Kim et al., 2016). To illustrate what this shift would require, Kim et al., (2016) compares the two approaches:

- Safety cultures mostly cover high-risk industries and small business, whereas a prevention culture covers all workers including the self-employed
- Safety cultures aim to reduce only work-related risks, whereas a prevention culture looks holistically at work and non-work risks
- Safety cultures target the workplace, whereas prevention culture also looks further to societal effects
- Safety cultures cover accidents and well-established occupational diseases, whereas a prevention culture also includes psychosocial illnesses
- Safety cultures focus on prevention, whereas a prevention culture combines both prevention and promotional activities
- Safety cultures are managed by the health and safety regulator, whereas prevention culture includes other government agencies e.g., the Ministry of Health.

What are the components of a good health and safety regulatory system?

The role of regulatory agencies in convincing employers to invest in health and safety for their workers is a key part of improving workers health and safety (Sakowski & Marcinkiewicz, 2019; Verra et al., 2019). As stated by Rantanen et al., (2017):

> …a well-developed OHS system will also be in a key position to support the development of productivity and the prevention of productivity loss. This takes place through the prevention of sickness absenteeism and premature disability, the control of losses from occupational accidents and diseases, and through striving for longer working careers among the ageing working populations by promoting health, work ability and better work organization (Rantanen et al., 2017, pg. 2).

A well-functioning system that effectively manages and prevents occupational diseases should contain the following, according to Keefe et al., (2017):

- Supportive legislation and regulations
- Regulator activities aimed at prevention, for example, inspections and education
- National surveillance systems to allow for impact evaluation of initiatives and to monitor trends
- The adoption of a prevention by design approach to prevent exposure and create opportunities for innovation.

Legislation and regulations are the backbone of the health and safety system

Legislation sets out how the inspectorate enforces and promotes health and safety in businesses (Mischke et al., 2013). In terms of preventing work-related ill health, regulatory approaches tend to either ban substances (e.g., asbestos), place limits on exposures, or establish guidelines on safe use (Keefe et al., 2017).

Legislation and accompanying regulations establish the minimum protection level for workers, by establishing general duties, hazard-specific requirements and the parameters for enforcing the legislation (Keefe et al., 2017). Effective regulations clearly communicate key risks to organisations, are easily enforceable by regulators and establish incentives for businesses to comply (Tompa et al., 2016).

Inspectorate resourcing and expertise to manage current and emerging issues

Worldwide, while the majority of countries may have policies, strategies and programmes pertaining to health and safety, a common implementation gap is resourcing and infrastructure limitations, for example, service provision models (Rantanen et al., 2017). Limited infrastructure leads to gaps in coverage, particularly among small businesses (Rantanen et al., 2017).

Shortages of inspectors is a common gap across the world that can be difficult to close. Often, the numbers of inspectors do not keep up with population growth in the workforce, and budget pressures lead to regulators cutting inspector numbers (Johnstone et al., 2011). Increased pressure on remaining inspectors may cause higher turnover (Jones, 2019). This type of resourcing situation was evident in the mining inspectorate at the New Zealand Department of Labour, where an independent investigation after the Pike River disaster

found that the inspectors were under-resourced, not supported by management, and requests for additional inspectors were denied, all leading to an inability to carry out the required functions (Shanks & Meares, 2013).

In order for a regulatory body to be effective, enforcement officers need up-to-date training, otherwise emerging risks may go unmanaged. In a global survey of occupational health services (New Zealand was not included), the priorities for development of future services were based on strengthening the implementation through content, capability and capacity of the regulator (Rantanen et al., 2017).

There are well-known health issues related to work with clear links between exposure and effect and good knowledge about what works to lessen the risk, for example, occupational asthma and noise-related hearing loss (Keefe et al., 2020). However, there are other emerging issues that relate to work where inspectors may be less sure about the best way to manage these risks. For example, burnout syndrome is a chronic, stress-related disease that is beginning to be acknowledged by some countries as an occupational disease (Lastovkova et al., 2018).

There is also a growing focus on mental health at work but despite this increased focus, inspectors may lack the knowledge and skills to help organisations manage this risk (Weissbrodt & Giauque, 2017). An analysis of inspectorate activities in Australia found that psychosocial hazards were only a small area of activity (Johnstone et al., 2011). Inspectors stated they were aware of the hazards, but felt they had insufficient training and resources to properly enforce (Johnstone et al., 2011). From a business perspective, in the EU, one in four may report high stress levels at work, but only 35% of organisations are taking steps to prevent these psychosocial risks (Verra et al., 2019).

Robust surveillance systems are needed to accurately determine the size of the problem

A national surveillance system is essential for correctly showing the size of the problem, identifying emerging trends and measuring whether interventions have made a difference. A review of occupational disease systems across the EU found that the majority of systems report on diagnosis, date reported, gender, age, occupation, sector and exposure (Carder et al., 2015). Less common was reporting on exposure duration, workplace address, symptoms, onset date of symptoms and susceptibility (Carder et al., 2015). The level of proof required

to show a disease was linked to the workplace varied across countries (e.g., mesothelioma was generally accepted as an occupational disease, but linking asthma needed a higher level of proof) (Carder et al., 2015).

Countries generally acknowledge that there is an under-reporting of work-related ill health conditions and the extent of the under-reporting is unknown (Carder et al., 2015). This means that the exact size of the problem is hard to quantify. Factors that played into under-reporting are the occupational health training of the physician and the self-employment status of the worker (Carder et al., 2015).

As an example of under-reporting, a research report conducted in the UK found that there was little information available on both the prevalence and incidence of work-related ill health within the agriculture sector in 2005 (Cowie et al., 2005). The authors stated that, although agricultural workers suffered from a range of work-related ill health conditions, in most cases it was not possible to establish a baseline of prevalence so the effects of any interventions could be measured (Cowie et al., 2005).

Consideration of the complex systems at work

Systems approaches consider how all the different parts of a system interact with each other and how the parts can work together to effect change (Sims & Aboelata, 2019). Health and safety systems today are increasing in complexity due to emerging technologies, resource constraints and a drive to improve productivity (Karanikas et al., 2020). Any interventions should look at changing multiple points in the system and consideration of how the system looks in the future means that interventions may need to adapt and change (Hodgson & Midgley, 2014).

Systems approaches to improving health and safety involve proactive risk management and feedback loops rather than reactive, static interventions (Karanikas et al., 2020). These approaches can reduce instances of worker harm, and improve productivity (Karanikas et al., 2020).

In addition to internal systems, consideration of the overall system is also needed. While regulatory interventions can be effective in improving outcomes for work-related health issues, their impact is influenced by: the context of their implementation, i.e., the political, economic and social environment; the effectiveness of the enforcement regime; and the

mechanisms available for keeping abreast of new scientific developments (Keefe et al., 2020). Hasle (2011) looks at the issue from the point of view of the worker and also suggests a move from the usual risk control approach to considering how regulations, market forces and business activities and constraints affect how a business may view a potential solution.

What works when improving work-related health?

Effectiveness of traditional enforcement activities

Verra et al., (2019) conducted regression analyses between EU member state policies and organisational practice and found that inspections are successful in achieving implementation of health and safety policy. A Cochrane review on whether enforcement activities, such as inspections, improve workers' health and safety found that there was no evidence that inspections decreased the number of injuries in the short-term, but there was positive evidence for a reduction of injuries in the longer-term (Mischke et al., 2013). The authors also looked at worker support for inspections and found that while there is support, there is doubt as to their effectiveness as inspections are not carried out very often and any violations can be fixed on a temporary basis (Mischke et al., 2013).

Supporting the positive evidence of a long-term reduction in work-related injuries from inspections as seen above, specific citations and penalties can have a strong effect on the reduction of injuries (either frequency or injuries), according to a systematic review by Tompa et al., (2007). The specificity of an actual inspection had a greater effect than general deterrence (i.e., the threat of an inspection) (Tompa et al., 2007). In an update of this review, the authors continued to find strong evidence of citations and penalties reducing injuries (Tompa et al., 2016). This finding was further confirmed in a systematic literature review by Andersen et al., (2019) who found moderately strong evidence for the effect of inspections on injuries and/or compliance rates. A study of prosecutions and injury claim rates in Alberta, Canada found a statistically significant difference in injury claim rates in both the prosecuted organisation and neighbouring organisations in the same industry before and after the prosecution (Manira, 2018).

As a possible explanation for the reduction in injuries seen as a result of citations and penalties, a study investigated what happens when the regulatory agency publicises a company's violation of health and safety regulations (Johnson, 2020). The author found

that, when the Occupational Safety and Health Administration (OSHA) in America published press releases of companies that were fined above a certain amount in local newspapers and trade publications, this lead other companies in the region improving compliance and in addition, a reduction in injury rates was seen (Johnson, 2020). The author calculated that OSHA would need to perform 210 extra inspections to get the same result in compliance improvement as one press release (Johnson, 2020).

Awareness campaigns

Awareness campaigns are often based around the theory of health behaviour change, in which some researchers suggest a linear relationship: increasing knowledge in something will change a person's attitude, which will in turn change a person's behaviour (Newnam & Muir, 2015).

Regulatory agencies often run awareness campaigns for particular risks or industries. A review of twelve systematic reviews and four government reports found that the evidence around behaviour change from awareness campaigns was ambiguous, however only the government reports related to health and safety, while the systematic reviews were only based on public health (Newnam & Muir, 2015). In a later systematic review, Tompa et al., (2016) found moderate evidence that awareness campaigns improve compliance, but limited evidence that they reduce injury rates. The authors suggested that raising awareness and ultimately reducing injury rates may take longer than studies measure outcomes for (Tompa et al., 2016). A later systematic review confirmed the latter by finding limited evidence that campaigns reduce injuries (Andersen et al., 2019).

Health and safety training in workplaces

Regulators can be involved in the training of workplaces on their health and safety responsibilities through seminars, workshops and other education. This training may be provided to workers, or to management, or both.

A systematic literature review and meta-analysis found strong evidence for training on workers' attitudes and beliefs towards occupational health and safety (Ricci et al., 2016). However, the strength of evidence decreased when looking at the effect of training on worker behaviour, and further still on evidence for health outcomes (Ricci et al., 2016). In terms of the effectiveness of the different types of training, classroom training was not

always effective, and non-compulsory self-learning was seen as most effective (Ricci et al., 2016). A later systematic review found limited evidence between health and safety training and knowledge and practice (Andersen et al., 2019).

Integrated approaches to health and safety: combining prevention and promotion

An integrated initiative is one that combines work-related health and safety protection and promotion, and involves management and company policies (Cooklin et al., 2017). Integrated workplace intervention programmes that aim to create a culture of valuing and managing health, safety and wellbeing are relatively new, and evaluations are limited, but they can have positive outcomes like reduced sickness absence and turnover (Joss et al., 2017). Examples of programme components include walking challenges, fruit baskets and mental health improvement initiatives (Joss et al., 2017).

A systematic review found that the most effective initiatives were those that aimed to improve workers' physical or mental health (Cooklin et al., 2017). Integrated initiatives that targeted health and safety management or injury prevention had more inconsistent evidence of effectiveness (Cooklin et al., 2017).

Success factors include the need for active leadership and commitment, budget and resourcing, and employee participation (Joss et al., 2017). Interestingly, little has changed from 1977, where Alexander Cohen identified the two most influential factors for successful safety programmes as management commitment, and close contacts and open communication between employees and management on safety matters (Cohen, 1977). Indeed, the current international standard for occupational health and safety management systems (ISO 45001) requires leadership commitment (including ensuring sufficient resources are available), and consultation and participation of workers (ISO 45001:2018-Occupational Health and Safety Management Systems: Requirements with Guidance for Use., 2018). Common barriers to implementation include time constraints, cost, lack of employee interest and lack of staff (Sedani et al., 2019).

Additionally, there will be variation between types of organisations and their willingness to undertake health promotion initiatives (Verra et al., 2019). Financial and scientific sectors were more likely to implement these types of initiatives than the manufacturing sector, with the authors suggesting this is because it is easier to promote health in offices than factories

(Verra et al., 2019). However, Cooklin et al., (2017) found that integrated approaches were successful in reaching workforces with high risks of injury and who are less likely to engage in health promotion.

A possible shift upstream to eliminate hazards at the source

Prevention by design is an approach that focusses on the upstream elimination of hazards instead of the downstream approach of controlling exposures at workplaces (Keefe et al., 2020). Instead of focussing on interventions at the source of exposure, Keefe et al., (2020) suggests that:

> …the more strategic primary prevention approach would be to move upstream and focus on eliminating the hazard at its source, thereby reducing the burden on small employers and workers for prevention. Adopting or legislating such a "prevention by design" approach could create opportunities for occupational health to become an economic engine that drives innovation and technology (Keefe et al., 2020, p. 506).

Effective implementation of this approach requires good collaboration between designers and clients and easy access to suitable information sources for the client (Pirzadeh et al., 2020). As it is an emerging concept, the lack of scientific evidence, the additional cost and time, and the lack of good practice examples are considered to be barriers to implementation (Guo et al., 2021).

Smaller businesses can have a harder time managing risks

Smaller companies have higher risks of exposure and more difficulties in managing risk, therefore what works for a large company may not work for a small company (Hasle & Limborg, 2006). A modelling study of the New Zealand construction industry found that smaller companies had a poorer safety record, which was in line with other studies they found (Ghodrati et al., 2018).

Solutions that are simple and low-cost may be the most effective in small business, particularly when implemented through personal contact with the organisation providing the solution, rather than via written information (Hasle & Limborg, 2006). As an example of personal contact, the use of intermediaries as a way of disseminating solutions between the regulator and small businesses can be effective (Hasle & Limborg, 2006). A survey of small businesses in New Zealand suggested that suppliers of chemicals have influence over the

way they carried out work (e.g., hairdressers and their use of chemicals) (Olsen et al., 2010). Intermediaries are also useful in influencing small businesses to sign up to regulator safety programmes due to their understanding of the industry they operate in (Olsen & Hasle, 2014). Accountants as intermediaries have promise, but a limitation may be that health and safety is only a minor part of what they cover with clients (Hasle et al., 2010).

Due to the limited resources available to smaller businesses, programmes need to specifically tailored to take into account the context of smaller businesses (Kvorning et al., 2015). Programmes that are considered as forced onto the business tend to have reduced participation and the involvement of employer associations or unions can have a positive effect on participation (Kvorning et al., 2015).

Nudge theory

Nudge theory is an emerging field of behaviour change research that aims to improve the wellbeing of people by providing them with an alternative option without forbidding the original course of action (Venema et al., 2017). Nudges are often seen in healthcare, nutrition, retail and finance settings, but the possibility of introducing nudges into the workplace health and safety setting is starting to be explored (Lindhout & Reniers, 2017).

In terms of workplace wellbeing settings, nudge theory has been used successfully to encourage more people stand at work by making stand the default setting on a sit/stand desk, and the effect is retained at least two months after the intervention (Venema et al., 2017). In France, nudge was used in workplace cafeterias by using green labels for healthy items, and two years after the introduction of the labels, the purchase of the labelled items was still higher compared with the control site where no labelling occurred (Montagni et al., 2020).

Translating this success to safety issues in the workplace is an area of current research, for example, using nudge to ensure correct personal protective equipment (Lindhout & Reniers, 2017). However, Lindhout & Reniers (2017) note that, at the time of writing their paper, no such interventions existed in the process industry that were available for evaluation, indicating this is an emerging field of study.

There are ethical considerations with using nudge theory. While policies and interventions are explicit and people are aware of why their choices are modified, nudges can be viewed as taking away the freedom of choice (Lin et al., 2017). Any government implementing nudge needs to identify the public views on nudge and consent (Lin et al., 2017).

Evaluation of interventions are limited

In terms of 'what works', the difficulties of conducting longitudinal studies in the workplace mean that there are few well-designed studies on the effectiveness of interventions aimed at preventing workplace ill health (Keefe et al., 2020; Mischke et al., 2013). Workplaces may see high turnover or workers may be employed in more than one workplace, making it difficult to track workers for a sustained period of time, and to attribute any effects to a particular intervention.

Untested initiatives may be less likely to be implemented by regulators, who often prefer to rely on programmes with clear evidence of effectiveness (Luyten et al., 2017). In terms of the type of evaluations that can be persuasive, economic evaluations can help provide clear evidence of cost-effectiveness in an increasingly resource-constrained environment that governments often operate in (Luyten et al., 2017).

Summary

This literature review highlights the importance of managing work-related health due to the high economic and human costs associated. The recent shift in the labour market has meant that more people are in precarious employment and may be working more than one job, or working for longer in terms of hours or age, and may have changed the way they work due to the COVID-19 pandemic. This change makes it harder to ensure workers are safe at their places of work and suggests that a shift in the way health and safety risks are managed may be required, removing the distinction between work and non-work exposures, and applying a more holistic focus.

To support this shift, and indeed, support any initiative aimed at improving worker health, a regulatory health and safety system needs to be well-functioning, with responsive and clear legislation, an appropriately resourced and skilled inspectorate, and a robust surveillance system that is capable of monitoring trends and identifying emerging risks.

The evidence behind specific initiatives aimed at improving worker health and safety is varied. There is strong evidence that traditional enforcement activities reduce injury rates (studies related to work-related ill health rates were not identified), however the evidence is less clear behind the effectiveness of awareness campaigns and health and safety training. Other emerging initiatives include integrated programmes that combine traditional health protection with health promotion and the idea of applying Nudge Theory to the workplace. Limitations of initiatives include the particular needs of small business and the lack of well-designed evaluations to strengthen the evidence base that can help strengthen government buy-in.

Methodology and methods

A main finding of the literature review was the effectiveness of traditional enforcement activities against injury rates, and the absence of studies relating to the effects of enforcement rates on work-related ill health measures. Therefore, New Zealand prosecutions were identified as a key area for investigation to answer the aim of this research: to investigate current work-related health promotion and enforcement activities in New Zealand under the Health and Safety at Work Act 2015; and to compare enforcement activities with the previous regime under the Health and Safety in Employment Act 1992.

The objectives of the research were:

1. To understand the landscape for improving work-related health in New Zealand under the Health and Safety at Work Act 2015.
2. To understand whether the enforcement activity landscape has changed from the Health and Safety in Employment Act 1992 to the current Health and Safety at Work Act 2015.
3. To understand the state of New Zealand's current health and safety system that WorkSafe operates in.

Methodology

A research paradigm sets out the framework of beliefs and assumptions under which a study should proceed (Kuhn, 2012). It sets out assumptions on the ontology (nature of reality), epistemology (knowledge) and methodology of the research (Kaushik & Walsh, 2019).

Post-positivism and constructivism are two common research paradigms with which to design research. Post-positivism tends to use deductive reasoning through quantitative methods (Kaushik & Walsh, 2019). Constructivism uses inductive reasoning through qualitative methods and can be considered as the opposite of post-positivism (Kaushik & Walsh, 2019). There is a third research paradigm – pragmatism – that sits between the two common research paradigms, and allows for flexibility in the choosing of methods (Kaushik & Walsh, 2019).

This study operated under a pragmatic research paradigm as it provides flexibility by allowing multiple methods to solve the research questions at hand (Kaushik & Walsh, 2019). In a pragmatic approach to research, knowledge is based on experience, and how we view the world is influenced by our experiences (Kaushik & Walsh, 2019). Pragmatism accepts the existence of multiple realities to investigate (Creswell & Plano Clark, 2011). Due to the multiple types of data available for answering this study's research questions, the pragmatic paradigm was the ideal approach.

Prosecutions

The Lexis Advance® database was used to identify cases at the District Court level involving the Department of Labour (for prosecutions under the Health and Safety in Employment Act 1992) and WorkSafe New Zealand (for prosecutions under the Health and Safety at Work Act 2015). Case details, including fines, court locations, industries, dates of hearings, and descriptions were extracted and entered into Microsoft Excel as the data entry programme.

To ensure completeness of the data set, WorkSafe was used to cross-check the results where WorkSafe was the prosecutor. WorkSafe publishes results of all the prosecutions it carries out on their website. For cross-checking cases prosecuted by the Department of Labour, a previous dataset recently created for another research project at the Victoria University of Wellington was used.

Decisions in the higher Courts (e.g., the Supreme Court and the Court of Appeal) were not included. These courts as used for appeals, and this research was only concerned with the number of incidents that were prosecuted under health and safety legislation. For the same reason, cases in the High Court that were appeals of District Court decisions were also not included.

Data cleaning

When entering the results into Microsoft Excel, the following rules were applied:

- This research project only looked at the number of incidents prosecuted under health and safety legislation. Where an incident was listed multiple times (e.g., through appeals, or multiple defendants), this counted as one incident in this analysis.

- If the facts of a case were not available through searching websites such as districtcourts.govt.nz, Lexis Advance®, and Google, it was not included.
- Dates of prosecutions and fines occasionally varied between sources when crosschecking (e.g., between Lexis Advance® and WorkSafe's website). Where this occurred, Lexis Advance® was used.
- Where more than one defendant was involved in a prosecution, the larger fine was used in calculations.

Enforceable undertakings

Enforceable undertakings are publicly available on the WorkSafe website, and all are included in the analysis. Details including dates, total expenditure and descriptions were extracted and entered into Microsoft Excel.

Campaigns

In addition to enforcement, WorkSafe also provides education on health and safety matters. Since its inception, WorkSafe has run health and safety campaigns aimed either at specific health and safety issues, or at particular industries or target groups. These campaigns are wide ranging and can be run across multiple media (e.g., posters, radio, television). These campaigns differ from the usual targeted promotional efforts that WorkSafe undertakes with different industries as part of their work. Campaigns were chosen as the indicator of promotional activity due to their wide-reaching nature, including reaching the public, and use of multiple media (e.g., posters, radio, television), which can suggest the relative importance that WorkSafe places on these issues compared to others.

Details of all WorkSafe campaigns run since WorkSafe's inception up to July 2021 were obtained by an Official Information Act request. The following information was provided:

a. Title of campaign
b. Purpose/description/risk focus
c. Relevant dates/duration of campaign
d. Media and mode(s) used (e.g., print, TV, radio, online video, website, social media)
e. Intended audience (e.g., public, workers).

A comprehensive list of Department of Labour campaigns was not available, therefore no comparisons between Department of Labour and WorkSafe in relation to public campaigns was carried out.

Organisational documents

The WorkSafe website was searched to find documents, strategies and policies on work-related health. Organisational documents such as annual reports were also included. The MBIE's website was also searched, as MBIE is responsible for the policy and regulatory functions of the Health and Safety at Work Act 2015.

Rapid literature review

While systematic reviews aim to identify all relevant literature relating to a topic, and assess each study's quality of evidence, they are more resource and time intensive than rapid reviews (Nussbaumer-Streit et al., 2016). Compared to systematic literature reviews, rapid reviews take shortcuts in identifying literature, assessing the quality and synthesising the results (Nussbaumer-Streit et al., 2016). Due to the timeframe and size of this research project, a rapid review was the pragmatic choice.

Literature, both peer-reviewed and grey, was included in a rapid literature review that aimed to look at approaches to work-related health enforcement and promotion. PubMed was used as the search engine for peer-reviewed literature. Studies published in English since 2010 were prioritised, however, older studies were included where they enhanced the argument. Key words used in the search were 'occupational health, 'work-related health', 'health promotion', 'enforcement', 'legislative, 'intervention', 'regulation'. Google was used as the search engine for grey literature using the same keywords, and only government-published documents were included.

Summary

In order to achieve the aim and objectives set out in this research report, this research used a mixed-methods approach under a pragmatist paradigm. Enforcement data and document analysis were used to create a case study of WorkSafe New Zealand's enforcement and promotion of both health and safety matters. A rapid literature review complemented the case study findings by identifying potential ways of enforcing and promoting work-related health and considering their application to the New Zealand system.

Results

From the analysis of enforcement data and documents, this section sets out the following results:

- The current operation of WorkSafe and how they enforce and promote work-related health, with comparison to work-related injuries where possible.
- How enforcement activities as they relate to prosecutions changed between the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015.

What are the enforcement and promotion activities undertaken by WorkSafe in relation to work-related health in New Zealand compared with injuries?

New Zealand's legislative system under which WorkSafe operates

The Health and Safety at Work Act 2015 sets out the duties of employers to manage the health and safety of their employees (see introduction section for more detail). Underpinning the Act are associated regulations, guidelines and Approved Codes of Practice that set out more detailed requirements about what is needed for management of risks.

Some regulations are specific in their requirements, for example the Health and Safety at Work (Asbestos) Regulations 2016 set out requirements for employers to analyse, signpost, prepare a management plan and provide health monitoring for their workforce as set out by the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016.

WorkSafe is responsible for operationalising the legislation while MBIE is responsible for the development and maintenance of policy and legislative functions.

WorkSafe's 10-year strategic plan to improving work-related health

In 2016, WorkSafe published a 10-year strategic plan for work-related health that runs through to 2026 (WorkSafe New Zealand, 2016). Each year, WorkSafe reports against this plan and lists the activities they have undertaken. The plan is centred around three themes:

1. Industry leadership – including awareness, participation and learning; partnering with others; health by design; and the development of the workforce

2. Regulatory effectiveness – including organisational capability; guidance and education; research and intelligence; and regulatory framework
3. Step change – where targeted intervention programmes on priority risks are implemented.

There is an overarching Health and Safety at Work Strategy that contains the Government's vision and direction for where New Zealand should be by 2028 (New Zealand Government, 2018). Work-related health, including mental health, is a priority, as are small businesses, high risk sectors and workers with greater need e.g., Māori (New Zealand Government, 2018).

Mental health at work is a priority for WorkSafe (WorkSafe New Zealand, 2020b) and a sustained area of public interest (WorkSafe New Zealand, 2020b). WorkSafe has established a Mentally Healthy Work team that aims to improve their capability and capacity to manage and communicate these risks (WorkSafe New Zealand, 2021d).

The Inspectorate

Enforcement activities

Inspectors carry out a variety of enforcement activities, including investigations, proactive assessments and prosecutions. In 2018/19, WorkSafe aimed to have at least half of their proactive inspections focus on risks associated with work-related health (WorkSafe New Zealand, 2018b). The actual split between work-related health and safety enforcement activities overall was not available for this research.

For years with full data available (WorkSafe New Zealand, 2021b), Table 1 Activities under WorkSafeTable 1 shows that while enforcement activities overall are increasing, the number of investigations are decreasing and prosecutions are only increasing slowly.

Table 1 Activities under WorkSafe

	Assessments	Enforcement activities*	Investigations	Prosecutions
2017	13396	3941	305	42
2018	14693	9876	215	49
2019	13696	12310	185	60

- Includes Improvement notices, Prohibition Notices, Hazardous Substance and New Organism (HSNO) compliance orders, Infringement notices, Written Warnings (HSE only), Negotiated Agreements/Agreement Letters (HSE only)

Enforceable undertakings

Between 2017 and end-June 2021, WorkSafe accepted 33 EUs and one EU was court-ordered (WorkSafe New Zealand, 2021a). Out of the 34 EUs, only two were work-related health matters that related to the same incident (carbon monoxide poisoning). The remainder were related to workplace injuries, e.g., falls from height or equipment. Of the 34 EUs, the mean total expenditure per EU was $314,322 and the median was $187,878. The two work-related health EUs had total expenditures of $185,000 and $80,000, showing a lower level of required spending for work-related health issues compared to work-related injuries.

Inspectorate resourcing and knowledge

Growing the Inspectorate is a constant goal of WorkSafe, and numerous programmes relating to retention, recruitment and development of inspectors are implemented (WorkSafe New Zealand, 2020a).

Ensuring that the inspectorate has appropriate training to manage work-related health risks is part of WorkSafe's 10-year strategic plan for work-related health (WorkSafe New Zealand, 2016). WorkSafe intends to improve its workforce's technical subject matter capability by providing training and development activities on work-related health matters (WorkSafe New Zealand, 2016).

These ongoing programmes of work indicate that there continues to be a shortage of appropriately trained inspectors at WorkSafe.

WorkSafe campaigns

In addition to enforcement, WorkSafe also provides education on health and safety matters. Since its inception, WorkSafe has run health and safety campaigns aimed either at specific health and safety issues, or at particular industries or target groups. These campaigns are wide ranging and can be run across multiple media (e.g., posters, radio, television). These campaigns differ from the usual targeted promotional efforts that WorkSafe undertakes with different industries as part of their work.

According to Table 2, WorkSafe has run eight campaigns between May 2014 and end-June 2021 (WorkSafe New Zealand, personal communication, August 6, 2021). Of these eight, three could be considered as covering work-related health risks: the ‘Safer Farms’ campaign covered the use of chemicals, the ‘Use Your Mouth’ campaign covered bullying, and the ‘Safe Guy’ campaign covered the use of PPE in the workplace. All these campaigns also covered safety issues and no campaigns were solely focused on work-related health matters.

Table 2 WorkSafe Campaigns since formation

Campaign	Description	Purpose	Risk-focus	Target population	Duration	Media
WorkSafe Introduction	Hero images of a range of workers with WorkSafe's vision 'Everybody that goes to work, gets home healthy and Safe'	To launch WorkSafe and raise awareness of WorkSafe's purpose	Not risk-specific	Workers and employers in high-risk sectors	May – August 2014	Billboards, targeted email, targeted search and news content
Safer Farms	Hero photography of key farm risks and the harm they cause	To raise awareness of key health and safety risks on farm, drive traffic to the Saferfarms website with agriculture specific tools and resources for managing health and safety.	Adverts included vehicles, stock, and chemicals	Workers and employers in the agricultural sector	November 2014 – June 2017	Targeted rural media - print, radio and digital banner placement
Home Time	Television commercial-lead campaign using industry leaders of Z Energy, Downer, Griffins to highlight New Zealand's poor health and safety record and the role all New Zealanders need to play to get our people back to their families at the end of each day	To raise awareness of New Zealand's unacceptably high workplace death and injury toll. Send a clear message that safety needs to be a priority for all New Zealanders	Not risk-specific	All New Zealanders	March 2016 – June 2017	Television commercials, radio, online video, digital banners
Energy Safety	Use of an animated cat Claude, to highlight seasonal Energy Safety risks	To raise awareness and understanding of key risks and actions people can take to stay safe around gas and electricity at home and at work	Gas and electrical	All New Zealanders	July 2016 – present	Radio, online video, digital banners, targeted billboards, social media
Use your mouth	Use of sports commentators placed in different work scenarios talking to potential incidents and celebrating workmates speaking up and stopping colleagues from getting hurt	To raise awareness of the importance of worker engagement and participation in health and safety and speaking up to look after those around you	Focuses on bullying, slips trips and falls, stock kicks in an agricultural setting	Workers and employers in high-risk sectors.	July 2017 – June 2018	Radio, online video, digital banners, social media

Safe Guy	Use of young Māori comedian to act out different characters at work and their differing ways of speaking up and stopping colleagues from getting hurt	To raise awareness among young Māori males of the importance of workers engagement and participation in health and safety and speaking up to look after those around you	Focuses on different scenarios including, slips trips and falls, using PPE in a generic work setting	Young Māori workers aged 18-25	March 2018 – November 2019	Radio, online video, digital banners, social media
You can sense it; you can stop it	Use of animated meerkats to highlight the role everyone has to be aware of their surroundings and look after those around them and act when they see something is wrong.	Changing the focus of health and safety away from clipboards and paperwork to caring for one another and encouraging worker engagement and participation	Focuses on a warehouse scenario and items falling from above	All New Zealanders	October 2020 – May 2021	Television commercials, radio, online video, digital banners, out of home, cinema, social media
Seat belts, you sense it, you can stop it	Use of animated meerkats to highlight the role everyone has look after those around them and act by encouraging the use of seat belts on work vehicles.	To raise awareness of the importance of wearing a seat belt at work and the role everyone has to speak up and look out for each other	Focus on the use of seatbelts when using farm vehicles and seat belt use on forklifts	Agriculture, manufacturing, warehousing and construction sectors	February – May 2021	Television commercials, online video, digital banners, out of home, social media

How did enforcement activities change between the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015?

A total of 523 cases heard up to December 2020 were included in this analysis, where the prosecutor was either the Department of Labour or WorkSafe. WorkSafe replaced Department of Labour as the prosecuting party in 2013. The legislation that cases were prosecuted under are shown below in Table 3 which shows that the majority of cases were prosecuted under the Health and Safety in Employment Act 1992 or the Health and Safety at Work Act 2015. WorkSafe has an Energy Safety unit that operates under the Electricity and Gas Acts and associated regulations.

Table 3 Cases included in analysis

Legislation	**Number of cases**
Health and Safety in Employment (HSE) Act 1992	342
Health and Safety at Work Act (HSWA) 2015 and associated regulations	162
Electricity Act 1992 or Electricity (Safety) Regulations 2010	7
Hazardous Substances and New Organisms (HSNO) Act 1996	4
HSE/HSNO	3
Gas Act 1992 or associated regulations	2
Passenger Equipment, Cranes and Passenger Ropeways Regulations 1999	1
Mining Regulations	1
HSE/HSNO/HSWA	1
Total	**523**

There were 34 health-related prosecutions across the time period. Eleven prosecutions related to actual harm caused by the exposure, and 23 related to potential harm. Only one health-related case related to a fatality (fatigue causing a vehicle accident), compared to 21% of injury-related cases that resulted in a fatality. The majority of health-related cases were for asbestos or chemical exposure – see Table 4 for more details.

Table 4 Health-related prosecutions

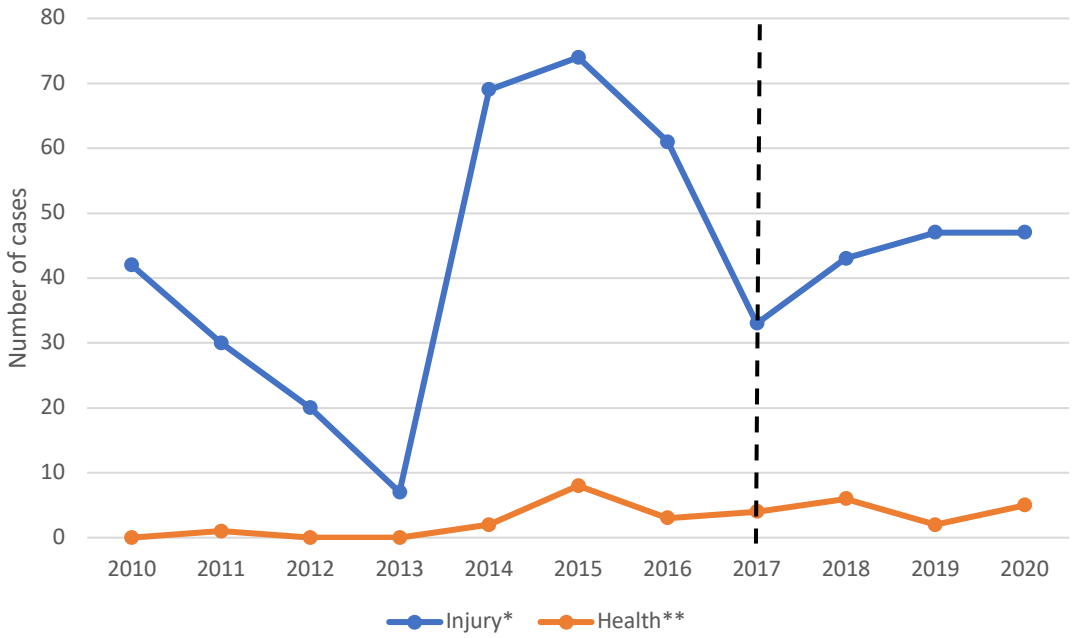
Cause	**Number**
Asbestos	18
Chemical or gas exposure	11
Carbon Monoxide	2
Biological	2
Fatigue	1
Dust	1

- One case counted twice as related to gas leak AND exposure to asbestos

Number of work-related ill health prosecutions under the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015

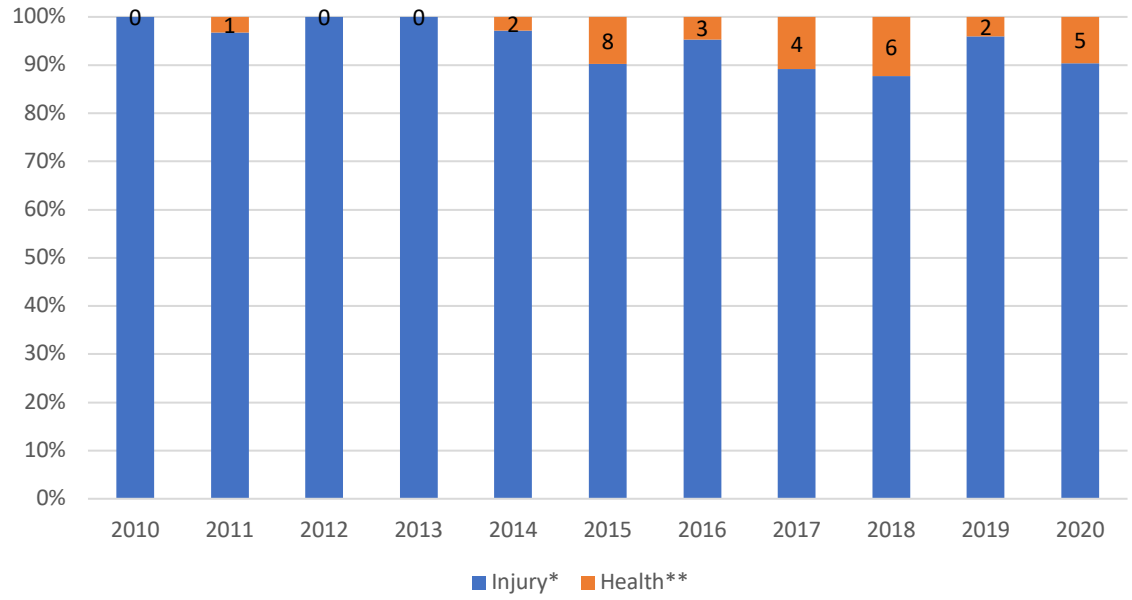
The Health and Safety in Employment Act 1992 preceded the Health and Safety at Work Act 2015. Between 2010 and 2017, cases were prosecuted under the Health and Safety in Employment Act 1992 and the first case prosecuted under the Health and Safety at Work Act 2015 occurred in 2017. According to Figure 2 and Figure 3, the majority of cases prosecuted under both the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015 related to actual or potential injury. The reduced number of cases heard in 2013 is a result of the replacement of Department of Labour with WorkSafe as the health and safety regulator.

Figure 2 Cases heard solely under the Health and Safety in Employment Act 1992 or the Health and Safety at Work Act 2015, according to type (n=504)



- Black dashed line represents the shift from the Health and Safety in Employment Act 1992 to the Health and Safety at Work Act 2015
- * Injury includes potential injuries and one environmental case relating to an incident where animals were electrocuted
- ** Health includes potential health issues and one case relating to an incident with possible asbestos exposure combined with electrocution

Figure 3 Cases heard solely under the Health and Safety in Employment Act 1992 or the Health and Safety at Work Act 2015, by type, as percentage of total cases (n=504)



- * Injury includes potential injuries and one environmental case relating to an incident where animals were electrocuted
- ** Health includes potential health issues and one case relating to an incident with possible asbestos exposure combined with electrocution

Average fines for work-related health vs injury

According to Table 5, the average fines have increased under the Health and Safety at Work Act 2015. This is to be expected, as the maximum fines increased under the Health and Safety at Work Act 2015. The average fine for a work-related health prosecution remained lower than an injury-related prosecution under both Acts.

Table 5 Average fine amounts under the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015, by injury or health

	Health and Safety in Employment Act 1992	**Health and Safety at Work Act 2015**
Injury*	$38,316 (325)	$165,121 (147)
Health*	$26,802 (15)	$108,717 (15)
Overall**	$37,798 (341)	$159,800 (162)

- Calculations take into account fines awarded of $0, but excludes cases where Crown entities were the defendant (as they are not subject to fines)
- Calculations only include cases heard solely under the Health and Safety in Employment Act 1992 or the Health and Safety at Work Act 2015
- *Calculations include only those cases with a health (actual or potential) issue OR an injury (actual or potential)
- ** Overall includes cases with combined health and injury issues

Summary

The results show that while WorkSafe has a work programme that aims to improve work-related ill health in New Zealand workers, the inspectorate lacks resourcing and training to be as effective as they can be when implementing the actions in the 10-year strategy. The data suggest that the new legislation has not yet changed how work-related ill health issues are prosecuted compared with injuries, and current promotional campaigns and enforcement activities (prosecutions and enforceable undertakings) at WorkSafe still remain focussed on work-related injuries.

Discussion

Work-related ill health carries a greater burden of harm than work-related injuries, but traditionally the focus of the New Zealand regulator has been on injuries and safety matters. This research report aimed to look at whether the new health and safety legislation (i.e., the Health and Safety at Work Act 2015) changed the way the regulator enforces and promotes work-related health issues compared with work-related injuries. This was answered by using a) prosecutions, as a measure of enforcement, across the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015; and b) evidence of current enforcement and promotional activities under WorkSafe.

It is possible that the results seen in the previous section, which suggest a continued focus in New Zealand on work-related injuries rather than work-related health, are at least partly attributable to an inadequate health and safety regulatory system. Suggestions of how to improve the system, including work that WorkSafe already has underway, and ideas of how to shift the focus to work-related health are presented in this section.

Summary of results

How did enforcement activities change between the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015?

The number of work-related ill health prosecutions did not increase from the Health and Safety in Employment Act 1992 to the Health and Safety at Work Act 2015, and the predominant type of case prosecuted continues to be work-related injuries. Figure 2 and Figure 3 in the results section show that the replacement of the Health and Safety in Employment Act 1992 by the Health and Safety at Work Act 2015 produced minimal changes in the number of work-related health cases heard by the Courts.

Despite the overall increase in the average fine (due to the maximum fine increasing under the Health and Safety at Work Act 2015 compared to the Health and Safety in Employment Act 1992), the average fine for a work-related health prosecution remained lower than an injury-related prosecution across both the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015.

What are the enforcement and promotional activities undertaken by WorkSafe in relation to work-related health in New Zealand compared with injuries?

Only two out of 34 accepted EUs were work-related health matters. These related to the same carbon monoxide poisoning incident. The two work-related health EUs also had lower mean and median total expenditures compared to the work-related injury EUs.

Of the eight campaigns run by WorkSafe between 2014 and end-June 2021, three covered work-related health issues, but these campaigns also covered work-related safety issues (see Table 2 in the results section for more details). There were no campaigns solely focussed on work-related health. This suggests that, in terms of campaign activities and the promotion of health and safety issues, WorkSafe is focussing on work-related injuries rather than work-related health matters.

Does New Zealand have the required components of a good system to manage work-related health?

Regulations are still focussed on substances, not health

Without clear regulations, increasing the focus on enforcement of work-related health issues will be difficult as effective regulations clearly communicate risks and are easily enforceable (Tompa et al., 2016).

The Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, require certain employers to provide health monitoring for their employees, but only where a worker is carrying out work involving a substance hazardous to health. While health-related matters are clearly provided for in the Health and Safety at Work Act 2015, the associated regulations are still focussed on substances, and not other hazards e.g., psychosocial hazards (Duncan, 2016). This may result in some work-related health matters being more difficult to enforce.

Shortage in skill and resources in inspectorate, and a lack of surveillance systems

Notifications (which, depending on the type of notification, are made by workers, the public or employers) made to WorkSafe for both health and safety issues (including concerns, notifiable incidents and notifiable injuries or illnesses) have remained relatively stable over the recent years (WorkSafe New Zealand, 2021b). This suggests that issues that may require further investigation are not reducing. Without a well-resourced and well-trained

Inspectorate, it will not be possible to significantly increase enforcement and promotion of work-related health issues and investigate all that needs to be looked into. In terms of resourcing, an Independent review of the regulatory function of WorkSafe was carried out in 2019 which found issues with inspectorate demand and workload in the specialist intervention team, with concerns that the pressure is unsustainable (Jones, 2019). The Inspectorate remains under pressure from resourcing, despite constant efforts from WorkSafe to increase inspector numbers.

Without systematic surveillance, it will not be possible to know if WorkSafe activities are making a difference, or whether there are any emerging trends that need to be monitored. As an example of an emerging trend, silicosis is an occupational disease caused by inhaling silica dust which can take up to 10 years after exposure to develop (Reynolds & Jerome, 2021). It is an emerging risk as the use of artificial stone for countertops has become more popular in recent years (Reynolds & Jerome, 2021). As at November 2019, when they issued a safety alert, WorkSafe did not know how many New Zealand workers had silicosis (WorkSafe New Zealand, 2020c). In terms of knowledge sharing amongst the inspectorate, the Independent review found a lack of information sharing around field intelligence leading to a lack of national alignment (Jones, 2019). Without a systematic way of collecting data on such occupational diseases, WorkSafe will not know the size of the problem in New Zealand that it seeks to manage. WorkSafe acknowledges that New Zealand does not have a systematic way of collecting national data on work-related health exposures and events, and according to the 10-year strategy, it aims to remedy this by 2026 (WorkSafe New Zealand, 2016).

Due to the difficulties in increasing the Inspectorate workforce and the shortcomings of the intelligence and data collection system, the Government recently announced that WorkSafe would receive $57 million over four years as part of the 2019 Wellbeing Budget to: build their capability and capacity in work-related health by establishing specialist teams; redeploy funds to their Inspectorate; and upgrade their data and intelligence systems and capabilities (WorkSafe New Zealand, 2020b). This funding injection indicates that the current Inspectorate does not have the required capacity, skills or knowledge to manage work-related ill health matters at the present time, however, WorkSafe is aware of these shortcomings and is taking steps to address them.

What is WorkSafe doing right?

WorkSafe is promoting the upstream shift in prevention

The 10-year Strategy acknowledges that 'health by design' has a key part to play in reducing exposures to work-related harm (WorkSafe New Zealand, 2016). 'Health by design' (or 'health and safety by design') is the same as the 'prevention by design' concept detailed in the literature review section of this report. Within New Zealand, there is generally a positive attitude towards such approaches, but there is limited capability at both the industry and the company level (Guo et al., 2021).

As part of the Strategy, WorkSafe aims to align legislation with health by design principles and encourage greater use of the approach (WorkSafe New Zealand, 2016). In 2018, WorkSafe published guidelines for industry to consider when designing plant, structures and substances (WorkSafe New Zealand, 2018a) indicating that progress is being made in this area. By encouraging industry to eliminate hazards at their source, this can reduce the compliance burden on small businesses and workers to manage hazards.

WorkSafe publishes its prosecutions as a deterrence to others

According to WorkSafe's publishing policy, prosecutions are published on WorkSafe's website (WorkSafe New Zealand, 2017c). This is in line with the literature review that shows that publishing decisions is an effective deterrent (Johnson, 2020). WorkSafe publishes prosecutions in multiple ways: on their website, through media statements, at conferences and public forums, in legal databases, and in other publications and research (WorkSafe New Zealand, 2017c). By publishing prosecution decisions across a wide range of sources, including details of the incident and the fines imposed on the businesses, this helps ensure that the information reaches the right people, and may help encourage businesses in similar industries to focus on ensuring compliance with the health and safety legislation.

How can we make the enforcement and promotion of work-related health more prominent?

Establishing a shift to workplace health and wellbeing, rather than health and safety

Combining workplace health and safety and workplace health promotion can both enhance workers health and improve their safety, thus creating a more efficient way to ensure employees are safe and healthy at work (Cooklin et al., 2017). However, as noted in the literature review, there is a possibility to go a step further – to remove the distinction

between work and non-work exposure and focus on a more holistic, public health approach (Peckham et al., 2017). Indeed, when the Government was consulting on the 2018-2028 Health and Safety at Work Strategy, there were several submissions stating a need to define workplace health more holistically, with some submitters feeling that the definition did not reflect the link between work and home (WorkSafe New Zealand & Ministry of Business Innovation & Employment, 2018). Due to the changes in how people work, either through multiple jobs, working from home, extended hours, working past statutory retirement age, and the increasing focus on psychosocial risks in the workplace, it can become harder to ensure workers are safe, therefore this shift is more important than ever (Peckham et al., 2017).

This shift would fit with the Māori view of health. Māori often view health as holistic across physical, spiritual, social and mental dimensions, and where one dimension is affected so are the rest (Hoeta et al., 2020). As Māori at a higher risk of developing work-related health conditions (Denison et al., 2018), this shift may help reduce the inequities seen by using a model closer to how many Māori view the world.

WorkSafe is currently still focussed on managing specific hazards that may affect work-related health. As noted by Duncan (2016), this shift will likely require WorkSafe to regulate for protection against conditions that affect worker health, for example, working hours, psychosocial factors and management practices. Using the principles set out in Kim et al., (2016) for establishing a shift from a safety culture to a prevention culture can help guide this process. A combined approach, emphasising collaboration and coordination with other government agencies (e.g., the Ministry of Health) will be important for ensuring the shift is successful. This shift could build upon the work currently being undertaken by WorkSafe in terms of Mentally Healthy Work, where WorkSafe aims to support businesses to develop and promote positive work cultures (WorkSafe New Zealand, 2021d).

WorkSafe as a leader of research and innovation into the effectiveness of interventions

There are multiple ways to improve work-related ill health, however the evidence behind approaches is variable. The literature review in this report referenced research reports by the UK Health and Safety Executive, the UK government agency responsible for regulating and enforcing health and safety matters. The Health and Safety Executive has funded and published over 1,000 research reports on a wide range of health and/or safety matters since

2002, in addition to earlier reports in their research archive (Health and Safety Executive, 2021a). The Health and Safety Executive established itself as a scientific and evidence-based organisation aimed at reducing work-related injury, ill health and deaths (Health and Safety Executive, 2021b). WorkSafe's Research and Evaluation team was established in 2014 and also published research reports, however at the time of writing, has only published 17 reports (WorkSafe New Zealand, 2021e).

Governments are increasingly focussed on evidence-based policy- and decision-making to help ensure decisions are based on what works (Newman et al., 2016; Newman et al., 2013). However, government organisations may not have the capacity to identify and apply different forms of research into their decision-making (Newman et al., 2016). WorkSafe is ideally placed to become a leader of a research programme that builds on their current programme of work and contributes to the evidence-base of intervention effectiveness for work-related health. WorkSafe can help drive research agendas, create closer collaborations with university research centres, and provide research results to MBIE as the policymaker for workplace health and safety. As shown in da Silva & Amaral, (2019), researchers themselves also tend to place more emphasis on safety rather than work-related health, therefore WorkSafe could use this opportunity to start and support a shift amongst the New Zealand research community. This proposal fits with WorkSafe's 10-year strategy for improving work-related health, where they note they will "be actively contributing to expanding research focused on work-related health nationally and internationally so understanding of risks, controls and ill-health is being continuously enhanced." (WorkSafe New Zealand, 2016, p. 24).

Integrated initiatives that combine both prevention and promotion activities are relatively new (Joss et al., 2017). However, if WorkSafe were to shift to a focus on health and wellbeing, rather than health and safety, such approaches could be a key way of promoting this shift and establishing an evidence base that these approaches work in New Zealand. As WorkSafe has a key role to play in the promotion of health in the workforce, they could design and recruit businesses into new initiatives with robust evaluation plans to ensure that any effects are robustly measured and communicated. Evidence also allows for more effective communication to businesses, as it allows for the clear demonstration of 'what

works', making businesses more receptive to implementing any proffered solutions (Gardner et al., 2015).

Evidence on the effectiveness of training is strong on influencing workers' attitudes, but is weaker on influencing health outcomes (Ricci et al., 2016). As WorkSafe is involved in the education and training of workplaces about their health and safety responsibilities, longer-term studies could be designed that improve the evidence-base of the influence of training on health outcomes. The same long-term studies could also be adapted to awareness campaigns, where there is also limited evidence they improve health outcomes (Tompa et al., (2016); Andersen et al., (2019)).

When planning on new interventions aimed at either enforcing or promoting work-related health, WorkSafe could investigate the use of Nudge Theory as a way to improve employees' work-related health. While the majority of interventions have focused on workplace wellbeing (e.g., improved nutrition or encouraging workers to stand), WorkSafe could look into whether the theory could be adapted to improving a work-related health behaviour e.g., PPE use to prevent dust exposure. As this is an emerging field of study (Lindhout & Reniers, 2017), it represents an exciting opportunity for WorkSafe to be at the forefront of innovation in improving worker health. Public views on the acceptability of the approach would be needed before implementing any nudge-based initiatives.

Factors we need to consider when improving the system

New Zealand is a country of small businesses

In New Zealand, 97% of all firms have fewer than 20 employees, and these businesses employ almost 30% of the New Zealand workforce (Ministry of Business Innovation & Employment, 2020). In other countries, a 'small' business is classified as fewer than 50 employees, meaning New Zealand has more small businesses than other countries (Ministry of Business Innovation & Employment, 2020).

As identified in the literature review, small businesses face higher exposure risks to health and safety hazards, and have greater difficulty in managing those risks (Hasle & Limborg, 2006). This may be because the smaller the business, the more likely it is that management has several roles that they need to fill, unlike larger businesses who may employ someone specifically to manage health and safety. WorkSafe already provides specific advice to small

businesses on managing their employees' health risks, for example, how to manage dust, noise, fatigue, manual handling, sun exposure, and chemicals (WorkSafe New Zealand, 2018c). However, compliance and uptake with this advice may be variable across different types of businesses. A study on 20 small and medium-sized New Zealand businesses and their compliance with noise management requirements (in this case, the Approved Code of Practice for the Management of Noise) found low levels of compliance, particularly in hospitality or education settings (Gardner et al., 2015).

Any new intervention, whether it is education or enforcement-focussed, will need to consider the specific needs of small businesses. For example, interventions need to be simple and low-cost, and preferably delivered through personal contact rather than disseminated via the WorkSafe website (Gardner et al., 2015; Hasle & Limborg, 2006). Interventions need to be ongoing, rather than one-off, to ensure appropriate implementation and ongoing use (Gardner et al., 2015).

As the literature showed, interventions that are considered as forced onto a small business may not be effective (Kvorning et al., 2015). Due to this, WorkSafe could investigate the use of co-design in designing new programmes on either enforcement or promotion. Co-design is a process that involves bringing together a range of participants (particularly the group who is experiencing the issue to be solved, e.g., the community) to explore issues, and develop and test solutions that create more effective solutions (Blomkamp, 2018). Involving small businesses in the design of a new programme will ensure that any solution is tailor-made for the particulars of how small businesses work.

Future considerations

Due to the COVID-19 pandemic, New Zealand borders have been closed to migrants and immigrants. As New Zealand begins to open up the borders again, there may be an influx of immigration and short-term migration to fill labour shortages in the country, for example, in construction (1 News, 2021). New workers may be unfamiliar with our health and safety practices, and companies will need to carefully consider how best to familiarise their new workers with New Zealand regulations and operations. WorkSafe may need to consider targeted campaigns towards new workers (or their employers) who may be unfamiliar with how health and safety operates in New Zealand.

Also due to the COVID-19 pandemic, New Zealand is also beginning to see an increase in the number of people thinking about leaving their jobs – a survey of over 1000 participants, last surveyed in April 2021 found a 34 percent increase in those with 'high turnover intentions' (Auckland University of Technology, 2021). Some professions were more likely to say they want to leave, including factory and labour workers (64%) and health and support workers (55%) (Auckland University of Technology, 2021). If New Zealand sees a large shift in workers, both in terms of moving jobs and moving professions, employees may have a more difficult time managing the health and safety of their new employees.

New technology that aims to improve the safety of workers and the public may be subject to multiple regulations in New Zealand, not just health and safety legislation. An increasingly complex regulatory landscapes may mean that smaller, innovative companies are unable to make it to market (The Regulatory Horizons Council, 2021). WorkSafe will need to keep abreast of new innovative technologies and ensure that the regulatory landscape is navigable by companies wanting to enter the market. If they do not, New Zealand may miss out on new technologies that could greatly improve the health of New Zealand workers.

New Zealand has a high level of labour market participation in those aged over 65 years, with one in four in the labour force (Statistics New Zealand, 2021a), and it is becoming more common for people to work past retirement age (Sewdas et al., 2017). In addition, New Zealand has an ageing population and the population aged 65 and over will double by 2056 (Statistics New Zealand, 2020). Older workers may be at greater risk of workplace injuries (Meehan et al., 2021) and work-related ill health conditions such as musculoskeletal disorders (Okunribido et al., (2011); Smith & Berecki-Gisolf, (2014)). This increase of older workers in New Zealand needs to be planned for in terms of ensuring they remain safe and happy at work.

The number of low-risk organisations in New Zealand is growing while high-risk employment rates are dropping (Meehan et al., 2021). This presents a possible shift in the type of risks prevalent in New Zealand, for example, a rise in musculoskeletal and psychosocial risks (Meehan et al., 2021). This ties in with the above point of the increase of older workers – who may be more at risk of developing musculoskeletal disorders (Okunribido et al., 2011). WorkSafe will have to plan for the promotion and management of this shift and may have to

create tailored approaches according to different demographics in order to effectively manage the risks.

Limitations

Analysis of enforcement activities data was limited to prosecutions under the Health and Safety in Employment Act 1992 and the Health and Safety at Work Act 2015, and enforceable undertakings under the Health and Safety at Work Act 2015. WorkSafe indicated they were unable to provide detail at the individual notice level for other enforcement activities (e.g., infringement and improvement notices). Therefore, the full picture of WorkSafe enforcement activities as it relates to work-related health is not available.

Additionally, some cases may have been missed during data entry meaning the dataset is incomplete. While there were crosschecks with other sources, it is possible that there were some relevant unreported judgements, or judgements that were not listed on the databases used to search in this research project. There were also two cases where no information could be found on the facts of the case, so these were not included.

Related to the above, there is the possibility that prosecutions are rarer in work-related ill health cases as those cases are being enforced in other ways and using prosecutions as an indicator of how WorkSafe is enforcing work-related health is an imperfect approach.

Promotional activities undertaken by WorkSafe were measured using campaign information. Campaigns were chosen as the indicator of promotional activity due to their wide-reaching nature, including reaching the public, and use of multiple media (e.g., posters, radio, television), which can suggest the relative importance that WorkSafe places on these issues compared to others. WorkSafe also undertakes targeted promotional activities relating to both work-related injuries and work-related health matters. These targeted activities were not included in the analysis, therefore, the full picture of WorkSafe promotional activities as it relates to work-related health is not available in this research.

Private prosecutions (i.e., those initiated by a person, not by WorkSafe) are allowed by section 144 of the Health and Safety at Work Act 2015. They can be initiated if WorkSafe chooses, or cannot, prosecute a health or safety event (WorkSafe New Zealand, 2018d). It is possible that

some work-related health matters were prosecuted privately, but as this research was focussed on the enforcement activities of WorkSafe, such cases were not included.

Finally, this research primarily looked at enforcement and promotion activities performed by WorkSafe. The scope of inquiry did not include activities undertaken by businesses or other regulatory with an enforcement role, for example, Civil Aviation Authority, Police, Maritime New Zealand. Therefore, this research does not show the entire picture of enforcement and promotion with regards to work-related health in New Zealand.

Conclusion and recommendations

WorkSafe was established with the aim of improving the health and safety of all New Zealanders and replaced the Department of Labour as the enforcer and educator of all things workplace health and safety. This shift represented a possibility for a change in focus towards work-related ill health, historically receiving less attention than work-related injuries under old regimes, despite carrying a greater burden of harm to individuals and society.

The results from this research project show that WorkSafe is still favouring enforcement and promotion of work-related injuries over work-related health as seen through the analysis of prosecutions, enforceable undertakings and campaigns. However, there are limitations in New Zealand's health and safety system that make it difficult for this to shift. A lack of a national surveillance system means that WorkSafe will not know the size of the problem and will not be able to monitor for emerging trends and changes. The Inspectorate is under-resourced and may lack the training to appropriately enforce and promote work-related health matters. The recent Budget boost in 2019 will aim to address all these issues, indicating that WorkSafe are aware of the issues and are taking steps to improving the system to support better management of work-related health matters.

Due to the changes in how people work through working from home more often, working multiple jobs, or working past statutory retirement age, coupled with the increasing focus on psychosocial risks in the workplace, there is a case for WorkSafe to focus on more holistic approaches to enhance workers health and wellbeing both at work and at home. This shift would require careful planning and close collaboration with other agencies responsible for the health of New Zealanders, e.g., ACC and the Ministry of Health.

To support this shift, WorkSafe is also well-positioned to establish themselves as a research leader in New Zealand to ensure a strong evidence base of 'what works' when improving worker health and wellbeing. This would help provide the government certainty on value for money for investment. WorkSafe can help drive research agendas that are related to looking at emerging risks or filling current gaps in research, create closer collaborations with university research centres, and disseminate research findings to other government agencies, and to businesses and their employees. Increased research and improved

dissemination will be key for ensuring that current and emerging work-related health risks are highlighted and managed quickly.

As examples of emerging issues and evidence gaps, the following research areas will add to the evidence-base around promoting and enforcing work-related health matters and help promote the shift from health and safety to health and wellbeing in New Zealand:

- Analysis of all WorkSafe enforcement activities, including assessments and inspections. This research only covered prosecutions and enforceable undertakings due to data availability. In 2018/19, WorkSafe aimed to make 50% of all their proactive inspections focus on risks associated with work-related health. Analysis of whether this target was met, and what type of work-related health matters were covered would be beneficial in creating a stronger picture of WorkSafe's overall enforcement approach to work-related health.
- Further investigation into Nudge theory and how it could be applied in the New Zealand context. According to Lindhout & Reniers (2017), this is an emerging field of study. There is value in looking further into Nudge theory, and the potential for the theory to form part of workplace safe systems of work (as set out in section 36(3)(c) of the Health and Safety at Work Act 2015).
- Further research into business perspectives of how work-related health is enforced and promoted by WorkSafe, and canvassing potential ideas for work-related health improvements would be beneficial. SMEs should be targeted in this research, as they make up the majority of New Zealand businesses and may have the most trouble complying with health and safety requirements. Investigation into co-design of new interventions is another area for potential research.
- Increased focus on new interventions aimed at improving work-related health, either through enforcement or promotion, accompanied by well-designed evaluations. This will add to the evidence-base of what works in the New Zealand context and may make government more likely to invest further in such interventions.

The massive upheaval caused by the COVID-19 pandemic represents an ideal opportunity for WorkSafe to start a dramatic future-looking shift in the way work-related health issues are promoted and managed, with a view towards reducing the high burden that work-related ill health places on workers and society. This research provides suggestions for WorkSafe to complement and further develop their current approaches to improving the health of New Zealand workers to ensure future improvements in the health of all workers.

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Appendix One: Relevant sections of the Health and Safety at Work Act 2015

Section 30 Management of risks

(1) A duty imposed on a person by or under this Act requires the person—

(a) to eliminate risks to health and safety, so far as is reasonably practicable; and

(b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.

(2) A person must comply with subsection (1) to the extent to which the person has, or would reasonably be expected to have, the ability to influence and control the matter to which the risks relate.

Section 36 Primary duty of care

(1) A PCBU must ensure, so far as is reasonably practicable, the health and safety of—

(a) workers who work for the PCBU, while the workers are at work in the business or undertaking; and

(b) workers whose activities in carrying out work are influenced or directed by the PCBU, while the workers are carrying out the work.

(2) A PCBU must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.

(3) Without limiting subsection (1) or (2), a PCBU must ensure, so far as is reasonably practicable,—

(a) the provision and maintenance of a work environment that is without risks to health and safety; and

(b) the provision and maintenance of safe plant and structures; and

(c) the provision and maintenance of safe systems of work; and

(d) the safe use, handling, and storage of plant, substances, and structures; and

(e) the provision of adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities; and

(f) the provision of any information, training, instruction, or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking; and

(g) that the health of workers and the conditions at the workplace are monitored for the purpose of preventing injury or illness of workers arising from the conduct of the business or undertaking.

(4) Subsection (5) applies if—

(a) a worker occupies accommodation that is owned by, or under the management or control of, a PCBU; and

(b) the occupancy is necessary for the purposes of the worker's employment or engagement by the PCBU because other accommodation is not reasonably available.

(5) The PCBU must, so far as is reasonably practicable, maintain the accommodation so that the worker is not exposed to risks to his or her health and safety arising from the accommodation.

(6) A PCBU who is a self-employed person must ensure, so far as is reasonably practicable, his or her own health and safety while at work.

Section 156 Release on giving of court-ordered enforceable undertaking

(1) The court may (with or without recording a conviction) adjourn a proceeding for up to 2 years and make an order for the release of the offender if the offender gives an undertaking with specified conditions (a court-ordered enforceable undertaking).

(2) A court-ordered enforceable undertaking must specify the following conditions:

(a) that the offender appears before the court if called on to do so during the period of the adjournment and, if the court so specifies, at the time to which the further hearing is adjourned:

(b) that the offender does not commit, during the period of the adjournment, any offence against this Act or regulations:

(c) that the offender observes any special conditions imposed by the court.

(3) An offender who has given a court-ordered enforceable undertaking under this section may be called on to appear before the court by order of the court.

(4) An order under subsection (3) must be served on the offender not less than 4 days before the time specified in it for the appearance.

(5) If the court is satisfied at the time to which a further hearing of a proceeding is adjourned that the offender has observed the conditions of the court-ordered enforceable undertaking, it must discharge the offender without any further hearing of the proceeding.

(6) The regulator must publish, on an Internet site maintained by or on behalf of the regulator, notice of a court-ordered enforceable undertaking made in accordance with subsection (1), unless the court orders otherwise.