How to submit this form

Submission form: Seeking proposals for additions to the list of occupational diseases under the Accident Compensation Act 2001

The Ministry of Business, Innovation and Employment (MBIE) would like your suggested additions to Schedule 2, the list of occupational diseases in the Accident Compensation Act (2001). Please provide your feedback by **5pm, on 17 May 2023.**

When completing this submission form, please provide specific occupational disease names, their relevant exposure, and any data that may aid your submission. Your feedback will help inform decisions about the list of diseases that MBIE will provide to independent researchers and medical experts for their analysis.

We appreciate your time and effort taken to respond to this consultation.

Instructions

To make a submission you will need to:

1. Fill out your name, email address, phone number and organisation.
2. Fill out your responses to the discussion document questions. You can answer any or all of these questions in the **discussion document**. Where possible, please provide us with evidence to support your views. Examples can include references to independent research or facts and figures.
3. If your submission has any confidential information:
    i. Please state this in the email accompanying your submission, and set out clearly which parts you consider should be withheld and the grounds under the Official Information Act 1982 (Official Information Act) that you believe apply. MBIE will take such objections into account and will consult with submitters when responding to requests under the Official Information Act.
    ii. Indicate this on the front of your submission (e.g. the first page header may state “In Confidence”). Any confidential information should be clearly marked within the text of your submission (preferably as Microsoft Word comments).
    iii. Note that submissions are subject to the Official Information Act and may, therefore, be released in part or full. The Privacy Act 1993 also applies.

How to submit this form

4. Submit your feedback:

i. As a Microsoft Word document by email to **ACregs@mbie.govt.nz** with subject line: *Consultation: Suggested additions to Schedule 2*

ii. By mailing your submission to:

The Manager, Accident Compensation Policy
Ministry of Business, Innovation and Employment
PO Box 1473

Wellington 6140
New Zealand

Submitter information

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MBIE would appreciate if you would provide some information about yourself. If you choose to provide information in the section below it will be used to help MBIE understand the impact of our proposals on different occupational groups. Any information you provide will be stored securely.

Your name, email address, phone number and organisation

Name:	Privacy of natural persons
Email address:	Privacy of natural persons
Phone number:	Privacy of natural persons
Organisation:	Otago University / New Zealand College of Clinical Psychologists

☐ The Privacy Act 1993 applies to submissions. Please tick the box if you do **not** wish your name or other personal information to be included in any information about submissions that MBIE may publish.

☐ MBIE may upload submissions or a summary of submissions received to MBIE's website at **www.mbie.govt.nz**. If you do **not** want your submission or a summary of your submission to be placed on our website, please tick the box and type an explanation below:

I do not want my submission placed on MBIE's website because… [insert reasoning here]

Please check if your submission contains confidential information

☐ I would like my submission (or identifiable parts of my submission) to be kept confidential, and **have stated** my reasons and ground under section 9 of the Official Information Act that I believe apply, for consideration by MBIE.

Seeking proposals for additions to the list of occupational diseases under the Accident Compensation Act 2001

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1. Do you think there is relevant evidence to support including new occupational diseases to Schedule 2 at this time?

   ☒ Yes ☐ No ☐ Not Sure

2. If yes to Question 1, what occupational diseases should be added to Schedule 2?

   Chronic Traumatic Encephalopathy (CTE)

3. For each occupational disease suggested in response to Question 2, what should be listed as the corresponding:

   a. agents, dusts, compounds, substances, radiation or things, and

      The 'agent' in CTE is repeated traumatic blows to the head over an extended period- such as that experienced by professional athletes involved in contact sports.

   b. if appropriate, the relevant level or extent of exposure to these; or

      Currently, CTE has only been found in professional athletes who have received blows to the head on a highly regular (frequently daily) basis. These do not have to result in loss of consciousness or 'blackout' which would, individually, be covered by ACC- rather this is chronic pathology caused by repeated blows over an extended period. CTE is not the accumulation of symptoms of the earlier injuries, but is clinically distinct. The symptoms of CTE, like other neurodegenerative diseases, results from the progressive decline in functioning of neurons or of the progressive neuronal death

   c. occupations, industries, or procresses?

      Professional athletes involved in contact sports and/or professions involving repeated blows to the head over a long period. CTE has been found in military veterans following repeated head injury in combat, but also in civilian populations.

4. Do you think there is relevant evidence to support including additional exposures for occupational diseases currently included in Schedule 2?

   NA

5. If yes to Question 4, for each relevant current occupational disease, what should be listed as the corresponding additional:

   a. agents, dusts, compounds, substances, radiation or things, and

b. if appropriate, the relevant level or extent of exposure to these; or

c. occupations, industries, or procresses?

If you have suggested including a new occupational disease or diseases, and/or additional exposures, please provide links and/or references to supporting evidence.

Where relevant, please include information on how the disease or diseases affect different populations, including impacts on different genders.

CTE has been well described in terms of its pathology, course and risk factors. CTE is a neurodegenerative disease marked by widespread accumulation of hyperphosphorylated tau (p-tau) protein. Severely affected cases show p-tau pathology throughout the brain McKee and colleagues (2015) have described that pathology associated with this condition:

McKee, A. C., Stein, T. D., Kiernan, P. T., & Alvarez, V. E. (2015). The neuropathology of chronic traumatic encephalopathy. *Brain pathology*, *25*(3), 350-364.

There are most likely additional factors that play a role in the initiation of p-tau pathology in CTE including genetic susceptibility or resistance, gender, physiological stress, additional environmental exposures and age at exposure (see above article, bottom of page 359).

McKee and colleagues also published a large post-mortem study of 85 people with a history of repetitive mild TBI.

McKee, A. C., Stein, T. D., Nowinski, C. J., Stern, R. A., Daneshvar, D. H., Alvarez, V. E., ... & Cantu, R. C. (2013). The spectrum of disease in chronic traumatic encephalopathy. *Brain*, *136*(1), 43-64.

McKee and colleagues conducted post-mortem examinations on 85 people between 14-98 years (M = 54.1) and 84 were male, 1 female. 80 were former athletes, 25 were military veterans (22 of which were also athletes) and there were two civilians, both of whom suffered repetitive mTBI. They had a control group of eighteen cognitively intact individuals with no history of mTBI. They found evidence of CTE in 68 subjects (all male, age 17-98). This paper is where they first introduced pathological criteria for the neuropathological diagnosis of CTE and a staging system for grading pathological severity (Stages I-IV; as mentioned under the reference above). There have been several similar studies that have been published subsequently.

Stern and colleagues (2011, 2013) have given more detailed accounts of the clinical picture associated with CTE.

Stern, R. A., Daneshvar, D. H., Baugh, C. M., Seichepine, D. R., Montenigro, P. H., Riley, D. O., ... & McKee, A. C. (2013). Clinical presentation of chronic traumatic encephalopathy. *Neurology*, *81*(13), 1122-1129.

Stern, R. A., Riley, D. O., Daneshvar, D. H., Nowinski, C. J., Cantu, R. C., & McKee, A. C. (2011). Long-term consequences of repetitive brain trauma: chronic traumatic encephalopathy. *Pm&r*, *3*(10), S460-S467.

Typically, CTE symptoms present in midlife, usually years or decades after the end of the exposure to repetitive brain trauma (i.e. retirement from sports). However, the earliest stages of CTE have been found in individuals in their teens or early 20s (see above). Symptom progression is typically slow.

Early symptoms include impairments in cognition, mood and behaviour. The cognitive symptoms are similar to those seen in other neurodegenerative diseases (memory impairment, executive dysfunction, language difficulties). The mood and behaviour symptoms are most concerning and include depressed mood, apathy, emotional instability, suicidal ideation and behaviour and problems with impulse control. Substance abuse (sometimes fatal) and suicide are "not uncommon". Another primary symptom is motor disturbance (most frequently parkinsonism, but also difficulties with gait and falling). As the disease progresses, symptoms become more severe and their scope broadens. Symptoms become severe enough to impair social and/or occupational functioning, with eventual dementia.

Brain injury and concussion is under increasing scrutiny in New Zealand, where rugby is our national game. There is significant research illustrating the incidence of concussion in rugby union:

Gardner, A. J., Iverson, G. L., Williams, W. H., Baker, S., & Stanwell, P. (2014). A systematic review and meta-analysis of concussion in rugby union. *Sports medicine*, *44*, 1717-1731.

And in the general population (including rugby injuries) in New Zealand

Barker-Collo, S. L., Wilde, N. J., & Feigin, V. L. (2009). Trends in head injury incidence in New Zealand: a hospital-based study from 1997/1998 to 2003/2004. *Neuroepidemiology*, *32*(1), 32-39

With the above NZ study suggesting head injury was more frequently experienced by Māori and Pasifika men.

Several former rugby players have received diagnoses of CTE- this letter to the editor by Buckland et al gives evidence of CTE in two former Australian National Rugby League players.

Buckland, M. E., Sy, J., Szentmariay, I., Kullen, A., Lee, M., Harding, A., ... & Suter, C. M. (2019). Chronic traumatic encephalopathy in two former Australian National Rugby League players. *Acta neuropathologica communications*, *7*(1), 1-4.

However, there have been far more international rugby players (and other sportspeople) diagnosed with CTE in recent years. In New Zealand, Tutekawa Wyllie, the ex-All Black and NZ First MP, has recently won a case against ACC for compensation for probable CTE caused by his rugby career at the age of 63.

Carl Hayman, the former All Black, was diagnosed with dementia at the age of 41, which has also been diagnosed as 'probably CTE' (CTE can only be confirmed with a post-mortem examination). The former professional rugby player Justin Jennings was confirmed as having CTE, following his death in the US at the age of 50.

There is significant evidence to show that occupational exposure to repeated head trauma places an individual at significantly increased risk of early onset dementia, in the form of CTE. In this respect, occupational exposure to repeated head trauma is no different other occupational pathogens and processes that are covered under the AC Act and should be added to Schedule 2.