



OFFICE OF THE
CHIEF CORONER
OF NEW ZEALAND

Recommendations recap

A summary of coronial recommendations and comments
made between 1 July–30 September 2012

ISSUE 4

**Coronial Services of New Zealand
Purongo O te Ao Kakarauri**

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Disclaimer This publication has been produced by research counsel of the Office of the Chief Coroner, with the best efforts made to accurately summarise the circumstances, findings and recommendations made by the coroner in each case. Despite this, it should be noted that they are not exact replications of coronial findings. The original finding should always be accessed if it is intended to refer to it formally.

Please also note that summaries of circumstances and recommendations following self-inflicted deaths may be edited to comply with restrictions on publication of particulars of those deaths, as per section 71 of the Coroners Act 2006. Similarly, the contents of summaries and recommendations may be edited to comply with any orders made under section 74 of the Act.

Coroners have a duty to identify any lessons learned from the deaths referred to them that might help prevent such deaths occurring in the future. In order to publicise these lessons, the findings and recommendations of most cases are open to the public.

The *Recommendations recap* identifies and summarises all coronial recommendations that have been made over the relevant period. Where received, summaries of responses to recommendations from agencies and organisations are also included.

This issue of *Recommendations recap* features 44 recent coronial cases where recommendations have been made. These final findings were released by a coroner between 1 July and 30 September 2012.

This issue features a case study report on deaths occurring in the forestry industry. The report contains the key statistics relating to these deaths, an outline of the issues involved and the legal framework surrounding health and safety in the industry. It also provides a summary of recommendations made by coroners following these deaths.

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Case study forestry

Forestry deaths at a glance AS AT 1/8/2013

Year of death	No. of deaths
2007	1
2008	3
2009	5
2010	5
2011	4
2012	7
2013	6

2007 and 2013 data is incomplete

There have been **31 cases** of work-related deaths within the forestry industry between July 2007 & Aug 2013.

This is an average of approximately **5 deaths a year.**

In all cases the deceased was **male** – most commonly between **36–45 years.**

A high proportion of the deceased were **Māori.**

Tree felling & breaking-out tasks in particular contributed to a significant number of these fatalities. The activities being undertaken at the time of death include **tree felling, breaking-out, loading logs for transport and transporting logs.**

In six cases, following an investigation by the Ministry of Business, Innovation and Employment, the coroner decided to not to open or resume an inquiry. In four of these cases a prosecution under the Health and Safety in Employment Act 1992 had taken place.

Coroners have made comments and recommendations in 11 cases. An outline of these cases and the comments and recommendations, and any responses received, can be found in the following section.

Nine cases remain active before the coroner.

Glossary

FORESTRY TERMS AND PROCESSES

Breaker-out Worker at the felling site responsible for connecting trees or logs to a hauling rope, tractor, skidder, etc. for transport to a landing.

Breaking-out Operation of a breaker-out or initial movement of trees from the felled position.

Cable logging In its most simple form cable logging consists of a fixed winch with a tail rope used to pull the line out to the trees and a main rope to pull the logs in once attached to the line. Because much of New Zealand's plantation forest is located on steeper land, cable systems are quite widely used.

Grapple Hinged jaws which can be closed or opened and used for grasping logs. Grapple hauling involves hauling logs using a grapple in place of butt rigging and strops.

Hauler (yarder) A machine equipped with winch or winches that operates from a set position to haul logs or drags from the stump to landing.

Root plate (root wad, root ball) The mass of roots and soil which is exposed when a tree is wind-thrown or pushed over without being severed or broken off from the stump.

Skidder (snigger) A self-propelled extraction machine with wheels or tracks specifically designed to partly support logs during skidding.

Skidding (snigging) The process of dragging logs from stump to skid (the area to which logs are extracted and where they are sorted or loaded).

Stag A standing dead or decaying tree (Australian term).

Tail-hold The anchor for the tailrope. Most often a stump, machine or a deadman. A deadman is a solid object, usually a log, buried in the ground to form an anchor for guys, blocks or hauler tieback.

Background

The forestry sector has the highest rate of fatal work-related injuries in New Zealand and the rate of ACC claims for the forestry sector is almost six times the rate for all sectors (per 100,000 workers within the forestry industry).¹

In recent months the health and safety of the forestry industry, in particular the high number of injuries and fatalities, has come under the spotlight. Between January and August 2013 there had been six deaths of forestry workers. Various stakeholders including the Ministry of Business, Innovation and Employment (MBIE, formerly the Department of Labour (DoL)), the NZ Council of Trade Unions (NZCTU), the Forestry Owners Association, the Forestry Industry Contractors Association (FICA) and Competenz (formerly the Forestry Industry Training and Education Council) have been involved in discussions about the industry's health and safety record.

The Office of the Chief Coroner has released this case study on fatalities within the forestry industry in order to present the facts and background to this area of death, and collate recommendations made by coroners in these cases. Key stakeholders were also approached and asked for comment on this report. Where appropriate, their comments and responses to coroners' recommendations have been incorporated.

Fatalities and serious harm

Coronial data is only available from July 2007 (when the Coroners Act 2006 came into force). This data shows that there have been 31 work-related deaths within the forestry industry between 1 July 2007 and 31 August 2013.

This data differs slightly from that provided by MBIE. Coronial data includes five deaths occurring in a transport context (ie logging trucks) which are not included in MBIE's statistics. It should be noted that due to difficulties in identifying work-related transport deaths such as these in our database, this is not exhaustive and the number of these deaths is likely to be higher than five.

¹ Department of Labour Forestry Sector Action Plan 2010-2013, August 2011, page 12.

Forestry deaths before coroners demonstrate the tasks commonly being undertaken at the time of fatalities are tree felling tasks (accounting for 12 deaths or 39%) and breaking-out tasks (accounting for 7 deaths or 22.5%).

Pre-2007 data on forestry fatalities is available through the records of MBIE and other forestry groups. FICA undertook an analysis of fatal logging accidents occurring between 1988 and 2005.² The analysis found that 94 fatalities had occurred between 1988 and 2005. A breakdown of the fatalities showed felling (41%), breaking-out (14%), extraction (12%) and skid work (10%) were the four most common tasks undertaken at the time of a fatal accident.

MBIE has also recorded 967 serious harm notifications (which include fatalities) between 1 January 2008 and 30 June 2013, with the highest in a year being 188 serious harm notifications for 2012.

The forestry workforce

It has been estimated by MBIE that by 2014 the forestry sector will employ approximately 9,000 people.³ The forestry workforce is mostly male (approximately 85% as at the 2006 census) and has a higher than average proportion of Māori workers – 32.6% compared to the average for all industries of 12.2%.³ As at June 2009, 16% of the employees in forestry were aged 18–24 years. The proportion of workers over the age of 55 was 11.9%, which is lower than the average for all industries.³

Forestry work is labour-intensive and over 50% of the workforce report that they work more than 40 hours a week.³ Over 9% of forestry workers worked more than 60 hours a week.³

MBIE observes in their Forestry Action Plan that high turnover of staff and low levels of literacy and numeracy may be contributing factors to sector injuries and fatalities.³ However, FICA asserts that it is inappropriate to attribute workplace competency and safety on the literacy levels of forestry and logging workers. FICA's view is that there is a contingent responsibility of both trainers and managers to tailor training and workplace communications to suit their employees' abilities.

² Forestry Industry Contractors Association Analysis of Fatal Logging Accidents 1988 to 2005, October 2006.

³ Department of Labour Forestry Sector Action Plan 2010-2013, August 2011, page 9.

The law

LEGISLATIVE AND REGULATORY FRAMEWORK

The Coroners Act – opening a coronial inquiry

Under section 69 of the Coroners Act 2006 a coroner may postpone opening an inquiry or adjourn an inquiry where he or she is satisfied that another investigation into the death is being conducted that is likely to establish the matters that a coroner is required to establish. These matters include the identity of the deceased, when and where the person died, and the causes and circumstances of the death.

If the coroner is satisfied that the other investigation has adequately established these matters, he or she may decide not to open or resume the inquiry (Coroners Act 2006, s70).

The effect of these provisions of the Coroners Act is that in some cases where MBIE have conducted an investigation (leading in some cases to a prosecution under the Health and Safety in Employment Act 1992), the coroner may decide not to open or resume an inquiry.

A coroner may decide to either hold an inquest, or hold a hearing on the papers and make a chambers finding.⁴ The coroner may hold a hearing on the papers if he or she is satisfied that no one, from whom evidence is generally to be heard, wishes to give evidence in person.⁵

The Health and Safety in Employment Act 1992

The HSE Act promotes the management of health and safety issues in industry. The HSE Act requires employers and self-employed people who control places of work to take 'all practicable steps' to eliminate, isolate or minimise workplace hazards. 'All practicable steps' is defined as doing everything that is reasonably practicable in the circumstances having regard to:

- the harm that might occur
- available knowledge about the likelihood of the harm occurring, the harm itself and what can be done to eliminate or reduce the harm
- the availability and cost of means to do something about the harm.

The Act also requires employers to keep records of and report all accidents.

⁴ If the death appears to have occurred when the deceased was in official custody or care an inquest is mandatory. (Coroners Act 2006, s80)

⁵ Coroners Act 2006, s77

Forestry industry codes and regulations

In 2012 an updated *Approved code of practice for safety and health in forest operations* (ACoP) was published by MBIE. The ACoP covers all forest operations (with the exception of log transportation) and the review focused on the tasks of tree-felling and breaking-out in particular, which consistently account for the greatest number of fatalities and other serious harm incidents.

The ACoP does not have the legal force of regulations however it is a statement of preferred work practices. Section 20 of the HSE Act enables the Minister of Labour to direct the MBIE to prepare, and submit for the Minister's approval, a statement of preferred practices, processes and principles (among other things) that can be formed into a code of practice. Although compliance with a code of practice is not mandatory, it can be used as evidence of good practice. Depending on the circumstances of the case, complying with a code may not be sufficient to meet the requirement imposed on duty holders under the HSE Act to take all practicable steps.

A court may consider the ACoP when considering an employer's compliance with relevant sections of the HSE Act.

Workplace health and safety

Policy and legislation surrounding workplace health and safety in New Zealand has gone through significant scrutiny and changes in the past three years. The 2010 Pike River Mine tragedy cast a spotlight on New Zealand's health and safety record, leading to a royal commission inquiry, the establishment of an independent taskforce and legislative reforms.

Independent Taskforce on Workplace Health and Safety

The Independent Taskforce on Workplace Health and Safety was established by the Government in April 2012, partially in response to the Pike River Mine disaster, to review whether New Zealand's workplace health and safety system remains fit for purpose. The taskforce has been established to consider and make recommendations on how to improve New Zealand's workplace health and safety record. They were also tasked with recommending

a package of practical measures that would be expected to reduce the rate of fatalities and serious injuries by at least 25% by 2020. The terms of reference are available on hstaskforce.govt.nz

On 30 April 2013 the taskforce delivered its report to the Minister of Labour, Hon Simon Bridges. In a press release⁶, taskforce Chairman Rob Jager described the current system as 'not fit for purpose'. He stated that the system had 'a number of significant weaknesses across the full range of system components that need to be addressed if we are to achieve a minor step-change in performance'. The report's recommendations included the establishment of a stand-alone health and safety regulator; new workplace health and safety legislation; active engagement between government, employers and workers in developing regulations and codes of practice; strengthening worker participation in health and safety management; and increased resourcing of a new workplace health and safety agency.

Working safer: A blueprint for health and safety at work

In August 2013 the Government released *Working Safer: A blueprint for health and safety at work*. The document is the Government's response to the recommendations of the Independent Taskforce. The Government stated that the 'reform package is aimed at reducing New Zealand's workplace injury and death toll by 25% by 2020'.

Significantly, the reform will see the Health and Safety at Work Bill replace the HSE Act. This will be introduced into Parliament in December 2013. Regulations will also be developed to support the Bill. The new legislation will be based on existing Australian law. The legislation aims to clarify duty holders and duties, cover alternative working relationships and will impose a positive duty on directors. The legislation will also introduce a new suite of compliance and enforcement tools.

MBIE was provided with an opportunity to comment on this case study and provided the following additional information:

⁶ 'Workplace Health and Safety Taskforce calls for urgent, broad-based change' (Press release, 30 April 2013).

'In 2012 MBIE initiated a major change process to improve its performance as the health and safety regulator. Organisationally this has resulted in a separation of the inspectorate into dedicated investigation teams and proactive assessment teams. In combination with this functional specialisation, the Ministry has adopted a more risk-based approach, focusing more of its resources in the areas of greatest harm. As part of this risk based approach, the national Safer Forest Harvesting project was launched in August 2013, targeting harvesting contractors and focussing on established hazards in cable assisted breaking-out, tree-felling and contributing factors (such as fatigue, training, production pressure, impairment, nutrition and hydration) respectively. This project includes increased engagement with forest owners and contractors and a deliberate enforcement approach targeting known unsafe practices.'

Recommendations made by coroners (NZ)

CASE NUMBER

CSU-2009-HAS-000100

DATE OF FINDING 1 May 2009

CIRCUMSTANCES

The deceased was part of crew undertaking an extraction process in Te Awahohonu Forest, west of Napier. He was one of two breaker-outs, and his role was to hook up logs onto a main rope and signal to the hauler operator on the yarder to commence hauling. During this operation, when the tail rope was raised again a piece of debris travelled down the rope and then dislodged, narrowly missing one breaker-out and hitting the deceased in the head, instantly killing him.

A DoL investigation was undertaken which found that the logging company's identification of hazards, and the *Best practice guidelines* only covered the inhaul operation and not the outhaul operation where the unintended pick up of debris when working ropes are tensioned is apparently

not uncommon. The DoL found that a minimum safe distance from both the main rope and tail rope should be established and a safe position identified during both the inhaul and outhaul operations.

COMMENTS AND RECOMMENDATIONS

The coroner endorsed a number of recommendations made by the DoL that were directed at C&R Logging Ltd, the deceased's employer. These were as follows.

- Prior to the commencement of operations C&R Logging Ltd shall clearly identify the head breaker-out and his responsibilities on a daily basis. This includes the responsibilities for giving the primary signals to the hauler and responsibility for setting the safe distance for other breaker-outs to adhere to.
- C&R Logging Ltd shall, at pre-harvest assessment, using information provided by the principal identify and agree on, the average length of the trees in the block, and enforce that measurement as the minimum safe distance to be applied in all situations for the whole breaking-out process, inhaul and outhaul phase, or greater distance as required considering the terrain of the particular site.
- C&R Logging Ltd shall implement a detailed step by step 'breaking-out procedure' that clearly identifies duties, the chain of command, and consequences for failure to follow instruction or implement company procedures.
- C&R Logging Ltd shall implement and record a structured skills check/audit of all qualified breaker-outs on a monthly basis. Any new breaker-out under training, (NZQA Standard), shall be checked and any training needs identified. This shall be advised to the person undertaking the 'on job training', (competent-/buddy) to implement. These observations shall be reflected in the training records signed by both the trainee and competent person giving the training.
- C&R Logging Ltd shall review the breaking-out audit process and implement an additional check procedure that ensures the participants are at the predetermined safe distance for the whole of the inhaul and outhaul phase of the breaking-out process.

- C&R Logging Ltd shall ensure that any audit is signed off by both the auditor and the participant on the day of the audit. Any follow up or corrective actions identified in the audit, must be recorded in detail and actioned within any specific time frames.
- C&R Logging shall increase supervision of breaking-out operations on a daily basis. Any failure identified shall be recorded and immediate action taken. A zero tolerance attitude must be taken to any failure to follow safety procedures.

Response from Competenz

Competenz (formerly FITEC) were provided with an opportunity to comment on this report. Competenz stated that the reviewed ACoP includes a rule that sets a minimum distance of 15 metres that breaker-outs must stand from moving ropes during outhaul.

CASE NUMBER

CSU-2008-WHG-000106

DATE OF FINDING 22 June 2009

CIRCUMSTANCES

The deceased died on Otaika Valley Road of fatal injuries sustained in a motor vehicle crash. He was driving his unloaded freightliner down Otaika Valley Road to pick up his next load of logs. As he drove down a tight and narrow s-bend, another fully laden log truck came down the same road from the opposite direction. The other trailer rolled onto its right hand side, sending its load of logs into the path of the deceased's vehicle. He was unable to avoid a collision, and died at the scene of the injuries he received.

Though both the other truck and trailer had passed inspection, the fitness of the truck had since become compromised because of wear and tear, and had an increased likelihood of 'roll-over'. It is part of the responsibility of the driver to maintain the appropriate condition of their truck; however the driver of that truck lacked experience with the dynamics of the truck and its warning signs, and was travelling around the bend faster than advised.

COMMENTS AND RECOMMENDATIONS

The coroner commented that it must be learnt that the trucks in this industry must be checked more often or need to have a stricter interpretation of the Certificate of Fitness with respect to metal fatigue and stress on components of the trucks and trailers that haul logs. There is no substitute for adherence to traffic signs for road users.

The coroner recommended that those that drive long haul trucks, particularly in the logging industry, be reminded that they have a personal responsibility to ensure that the truck they drive each day is safe enough to be on the road. Many such trucks as we see in this case meet the legal Certificate of Fitness requirements but that does not necessarily equate to being a safe truck on the road at that particular time.

CASE NUMBER

CSU-2008-PNO-000255

DATE OF FINDING 24 July 2009

CIRCUMSTANCES

The deceased had been contracted to assist with the salvaging of native timber from a farm property. He was responsible for, amongst other things, driving the timber-laden loader over the bridge. On the day of his death the deceased had already made two trips across the bridge carrying loads of milled timber. On the third crossing the deck of the bridge gave way when the loader moved too far away from the underlying support beam, causing the deck timber to become over-stressed and fail. The loader plunged approximately 7 metres into the Mohakatino River below, killing the deceased.

At post-mortem it was noted that the deceased did have an undiagnosed brain tumour that the coroner considered likely to have contributed to the loader being off course and beyond the safe part of the bridge's desk immediately prior to the bridge's failure. However the coroner found that the effects of the tumour could not be considered totally causative of the accident.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the deck of the bridge extended an unusually long distance from the underlying support beam which meant that there was virtually no safety margin for deviation from a very straight line. The coroner said that in her view this exposed the deceased to an unacceptable risk.

The coroner accepted that the DoL considered that all practicable steps had been taken to identify hazards and made no criticism of South Pacific Movements Ltd in relation to the steps they took to assess the viability of the bridge (in light of the accepted industry practice). However she considered that vast improvement in the assessment of the suitability of bridges for various purposes is needed. She considered it a 'poor reflection on the industry' that appropriate steps are considered to be a visual assessment, and having anecdotal knowledge of the history of use of the bridge.

The coroner recommended to the DoL that they engage with sector groups to lift standards of assessment of bridges on privately owned land that are used in commercial operations, and/or to carry heavy commercial vehicles, and promote voluntary compliance of the matters discussed below. She also recommended that the DoL investigate means by which industry standards for assessment of bridges on privately owned land that are used in commercial operations, and/or to carry heavy commercial vehicles, might include a requirement that an engineer's report be obtained as to the suitability of the bridge for the purpose.

To the Department of Internal Affairs the coroner recommended that research be carried out on the viability of requiring the safe loading and speed limits for bridges on privately owned land that are used for commercial purposes, and/or that are required to carry heavy commercial vehicles, to be notified by a sign at the bridge. She further recommended to the Department that they research the viability of introducing a compliance and inspection regime in respect of bridges on privately owned land that are used for commercial purposes, and/or that are required to carry heavy commercial vehicles.

Response from Competenz

Competenz (formerly FITEC) were provided with an opportunity to comment on this report. Competenz stated that the reviewed ACoP now includes the requirement for a bridge inspection programme.

CASE NUMBER

CSU-2008-WGN-000347

DATE OF FINDING 7 September 2009

CIRCUMSTANCES

The deceased was employed as a forestry worker at Ngaumu Forest in Carterton. He was carrying out operation as part of his employer's cable-logging operation. The deceased was still a tree-feller in training and his work experience in tree-felling was just over two months in duration. The deceased's colleagues went to look for him when they had not heard any activity from his area for some time. He was found trapped beneath a fallen tree.

In order to commence the felling of the tree that struck and killed him, the deceased had to cut a pathway as the group was obstructed by a number of wind-thrown and uprooted trees. The tree he was cutting had a large wind thrown tree leaning heavily against it creating a large amount of pressure on the standing tree. This caused the tree to fall quicker after the back cut was completed, causing the wind thrown tree to spring forward in the direction the falling tree would have taken. The other wind thrown trees nearby made it difficult for the deceased to establish an uphill escape route. The falling tree hit other trees on the ground and slid, striking him as he made his way along the down-hill escape route he had cleared.

The DoL investigation found that the deceased's decision to cut a particular dangerous tree was the critical factor in his death. The report concluded that in this case there were no clear recommendations that could be made to dramatically improve processes or procedures to ensure this does not occur again. The investigation did identify a number of 'practicable steps that could have been taken' that may have prevented the death, all of which should have been taken by the deceased. The DoL concluded that there were no clear

recommendations that can be made to dramatically improve processes or procedures to ensure this does not occur again.

COMMENTS AND RECOMMENDATIONS

With reference to the 'practicable steps that could have been taken', the coroner formed the view that in fact the majority of the practicable steps referred to by DoL are steps that should have been taken by the employer, rather than the deceased. After hearing from an expert witness the coroner concluded that the deceased was cutting a tree beyond his experience and in fact lacked the training to even recognise that he was out of his depth. He found the health and safety plan was a generic one and insufficient for the specific site, and that the deceased had only two months tree felling experience and was doing work usually done by the most experienced fellers.

The coroner recorded that it could not reasonably be said that 'an employee's inactions have been the major contributing factor into the cause of the accident', as was established by the DoL report. An expert witness found that other contributing factors to the poor decision made by the deceased included weather conditions (raining, wet, poor light, cold), time of day and having had only one day of rest (Sunday) before starting the next weeks work, and not enough experience. The expert said that with the wet conditions the likelihood of the tree sliding backward or sideways into the escape route was very high.

The coroner received advice from an expert witness as to whether any recommendations could usefully be made. The coroner made a number of recommendations directed at Montana Logging Ltd (the deceased's employer).

- Files be established in respect of all employees who are under supervision or training, which will constitute training records.
- When an employee has been deemed competent for certain forestry work, but has not yet been assessed for the relevant NZQA Limit Standard(s), details of the person who deemed the employee competent, together with the qualifications and experience of that person, and full details of the assessment (the kind of work being done, the conditions under which such work

was carried out and what the assessment comprised of), should be added to the employee's training record. A copy of the assessment document should also be added to the training record. That record should form the basis for any future formal assessment by a FITEC assessor charged with examining the employee for the task-related NZQA Unit Standard(s).

- Employers employing workers in a group/crew context (for example, harvesting and forest silviculture operations) should hold a short meeting each day prior to commencement of work, which meeting should be documented. Such meetings, which might be described as pre-start or toolbox meetings, should lay out a clear plan for the day's work. All those who take part in the meeting should sign the documented plan, recording their participation in such plan. Such meetings should include:
 - discussion of the previous day's work and any incidents or issues raised
 - discussion of the work to be carried out during the day, including allocation of work, who is to carry out the various work tasks, whether any employee is changing his or her work tasks and the nature and extent of supervision of employees required that day
 - highlighting of any particular known hazards associated with the day's work, together with such controls as are deemed necessary in the circumstances.

The coroner commented there may be no criticism of Montana Logging Ltd in general safety terms. There is no issue with the fact that the deceased was competent with normal tree felling but he did not have the level of experience and knowledge to properly cope with the environment in which he died. The coroner commented that it is hoped that the recommendations made by the court will act as a reminder to employers of the need for daily checking of the work to be carried out by forestry workers with a view to identifying and dealing safely with hazards they may meet during the day's work.

Such recommendation is in keeping with the nature of the duty laid down upon employers by section 7 of the Health and Safety in Employment Act 1992, enjoining every employer to ensure that there are in place effective methods for systematically identifying existing hazards to employees at work. In this way the employer's safety plan will be robust and complete. Plans that are generic in nature may effectively identify hazards of a general kind, but section 7 of the Act requires the laying down and maintenance of systems for the identification of both existing and new hazards to employees at work. New hazards may, and do, arise daily. For this reason there needs to be regular reappraisals of employment hazards. Reappraisals are required as sites and the nature of employment change. There is a higher degree of care required on the part of employers in the case of trainees.

Response from Forest Industry Contractors Association (FICA)

[FICA agrees] with the comments. It will be important for our industry to carefully consider the record of learning recommendations as many prospective employers generally regard the information contained as insufficient. Many employers use their own more practical measures and often the skills of in-house trainers/assessors to make practical on-site assessments of the skills of new employees. Changes to the information contained in the record of learning would be potentially quite helpful, as standards for its details and format can be applied using systems in place by forestry's industry training organisation.

Response from Competenz

During the recent qualification review process it was identified that unit standards and therefore training needed to be improved in the area of on-going hazard management and identification of new or changing factors that could impact on an operation (weather, terrain, stand conditions). This additional requirement is currently being written into all of the relevant practical unit standards in forestry. There is also a review underway of the tree felling unit standards that will result in an improved understanding of the ability of tree fallers at different stages of their learning. Currently there are two stages of recognition (basic tree faller and

professional tree faller). In the future there will be three recognition points (basic tree faller, production tree faller, professional tree faller).

CASE NUMBER

CSU-2010-HAM-000074

DATE OF FINDING 11 February 2011

CIRCUMSTANCES

The deceased's company was employed to remove a large tree from a property which had fallen down and was lying over a boundary fence. During this operation the deceased was operating a bulldozer in order to contour and clean up the area surrounding the fallen tree. While attempting to move the tree stump with the bulldozer, the deceased was catapulted out of his seat, over the engine compartment and onto the left track of the bulldozer. As the bulldozer was slowly moving forward, he was dragged under the track and crushed by the weight of the machine. He was not wearing a seatbelt at the time he was operating the bulldozer.

COMMENTS AND RECOMMENDATIONS

The coroner commented that it was clear from the evidence that if the deceased had been wearing the seatbelt while operating the bulldozer, he would have survived this incident. The DoL inspector who investigated this incident noted that the seatbelt fitted on the bulldozer had the appearance of having been used regularly. There is no indication of the reason why the deceased had not put his seatbelt on at the time of the incident.

The coroner noted that there is no legal requirement for an operator of a bulldozer to wear a seatbelt and considered whether this would in fact be practicable or even desirable. He stated that there may be situations where operators of bulldozers put themselves at greater risk by wearing a seatbelt. In the absence of evidence on this point, the coroner simply made the above comments in the hope that the relevant safety organisations will consider whether it should be made compulsory for seatbelts to be worn while bulldozers are being operated.

Response from Forest Industry Contractors Association (FICA)

FICA agreed with the coroner's comments and also added the following.

[S]ince other bulldozer and tracked skidder accidents there has been a much greater awareness generated among forest managers, logging contractor principals and their crew leaders that the wearing of operators seatbelts where fitted by the original equipment manufacturer is now accepted for most tasks in logging as the safest practice. The wearing of seatbelts in cutovers is now mandatory and audited regularly.

CASE NUMBER

CSU-2010-HAM-000488

DATE OF FINDING 20 April 2011

CIRCUMSTANCES

The deceased was working in a site in Whenuakite working as part of a logging operation involving loading cut logs on to logging trucks for transport.

The deceased was working with his colleague at 6am, at which time it was still dark. He leaned out the window cavity of the loader in order to pass a torch to his colleague. The window had previously been removed. At this time he inadvertently leaned against the main boom control lever, which lowered the boom. He was crushed between the lift ram of the boom and the safety frame of the cab, killing him instantly.

COMMENTS AND RECOMMENDATIONS

The coroner did not consider that any recommendations could usefully be made however commented on the key mistakes made by the deceased, as identified by the DoL investigation, which led to his death. He commented that the two main mistakes made was the failure to replace the window on the loader, and the decision made by the deceased to pass the torch thorough the window cavity. The window of the cab acts as a guard preventing operator access to the boom and thereby prevents the operator being crushed between the boom and the frame of the cab. By

failing to replace the window, the deceased created a very serious threat to his safety.

The coroner further commented that the deceased's decision to pass the torch through this window cavity is an understandable one, given the convenience of doing so. Nevertheless, it was a fatal mistake on his part which would not have occurred if the window had been in place or if the deceased had stopped to consider the danger of such an action. The coroner said that he trusts that other operators of loaders will appreciate the necessity to ensure the safest possible working environment by maintaining in place any piece of equipment related to their safety while operating the machine, and to consider the consequences of their actions while the machine is in operation.

CASE NUMBER

CSU-2010-HAS-000288

DATE OF FINDING 24 June 2011

CIRCUMSTANCES

The deceased was performing breaking-out duties in the Wharerata Forest, Gisborne. On a Monday morning he and a colleague were using a tail hold anchor stump that had been used for that purpose since the previous Friday. The stump had been used as a tail hold to haul over 80 logs during this time.

That morning during the hauling process the deceased saw the stump moving and asked his colleague to signal to the hauler to stop hauling. The hauler operator stopped however the tail hold stump still lifted. The deceased fell onto the root plate of the tail hold stump as the soil moved under his feet, and then fell back into the crater left by the lifted stump. At that moment the very large stump fell back into the crater, crushing the deceased.

The DoL investigator commented that 'cable logging is inherently dangerous and risk management is limited to minimisation'. The investigation found that although the tail hold stump met all the requirements of the *Best practice guidelines*, it was devoid of its main tap root with only lateral root penetration evident. It was determined that it was the combination of the stump pulling and hauler stopping at the

same time that the logs were partially suspended created a pendulum effect that levered the stump out of the ground, even after the hauler operator stopped.

COMMENTS AND RECOMMENDATIONS

The coroner recommended to FITEC that the *Best practice guidelines for cable logging* and the ACoP be amended to include:

- secondary anchoring system to be used at all times unless anchored to a mobile anchor or when two blocks are used to share loading forces
- 6 metre exclusion zone to be implemented around any live anchor
- any anchor stump failure shall be investigated to determine why the stump failed, and appropriate actions taken to minimise risks to employees.

The coroner also recommended that the DoL create a safety bulletin for forestry industry use.

Response from Competenz

Competenz (formerly FITEC) stated that it was too late to include additional material in the ACoP at the time of the coroner's recommendation. The coroner's recommendation will be added when the review of the *Best practice guidelines for cable logging* is carried out.

CASE NUMBER

CSU-2009-DUN-000402

DATE OF FINDING 28 June 2011

CIRCUMSTANCES

The deceased was a truck driver working as part of a logging operation in the forest involving loading cut logs on to logging trucks for transport. He received fatal injuries when, while engaged in loading logs onto a truck, he was struck by a log which became dislodged from the load. While the truck was being loaded, the deceased stood in what is agreed as the 'safe zone' to supervise the loading.

After loading was completed the deceased assisted with chaining the logs down and asked his colleague to push down a log that was sticking up at the top of the load. His colleague used the loader to do this successfully but this action caused an adjacent log to 'jump' from its previously

secure placement, fall and strike the deceased. It appears that the deceased had moved around the truck during this time in order to secure the load before the log that had been sticking up could pop up again. It appears that his colleague had lost sight of the deceased at the time and was unaware that he had moved around the truck.

A DoL investigation was undertaken which concluded that the deceased had moved away from the 'safe zone' to secure the load before the log that had been sticking up could pop up again. The DoL report was suggestive therefore that it was the actions of the deceased which was the prime cause of his death. In contrast, the report of the employer (the Dunedin Carrying Company or DCCL) suggested that the prime responsibility was that of the colleague as loader-driver in continuing to operate the loader while he could not see the deceased.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the codes and specifications, as they pertain to logging operations are confusing if not contradictory. However the coroner found that although the rules relating to the height of logs considered safe on a truck vary, there is no clear evidence that it was the height of the logs that was the problem.

With reference to both the DoL's investigation and DCCL's report, the coroner concluded that in his view responsibility is shared. The coroner commented that DCCL should have rigorous protocols in place to ensure safe operations. DoL and the industry should co-operate to ensure that there is only one, easily understood, set of guidelines for those in the logging industry to follow. The coroner recommended that a copy of this finding be sent to DCCL, DoL and to the Log Industry Safety Council to ensure that the Codes and Specifications are reconciled and acted upon to ensure the future safety of workers in the industry.

Response from Forest Industry Contractors Association (FICA)

FICA agrees that confusion over the safe zone is the greatest continuing cause of harm in log truck loading. FICA believes that the most recent clarity given with the diagrammatic clarification in the revised ACoP should simplify understanding for everyone.

Workplace observations indicate this area still lacks discipline, but as the ACoP now explains it clearly, it now needs to be put into practice and policed by all concerned. The workplace practicalities of trying to achieve implementation of the new simplified diagrammatic 'driver position' now appears to only be problematic in 'stems' logging operations (where the logs are loaded uncut and in full tree length). With a working group now investigating options it is anticipated that the only safe position for drivers being loaded in these operations will be remaining inside the cab of the logging truck. This is not yet finalised.

Response from Competenz

The coroner commented that the 'Codes' and 'Specifications' were confusing. During the review of the ACoP, the review team met with the Log Transport Safety Council (LTSC) to address this issue. It was agreed that the ACoP and the LTSC standards document needed to be better aligned. The two groups worked together to develop rules for loading zones and designated safe areas. This single set of rules appears in both documents. Other rules relating to loading and transporting of logs were also reviewed by both groups to ensure consistency.

CASE NUMBER

CSU-2010-CCH-000043

DATE OF FINDING 14 December 2011

CIRCUMSTANCES

The deceased was an experienced breaker-outer working in Robin Hood Bay, Marlborough. At the time of his death he was undertaking work felling trees. He died from injuries received when a tree he was cutting down fell on him.

The tree had been secured to the mainline of the cable hauler prior to being cut, the intention being that the tree would fall freely but once down, the mainline could be used to facilitate its immediate retrieval. However, there was insufficient slack in the mainline to let the tree fall freely, and as the tree began to fall the line tightened and pulled the tree off the stump and back towards the deceased. He was unable to move from its path and was trapped beneath it.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this revealed what she considered to be shortcomings in the employer's management of Health and Safety issues, particularly in

relation to the tree felling process the deceased was using when he died. She also commented that this process does not appear to be an industry recognised practice, nor does it appear to be used widely within the industry, although Pelorus employees were well familiar with it.

The coroner further stated, 'since [this incident] Pelorus Contracting Limited has produced a one page Health and Safety policy document regarding use of the process, but in my view further action should be taken to formalise training and identify competencies required if this process is to be persisted with. In particular, the training should cover the means by which the person using the process can determine the tension in the mainline when the line is unsighted'.

Response from Pelorus Contracting Ltd

Pelorus Contracting Ltd has informed the Office of the Chief Coroner that it has not used this technique since the incident due to the terrain and block(s) that they have been working in. Since the death of the deceased the firm has put in place a certificate to certify that the recipient has been trained and certified to use the process.

Pelorus Contracting Ltd further stated that it will be applying all training under Policy 12.8 Machine Assisted Felling – Cable Harvesting of the new Code of Practice for Safety and Health in Forest Operation issued by the DoL.

Pelorus Contracting Ltd stated that FITEC (now Competenz), who is under contract with Pelorus to certify all training, will certify the harvesting technique. Note that it was clarified by Competenz that their role is not to certify a particular technique but rather to develop unit standards and assessment processes that meet industry needs. In this case Competenz has unit standards covering machine-assisted tree felling, and these are what the trainees will be assessed against.

CASE NUMBER

CSU-2011-DUN-000356

DATE OF FINDING 5 December 2012

CIRCUMSTANCES

The deceased died at Overton Forest, Southland of multiple traumatic injuries, sustained when he was struck by a falling tree.

The deceased was employed by Don Contracting who had been working in the Overton Forest, clearing pines. The crew were working on the lower part of the block which was reasonably sheltered from the wind, the strength of which was described as building as the day progressed. The deceased began de-limbing the second to last tree with his back to the last tree. The tree behind him was pulled from the ground by the wind and fell. The deceased was wearing ear muffs because he was using a chainsaw, and could not be warned. The tree struck him on the back and drove him straight into the log he was standing on. Other crew members called emergency services, but he had died at the scene.

The ground where the deceased was working was softer than usual, due to recent rainfall. This made it easier for the tree to be blown over. Additionally, the roots of the tree that fell on him were small for a tree of that size. The wind was recognised as being strong that day, but all the bush workers at that day in Overton Forest agreed that the forest was sufficiently sheltered, and it was safe for working. Extra care was also taken by moving to a lower area to fell trees that were less affected by the wind.

The deceased was an experienced bushman, having had 20 years experience, and was stated as being competent and an expert. He either had not noticed the increase in wind strength around him as he worked, or took a risk in finishing the block, despite the wind.

COMMENTS AND RECOMMENDATIONS

The coroner recommended that a copy of this finding be forwarded to the MBIE and to FICA in order that the lessons learned from the tragic death of the deceased not be lost.

Response from Ministry of Business, Innovation and Employment

MBIE commented that it is difficult for the Ministry to respond specifically to such a general recommendation. MBIE wrote that the findings had been registered on the Ministry's database and distributed to various areas of the Health and Safety Group including the General Manager Health and Safety Operations, the Sector Engagement and Technical Services teams and the Health and Safety Policy team. The findings are also available to staff. In this way

they are available to be used in a variety of aspects of the Ministry's work relating to health and safety in the workplace.

CASE NUMBER

CSU-2012-HAS-000144

DATE OF FINDING 19 December 2012

CIRCUMSTANCES

The deceased died from injuries received when he was crushed between two logs while working in Whareongaonga Forest. He was working in a four man breaker-out crew, removing logs from the pile. A worker on the lower side of a pile of logs felt the logs moving and pressing on his leg. He pulled his leg free, and moved out of the way, however unfortunately the deceased was hit by the logs. Staff worked quickly to free the deceased who was trapped by the logs, and commenced CPR. Ambulance helicopter assistance was called but he could not be revived.

A DoL investigation found that the men had been removing logs from the bottom of the pile, causing it to destabilise and slip. The investigation emphasised that the development of mechanical extraction methods considerably reduced the risks involved with this work and that the rapid implementation of these methods when available should be a priority for everyone.

COMMENTS AND RECOMMENDATIONS

The coroner recommended to harvesting contractors, forestry owners, principals and cable harvesting employers that cable harvesting contractors use mechanical grapples as the preferred method of log extraction.

It was recommended to FITEC (now Competenz) and the Ministry of Business, Innovation and Employment (MBIE) that immediate consideration be given to including a recommendation that mechanical grapples are used in both the *Best practice guidelines* and the ACoP. It was further recommended that immediate consideration be given to including recommendations for extraction, location and height restrictions of bunched logs in both the *Best practice guidelines for breaking-out* and the ACoP.

Response from Ministry of Business, Innovation and Employment

The Health and Safety Group has reviewed your recommendations from [this inquest].

It is not practical for the group to republish the *Best practice guidelines* and the ACoP for safety in health in forest operations to include your recommendation that mechanical grapples are used. The group notes that mechanical grapples are an emerging technology with considerable evident benefits, and has already publicly stated its view that their use could contribute to reducing serious harm in the forestry sector. The Ministry will continue to make that point publicly and when it is appropriate to republish the guidelines and the ACoP, publish its position in those documents.

FITEC is currently producing a *Best practice guidelines on breaking-out* and your recommendation that this document should include recommendations for extraction, location and height restrictions of bunched logs is being addressed in that. The Ministry raised with FITEC (now Competenz) the recommendations and anticipate that the intent of the recommendations will be reflected in the *Best practice guidelines*.

Response from Competenz

Competenz (formerly FITEC) commented that additional content was added to the draft *Best practice guidelines for breaking-out in a cable operation* as recommended by the coroner. This document now includes a section on breaking-out bunched stems.

Recommendations made by coroners (Aus.)

CASE NUMBER

Inquest into seven deaths (NSW)

DATE OF FINDING 19 October 2007

CIRCUMSTANCES

In New South Wales (NSW), Australia, between 2003 and 2006, seven inquests were conducted consecutively into seven forestry industry workers. Five of the seven deaths occurred in state forests. The Forestry Commission, WorkCover Authority of NSW, employers and other workers who were witnesses were involved in the inquests.

All but one of the deaths occurred during the course of tree felling or as a result of a snagging operation. All men were highly experienced and apparently well trained. Almost all of these cases involved stags or damaged limbs from trees inadvertently falling and striking the workers. The particular risk posed by stags is that they are dead or decaying trees whose timber is dry and brittle. This means that they are susceptible to falling as a result of vibrations (for example caused by a chainsaw, by being hit by a falling tree or machinery or being subjected to impact shock from a felled tree landing close by). A stag may also fall due to natural causes. The general consensus at inquest was there is no such thing as a safe stag.

COMMENTS AND RECOMMENDATIONS

The coroner commented in her findings that 'All timber workers work in extreme conditions. The work is hard and constant and they are isolated. The work is often dangerous. Remuneration for this hard work is usually dependant on their tally of trees felled'. One of the central questions asked by the coroner was 'What more needed to be done by way of education or regulation to ensure the safety of other industry workers?'

Having considered the circumstances of the individual deaths, the coroner made a number of general observations.

In Australia timber-felling operations are controlled by State Forests through the use of harvest plans and all operations

are supervised by supervising forestry officers (SFOs). One of the key accountabilities of the SFO is to ensure that contractors adopt safe working practises, including safe felling techniques. The coroner observed that the evidence demonstrated a lack of consistency of uniformity in the supervision of harvesting operations by SFOs.

The series of inquests exposed a variety of policies that are relevant to tree felling in the vicinity of other stags and other hazards. Material provided to fellers to guide their assessment of dangerous stags was not always consistent and varied between their definitions of such terms as 'stag' and 'felling zone'. The coroner found that it seemed most instructions and warnings by SFOs concerning identifying and assessing dangerous stags occurred on an ad hoc basis. The coroner also observed that no single guidebook or manual produced by Forests NSW contained the entire guidelines to enable a single reference point.

The coroner made a number of recommendations in her findings. To State Forests (Forests NSW) she recommended that they:

- enforce regular supervision by SFOs of all harvesting operations in state forests
 - ensure that the auditing programme specified in the *Monitoring and audit manual* be implemented and enforced
 - continue to ensure that safety alerts are disseminated to all logging contractors and other harvesters to ensure the timely and comprehensive distribution of information concerning recent accidents or other issues requiring urgent attention
 - promote the *Forest NSW H&S guideline – dangerous and problem trees* as the minimum and mandatory standard of practice for harvesters.
 - clearly define 'drop zone' or 'active felling zone' or 'felling zone' in accordance with AS2727 – 1997 to ensure it encompasses an area '...not less than twice the length of the tallest tree to be felled from the operation. This safe distance should be increased on steep slopes because felled trees may slide downhill. The zone should extend 360° around the tree to be felled.' (this will necessitate redefining the terms 'immediate felling zone' and 'active felling zone' as contained within the second manual and guideline)
- review current Forests NSW safety documentation including the second manual and the *Guideline and chainsaw operators manual* with a view to implementing a comprehensive and readily accessible system of computer linkages to these and other relevant publications and other documents (hyperlinks)
 - ensure all SFOs are equipped with hard copies of all safety policies, procedures and other related information to be accessed in the field
 - confirm the enforceability of all occupational H&S provisions with respect to all logging operations conducted by any person, company or any other contractor (including stumpage contractors) within state forests of NSW.

To Standards Australia it was recommended that consideration be given to altering the diagram in *Australian standard 2727-1997 chainsaws – guide to safe working practices* (page 24) (concerning the feller retreating along escape route) – to include reference to feller watching falling tree for three metres at least and then turning to retreat.

To the WorkCover Authority it was recommended that it:

- revise its recommendations concerning the style and spacing of glut/s to ensure a greater understanding of the importance of uniformity and evenness of gluts when loading timber packs
- review the present regulatory requirements concerning logging on private property to ensure those contracted harvesting operations are undertaken only by accredited operatives (to be distinguished from the property owner's own activity)
- review the evidence presented at inquests into the these deaths for non compliance under the Occupational Health & Safety Act.

Recommendations were also directed to the NSW Ambulance Service regarding response times and the dispatch of helicopters, and to the Commissioner for NSW Police regarding the collection of blood and tissue samples.

CASE NUMBER

L0325/2005 (TAS)

DATE OF FINDING 30 May 2006

CIRCUMSTANCES

The deceased was working as a self-employed tree feller in a forest owned by Forestry Tasmania. He was the holder of a number of certificates of competency issued under the Tasmanian Forestry Industry Training Board's industry competency standards. The deceased's colleague found him lying alongside a fallen tree with a tree limb lying next to him. It appeared that a limb in the crown of the tree that fell and struck the deceased had been damaged – probably from being struck by another tree which had been earlier felled by someone else. It appeared that the deceased was aware of the damage to the tree and the danger it presented.

The deceased made a decision to fall the damaged tree but did not clear the area to either side and backwards from the intended direction of fall so that he had an escape route to enable him to safely avoid any unexpected reaction in the tree's falling. It appeared that as the tree began to fall on its intended line the damaged limb had become detached from the tree's crown and began falling in the direction of the deceased. To avoid the falling limb the deceased moved from the back of the offending tree towards its front but in doing so was struck, either by the detached limb as it had swung from the south towards the north, or by the tree itself.

Post-mortem toxicological testing revealed the presence of methylamphetamine recorded at 0.4mg/L. However, the evidence did not permit the coroner to make any finding upon whether the drug was a factor contributory to this accident.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this tragedy may have been avoided if the deceased had, in accord with proper forestry practice, cleared an escape route before he proceeded with the felling. Had he done so then it is probable that he would have been able to utilise the route and avoid the limb when it became detached and fell towards him. The coroner said that this death should serve as reminder to all tree fellers that the preparation of an escape route is a measure vital to their safety in the bush.

The coroner further commented that it is of course reckless and foolhardy for any worker in the forestry industry to consume drugs which may compromise his capacity to carry out his work duties in a manner which best ensures the safety of himself and others. The coroner's understanding was that some employers within the industry, but not all, incorporate within their occupational, health and safety guidelines a specific drug policy. Such policies ordinarily provide for random drug testing by a medical practitioner. In the coroner's opinion, any reasonable steps which can be taken to dissuade workers from using non-prescribed drugs when working should be encouraged. To this end the coroner recommended that all employers in the forestry industry adopt a drug policy and that such policy incorporates a provision for random testing of employees, particularly when working in the bush.

CASE NUMBER

H0224/2003 (TAS)

DATE OF FINDING 4 January 2008

CIRCUMSTANCES

The deceased was working as a tree feller in the Styx Valley, near Maydena, when a colleague found him underneath a large section of tree. His colleagues had to drive 20km to Maydena to get mobile phone reception before the Tasmanian Ambulance Service could be contacted.

An investigation into the death ascertained that the fallen section of tree was the top of a stag which appeared to have broken off about 10 metres from the ground. It appeared that one or two other trees felled by the deceased that day struck the stag as they fell. This damaged the stag and caused it to fall on the deceased while he was felling another tree.

As a result of the workplace standards investigation it was identified that the probable cause of this tragic accident was a failure by the deceased to use tree-felling practices of a standard equal to the Forest Safety Code (Tasmania) 2002. It was also recognised that there was a failure by one or more persons at the workplace to ensure compliance with the principal employer's safety management system, in particular the procedure for the management relevant to the cull of stag trees.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the deceased's death was avoidable and stated that the circumstances in which it occurred should serve as a reminder that it is incumbent upon those with a duty or obligation to exercise management or control over a workplace, that as far as is reasonably practicable any person at the workplace is safe from injury and risks to health. The coroner further stated that it is also of paramount importance that persons hold the appropriate certification of relevant or applicable competencies or are operating under the direct supervision of a competent person.

CASE NUMBER

1527/02 (VIC)

DATE OF FINDING 18 February 2009

CIRCUMSTANCES

The deceased was an experienced tree feller who, in the course of undertaking his duties, was struck and killed by a falling tree. Following a lengthy WorkSafe investigation the deceased's employer was charged and subsequently pleaded guilty to two counts of failing to provide and maintain a safe working environment contrary to the Occupational Health and Safety Act 1985.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the failure of the defendant company to address exclusion zones in its risk analysis, combined with the various safety shortcomings and departures from industry practice identified in the WorkSafe investigation, which formed the basis of its guilty plea is without excuse.

The coroner stated that the timber industry poses significant dangers to workers. It casts a proportionate burden on employers to ensure that safety is paramount. The coroner commented that unfortunately, the high regard in which the company held the deceased was not reflected in a work safety system which complied with industry practice and guaranteed his safety.

The Office of the Chief Coroner would like to thank the Ministry of Business, Innovation and Employment, the NZ Council of Trade Unions, Competenz (formerly FITEC), the NZ Forestry Owners Association and the Forestry Industry Contractors Association for their input.

Recommendations

Adverse effects or reactions to medical or surgical care

See also **labour and pregnancy related** deaths below.

CASE NUMBER

CSU-2011-CCH-001089

2012 NZCorC 138

CIRCUMSTANCES

The deceased, a 54 year old woman, died in the operating theatre at Christchurch Hospital. At the time of her death she was undergoing a left pneumonectomy (the removal of her left lung). The surgery had been scheduled for that day despite the fact that the surgeon had already booked multiple surgeries that day and would have little to no break. During the surgery the surgeon made the error of stapling both left and right pulmonary arteries, believing that one was the superior and the other the inferior left pulmonary artery. The stapling of both pulmonary arteries meant that no blood could flow from the heart to either lung. An assistant was called to try and repair the stapling of the right pulmonary artery but attempts were unsuccessful and she died.

Following this death the Canterbury District Health Board (CDHB) conducted a root cause analysis (RCA) and produced a report. The RCA panel identified that an error had been made by the unintended and inadvertent stapling of the right pulmonary artery and identified a number of factors that could have prevented what occurred. The report concluded that if a 'trial' clamping of the artery had taken place before actually stapling it, it would have been recognised that the wrong artery had been clamped.

The surgeon accepted that this may have prevented what occurred and said that he now will clamp arteries in this procedure before stapling them. There is no protocol in the CDHB (or indeed in New Zealand or Australia) for any cardiothoracic centres to have a mandatory trial clamping of the pulmonary artery prior to it being stapled. The panel recommended that a formal policy requiring trial clamping during a pneumonectomy be considered by the cardiac surgeons within three months of the date of the RCA report. The coroner accepted that, if the blood vessel had been

clamped prior to it being stapled, the surgeon would have been able to recognise it was the right pulmonary artery.

The RCA panel also found that fatigue on the part of the surgeon was a contributing factor to the error that occurred. At the time, and even now, there is no formal CDHB guideline to ensure clinical staff take adequate breaks. Furthermore, the design of the cardiothoracic surgeons' roster does not evenly distribute the workload amongst the surgeons each week - meaning that a surgeon can have an excessive workload, as occurred here.

The surgeon stated that even though he was not fatigued at the time, if a protocol was put in place that tried to manage fatigue on the part of cardiothoracic surgeons he did not consider that it would be something that he would object to. However he did feel that there may be barriers to implementing this due to attitudes among surgeons. The coroner did not find fatigue to have been a contributing factor on the surgeon's part.

The surgeon's view was that it would have been difficult to reschedule the deceased's surgery and that she required the surgery urgently because her respiratory function was extremely compromised. The panel found that there were constraints on available theatre time, which make it difficult to reschedule cancelled surgery. The panel recommended that the cardiothoracic service reviews its systems for scheduling high priority or complex cases so that these cases are able to be rescheduled within a clinically acceptable timeframe year round.

COMMENTS AND RECOMMENDATIONS

The coroner recommended to the CDHB that trial clamping the blood vessels during a left pneumonectomy should be made mandatory prior to stapling. The coroner clarified that this recommendation is limited to clamping during a left pneumonectomy.

The coroner further recommended that a fatigue risk management system such as is used in Queensland is introduced, if possible, sooner than the six month timeframe recommended by the RCA panel. The coroner commented that if barriers to introducing a fatigue risk management system arise, such as the negative attitude of some cardiothoracic surgeons to the introduction of such a system, then a programme incorporating teamwork, communication and situational awareness should be introduced in the cardiothoracic peri-operative service.

CASE NUMBER

CSU-2009-CCH-001149

NZ CorC 103

CIRCUMSTANCES

The deceased, a 59 year old man, died at Christchurch Hospital from injuries he received in a motor vehicle accident. The cause of his death was cardio-respiratory arrest due to hypovolaemic shock, caused by bleeding due to the chest injuries he sustained in the accident. The deceased suffered significant coagulopathy (a blood clotting disorder) caused by the drug Rivaroxaban.

At the time of his death he had been taking part in a clinical trial called the 'ROCKET A-F study' trialling a new anticoagulant for about a year. He had been prescribed Rivaroxaban, a drug unapproved in NZ except for use in this clinical trial. The trial compared Rivaroxaban with a standard anticoagulant, Warfarin. Neither the participants, nor the investigators knew which drug they were taking (it was only after his death that his blood tests revealed he was on Rivaroxaban and not on Warfarin).

Both Warfarin and Rivaroxaban can cause major bleeding as both thin the blood. The key differences between Warfarin and Rivaroxaban are that Rivaroxaban has no specific antidote available and does not affect a person's INR level (a measurement used to ascertain a person's risk of bleeding). At the time he was treated for his injuries it was unknown by medical staff that he was on Rivaroxaban, as a consequence of this, an INR result of 1.3 misled his treating clinician to believe he did not have significant clotting disorder that needed correcting.

Participants in the trial were given two mechanisms to notify that they were in the study in case of emergency – a bracelet as well as a wallet card to carry. Both the bracelet and wallet card provided a 24 hour toll-free hotline number to call in an emergency (this number was based overseas). The wallet card also had a non-toll free number and the phone number and address of one of the principal investigators in the trial. As well as these two mechanisms, the deceased had the fact that he was participating in the trial and a contact number for the trial investigator placed in his hospital clinical notes.

However, this information was only recorded on his paper clinical notes and not on the electronic Concerto system.

The only information immediately available to emergency department (ED) staff is on the electronic Concerto system. When the deceased was in ED, a registrar phoned the emergency toll-free number but there was no answer. The wallet card with the alternative contact details was not seen by anyone in ED. Following his death a root cause analysis (RCA) was undertaken and the report of the RCA panel was presented at inquest.

COMMENTS AND RECOMMENDATIONS

The RCA panel made a number of recommendations (noting that the ROCKET A-F trial is now finished).

- It is made clear in the patient's notes that INR results may be inaccurate and that patients may be on Warfarin/placebo or Rivaroxaban/placebo.
- Christchurch Cardioendocrine Research Group (CCERG) investigators give consideration to providing specific advice to participants relating to the fact the effects of Rivaroxaban may be difficult to reverse in an acute bleeding from trauma.
- Where there is a reliance on an overseas trial management system, like the 000911 emergency number, this system is tested regularly and those tests are documented in the trial database. In addition that there be a local back-up contact system in place 24/7.
- The ED develops suitable policies and procedures that when written clinical notes become available the attending ED physician is aware in a timely fashion.
- Where uncertainty regarding the nature of trial drugs exists, consideration should be given to contacting staff within the specialties involved in conducting the particular research.

The coroner endorsed the recommendations made by the root cause analysis panel. She commented that once they are all implemented they should decrease the risk for future participants in CCERG trials and in those trials that involve CDHB patients.

The coroner commented that the ROCKET A-F study is now finished but other clinical trials continue in Christchurch

and throughout New Zealand and indeed the world. It is important that in an emergency ED staff have enough information to know that a patient is involved in a clinical trial, that they may be on a trial medication, and how that can affect their presentation and treatment.

The coroner recommended that the CDHB ensure that the Concerto patient information system is stable enough to function as an immediate primary source for the clinical patient, especially in ED. It was recommended that all departments that carry out clinical research institute a system that ensures that all patients who are enrolled in their clinical trials have that information placed in Concerto, thereby allowing immediate access to it by ED staff in an emergency.

The coroner observed that the ROCKET A-F study information document for participants stated that 'in case of an emergency your doctor can quickly find out your study drug assignment'. In this case that was not so. The bracelet had worked to let the ED physician know the deceased was participating in a clinical trial but even though it stated on it that was an anticoagulant trial the ED physician was not convinced he was aware of that. None of the other mechanisms for notification that he might have been on Rivaroxaban worked.

The current chair of the Multi-Region Ethics Committee (MEC) states that *Ethical guidelines for intervention studies* (National Ethics Advisory Committee, 2009) contains a general requirement for researchers to inform health professionals of trial participation, but currently MEC's and other health and disability ethics committees (HDECs) depend to a large extent on researchers to know of and access the systems in which to do this. Many clinical trials are not always carried out in hospitals, but in special research facilities. Some investigators are not aligned to a particular specialist group within a hospital or the trial may be led through a university's school of medicine. In such cases permission may well be required from a DHB before trial information can be placed in the DHB system and different organisations have different patient information management systems.

Clinical research is by its very nature a trial of something new and this always carries risks. The deceased's participation,

like that of so many others who participate in clinical trials helps to pave the way for improvements in the future of health. Since this death the CCERG and the doctor have written to the sponsors of ROCKET A-F study about what happened and the coroner commended this.

The coroner recommended to the MEC and HDEC's that in all clinical trials, and especially double-blinded studies, of new medicines or new products, before the trial is approved the ethics committee is to be satisfied that the investigators have placed information about the clinical trial on systems that are immediately accessible to ED staff of hospitals in all the sites in which the trials are taking place.

The coroner further recommended that the online application form for ethical review of a protocol should have a section specifically containing questions that can satisfy a committee that ED staff – through their own ED systems, and not just through bracelets or wallet cards or paper notes – will know immediately on a patient's arrival that they are enrolled in a clinical trial and have immediate information to enable them to properly treat the patient. This information must therefore include that the patient is on a clinical trial, the nature of the trial and the contact details of the local investigators. If the patient might be in a trial drug arm this should be stated and also what that trial drug is and its differences to standard medication, whether or not its effect can be reversed, and if so by what means. The information must include what treatment should be commenced. In the case of a trial of an anticoagulant, the fact that a participant's previously recorded INR results might be shams must be included in this information.

The coroner recommended that knowledge gained from this death continue to be disseminated in peer journals and through ongoing education to clinicians to benefit many future patients by making clinicians aware of the risks for participants in clinical trials where ED physicians are needing to treat them in an emergency.

The coroner also commented on the crash that injured the deceased. The crash involved a vehicle turning left across a cycle lane where the deceased was riding his scooter. Motor scooters are required to be ridden in the carriageway with other motor vehicles. However, the coroner commented that the scooter could have been a cyclist riding legitimately in

the cycle lane. Turning left brings with it an obligation to clearly indicate before the turn is made and to check that there are no cyclists coming up on the left. The message put out by cycle safety groups is to check twice for a cyclist before pulling into a cycle lane.

CASE NUMBER

CSU-2011-CCH-000705
2012 NZ CorC 105

CIRCUMSTANCES

The deceased died from respiratory failure/pneumonia from neuroleptic malignant syndrome triggered by administration of the anti-psychotic drug Haloperidol. He suffered from lewy body dementia (LBD) and was admitted to hospital following an episode of fainting and confusion.

Five days prior to his death the deceased became agitated and difficult to control. No security staff were available at the hospital therefore the deceased was administered Haloperidol, which was the only sedation drug immediately available on the ward. As a result of the deceased's background condition of LBD he was sensitive to Haloperidol and therefore at risk of neuroleptic malignant, a potentially lethal disorder.

COMMENTS AND RECOMMENDATIONS

The coroner was satisfied that steps had been taken to review LBD management at Princess Margaret Hospital with a view to reducing the chances of the occurrence of other deaths in circumstances similar to those in which this death occurred.

The coroner recommended to the Canterbury District Health Board that drug availability for sedation on the general wards be reviewed at Princess Margaret Hospital and the provision of security staff or personnel trained in physical restraint be reviewed at Princess Margaret Hospital.

CASE NUMBER

CSU-2011-AUK-001105
2012 NZ CorC 128

CIRCUMSTANCES

The deceased died of a brain herniation secondary to bilateral acute subdural haematomas at Middlemore Hospital. She had an underlying condition of hairy cell leukaemia. She was taken to hospital after she reported collapsing to the ground with no loss of consciousness, although she did not think she had hit her head.

The deceased was diagnosed with a myocardial infarction and given medication to treat this, as well as an anticoagulant (blood thinner) and a medication for high blood pressure. On the day before her death she was assessed as being in a stable condition but later that evening her blood pressure went up and she complained of nausea. She was prescribed extra medication for her blood pressure but vomited and her blood pressure medication was changed to a patch. The deceased had an unwitnessed fall in the bathroom around 11pm that evening. She was not thought to have injured herself. Approximately two hours later she became unresponsive and was pronounced dead.

The pathologist noted there was no evidence to indicate that the deceased had suffered a head injury. However, she advised that subdural haematomas may arise after minor trauma in the elderly. Once bleeding had started it may be exacerbated by any factor that interferes with normal blood coagulation. The deceased was known to suffer from hairy cell leukaemia, which may be associated with a bleeding tendency, and she has also been administered an anti-coagulant that may have contributed to the risk of bleeding.

The family expressed concerns that the doses of the anticoagulant, Clexane, given to her were higher than the dose recommended in the protocols for her weight and renal (dys)function. The coroner was satisfied that Clexane was an appropriate drug to prescribe to the deceased given her presenting condition. Her age and level of renal function was taken into account before the Clexane was prescribed. Although she was prescribed a higher dose than she should have been, the dosage she received was still significantly lower than the non-adjusted dose.

COMMENTS AND RECOMMENDATIONS

The coroner was satisfied that Middlemore Hospital were aware that dosage adjustments of low molecular weight herapin medications are required in the elderly and in patients with pre-existing renal impairment, and that they have established protocols for prescription of these drugs. The issue of overprescribing arose because of an individual prescriber's lack of accuracy. Ensuring that medical staff are familiar with, and comply with, prescribing protocols is an important matter for the District Health Board (DHB). The coroner accepted that the individual doctor concerned has been made aware of the importance of the issue.

Nevertheless, the family has raised a broader question as to whether patient safety in New Zealand could be improved by Medsafe specifically bringing this issue to the attention of medical professionals throughout New Zealand. It was not relevant for the coroner to consider this broader issue in their inquiry. The coroner directed that a copy of the findings are sent to Medsafe for its information and consideration.

The coroner observed that the clinical records in relation to the deceased's fall in the ward and any assessments undertaken in response to the fall were brief and incomplete. After she became unresponsive some time following her fall there was no information in the clinical records to assist staff as to what assessment of a possible head injury had been made after the earlier fall. While the coroner accepted the pathologist's advice that there was no evidence at post mortem of a head injury, it would have been expected that after an unwitnessed fall an assessment for a possible head injury would have been made by the staff caring for the deceased and properly documented. Counties Manukau DHB accepts that this should have been the procedure after an unwitnessed fall. The coroner commented that keeping accurate clinical records is a basic competency and component of good clinical practice. Clinical records are an integral tool to ensure that a patient receives good care, and continuity of care. Accurate clinical records also assist inquiries when questions are raised about what occurred in relation to a patient's care and management.

Response from the Chief Medical Officer, Hospital Services of Counties Manukau District Health Board

Counties Manukau DHB accepts your view that after an unwitnessed fall, an assessment for a possible head injury would have been expected and should have been properly documented. I acknowledge that there was no evidence at post-mortem of a head injury. We will follow up your recommendation for maintaining accurate clinical records with the team concerned and to the wider hospital staff.

CASE NUMBER

CSU-2011-AUK-000051

2012 NZ CorC 126

CIRCUMSTANCES

The deceased died from a pulmonary thrombo-embolism, which had been developing over weeks and had arisen from extensive thrombosis in an iliac vein in the pelvis. Oral contraceptive use was identified by the pathologist as an underlying factor contributing to death.

The deceased had gone to see several doctors at the Medical Centre@ Apollo over the month prior to her death. Apollo provides regular general practice care as well as an acute walk-in service outside of office hours. Initially she attended for a weight loss program and treatment for her heavy periods, for which she was placed on a combined oral contraceptive pill. She also had multiple return visits to treat a chesty cough and phlegm. A week before her death she was advised to see a specialist for her ongoing respiratory problems, something that she declined at the time, instead electing to wait and see if the antibiotics she had been prescribed would help.

Two days before her death the deceased returned to Apollo and informed the doctor that the symptoms were persisting and that she would like to see a specialist. She said that she now also felt tight in the chest and felt as if she was not able to get enough air. The doctor gave differential diagnoses of a chest infection/bronchitis that was slow to recover; some underlying intermediate to chronic lung condition developing; elements of asthma precipitated by the bronchitis she had recently suffered and legionella. She

prescribed a short course of Prednisolone and Ventolin (asthma treatment) and arranged a urine sample test. The plan was to call the deceased in 2–3 days to see if she was improving, and if she was not getting any better to refer her to a respiratory physician.

In the early evening of 12 January 2011 the deceased was experiencing shortness of breath and collapsed at home. An ambulance was called however she could not be resuscitated.

After her death Apollo undertook a root cause analysis (RCA) review of the care provided to her. The review identified several issues and a number of things it could improve on. In particular the RCA considered that the consultation at Apollo where the oral contraceptive was prescribed dealt with too many issues for one consultation. It further identified that the doctor who prescribed the contraceptive (Levlen) at this consultation did not indicate in the deceased's electronic records that Levlen was a long term prescription. This meant that the doctors who subsequently treated her were not immediately alerted to the fact she had been prescribed Levlen (an important risk factor for developing thrombo-embolism).

The deceased saw a large number of doctors. The review noted that three of the consultations in the weeks prior to her death were all on weekends or public holidays through Apollo's walk-in service that provides acute care for patients and involves a number of different GPs.

COMMENTS AND RECOMMENDATIONS

The coroner found the deceased did not receive care of an appropriate standard. However, he was unable to make a finding that prescription of the oral contraceptive caused her thrombosis. It was clear on the basis of expert advice that while prescription of an oral contraceptive increased the risk of her developing thrombosis in the pelvic veins, she had pre-existing conditions that predisposed her to thrombosis and it is not possible to know whether the thrombosis would have occurred without this treatment. Nor was it possible to make a finding as to what the outcome would have been had the deceased been referred for specialist input or to hospital when her condition deteriorated.

The coroner commented that the doctors who cared for the deceased have reflected on their practice and made changes as a result of her death. In response to analysis of the circumstances of the death Apollo identified a number of things it could do differently to improve the standard of care. The clinical director has confirmed that the medical centre is focussed on reducing risk for its patients. Accordingly, the coroner did not see the need to make detailed recommendations to prevent deaths in similar circumstances in future.

The coroner recommended to the clinical director of Apollo that the medical centre reviews the action points identified in its root cause analysis of the circumstances of this death and ensure that all action points have been addressed and implemented. The coroner further recommended that the medical centre uses this finding as a further opportunity for learning.

Aged care

CASE NUMBER

CSU-2011-WGN-000196

2012 NZ CorC 150

CIRCUMSTANCES

The deceased died at Wellington Hospital from aspiration after falling and fracturing his hip and shoulder.

He had been living at Cashmere Hospital in Johnsonville, Wellington since 2005. At the time of his death he was suffering from multiple sclerosis. He could no longer talk and required assistance moving. His bed had been set at a low height because he was classed as having a high risk of falling. A week before his death he fell from his bed causing fractures in both hips and his shoulder.

Following the fall, at the request of his daughter, a nurse requested that a doctor attend the deceased stating that he had sustained a small skin tear and a bruise on his left arm and hand. There was no indication that the matter was

urgent and the doctor attended four days later. The focus of the doctor's assessment was on the deceased's eye as he had a significant eye infection. The Cashmere Hospital nurse accompanying the doctor did not recount the issue of the fall that had occurred four days earlier.

Ten days later the doctor was again contacted, this time with an urgent fax request to attend the deceased as he was clearly in pain. When the doctor returned he ordered that he be taken to hospital and have x-rays. He was taken by ambulance the next day and was scheduled for surgery however he died before this could occur.

COMMENTS AND RECOMMENDATIONS

The coroner commented that there had been a number of cases in recent times where comment has been made on the explicit need for hospital staff (and therefore rest home staff) to communicate and incorporate family of a patient in the debate as to what was happening with their loved one. The coroner strongly recommends that all rest home facilities should adopt the Wellington Hospital's protocol on the issue of falls.

CASE NUMBER

CSU-2010-DUN-000417
2012 NZCorC 176

CIRCUMSTANCES

The deceased died at his home from injuries sustained in a fall.

COMMENTS AND RECOMMENDATIONS

The coroner commented that it is his belief that more could have been done for the deceased by some of those responsible for his care. He said it was not necessary to comment further on what specifically could have been done and such commentary would be beyond his jurisdiction, ability and training. He was satisfied however that everything that should have been done for the deceased was done.

The coroner recommended that a copy of this finding be forward to the Southern District Health Board in order that Board clinicians may learn from the issues identified and establish protocols for greater patient care and enhanced communication.

Child deaths

CASE NUMBER

CSU-2012-DUN-000290
2012 NZ CorC 142

CIRCUMSTANCES

The deceased, a three year old boy, died at Invercargill Hospital of head injuries sustained when he was struck by a falling chest of draws. The deceased was climbing up a chest of drawers at his home in Invercargill in an attempt to turn on a television that was sitting on top. This caused the television and chest of draws/duchess to topple over, injuring and pinning him underneath. Emergency services were called and he was taken to hospital however on arrival at the hospital experts agreed that the brain injuries were not survivable and ventilation was turned off.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this death was a terrible tragedy that befell an active and adventuresome three year old, who at such an age did not consider the possibility of, or consequences of, the chest of drawers he was climbing and the television he was trying to access toppling over and fatally injuring him. This highlights that securing objects that may topple over and cause injury if dislodged is especially important to protect young and vulnerable children from serious injury.

Deaths in custody

See also **self-inflicted deaths** below.

CASE NUMBER

CSU-2009-AUK-001614
2012 NZ CorC 61

CIRCUMSTANCES

The deceased died at Mount Eden Men's Prison of self-inflicted injuries. He was facing multiple charges that had attracted a high level of public and media interest.

On the day he was found dead he had a call-over hearing scheduled at Auckland District Court.

In May 2009 there were two prisons for men in Auckland co-located on the same site in Mount Eden. These were Auckland Central Remand Prison (ACRP) and Mount Eden Men's Prison (MEMP). Since June 2008 the functions across ACRP and MEMP had begun to be gradually merged. An announcement was made at that time that MEMP would eventually be closed and ACRP would be amalgamated into a new prison to be built on site (Mount Eden Correctional Facility – MECF).

At the time the deceased was received at ACRP his risk of self-harm was assessed, using the *New arrival risk assessment form* (NARA). The national prison policy requirement is for a prisoner to be assessed in relation to their risk of self-harm whenever there is a change in the prisoner's circumstances or location. If two of the yes or no questions on the form are answered by the prisoner in the affirmative then the prisoner is automatically considered at risk and further assessment is required. The prisoner's risk status is then further considered and 'signed off' on.

The deceased had 12 NARA assessments over the six month period he was in prison. He moved locations in the prison several times. He had NARA assessments done on several occasions when he was placed in voluntary protective segregation (VPS) due to his fears for his own safety from other prisoners whom he had received threats and abuse from in relation to the fact that he was HIV positive. The deceased also received a NARA when media released details of the deceased's offending and the deceased expressed concern for his safety around other prisoners. He also had NARA assessments done on his return from court appearances. In all cases he answered at least two positive questions and 'failed' the NARA but was deemed not to be at risk upon further assessment.

He did not report any suicidal or self-harm thoughts on any occasion. He was started on antidepressant medication following an initial prisoner health assessment undertaken for all new prisoners.

The deceased spent time in medical oversight segregation after he developed boils. These were found to be infected on 2 July and he was transferred to the Health Unit at ACRP. He remained there, where he was the only prisoner, until 16 October when he was deemed medically fit to return to normal prison muster. No NARA assessment was done as a result of this move.

On 4 November he was transferred to MEMP as a VPS prisoner. The move was due to an attempt by the prison to keep segregated prisoners from across MEMP and ACRP in one unit. Evidence heard at inquest was that MEMP was a very different environment to ACRP, with MEMP being a very noisy, much older prison. The deceased spoke to his lawyer on 5 November and said he was upset about being moved and that he had none of his belongings, had been unable to get towels and had not received his medication for the day. There is no record of him receiving his antidepressant medication on five separate dates in the month before his death. He also expressed concern about the effect the move would have on his medical treatment given the familiarity of the medical staff at ACRP with his condition. A request made by his lawyer for him to be moved was denied.

The deceased spoke to his lawyer about two and a half weeks before his death and said that at MEMP he couldn't get a toothbrush or toilet paper. He had previously spoken to his lawyer about not getting access to ear plugs or solution for his contact lenses, although these were not considered to be contraband items. About a week before his death he received news that his appeal to the High Court against the refusal to grant him electronic bail had been dismissed.

The deceased was last seen alive at approximately 4.23pm on the afternoon before his death at 'general lock-up'. His cell in MEMP had a window with horizontal and vertical bars across it. The window (which opened outwards) could be opened from inside the cell by the prisoner. He used one of the bars across the window as a hanging point. The window was of standard configuration for all cells at MEMP. The Prison Manager of ACRP and MEMP and Assistant Regional Manager stated that the window bars at MEMP were there for security and to allow ventilation.

COMMENTS AND RECOMMENDATIONS

The coroner became aware during the course of the inquiry that there were a total of fourteen suicide deaths at MEMP from 1 October 1996 to 1 October 2011 (excluding this death). Of these, ten of the deaths occurred in circumstances where prisoners utilised the bars inside the cell window as the hanging point. In six separate findings between 1998 and 2005 a coroner recommended that the Department of Corrections take steps immediately to modify the existing window bar areas in all cells at MEMP where the window bar and/or frame was exposed as an obvious hanging point and further, that any modifications to existing window bar areas should address the twin issues of safety and air flow. The Department of Corrections did not make the modifications recommended.

The prison manager of ACRP and MEMP and assistant regional manager stated that she understood that it was not possible to replace the window bars at MEMP with perspex or a similar alternative with ventilation holes that were small enough to alleviate the risk of self-harm and allow sufficient air flow to make the cells habitable. MEMP had no forced air ventilation system and, accordingly, implementing the recommendations would have meant the installation of a whole new forced air system.

She also said that due to the age of MEMP, there were also other hanging points such as bunks and doors inside standard cells. Her evidence was that MEMP was built in the 1870's and its closure had been mooted for a number of years prior to the Government announcement in 2008 that MEMP was to be replaced. Earlier closure had not been possible because of growing prisoner numbers and demands for prison space within the Auckland region.

She stated that as a result of the likely closure of MEMP all sorts of maintenance work in the prison was deferred. She further stated that she understood that the likely closure of MEMP was, in part, why the coroner's recommendations for modifications to the obvious hanging points that the windows at MEMP posed had not been adopted.

However, more fundamentally, the Department of Corrections has adopted the approach that robust upfront

assessment, and then having good strategies for managing people while they are deemed at risk, is better than just reducing hanging points in prisoner cells. She advised that even in newly designed prisons hanging points cannot be totally eliminated.

The coroner commented that the risk of suicide in prison can never be completely eliminated. However endeavours should be made to mitigate the risk. The application of effective risk assessment and management of those identified as being at risk is an important part of doing so. The work done by the Department of Corrections on improving processes and skills of staff in this area is laudable. However, recognising environmental factors such as hanging points and eliminating (where possible and reasonable) those points is also required. The coroner expressed concern that over a period of almost fifteen years the Department of Corrections did not address the clearly identified and recognised risk of the window bars in cells. Prior to this death ten deaths in similar circumstances had occurred at MEMP since 1996. The risk had been highlighted explicitly in repeated coroners' findings and recommendations aimed at addressing the risk were made.

Pursuant to s58(3)(a) of the Coroners Act 2006 the Department of Corrections was notified of the proposed comment on this matter and provided with an opportunity to respond. They responded that the Department's position was never to ignore the coroner's recommendations. Rather, it did not implement the recommendations because it considered that significant public expenditure on a forced air ventilation system at MEMP was not appropriate in the circumstances. These circumstances included the impending closure of MEMP plus the focus on upfront assessments as the more appropriate means of managing at risk prisoners. The Department submitted that such assessments are better than just reducing hanging points, as even in cells specifically designed to reduce the risk of self-harm and hanging points, hanging points cannot be eliminated totally.

The coroner considered carefully the Department of Corrections' response. Notwithstanding the likely closure of MEMP in the future, the failure over an extended period to take steps to mitigate the clearly identified risk posed by the

window bars was a serious omission. MEMP is now closed. The evidence is that cells in MECF, the prison that replaced MEMP in 2011, incorporate a number of design features aimed at reducing hanging points and minimising the risk of self-harm.

The coroner also made the following comments with regard to the assessment of at risk status while the deceased was in prison.

'It was open to prison management to place [the deceased] in ACRP or MEMP as it saw fit, once [he] no longer required care in the infirmary. However, the significant changes from infirmary to open muster and from ACRP to MEMP should have warranted closer monitoring of him. Such monitoring would, in my view, have been consistent with the standard in the national policy on prisoners at risk to themselves set out in the Department of Corrections then *Policy and procedures manual* that stated 'Every effort is to be made to identify prisoners at-risk, and manage them to minimise their risk of self-harm.' The Inspector of Corrections's evidence is that this standard requires a prisoner to be assessed in relation to their risk of self-harm whenever there is a change in the prisoner's circumstances and/or location. Custodial staff form the front line of preventing suicides in prison. To be effective, suicide prevention should include on-going observation by well trained staff who are proactive in identifying situations where assessment of risk should be done'

The coroner made the following comments with regard to medication management at MEMP.

'I find that [the deceased's] medication administration was not of an appropriate standard at MEMP. There is evidence, which I accept, that the therapeutic levels of this drug would not have been affected by the omissions. However that is only part of the equation. It is clear from the note that [the deceased] left, and his conversation with his lawyer, that the failure of the staff to ensure that [he] got his medication preyed on his mind. He stated that he saw it as symbolic of inefficiencies in health delivery at MEMP and that he could not rely on the staff there for appropriate care'

The coroner commented that repeatedly failing to administer medication prescribed (and accordingly deemed necessary) by a medical practitioner is not acceptable. Prisoners are reliant on prison health services personnel administering medication accurately, as prescribed. The suggestion given in evidence that perhaps the drugs were given, but the administration was not recorded, is also not acceptable. Keeping accurate clinical records is a basic competency and a necessary component of good clinical practice. Clinical records are an integral tool to ensure that a person receives good clinical care, and continuity of care. Accurate clinical records also assist inquiries when questions are raised in relation to a person's clinical care and management.

The coroner also made a comment on the deceased's access to personal supplies. The coroner said that a breakdown in the systems in place at ACRP and MEMP to enable prisoners to have supplies of items necessary so they could function normally is evident in the deceased's experience. 'I am left in little doubt on the evidence before me that his inability to, at times, access basic supplies contributed to his overall sense that life in custody was hard to bear.'

MEMP closed in 2011. Because of this recommendations related to matters that might prevent deaths at that prison in similar circumstances are not relevant. However, the circumstances of this death highlight issues that present ongoing challenges for the Department of Corrections, and any private prison provider contracted by the Department of Corrections, as they strive to reduce the risk of prisoners taking their own lives in prison. In particular:

- The need to ensure that there are sufficiently robust assessment processes for identifying prisoners at risk of harm to themselves in place in New Zealand prisons.
- The need for all custodial staff and health staff working in prisons to be well enough trained to be able to identify prisoners at risk of harm to themselves and capable of being proactive in identifying situations when assessment of such risk should be done.
- That environmental risks such as hanging points are identified and where possible eliminated or the risks mitigated.

- That systems and procedures put in place to administer medication prescribed to prisoners are robust and the keeping of accurate clinical records is maintained to an appropriate standard.
- That a copy of this finding will be sent to the Chief Executive of the Department of Corrections and the Managing Director of Serco, the private company managing Mt Eden Men's Correctional Facility.

Response from Department of Corrections

The coroner stated in the report that because of this closure, recommendations related to matters that might prevent deaths at that prison in similar circumstances were not relevant. However, we were nonetheless mindful that the coroner highlighted ligature points as an issue that presented ongoing challenges for the Department and any private prison provider contracted by the Department, as they strive to reduce the risk of prisoners taking their own lives in prison.

While it is not possible to remove all ligature points from all mainstream cells, the Department tried to eliminate obvious ligature points where feasible.

In 2010, the Department completed a national review into the mesh size for air vents. The review investigated any realistic solutions to remove the risk these vents pose as a potential ligature point. As a consequence, a programme of work was developed to replace the ventilation grilles in affected cells, prioritised in accordance with the site's risk. This programme of work is on track for completion by the end of December 2012.

The Department has also completed other projects to reduce the risk of self-harm and suicide, including the new risk assessment process and the review of our at-risk clothing and bedding. The new at-risk clothing and bedding have been introduced and the Department is currently procuring 'at-risk' mattresses, which is expected to be completed by end of the financial year.

CASE NUMBER

CSU-2011-PNO-000228

2012 NZ CorC 113

CIRCUMSTANCES

The deceased, a prison inmate at Manawatu Prison, died of self-inflicted injuries. He was a remand prisoner at the time of his death pending a hearing in the district court related to property offences. He did not believe he would be granted bail.

The deceased had previously been in prison and formed a relationship with the Black Power gang, but on leaving prison he had tried to end this as he was fearful of the gang and becoming depressed (as noted by his family and cellmate). The deceased requested segregation and was placed in a separate cell the day before his death, where the self-inflicted injuries occurred.

COMMENTS AND RECOMMENDATIONS

The coroner recommended that if it has not already occurred, all similar ligature points in cells throughout New Zealand should be eliminated in a similar way as soon as reasonably possible, as a proactive protection measure.

The coroner noted that the methodology of prisoners entering segregation and the methodology of risk assessment had been amended and vastly improved. Those measures have been introduced independently of this death. The coroner commented that although the changes had not been made until mid-2011 those changes had now been made. Risk assessment is extremely difficult even for the most experienced professionals. The main criteria should be a system of recognised protocols and questions and these need to be designed by professionals. There should also be a high measure of professional training – led by professionals for the officers who are required to implement these assessments. People need to be trained in what to observe and what to look for.

The coroner recommended that the Department of Corrections carefully review its training protocols in respect of risk assessment and when doing so adopt detailed professional advice as to the structure, content and implementation of a programme to train prison officers, in risk assessment and management.

It was apparent to the coroner that the deceased's mother and his partner were concerned about his wellbeing on their last visits. His mother said that she thought of talking to someone and she preferred approaching one of the prison guards but the deceased asked her not to. His partner said that she didn't really know who or how to approach things.

The coroner recommended that there should be some easy to follow directions available, either by way of pamphlet or by way of a notice board for visitors to see (but out of the view of prisoners). The notices or the pamphlets should be worded in simple, user-friendly terms and there should be a simple user-friendly way to approach a senior Corrections staff member about genuine concerns that a family or whānau may have.

Response from Department of Corrections

With regards to the coroner's recommendation in relation to ligature points, the Department stated that as mentioned in the coroner's report, the ligature point used in this incident has been eliminated in all cells at Manawatu Prison. The response also detailed efforts to review and remove other environmental factors that may increase the risk of self-harm and suicide. The response also discussed the new risk assessment process of prisoners.

In relation to the coroner's recommendation around training protocols for prison officers in respect of risk assessment and observations, the Department detailed the new risk assessment process. The introduction of the new process provided additional interview training for staff to give them the skills to identify how a prisoner is feeling. The Department has also recently introduced the mental health screening tool to improve the rate of detection of prisoners with mild to moderate mental health issues who require secondary mental health care. It also enables more effective identification of prisoners with mild to moderate mental health issues that can be primarily managed by prison health services.

The coroner also made recommendations with regards to the provision of information to visitors about where to report any concerns they may have about a prisoner's wellbeing. The Department stated that prison visitors are given information about how to contact the prison prior to

their first visit, which they can use to raise issues with prison staff. In addition, staff who supervise visits with prisoners are available to discuss any concerns visitors may have. The Department is currently investigating other methods to deliver the above message to family/whānau members. This was to occur by the end of 2012.

Drugs, alcohol or substance abuse

See also **transport-related** and **water-related (recreational fishing and boating)** deaths below.

CASE NUMBER

CSU-2012-HAM-000048

2012 NZ CorC 137

CIRCUMSTANCES

The deceased died in Hamilton of a methadone overdose in a background of left ventricular cardiac hypertrophy. The methadone was deliberately ingested but not with the intention of self-harm. On the evening of 24 January, following a work out, the deceased took some methadone tablets before going to bed. His partner noticed that he was snoring very heavily and woke him to ask if he was alright. He said he was and went back to sleep. At about 4.20am his partner noticed he was not breathing. An ambulance arrived but he could not be revived.

The deceased had sourced the methadone from a friend who had been prescribed it for pain relief when he broke both of his ankles. It is not clear if he had been given the methadone by his friend or if he had helped himself to it. The deceased's partner believed that he ingested methadone for pain relief for a sore back. The deceased was not aware of the dangers of ingesting methadone for a naive user, and had no idea of how much he should take for simple pain relief.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this death highlights the inherent danger for people who ingest drugs prescribed to

other people. It should be common knowledge that people should not take medication that is not prescribed specifically for them.

CASE NUMBER

CSU-2011-DUN-000354
2012 NZ CorC 110

CIRCUMSTANCES

The deceased died of a cardiovascular arrest caused by the ingestion of central nervous system depressants, including alcohol. He had been drinking alcohol to excess and had taken prescription medication (Promethazine, Citlopram and Diazepam) that would have added to the central nervous depressant effect of alcohol. The deceased had a disturbed mental history that included alcoholism, depression and suicide attempts.

COMMENTS AND RECOMMENDATIONS

The coroner commented that he is required under s57(3) Coroners Act 2006, to draw to public attention the dangers of drinking alcohol to excess, particularly when alcohol is consumed in conjunction with medication, either prescription or non-prescription that has a central nervous system depressant effect. In particular the coroner noted the advice, given with the prescription of Promethazine, that patients taking this drug must be warned to avoid alcohol.

Fall

See also **adverse effects or reactions to medical or surgical care** and **mental health issues**.

Homicide or interpersonal violence

CASE NUMBER

CSU-2010-AUK-000619
2012 NZ CorC 179

CIRCUMSTANCES

The deceased died at Middlemore Hospital, Auckland of severe head wounds. He was a corrections officer working in a high security unit at the Springhill Correctional Facility. The deceased was one of three corrections officers conducting an unlock procedure of a prisoner. The prisoner had recently been re-classed as maximum security, with a transfer to another facility pending. Earlier that morning the prisoner had threatened to injure the deceased, an incident not reported to Corrections management.

The door to the prisoner's cell was unlocked for recreation time and the prisoner exited his cell, turned to face the deceased and punched him. The single punch caused the deceased to lose consciousness and fall backwards, striking his head on the concrete walkway. He was taken to hospital, but died of his injuries.

There is no clear explanation as to the reason for the delay in transfer in this case; it is generally understood that prisoners whose status has changed should be transferred to an appropriate facility as soon as possible. A management plan had been formulated for the prisoner the day before the deceased's death, but it had not been put into writing. Given that nothing was known about the threats made to the deceased at the time of unlock, the procedure used was appropriate. An alternate unlock procedure was suggested in the inquest for use in particular situations. This procedure would involve asking the prisoner to indicate their compliance by facing the back wall of the cell and presenting their hands for handcuffing. Though this procedure is used at other facilities, it is not currently favoured by the Department of Corrections.

At the time he received his injuries, the deceased was standing normally, and not in a way that may have reduced his chances of being surprised by an assault and falling. Such stances exist, for example the control and restraint stance. Had the threat to the deceased been reported, he might not have been present for the unlock procedure.

COMMENTS AND RECOMMENDATIONS

The coroner made the following recommendations to the Department of Corrections.

- A policy is developed that deals with the transfer of prisoners that have been classified (or reclassified as the case may be) as a maximum security prisoner. The policy should, amongst other things, clearly establish the timeframe that prisoner so classified should be transferred from the facility that they are currently housed to a maximum security facility. The policy should also deal with the recording of all relevant information and the process of the request for transfer to ensure that accurate information is recorded and communicated.
- The formal adoption of the use of the alternative unlock procedure discussed above when dealing with maximum security prisoners who are being temporarily held in a non maximum facility, those prisoners on directed segregation, and prisoners with aggression issues, or otherwise displaying any elevated level of risk to staff be considered – as well as the circumstances in which the alternative unlock procedure should be used and the training of staff accordingly.
- The training of corrections officers regarding the reporting and recording of threats, and the importance of this to staff safety and the maintenance of a safe environment for the staff and other prisoners be reinforced. Such training would be enhanced by reference to this death and the circumstances leading to his death as they have been found to be. Current training materials should be adjusted accordingly.
- The timeframes for developing management plans for the management of directed segregation prisoners should be reduced to within 1 day.
- The suggestion that the control and restraint stance be incorporated within its training and internal instruction manuals as the stance to be adopted by an officer when unlocking a prisoner should be adopted.

Response from Department of Corrections

In a response to the coroner the Department of Corrections said that it accepted and actioned the recommendations of the coroner.

In relation to the prison transfer policy the Department have revised their operational guidance to stipulate that a prisoner must be transferred no later than 48 hours after security classification is complete. The timeframes for management plans for directed segregation prisoners has been changed to reflect the recommendation to allow timely decisions that minimise risks to prisoners and staff. Furthermore the Department have reviewed and revised the unlock procedure taking into account the commentary in paragraphs [29] to [34] of the finding. However the Department have noted that formally adopting the unlock procedures discussed should not be overly prescriptive as one size does not fit all and approaching the unlock of a potentially volatile prisoner is not solely about compliance but to ensure staff safety. Awareness has been raised that the *Custodial practice manual* provides guidance to staff on how they should unlock prisoners and includes photos of the different stances that may be required depending on the circumstances and environment.

The recording of threats is one area that remains partly open and will be addressed in the next initial training course for new staff starting in 2013. This relates to the reporting and recording of any threats made by a prisoner against a staff member. The importance of recording and reporting threats may result in the staff member being excluded from the unlock of the prisoner and remove the possibility of anything untoward happening. This message is currently being conveyed to staff and reinforced during meetings and newsletters. Furthermore any threats of violence against staff are discussed in the morning briefings. The Department has recently appointed an international Expert Advisory Panel to advise on staff safety. This will provide ongoing safety in the workplace.

Labour or pregnancy related

CASE NUMBER

CSU-2011-HAS-000150
2012 NZCorC 81

CIRCUMSTANCES

The deceased died from perinatal asphyxia leading to hypoxic ischaemic brain injury 12 hours after his birth while under hospital care. The pregnancy had been uneventful until contact was made with the Lead maternity carer (LMC) by text message at 1.30am to advise her that she had a loss of bloody fluid and mild discomfort. Communication via text message between the deceased's mother and the LMC ensued and the LMC visited her at home to assess her at 8.30am that morning. The mother continued to bleed and had raised blood pressure. After consultation with a colleague (another LMC), the deceased's mother was transferred to hospital. When in hospital, abnormalities in the CTG were incorrectly interpreted by the registrar and no further action was taken. It was not recognised that the CTG was grossly abnormal and that an urgent delivery by caesarean was needed until 4.40pm. The deceased was delivered 35 minutes later in very poor condition.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this was another case where lack of awareness of the clinical situation, and failure to correctly interpret an abnormal CTG led to delay in diagnosis of foetal distress and delay in completion of an emergency caesarean, which may have saved the life of the deceased. The coroner accepted in this case that while the baby may have survived if delivery had been expedited earlier, it is not possible to say that he would have been neurologically completely normal. The pathologist commented that he may have been in poor condition for longer than the period of early labour. The retroplacental haemorrhage may have occurred at the time in early labour when his mother was at home and had some bleeding.

The coroner further commented that text messaging appears inappropriate as a means of completing a clinical assessment. While text messaging may be appropriate to indicate a need to make contact, direct voice contact between the patient and medical practitioner (whether in person, by phone or other audio-visual means) would be better to enable adequate clinical assessments.

While there should be clear understanding as to who at any time has clinical responsibility for care of the expectant mother, there should be good communication, and no barriers in communication, between midwives and other medical practitioners attending on the mother.

CASE NUMBER

CSU-2011-HAM-000333
2012 NZ CorC 124

CIRCUMSTANCES

The deceased died at Waikato Hospital of peri-natal asphyxia, a possible result of the umbilical cord being wrapped around her neck, as well as abnormal placenta. The deceased's mother presented at River Bridge Birth Centre. Although initially the foetal heartbeat could be heard, it could no longer be heard after about an hour. An ambulance was called to take her to Waikato Hospital, and the deceased was delivered shortly after her arrival there. She was born in very poor condition; the umbilical cord was wrapped loosely around her neck and she had no heartbeat.

The deceased's mother had her last scan at 32 weeks gestation. The results of that scan were that the foetal growth was poor. After this, several attempts were made to contact her by more than one midwife. These attempts included phone calls and home visits, all of which were unsuccessful. On one occasion a note was left saying to contact the midwife. The deceased's mother said she saw no such note, nor any letter advising her to attend antenatal clinics. The results of her failing to engage assistance with a midwife during the latter part of her pregnancy has prevented any medical intervention that may have been available if the baby's poor development had been monitored after 32 weeks gestation.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the death highlights the need for pregnant women to engage fully with their antenatal care provider right up to the birth. Although a mother may feel well physically, she may not be aware of problems developing with her child in the womb. Even if the pregnancy is progressing normally, and the unborn child developing appropriately, antenatal care is the safety net for the unborn child and a source of reassurance and support for the mother.

Mental health issues

Also see **self-inflicted** deaths below.

CASE NUMBER

CSU-2011-CCH-000973

2012 NZCorC 149

CIRCUMSTANCES

The deceased, aged 20 years old, died of injuries from a fall from a height the previous day. She deliberately placed herself in a very hazardous situation, namely a cliff face adjoining an earthquake-affected property at Clifton. At the time of her death she was intoxicated and was sitting on the dangerous cliff face. Police tried to talk her to safety but she did not listen and fell from the cliff. The deceased had previously threatened to jump off a cliff, however her death was found to be accidental due to the high level of alcohol in her system and the high standard of proof necessary for a finding of suicide.

The deceased had a history of mental health, alcohol and drug abuse. Her family expressed concerns they had wanted her in care and in hospital on medication but had not been able to achieve this and that an inpatient review could have prevented the tragedy. Her father told the court that when he brought up a concerning incident with a mental health staff member assessing her at the hospital he was told that

there was nothing wrong with her and that she should be taken home. The family questioned why there had been no re-assessment of the deceased by a psychiatrist after the two initial assessments.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the psychiatric assessments undertaken set the course for treatment that applied until her death 20 months later. During this time she was seen by frontline psychiatric emergency services (PES) staff on three separate occasions in the year before her death. Additionally she was seen in the watchhouse by experienced psychiatric nurses on three occasions in the four months prior to her death.

The deceased's parents made every effort they could to obtain assistance for their daughter. Her reluctance to engage in therapeutic treatment made the task of treating her extremely difficult. The frequency of the crisis episodes brought to the attention of mental health services during the last 20 months of her life did not bring about any further psychiatric review.

The coroner made a recommendation to the Mental Health Services of Canterbury District Health Board that in light of the circumstances of this case it review practices as to the frequency of assessments of a patient by a psychiatrist where a patient repeatedly presents in a crisis situations.

It was also recommended that it review the circumstances of the deceased's father being told following his daughter being seen by a mental health staff member, that she had 'just been naughty, take her home'.

Natural causes

See **adverse effects or reactions to medical or surgical care** and **labour and pregnancy related** deaths above.

Recreational or leisure activities

CASE NUMBER

CSU-2012-DUN-000004
2012 NZ CorC 109

CIRCUMSTANCES

The deceased died on the western slopes of Mt Twilight in Mt Aspiring National Park. When ascending steep tussock slopes, above bluffs on the western ridge of Mt Twilight, he slipped, or tripped, and fell a significant distance onto rocks. The cause of his death was consistent with a fall.

COMMENTS AND RECOMMENDATIONS

The coroner recommended that a copy of the finding is forwarded to the Federated Mountain Clubs for publication in its bulletin. This will ensure that there is appropriate publicity to warn those travelling in the mountains of the absolute need to pay attention to their equipment, especially their boots and to concentrate fully on their footing at times where they are exposed to serious or fatal consequences in the event of a fall.

CASE NUMBER

CSU-2012-HAS-000033
2012 NZCorC 202

CIRCUMSTANCES

The deceased died of injuries sustained when the vehicle he was a passenger in rolled down a bank. The vehicle that the deceased was travelling in was taking part in a four-wheel drive safari fundraiser organised by Mahia Hint (Inc). The safari involved approximately 100 vehicles travelling over farms from the Ruakituri Valley to the Mahia Peninsula. The vehicle has entered a rut on the inside of the track and lost traction. The driver tried to dislodge the vehicle from the rut by accelerating. The wheels suddenly gripped and the vehicle spun across the track and over the edge of a steep slope. It rolled a number of times before coming to rest in a stream. Both driver and the deceased were not

wearing seatbelts at the time. Both were transported to hospital on rescue helicopters, however, the deceased lost consciousness and was unable to be revived.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this death would likely have been prevented had seatbelts been worn by the deceased.

Self-inflicted

CASE NUMBER

CSU-2009-PNO-000260
2012 NZ CorC 146

CIRCUMSTANCES

The deceased aged 15 years old, died in Palmerston North of self-inflicted injuries. He had a difficult childhood and a disrupted family life. The bulk of evidence from witnesses indicated that he had suffered from both emotional and physical abuse at the hands of his father. He had also had involvement with youth justice following a charge of assault with intent to injure.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the deceased's life was never particularly settled or happy, especially over the last couple of years. It was clear that he was at significant risk of suicide. It seems neither of his parents appreciated the distress their son was in, nor the extent of risk he posed to himself. In the coroner's view given the multiple on-going stressors he faced, his isolation from his parents, history of attempting to end his life by relatively highly lethal means, and the absence of professional intervention, his death was almost inevitable. Referral for professional help may have avoided the outcome here, but it is not well known that people can be referred for mental health assessment without their consent when they pose clear danger to themselves, and the process for making the referral is not well known either.

The coroner commented and recommended that the finding will be referred to the Chief Executive of the Ministry

of Health with the recommendation that the Ministry investigate the issue of how best to raise public awareness of mental health crisis supports and processes, particularly in cases where people are clearly suicidal and do not consent to assessment for help.

The coroner stated that rather than being detrimental to public safety, she considered that publication of some particulars of this death – notably the circumstances of his life that culminated in his suicide – may raise awareness of factors that can lead to mental health problems for young persons, and also of the need to obtain professional help for them when they speak of or try suicide, even when they are resistant to being helped.

CASE NUMBER

CSU-2011-WGN-000189

2012 NZ CorC 155

CIRCUMSTANCES

The deceased died of self-inflicted injuries.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this death highlighted two major issues. The first concern being the hireage and operation of Ramset guns, the other, access to medical mental health within the Kapiti Coast area.

He noted that medical/mental health services on the Kapiti Coast has improved however there were concerns with respect to communication between patients and health providers. The coroner commented that it is not good enough to simply post out a letter to a patient regarding their next appointment. It needs to be a more robust process. That includes phone/email messages and if no response is made, then either a phone call to the next of kin or a physical call at the client's address should be made. This is a process that needs to be implemented, as mental health clients missing appointments should set off a major alarm. The coroner did not make specific recommendations but wanted the comments to generate a review of the notification process. The coroner was hopeful that the availability of general practitioners on the Kapiti Coast would continue to increase to meet the demand for such services.

As to the issue regarding the hiring of Ramset guns or similar equipment, the coroner commented that this did require a recommendation as it was not the first time he has had to deal with such a fatal incident. Section 22 of the Arms Act 1983 lists mechanisms that are not subject to a firearms licence. That list includes what is known as a bolt gun or a stud gun and this is the category that a Ramset gun fits into.

The coroner accepted that this is a difficult area to deal with and that it would be onerous to expect a firearm licence to be issued with respect to a Ramset/nail gun or something similar. However he did believe that the operator or hirer of such equipment should hold a licence to operate such a machine and be required to produce it at a hire centre if attempting to hire such a piece of equipment. The coroner suggested that just as a person who wishes to hire a rental car must produce a copy of a driver's licence, the same criteria should apply with respect to the hireage of Ramset guns or the like.

The coroner recommended to the Minister of Consumer Affairs that wherever a gun able to be described as a bolt or stud gun is to be hired to an individual, that individual must produce a copy of a licence to operate such equipment before the hire is able to be completed.

Response from the Minister of Police

The Minister of Police had considered arms licensing and legislation. After consulting with Police, she commented that although there may be reasons to require a firearms licence to be held for these types of guns, this would be onerous under the circumstances and therefore not appropriate to use the Arms Act as the vehicle to achieve this.

Regardless of this, Police indicated a possible option would involve Ramset (and other manufacturers) extending their current licensing processes for commercial contractors to all other users. This option does not require a legislation change but could be achieved through an agreement between manufacturers and hire companies, possibly through the Hire Industry Association of New Zealand.

Furthermore the Police understood that Ramset nail guns in a work or commercial environment fall under the Health and Safety in Employment Act 1992 and associated code of

practice documents. Police suggested that another option would be for users of such guns in a non-workplace capacity to be advised of the same standards and for manufacturer's instructions and safety manuals to be made available to people intending to hire them.

In conclusion, the Minister of Police sent a copy of the letter to the Minister of Consumer Affairs for consideration.

CASE NUMBER

CSU-2010-WGN-000313
2012 NZ CorC 104

CIRCUMSTANCES

The deceased died at his home of self-inflicted injuries. He had a history of mental health that had spanned 20 years. He had been involved with multiple general practitioners in the two to three years prior to his death. The deceased was receiving outpatient treatment from the Older Person Mental Health Service at Hutt Hospital. Two days before his death he called Hutt Hospital to arrange an urgent appointment to see his primary psychologist. No appointments were available but he was informed that the doctor would call him during the day. It appears that this message was never received. His doctor made a follow-up call to the deceased the next day and spoke to his wife as he was not at home. An appointment was made for four days later however the deceased took his own life prior to this appointment.

The deceased's family expressed concerns about mental health services. They considered it unfortunate that he had recently changed his general practitioner and was in the process of building a relationship with the new doctor.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the deceased received adequate medical attention, but that this tragic death highlights the need for a doctor/patient relationship to be established wherever possible. The coroner had identified this in the past, but acknowledged that this is difficult to achieve. The coroner reiterated, that it is desirable and a

necessary to promote the health of the public at large, and therefore is more economic to the New Zealand public.

CASE NUMBER

CSU-2011-CCH-001143
2012 NZ CorC 101

CIRCUMSTANCES

The deceased died of self-inflicted injuries. He had expressed suicidal ideation in the two days leading up to his death on three separate occasions, to three separate people.

COMMENTS AND RECOMMENDATIONS

The coroner made recommendations to the Ministry of Health to provide strong advice to the public about what to do if a person says they are intending to commit suicide, or says they have engaged in suicidal behaviour. This advice includes launching an advertising campaign through news media that shows people ways to respond to someone who says they are thinking of committing suicide.

Sudden unexpected death in infancy (SUDI)

CASE NUMBER

CSU-2008-WGN-000089
2012 NZ CorC 141

CIRCUMSTANCES

The deceased, a one month old infant, died at Wellington Hospital of accidental asphyxia. He tragically died at his home the day after he was discharged from hospital. He had respiratory distress immediately after birth and was put on nasal continuous positive airway pressure (CPAP), but this was discontinued after 12 hours. He was put on full cardiac monitoring and was in an incubator until day eight, when he was then transferred into a cot. It was known that the baby's mother was on the methadone programme and

was taking 50 milligrams per day. Because of this, the baby was monitored for drug withdrawal, but this did not occur and monitoring was stopped. The urine toxicology at birth was positive for both methadone and benzodiazepines.

At about three weeks old he was put on an apnoea monitor. There were several benign events with regards to apnoeas and bradycardias but they were all self-correcting. On the day of discharge the mother advised neo-natal intensive care unit (NICU) staff that she was feeling anxious about his previous apnoea spells. The NICU staff provided her with an apnoea monitor and instructions on its use. This apparently was not usual practice but was done to try and allay her concerns. The mother was to receive CPR instructions at home, set down for a later date (unfortunately about a month after the baby's death). As there was no cot at home the staff at the hospital lent a cot top, mattress and bedding until such time as the family were able to purchase a cot of their own.

A high risk team midwife visited the family the day after the baby was discharged and observed that he was asleep in his cot in the correct sleeping position with the blankets pulled down. A bathing demonstration was also performed. The midwife's visit lasted for approximately one and a half hours. Later that evening he was being breastfed by his mother and the mother unfortunately dozed off. When she woke, he was still on the breast but had blood coming from his mouth. An ambulance was called, but all attempts to resuscitate the baby were unsuccessful.

An adverse event report was concluded by the Capital and Coast District Health Board. It said that during the deceased's stay in the NICU there were two entries in the hospital records that indicated that during the stay the mother had fallen asleep while breastfeeding. The hospital records show that the mother was very tired. Tiredness in itself is not unusual in the postpartum period and the dates of each tiredness entry were sporadic and did not trigger enough concern for anyone to contact the opioid treatment service to ascertain the impact that the methadone may have had on fatigue.

At the multi-disciplinary case review meeting, it was noted that the staff discussed whether or not to involve Child, Youth and Family (CYF) in the deceased's care. It was eventually decided by both the social workers and senior nursing staff that given that the mother had been on the methadone programme for a long period of time and that he was much loved and with the home environment being stable, there was nothing for CYF to act on. It was noted, however, there was no documented evidence of these discussions when the hospital records were subsequently reviewed.

The Children's Commissioner had become involved with this matter subsequent to the baby's death. Essentially it came to the Commissioner's attention that the medical staff working on the ward where the deceased was a patient had had concerns about the mother's behaviour and that these were referred to the hospital social worker. The Commissioner was concerned that the hospital records did not provide the detail of what these particular concerns were and as to why the staff did not believe it was necessary to contact CYF. The Commissioner was also surprised that up until this time there had been no agreed process as between NICU and the opioid treatment service. The Commissioner was also concerned that as it was known by the hospital staff of CYF's involvement with this family, the sharing of information between the two services did seem appropriate.

COMMENTS AND RECOMMENDATIONS

The coroner made the following recommendations.

- That the NICU and the opioid treatment service document an agreed process for the management of infants with methadone parents, including initiation of liaison with the opioid treatment service prior to an infant's admission to NICU and a joint discharge plan. The opioid treatment service is to provide NICU with a documented case manager.
- Parents have fully explained to them the use of apnoea monitors for their home use.
- Where it is known that a family has been involved with CYF that a liaison is undertaken with that service and a record of any incidents or involvement is fully

documented so that the hospital staff are fully aware of any issues in that area.

- A record of parental attendance as to the infant CPR, safe sleeping and equipment use class must be kept and accurately maintained.

CASE NUMBER

CSU-2011-DUN-000435

2012 NZ CorC 111

CIRCUMSTANCES

The deceased, a 9 week old infant, died in the bed he shared with his parents at their home. The cause of his death was cardio respiratory arrest classified as a 'sudden infant cot death'. The death occurred suddenly and unexpectedly in infancy in the context of an unsafe sleeping environment with other physical, environmental contributors. There is no evidence, however, that the risks inherent in such an unsafe sleeping environment, or other risks, specifically caused or contributed to the death.

The deceased was fed at 11.30pm and placed to sleep in his own cot. He woke at 3am and was changed but would not feed or settle. He was placed in the bed between his mother and father to settle and went to sleep in the parents' bed where he remained for the remainder of the night. When the parents awoke at 7.45am, he was found not to be breathing. The death is classed as a sudden infant cot death as no true reason for the death is known beyond cardio respiratory arrest.

COMMENTS AND RECOMMENDATIONS

The coroner endorsed the following recommendations made by other coroners.

That the Director General of Health continue with public health advice in relation to safe infant care practices and safe sleeping environments.

That the Ministry of Health should strengthen and broaden this advice so as to make it clear that:

- bed-sharing by adults, and siblings with infants under

the age of six months, exposes such infants to an increased risk of death

- the safest place for babies to sleep during the first six months of their lives is in a cot beside the parental bed.

Steps should be taken by the Ministry of Health to ensure that this advice is given by public health educators and health professionals in those public health sectors over which the Ministry have influence.

The Moe Ora scheme to provide new-born infants with a self-contained sleeping cradle (Wahakura) (which, we are advised by the researchers, goes some way to ensuring safety in a co-sleeping environment), be encouraged. The Ministry of Health should consider providing such a cradle to every new mother if she is unable to afford the purchase.

CASE NUMBER

CSU-2011-CCH-000961

2012 NZ CorC 140

CIRCUMSTANCES

The deceased, an 8 month old infant, died in Christchurch due to accidental asphyxia in an apparent 'sleep accident' (classified as 'sudden unexpected death in infancy').

She was at the developmental stage of being able to move around and roll from front to back and from back to front. The night before her death she was put down to sleep in a portable cot on her back with blankets over her, pulled up to her chest. There was a pillow under her head and some soft toys up by her face so she would see them when she woke. The deceased had three layers of clothing on and five layers of blankets, meaning that she had eight layers over her altogether that night. Three of the blankets were made of polar fleece material. The blankets were not tucked firmly into the mattress but her face was well clear of the blankets. At 7am the next morning, eight and a half hours after she was last checked, she was found deceased, face down in the cot, with the blankets completely covering her head and her knees pulled up under her body.

At the time of her death she was in the custody of the Chief Executive of the Ministry of Social Development. The deceased and her two year old brother had been removed urgently from their mother's care by a Christchurch CYF duty social worker. At the time she died, she had been in the charge of a CYF approved caregiver for one week. She had been placed in this person's care before for one night in a separate incident where she was removed from the care of her mother.

In the month prior to this death there was a routine review of the caregiver that included assessing the accommodation and sleeping arrangements for the children placed with her and making recommendations. The social worker undertaking the routine review recommended that the caregiver was best suited to provide transitional care for 7 to 10 year old girls. This information was not placed by the social worker in the computerised CYF database (CYRAS – care and protection, youth justice, residences and adoption system) so that it would be immediately visible to others searching the CYRAS notes.

The social worker who was looking for an emergency placement for the deceased was aware that the caregiver had cared for her and her brother on the previous occasion with no issues and so believed placing the children with her was appropriate. She advised the duty supervisor after arranging the placement. CYF was aware of the fact that the caregiver smoked inside her house, as did her adult daughter who cared for the deceased when the caregiver was at work (a known risk factor for SUDI).

Following this death CYF commissioned a practice review. The review made the following recommendations:

- Accurate and up-to-date information from caregivers assessments is placed on caregiver records.
- The systems in place in Canterbury when making emergency and respite care placements are reviewed, strengthened, changes implemented and all care staff are trained in new processes.
- All caregivers who are assessed as suitable to care for children aged less than two years receive SUDI information and as part of the assessment process a discussion is held with them about their knowledge and understanding of SUDI risk factors and that they will

follow safe sleeping practices.

- Caregivers of children currently in care in the CYF Southern Region aged under 15 months are provided with information about SUDI and safe sleeping information and then this action is to be repeated in a further three months.
- The focus of arranging a placement of a baby with a caregiver is on the baby's needs and that there must be an awareness of the increased vulnerabilities of babies coming into the care of the Ministry. The social workers must confirm the caregiver understands SUDI risks and safe-sleeping practices.
- Learning from the review is shared with the Canterbury Care Team and other care service managers in the region for sharing with their teams and that a copy of the review is provided to the Office of the Chief Social Worker for his consideration as to what aspects of the local review are relevant nationally.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the facts in this sad inquiry highlight the issue of safe sleeping practices and environments for the older baby who is able to move around, change position and roll over. They indicate how vital it is that parents and caregivers ensure that the baby's face stays clear throughout the whole of the sleep episode.

CASE NUMBER

CSU-2009-AUK-001422

2012 NZ CorC 173

CIRCUMSTANCES

The deceased, aged nine months, died at his home of probable asphyxiation in an unsafe sleeping environment; namely, co-sleeping with an adult on a couch.

He had been born with Pierre Robin Syndrome, which affected his face structure and meant that he had to sleep on his side as opposed to his back as usually advised. His mother initially put him to bed on a couch in the lounge, while she slept on a nearby bed. During the night he rolled off the couch and onto the floor. His crying woke his mother, who put him back on the couch, but this time she joined him there. She positioned her son so that he was on his side, with

his face towards the back of the couch. Sometime during the night he became trapped in the hollow of the couch. The next morning she found him dead. Emergency services were not called until later that evening, as per advice that the mother received from her uncle.

The deceased had remained in hospital for the first six weeks after his birth and then was monitored at home. A district nurse, who had talked about safe sleeping factors, including the dangers of co-sleeping, initially noted that he would sleep in a cot on his side. His mother later admitted that he would commonly sleep with her in her bed in the lounge. His facial defects were a major contributing factor to the asphyxiation that killed him.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the circumstances of this death highlight once again the dangers of adults co-sleeping with babies in unsafe sleeping environments. Co-sleeping with an infant under one year of age, and infants sleeping on a couch increases the risk of sudden infant death.

'The message needs to be made explicit to parents that co-sleeping by adults with infants exposes the infant to the risk of death and should be avoided for every sleep. Additionally, couches are unsafe sleeping environments for babies. In the interests of the child, where the potential consequences are so serious parents have a responsibility to respect this advice. Recent coronial findings have made recommendations to the Ministry of Health aimed at ensuring that public health advice in relation to safe infant care practices and safe sleeping environments are strengthened, broadened and consistent among public health educators and health professionals. While I have accepted that the mother was advised of the safe-sleeping message the circumstances of his death are relevant to these recommendations.'

'She did not report her baby's death for 12-13 hours. I acknowledge and accept that she was upset and distressed at her son's death, and that she heeded the advice of her support person and uncle. The coroner further acknowledged the cultural beliefs of the uncle. However, the legal obligation is clear, and the death should have been

reported when it was discovered. Foremost the deceased deserved the attendance of ambulance staff to render to him medical assistance as soon as possible. In saying this it is not to be implied that he could have been revived had ambulance staff attended at the time he was discovered. The delay in reporting this death also had potentially serious ramifications for the proper investigation into the cause and circumstances of his death. The delay almost certainly raised the level of suspicion associated with the death (albeit that the death was subsequently determined not to be suspicious). I am also satisfied that cultural concerns could have been addressed in part by police protocols and the Coroners Act that has specific provisions to ensure that cultural needs and issues are taken into consideration and respected.'

The coroner recommended that a copy of this finding will be sent to the Ministry of Health to consider in the context of these previous recommendations

Transport-related

See also **drugs, alcohol or substance abuse** and **recreational or leisure activities** above.

CASE NUMBER

CSU-2010-CCH-000688 2012 NZCorC 98
CSU-2010-CCH-000689
2012 NZCorC 99

CIRCUMSTANCES

Two people, both aged 16, died in a road crash on the Blackball-Atarau Road. They died at the scene from injuries sustained in the crash.

At the time of the crash the passenger was sitting on the lap of the driver. The passenger was believed to be operating the foot pedals and attempting to steer the vehicle. The vehicle had three other passengers and was travelling on Atarua Road, heading towards Blackball turnoff. As the car approached a sweeping left hand bend in the road, it crossed the centre line directly into the path of an oncoming empty milk tanker and trailer.

The road was wet and the vehicle was estimated to be travelling between 110 to 120 km/h. The driver was intoxicated with alcohol and likely to have been affected by cannabis consumption. The passenger may have been affected by cannabis consumption. Neither deceased held a driver licence. The driver had previously been caught driving twice before hand and on each occasion forbidden to drive. The vehicle was unlicensed and did not have a warrant of fitness. It had false number plates and was in bad condition with worn tyres, one working seat belt and illegal modifications to the seat. It is apparent that people in the community had been aware of the car being used intermittently throughout the night, as after the crash members of the public came forward and reported it had been driving erratically. Police have said that if they had have stopped the vehicle in the condition it was in, it would have been pink stickered and taken away on a trailer.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the safety factors for prevention of similar deaths are self-apparent and the case highlights the importance of the community reporting to the Police behaviours such as this, namely the erratic driving of this vehicle in the hours before the crash, when it occurs. However the coroner stressed that the responsibility for what occurred was that of the two people sitting behind the driving wheel.

CASE NUMBER

CSU-2011-PNO-000519
2012 NZ CorC 107

CIRCUMSTANCES

The deceased died at the railway-road level crossing north of Levin when the car she was driving collided with a train. She died from the injuries sustained in the crash. She was familiar with the intersection, which had a stop sign positioned at the yellow line before the train tracks. There are pine trees around 20–30 metres down from the stop sign and another tree around 2 metres down from the stop sign at the intersection that can obscure vision of the railway line.

COMMENTS AND RECOMMENDATIONS

The coroner recommended that KiwiRail negotiate – if necessary with the private land owners – and remove trees along the railway track to the south of the intersection and along Jacksons Road as it approaches the intersection. As a consequence of the removal of the trees KiwiRail should not downgrade this intersection from the upgrade list to have automated warning signs installed (bells and whistles or barrier arms).

CASE NUMBER

CSU-2011-HAM-000244
2012 NZ CorC 127

CIRCUMSTANCES

The deceased died in Ngaruawahia of injuries sustained in a vehicle crash. She had been drinking with a friend in Huntly and was returning to her home in Hamilton. When exiting a moderate right hand bend her vehicle rotated clockwise and slid over the centre line into another vehicle. The deceased's phone records indicated that on the way to Hamilton she sent up to 22 text messages while driving. An analysis of blood taken from her established a blood-alcohol level of 52mg of alcohol per 100ml of blood. The legal limit for a driver of her age is 80mg.

COMMENTS AND RECOMMENDATIONS

The coroner recommended to the Waikato District Council that the relevant roading authority consider widening the road surface in the area where this crash occurred to include a sealed safety shoulder

The coroner recommended to the National Road Policing Manager of the New Zealand Police that the Police maintain or increase their ongoing public awareness campaign and enforcement action with regards to dangers to drivers being distracted due to cell phone use while driving.

The coroner also recommended that the responsible government agency reduce the legal limit for the amount of alcohol in the blood of a driver to 50mg of alcohol per 100ml of blood in line with the majority of overseas countries.

CASE NUMBER

CSU-2010-CCH-000057

2012 NZ CorC 152

CIRCUMSTANCES

The deceased died from injuries sustained when he fell from his motorised skateboard. Before to the crash he had been drinking at a local hotel. At the time of his death he had a blood alcohol level of 173mg per 100ml – more than twice the legal blood alcohol limit for driving. He was not wearing any safety equipment or a safety helmet when he left the hotel that day. Both his skill and attention would have been significantly compromised by his intoxication. The coroner noted that as a motorised skateboard is a motor vehicle he should not have been riding it on the footpath.

COMMENTS AND RECOMMENDATIONS

The coroner commented that she had issued findings about a similar death – CSU-2008-PNO-000181. During this inquest a representative from the New Zealand Transport Agency (NZTA) confirmed that a motorised skateboard meets the definition of motor vehicle in the Land Transport Act 1998. The riders of motorcycles, mopeds and all terrain vehicles have to wear safety helmets when these vehicles are being driven on a road, but a motorised skateboard with a power output of 800 watts and four wheels falls outside the definition of these vehicles.

The coroner said it was difficult to rationalise the absence of a requirement to wear a helmet when riding motorised skateboards, given the speed that these skateboards can reach and sustain without the physical effort of the rider. In the previous case the coroner recommended that the Ministry of Transport review the policies underpinning r 7.12 Land Transport (Road User) Rules 2004 with a view to amending the rule so that riders of motorised skateboards are required to wear safety helmets when riding their boards. The recommendation was sent to the Ministry, and in the letter received acknowledging receipt of the recommendation the coroner was advised that there was a project underway to address the safe use of low powered vehicles, including motorised skateboards.

In the course of this inquiry the coroner contacted the Ministry of Transport seeking advice about the status of the project. The Ministry of Transport responded to this advice.

'The Ministry did carry out a limited review on the use of low powered vehicles and this review has not led to any changes at this stage. The main purpose of the review was to look at the various new types of low powered vehicles, their wider use and the related safety equipment. Primarily we wanted to determine how these new types of vehicles should be classified and where they could or should be used. Since we wrote to you in 2008, it appears that there has been one further road related skateboarder fatality, where a motor vehicle has been involved. This was not a motorised skateboard and it involved a collision with a taxi. We do not record skateboard only accidents – only those involving a motor vehicle'.

The coroner commented that based on this information the steps requiring motorised skateboard riders to wear helmets was not being formalised, and it appears that practically speaking they are not being considered motor vehicles, notwithstanding that they fall within the definition of a motor vehicle within the statutory framework.

The coroner maintained the view that helmets should be worn by riders of motorised skateboards in order to reduce the likelihood of serious or fatal head injuries being sustained in the event of falls from such vehicles, and repeated her recommendation that legislation to this effect should be considered.

Response from Ministry of Transport

The Ministry of Transport responded to the coroner's recommendation that the Land Transport (Road User) Rule 2004 be amended so that riders of motorised skateboards are required to wear helmets. They said that due to the low percentage of crashes involving motorised skateboards, and other similar devices, there is not sufficient evidence to warrant a change to the rules. The Ministry advised that they will continue to monitor the situation and where possible promote the voluntary use of helmets as they do for users of non powered skateboards.

CASE NUMBER

CSU-2011-HAM-000568
2012 NZ CorC 143

CIRCUMSTANCES

The deceased died at Waikato Hospital of injuries sustained in a motor vehicle crash. He was negotiating a moderate right hand turn on his 1200cc Ducati Superbike when he lost control of the vehicle when it ran wide into gravel. He was thrown forward over the bike into a paddock and sustained multiple injuries.

COMMENTS AND RECOMMENDATIONS

The coroner recommended that the relevant roading authority consider erecting appropriate speed advisory warning signage at the bend where this crash occurred.

CASE NUMBER

CSU-2011-AUK-000936
2012 NZ CorC 153

CIRCUMSTANCES

The deceased and her mother died at Pukekohe from injuries sustained in a motor vehicle accident. She lost control of her vehicle after having an epileptic seizure. The deceased had suffered seizures from epilepsy and was prescribed new medication to control these.

Just over a month prior to this accident the deceased's neurologist informed her that she could not drive until she had been free from seizures for 12 months. She went to her general practitioner to seek a second opinion who agreed with the neurologist. She ignored medical advice and chose to drive to Waiuku with her mother to retrieve furniture. On the journey to Waiuku it is believed that the epilepsy caused her to have a seizure and lose control of the vehicle as it came into the intersection. The deceased's mother appears to have tried to steer the car while the deceased was having a seizure but could not, resulting in the car mounting the curb, smashing through a wooden bollard on the edge of the road and then carrying on into a tree.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the case highlights the absolute necessity for people with medical conditions to follow the advice of their medical professionals on whether or not they are safe to drive a motor vehicle. If the deceased had followed the advice of her neurologist and her general practitioner not to drive, this crash would not have occurred and the deceased and her mother would not have died.

CASE NUMBER

CSU-2012-HAM-000045
2012 NZ CorC 181

CIRCUMSTANCES

The deceased died in Cambridge from injuries sustained in a motor vehicle crash. Her son was travelling in the vehicle with her at the time and later died at Waikato Hospital. The deceased made a right hand turn out of an intersection into the path of a truck. The first truck had passed through the intersection and it is likely that she either did not see a second truck, or misjudged its speed and distance. This was a very complicated intersection, with the roads converging in a staggered crossroads, and was often congested at peak traffic times. This was a contributing factor in the accident.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the Serious Crash Unit (SCU) report does not suggest a large number of crashes at this particular intersection. The report does note, however, that the complex roading arrangement presents a hazardous environment. The implication is that there could be other deaths at this intersection in the future.

The coroner recommended to the responsible roading authorities that they consider what improvements could be made to make this particular intersection safer.

CASE NUMBER

CSU-2011-HAM-000558

2012 NZ CorC 106

CIRCUMSTANCES

The deceased, aged 17, died of injuries sustained when the car he was driving collided with a concrete pole and tree. The deceased was driving while under the influence of alcohol at a level four times the legal limit for a driver his age and he was driving at approximately twice the legal speed limit for that particular street.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this was a death that highlighted the extreme consequences young people can suffer when they drive a motor vehicle after consuming alcohol and at speed.

CASE NUMBER

CSU-2011-DUN-000521

2012 NZ CorC 151

CIRCUMSTANCES

The deceased died at Tokanui Gorge Road when he lost control of the vehicle he was driving, it left the road and entered the Mataura River. The roadway was affected by roadworks but there were no staff or equipment in the area. The lane was narrowed to 2.55 metres. Temporary 30kph traffic signs were at the scene but they were lying on the verge.

The coroner made inquiries of Southland District Council (SDC) as to the signage in place in relation to the roadworks. SDC confirmed that, during an audit of the management protocol, the site was visited and that the roadworks and signage, deemed to be appropriate, were erected. SDC advised that both SDC and MWH (the works auditor) considered that the roadworks' warning signs were appropriate to convey the nature of a hazard ahead so that a driver could adjust their driving style to meet the hazards indicated by the warnings.

COMMENTS AND RECOMMENDATIONS

The coroner accepted that the signage meets standards imposed by the New Zealand Transport Agency (NZTA) code of practice. SDC have addressed the inquiry as to why road works were not protected by a speed restriction sign. SDC advised that the contractor lowered to the ground the 30kph restriction signs to allow speed through the site be increased back up to 100kmh while the roadworks were no longer being undertaken. It was considered by the contractor, by SDC and by MWH that the provision of the 'roadworks' and the 'gravel surface signs' complied with the appropriate traffic management plan for the site.

SDC advised that, as an outcome of this death, the Council have undertaken a review of traffic management approval in an effort to identify steps the Council can take to reduce the chances of similar crashes in the future.

The coroner recommended that a copy of his finding be forwarded to NZTA in order that observations relating to roadworks signage can be further considered.

CASE NUMBER

CSU-2009-WGN-000306

2012 NZ CorC 108

CIRCUMSTANCES

The deceased died in a vehicle crash. The crash occurred on a farm track in Waitotara Valley rural area. The deceased was in a hut on a farm with several other people and had been drinking. That night one of the people was driving his Toyota land cruiser to pick up the final member of the group from the State Highway and the deceased had decided to be on the back of the ute holding on with one hand and shining a spotlight with the other so two of the party who were following on quad bikes could shoot possums. The driver had put his head out the window to talk to the deceased, and it veered into a bank and rolled trapping the deceased. The vehicle has four chains on each of the wheels to assist with traction, but on that night the chains on both of the right hand wheels were missing. Alcohol contributed to the poor decision that caused the accident and resulted in this death.

COMMENTS AND RECOMMENDATIONS

The coroner commented that members of the rural community and others should not be complacent about drinking and driving.

CASE NUMBER

CSU-2011-AUK-000166
2012 NZ CorC 178

CIRCUMSTANCES

The deceased drowned accidentally at Mercer Bay beach, Karekare. She went to Mercer Bay beach with four friends and in order to access the beach they climbed down a steep cliff face.

On arrival at the beach the group went swimming and the deceased stayed close to the shore as she was not a strong swimmer. She was then pulled out by the current, past her friends. Her friends attempted to pull her to safety, but were caught in the current themselves. They managed to pull themselves onto the nearby rocks and lost sight of the deceased. When she reappeared she was face down and being pulled into a channel. She was moved onto the beach where CPR was commenced.

Because of its isolated location the beach was not patrolled by Surf Life Saving New Zealand. There was no signage at the car park to indicate that there is no access to the beach; the principal intent of the existing signage at this location is to advise visitors that the cliff is dangerous and people should not go nearer the cliff edge than is safe.

COMMENTS AND RECOMMENDATIONS

The coroner commented that it was unclear exactly where the deceased and her friends climbed down to the beach. The evidence shows that they found the climb down arduous. The coroner was satisfied that they did not appreciate the potential dangers of climbing down the cliffs to access and swim at what is an isolated and dangerous West Coast beach.

The plan for the deceased, who did not have swimming skills and experience, to remain in the shallow waters reflected the lack of understanding of group members of the

dangers posed by the hazards of the water in that location – including large waves, strong currents, an outgoing tide and uneven footing.

The coroner recommended to the Auckland Council that they consider whether to erect signs:

- at the start of the Mercer Bay loop track and the Comans Ahu Ahu circuit (Comans track) advising that there is no access to Mercer Bay Beach from the tracks
- at the start of possible informal access way(s) to Mercer Bay Beach warning of the dangers of the steep and hazardous cliffs
- at Mercer Bay beach warning of the hazards for swimmers at that location.

Water-related (recreational fishing and boating)

CASE NUMBER

CSU-2011-DUN-000288
2012 NZ CorC 129

CIRCUMSTANCES

The deceased died at Dunedin Hospital of injuries from a boating accident on Lake Waiholo. She was part of a crew participating in a power boat marathon run by the Milton Boating Club. The races are conducted at very high speeds in purpose-built boats. In this case, the boats were travelling at approximately 115 kph. The coroner considered that the most likely cause for the loss of control was a structural failure of the transom (the mountings of the outboard motor) – possibly caused by an undisclosed (and undiscoverable in a visual inspection) defect or, more likely, caused by an earlier collision which happened about six months earlier when the boat struck a rock.

Maritime New Zealand (MNZ) had approved the event after an application by the organisers of the event. The approval

required the uplifting of speed restrictions and was granted subject to certain conditions regarding race and public safety, oil spill response, litter and the need to advertise the event. MNZ accepted that Milton Boating Club did not have, on site, the necessary medical equipment or trained emergency personnel qualified to a standard that would have enabled them to identify and effectively treat the injuries sustained by the deceased. The director of MNZ had, however, accepted the provided incident plan and rescue protocol.

St John Ambulance identified shortcomings in service given by the organisation and stated that it is felt that the deceased's care fell below best practice. In an ideal situation her airway compromise would have been recognised earlier and personnel skilled in rapid sequence intubation (RSI) would have been able to overcome the trismus and attempt a definitive airway. Unfortunately there are, as yet, no pre-hospital personnel employed by St John Ambulance able to perform RSI in the South Island.

COMMENTS AND RECOMMENDATIONS

The coroner made the following recommendations.

- To Maritime New Zealand (MNZ)
MNZ consider creating a protocol to ensure that before any boating event (which is required to be approved by MNZ) the MNZ consider more carefully the event's safety and rescue implications. Event organisers should be required to create an analysis of risk to ensure what level of rescue and ambulance care is necessary to cover all foreseeable eventualities that may occur. During high speed racing on the water, the loss of control and rollover of a boat participating is foreseeable and the injuries from such a high speed crash could, potentially, be catastrophic.

For such an event the level of rescue and care needs to be greater than that required for an event conducted at a lower speed with fewer objective dangers. MNZ, before certifying the event, should require the organiser to liaise with St John Ambulance in order that the expertise of St John Ambulance assists with the assessment of risk and the level of support necessary. If, for any reason,

St John Ambulance cannot support an individual event supervised by MNZ, then the event ought not to take place.

- To St John Ambulance
St John Ambulance continue with the education and training programme identified in the root cause analysis report. St John Ambulance ought to create, and continue with, a robust ongoing clinical competence review of staff to ensure that training and skills are not lost.

St John Ambulance take steps to address the other issues identified in the root cause analysis specifically relating to identified failures to pass on appropriate information between crews.

To New Zealand Boat Marathon Association

The New Zealand Boat Marathon Association take steps to ensure an enhanced scrutineer process is adopted to take into account the lessons learned from the crash. Although it is accepted that it is unclear as to whether or not a failure of the transom was the real cause of the loss of control and rollover, it is a likely cause and if evidence of a failure can be identified at scrutineering, then it ought to be so identified

- To New Zealand Boat Marathon Commission
The New Zealand Boat Marathon Commission give consideration to the fitting of seatbelts to ensure that crew are not thrown from the boat in the manner which caused the deceased to suffer the injuries which proved fatal.

The coroner adopted the recommendation of MNZ that the organisers of boat races conduct studies of lakes, affected by tides, to establish minimum water depths along the course of the race so as to ensure that there is an adequate factor of safety to ensure that skegs on outboard motors do not strike the lake bottom.

CASE NUMBER

CSU-2012-HAM-000020

2012 NZ CorC 194

CIRCUMSTANCES

The deceased drowned at Homunga Bay, Waihi Beach. He went out for a fishing trip with four other companions; they walked for half an hour along the track at Homunga Bay until they reached the fishing spot on rocks overlooking the sea. The men had been drinking before and while they were walking to the fishing spot. The deceased and another went to the lower rocks as they had boat rods and could not cast as far as the others.

The deceased walked too close to the edge of the rocks and a large wave swept him off the rock and out to sea. He was struggling and appeared to be panicking; the other men contemplated jumping in but had concerns for their own safety as the sea was very rough. The Waihi beach surf lifesaving crew was alerted and went to search for him. They found him lying face down 100 metres from the rocks at the southern end of the bay. He could not be revived. At post-mortem the deceased was found to have a blood alcohol level over the legal limit with which one can drive.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this death highlights the risk people take when they go fishing from rocks that are subject to large waves sweeping over them. The coroner acknowledged that the deceased's companions, who were probably familiar with this stretch of coast, were more circumspect in their choice of fishing spots. Due to the deceased's unfamiliarity with this stretch of coast and possibly with fishing from rocks in general, the deceased chose a spot that was much more dangerous. His choice may have been affected by his level of intoxication.

The coroner commented that all fishermen will learn a lesson from this death, that there are inherent dangers in fishing from the rocks overlooking the sea. Therefore, fishermen need to exercise extreme care when choosing their fishing spot and cannot afford to have their judgement and reactions impaired by alcohol intoxication.

CASE NUMBER

CSU-2011-AUK-001522

2012 NZ CorC 145

CIRCUMSTANCES

The deceased drowned in the Manukau Harbour, Auckland. He was with two companions who went out fishing from Ihumatao beach at Mangere. The tide was out so the men had to walk for more than two hours across the mudflats out into the harbour. At around 7pm, after the men had caught a number of fish, they packed up and started taking the same route back that they had previously taken.

At around 8.30pm the men got into difficulty and were still a long way from shore. The tide had risen very high by this time and the men had become trapped by thick mud, none of them could swim. The men had become fatigued when a wave swept over the men's head. The deceased never surfaced again. His body was located amongst the mangroves in the foreshore.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this preventable death highlights the dangers people face when walking over mudflats and shallow harbours. These three men may have been unaware of the dangers that this particular harbour poses, and if so, then there should be signage placed in prominent positions to warn the public of these dangers.

The coroner had no evidence before him as to whether or not there were warning signs erected at the point where these men parked their vehicle, and therefore he stopped short of making a recommendation in relation to warning signs. In conclusion the coroner commented that 'I trust that the appropriate authority will investigate whether there are warning signs, and the appropriateness of these signs if applicable, as a result of my bringing this matter to their attention'.

Response from Auckland Council

The Council has read the report and noted the comments regarding signage. They are in the process of having two signs erected adjacent to the public access points to the Manukau Harbour at Ihumatao Road (Ihumatao Beach) and

Renton Road (Renton's Beach). The signs will warn people who may access the harbour of the dangers associated with the incoming tide.

CASE NUMBER

CSU-2011-CCH-000677
2012 NZCorC 112

CIRCUMSTANCES

The deceased died of cardiac arrest, caused by sudden immersion in cold water while intoxicated at Havelock Marina in Havelock.

At the time of death the deceased was intoxicated and had pre-existing cardiac abnormalities. He had been drinking at a local bar and it was noted that he was very intoxicated when he left the bar at around 9–9.30 pm. CCTV footage showed that his car reached the marina at 10.13pm, he got out and fell heavily onto the ground and after several minutes walked onto jetty three. In the following days, friends of the deceased were unable to find him. A search started and his body was found in three metres of water about two metres from the berth entrance.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this death can be considered to have resulted from the deceased's intoxication. He commented on an article in the March 2012 edition of the Maritime New Zealand publication *Lookout!* The article was titled 'Alcohol and water don't mix'. The article notes, 'If you are on board a boat and intoxicated you are a danger to yourself and put others at risk', and goes on to list the various serious consequences of having drunk alcohol, in the event that someone ends up in water.

The coroner commented that this death demonstrates a further risk, namely of almost immediate cardiac arrest and death. It is perhaps little known that such cardiac death can result, if, when intoxicated, someone is suddenly immersed in cold water. Overall the death may be considered an accident in that it was unintended and unexpected, however it was avoidable and would not have happened had the deceased not been drunk; his death was the realisation of significant risk implicit in being drunk on a boat, even when a boat is moored in the relative safety of a marina.

Work-related (agriculture)

CASE NUMBER

CSU-2010-CCH-000759
2012 NZ CorC 156

CIRCUMSTANCES

The deceased, an 18 year old woman, died at Cape Foulwind where she was riding an all terrain vehicle (ATV) or quad bike with a trailer when it overturned and crushed her. She was employed by Landcorp as a casual dairy farm assistant.

The terrain she was working on was one of undulating hills sloping downwards to a western fenceline. The ground conditions at the time were dry and she was working in the area by herself. She was found lying face down under the bike with her head pointing towards the bottom of the slope. A bike helmet was found a short distance from the body. An analysis of the rollover indicated that the spreader-trailer had begun to roll over to the right before the quad bike rolled over to the right. Without the spreader-trailer and its load, it is unlikely that a rollover would have occurred. At the point the rollover occurred, the quad bike was being steered to the left. It is likely that it would have been very difficult for the operator to negotiate the quad bike to the right, to counter the unstable situation that had developed due to the trailer.

The deceased came to Landcorp with experience of farm work and quad usage. She had achieved two unit standards in agriculture relating to quad bikes under the New Zealand Qualification Authority (NZQA) assessment criteria. These were 'demonstrate knowledge of the safe operation of a quad bike' and 'ride a quad bike on flat terrain'. The farm manager and the deceased had attended a three-day Worksafe course covering basic safety as well as focusing on ATVs, tractors and chainsaws. They were coached on the safe riding of ATVs over various terrains including undulating and steep terrain. This included instructions on the need to be an active rider to maintain the centre of gravity and avoid overturning. The course included riding a 500CC ATV fitted with a front and rear mounted spray unit.

The coroner heard evidence on Landcorp's safety practices, safety training, and the taking of initiatives in improving workplace safety and was satisfied that Landcorp is taking a leading role concerning the safe use of ATVs (quad bikes), including their use with a trailer unit on undulating terrain.

COMMENTS AND RECOMMENDATIONS

The coroner commented that Landcorp had already taken active steps to further promote worker safety in the use of quad bikes since this fatality. Landcorp has changed the tyres used on quad bikes from standard to heavy duty and increased tyre pressures. It has removed side bars from quad bikes as the mudguards are designed to flex and prevent injury in the event of rollover. It has trialled wheel spaces, rollover protection and alternate tow bar mechanisms. It has changed its focus in training, with emphasis on human factors involved in accidents.

According to the evidence of the Chief Executive of Landcorp, whose evidence was fully accepted by the coroner, it has committed to dispelling the notions that injuries are inevitable in the farming sector. The inquest highlighted stability issues in operating a quad bike with a spreader-trailer (or equivalent) on undulating terrain. It has highlighted a training issue of the need for an operator, if possible to turn downhill when confronted with the type of instability that this operator faced.

The coroner, in making the following recommendations, took into account the active steps already being taken by Landcorp concerning worker safety, including operating of quad bikes with or without trailer units on undulating terrain. The coroner took account of Landcorp's active interest in an anti-crush system being developed by a Dargaville inventor, comprising a roman arc system that has the ability to deflect around an object or person's body, limbs or head on impact. The inquest in particular highlights an issue as to the need for further development of locational couplings for light trailers for use in conjunction with vehicles such as ATVs (quad bikes).

The coroner recommended that Landcorp, as part of its ongoing focus on worker safety and means of reducing accident rates, take such steps as are available to it to

promote the development of a rotational coupling suitable for light trailers being operated in hill terrain by ATVs (quad bikes) or similar vehicles.

A further recommendation was that the Ministry of Business, Innovation and Employment take account of the circumstances of this quad bike rollover, in the ongoing education of the users of ATVs (quad bikes) or similar vehicles.

Response received from Landcorp

Landcorp responded to the coroner's recommendation advising that Landcorp were progressing further investigations into the safety of quads as farm vehicles.

Landcorp also provided an update on the ongoing investigations and status of their studies in April 2013. This information relates to general investigations that continue as part of their safety campaign.

CASE NUMBER

CSU-2011-DUN-000400

2012 NZ CorC 148

CIRCUMSTANCES

The deceased, a farmer, died on his property near Tuatapere from injuries sustained in a quad bike accident. He lost control of the quad bike he was riding in steep and slippery conditions allowing it, and the trailer it was towing, to travel down a slope into a gully where it has overturned, trapping him beneath it.

He was an experienced quad bike rider, although this farm's terrain was rolling and steep compared to the previous farms he had ridden on. He had previously had two crashes on the quad bike and family had advised him not to ride in such steep country, although he continued to do so.

COMMENTS AND RECOMMENDATIONS

The coroner commented that there was no evidence of a head injury to the deceased that may have caused or contributed to his death but he endorsed the recommendation that crash helmets should be worn, the evidence of their benefits being overwhelming. The coroner

recommended that all those in charge of four-wheel drive (quad) bikes on farms be instructed in their use and in their dangers, regardless of their experience. A course of instruction is likely to identify hazards unknown to operators, even those who have been riding them for years.

He directed that a copy of the finding be forwarded to the Department of Labour (now the Ministry of Business, Innovation and Employment) and to ACC, so they can include relevant information in future publications.

The coroner recommended that the following Department of Labour guideline recommendations be adopted.

- Riders must be trained/experienced enough to do the job.
- Choose the right vehicle for the job.
- Always wear a helmet.
- Do not let kids ride adult quad bikes.

Response from Ministry of Business, Innovation and Employment (Labour)

The Department noted the support of the Harm Reduction Programme. They also noted the recommendations outlined in the coroner's finding in relation to further publications. They advise that their project team is planning proactive media engagement to reinforce its messages. This project team may contact the coroner in the future to discuss how the recommendations outlined in the findings can be used in this work.

Work-related (other)

See also **case study – focus on forestry**.

CASE NUMBER

CSU-2011-HAS-000279

2012 NZ CorC 154

CIRCUMSTANCES

The deceased died at his place of work in Napier when he suffered a fatal electric shock. He was lying on a mechanic's crawler and near him, still illuminated, was a handheld electronic lamp connected to an extension lead that he had been using to provide light while he was working under a truck.

Investigation by the Ministry of Business, Innovation and Employment (formerly the Department of Labour) revealed damage to the crawler, including a broken weld, and evidence of direct contact between the frame of the crawler and the ground. The frame was supposed to have six wheels supporting the user, but the crawler had only four wheels (the two middle wheels were missing). The extension lead showed recent damage, as did the hand held lamp lead, which had an exposed phase wire. It appeared that the defective mechanics crawler he was lying on under a truck connected with the exposed electrical wiring to the hand held electric lamp that he was using, resulting in his fatal electric shock.

COMMENTS AND RECOMMENDATIONS

The coroner commented that if the deceased had been appropriately using a simple residual current device (RCD) designed to fail at 30 milliamps, it is unlikely that he would have been electrocuted, as the powerguard device would likely have tripped, preventing a fatal electric shock. AS/NZS 3000 are relevant wiring regulations. While RCDs are required in new residential buildings and other places such as schools, they are not required in new commercial or industrial sites.

Regulation 89 of the Electrical (Safety) Regulations 2010 requires safety measures including the use of RCDs where hand-held appliances are used in damp conditions outdoors, in buildings or structures under construction and in substantially conductive situations. Because the deceased was on a crawler on his back in closer proximity to the ground with his hands it could be said that he was in a 'substantially conductive situation'. However, the coroner considered the situation in regulation 89 requiring safety mechanisms such as the use of RCDs too restrictive, and recommended that consideration be given to extending beyond merely conductive situations to general commercial and industrial sites where hand-held appliances are used.

The coroner commented that the use of RCDs when using hand held appliances, such as a power tools and hand lights in industrial and commercial operations, would assist in reducing the occurrence of deaths in circumstances similar to those in which this death occurred and an inclusion in wiring regulation may be appropriate.

The coroner recommended to the Ministry of Business, Innovation and Employment that consideration be given to the inclusion of both AS/NZS 3000 and Electricity (Safety) Regulations for the requirement for the use of RCDs or similar safety devices when hand-held appliances are used in industrial and commercial sites.

Response from Ministry of Business, Innovation and Employment (formerly Department of Labour)

The Ministry acknowledged receipt of the findings and will consider the recommendation made by the coroner. It will respond in due course. The information has been registered on the Ministry database.

Acronym glossary

Acronyms used in this *Recommendations recap*.

ACC	Accident Compensation Corporation	LBD	Lewy body dementia
ACoP	Approved code of practice (specifically the <i>Approved code of practice for safety and health in forest operations</i>)	LMC	Lead maternity carer
ACRP	Auckland Central Remand Prison (now Mount Eden Men's Correctional Facility)	LTSC	Log Transport Safety Council
ATV	All terrain vehicle	MBIE	Ministry of Business, Innovation and Employment (formerly Department of Labour, Department of Building and Housing, Ministry of Science and Innovation, Ministry of Economic Development)
CCERG	Christchurch Cardioendocrine Research Group	MEC	Multi-Region Ethics Committee
CCTV	Closed-circuit television	MECF	Mount Eden Men's Correctional Facility
CPAP	Continuous positive airway pressure	MEMP	Mount Eden Men's Prison (now Mount Eden Men's Correctional Facility)
CPR	Cardiopulmonary resuscitation	MNZ	Maritime New Zealand
CTG	Cardiotocography (recording of fetal heartbeat and the uterine contractions during pregnancy)	NARA	New arrival risk assessment
CYF	Child, Youth and Family	NICU	Neo-natal intensive care unit
CYRAS	Care and protection, youth justice, residences and adoption services (CYF's database system)	NSW	New South Wales
DCCL	Dunedin Carrying Company	NZCTU	New Zealand Council of Trade Unions
DHB	District Health Board	NZQA	New Zealand Qualifications Authority
CDHB	Canterbury District Health Board	NZTA	New Zealand Transport Agency
DoL	Department of Labour (now Ministry of Business, Innovation and Employment)	PES	Psychiatric Emergency Services
ED	Emergency department	RCA	Root cause analysis
FICA	Forestry Industry Contractors Association	RCD	Residual current device
FITEC	Forestry Industry Training and Education Council (now Competenz)	RSI	Rapid sequence intubation
GP	General practitioner	SCU	Serious Crash Unit
H&S	Health and Safety	SDC	Southland District Council
HDEC	Health and disability ethics committees	SFOs	Supervising forestry officers
HIV	Human immunodeficiency virus	SUDI	Sudden unexpected death in infancy
HSE Act	Health and Safety in Employment Act 1992	VPS	Voluntary protective segregation
INR	international normalized ratio (a measurement used to ascertain a person's risk of bleeding)		

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