Submitter information

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:	University of Otago – Social and Behavioural Research Unit (Senior Research Fellow & co-director). Melanoma Network of New Zealand (executive member) – This is a network of 1,200 professionals committed to reducing the incidence and impact of melanoma in New Zealand.

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NA

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☐ 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

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?

   a. **Non-melanoma skin cancers** (sometimes referred to as keratinocytic cancers) specifically basal cell carcinoma and squamous cell carcinoma are caused by cumulative exposure to excessive solar ultraviolet radiation (UVR).
   b. **Melanoma** is caused by intense intermittent exposure to excessive solar ultraviolet radiation.

   Evidence: UVR is classified as a type I carcinogen. The World Health Organization (WHO) and the International Labour Organization (ILO) have conducted the most recent, most comprehensive systematic review of the risk of occupational exposure to solar ultraviolet radiation on NMSC and melanoma.[1]

   The conclusions drawn on occupational solar radiation exposure are:

   - **NMSC incidence** – there is 'sufficient evidence of harmfulness'
   - **Melanoma incidence** –there is 'limited evidence of harmfulness'
   - **NMSC or melanoma mortality** – there is an 'inadequate body of evidence' to assess effect

   Note: In this review melanoma was considered as one disease. However, there is research that suggests that occupational UVR exposure may differ according to anatomical site, with some studies finding a positive association for melanoma on heavily sun exposed areas such as the head and neck.[2] Including all melanoma sites as one, as was the case with the WHO/ILO systematic review may dilute the strength of association between occupational exposure to UVR and melanoma risk.

   Other countries: A number of countries recognise NMSC and/or melanoma as occupational diseases which are then potentially eligible for workers' compensation. For example, in Australia both melanoma and NMSC are listed on the 2021 Australia "revised list of deemed diseases"[3] NMSC is recognised as an occupational disease in eight European countries.[4]

3. For each occupational disease **(I have combined NMSC and melanoma as the responses are the same for both)** suggested in response to Question 2, what should be listed as the corresponding:

   a. Agent: Solar ultraviolet radiation.

   b. Exposure level/extent: The research investigating the level(s) at which UVR exposure results in harm is in its infancy. Nonetheless, there is one recent scientific study that measured empirically the UVR exposure of workers. This study revealed that individuals with lighter pigmented skin types who spend two or more hours working outdoors every day throughout the year are at an increased risk of developing NMSC.[5] A recently published comprehensive survey of NZ workers' exposure to carcinogens found that 7%

of workers, equivalent to 190,400 people, work outside for over four hours a day.[6] Empirical NZ research has shown risk levels of UVR exposure among NZ outdoor workers.[7]

The Australian Radiation Protection and Nuclear safety Agency estimates 1 standard erythemal dose (SED) per day to be a safe level of exposure for most people.[8] The term standard erythemal dose (SED) is an internationally recognised standardised measure of erythemogenic UVR. It aligns approximately with the International Commission on Non-Ionizing Radiation Protection (ICNIRP)[9] and The American Conference of Governmental Industrial Hygienists (ACGIH).[10]

c. Affected occupations/industries:

   i. Outdoor workers or those who work outdoors for extended periods.

   ii. Workers whose work results in episodes of intense intermittant exposure to solar UVR (such as engineers conducting inspections on building sites in the middle of the day in summer months when UVR is highest).

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

Radiation is currently in Schedule 2, however this should be expanded to explicitly identify 'solar ultraviolet radiation' as a specific sub-category.

Please see response to Question 2.

5. If yes to Question 4, for each relevant current occupational disease **(I have combined NMSC and melanoma as the responses are the same for both)**, what should be listed as the corresponding additional:

   a. Agent: Solar ultraviolet radiation.

   b. Exposure level/extent: The research investigating the level(s) at which UVR exposure results in harm is in its infancy. Nonetheless, there is one recent scientific study that measured empirically the UVR exposure of workers. This study revealed that individuals with lighter pigmented skin types who spend two or more hours working outdoors every day throughout the year are at an increased risk of developing NMSC.[5] A recently published comprehensive survey of NZ workers' exposure to carcinogens found that 7% of workers, equivalent to 190,400 people, work outside for over four hours a day.[6] Empirical NZ research has shown risk levels of UVR exposure among NZ outdoor workers.[7]

   The Australian Radiation Protection and Nuclear safety Agency estimates 1 standard erythemal dose (SED) per day to be a safe level of exposure for most people.[8] The term standard erythemal dose (SED) is an internationally recognised standardised measure of erythemogenic UVR. It aligns approximately with the International Commission on Non-Ionizing Radiation Protection (ICNIRP)[9] and The American Conference of Governmental Industrial Hygienists (ACGIH).[10]

   c. Affected occupations/industries:

      i. Outdoor workers or those who work outdoors for extended periods.

ii. Workers whose work results in episodes of intense intermittant exposure to solar UVR (such as engineers conducting inspections on building sites in the middle of the day in summer months when UVR is highest).

Radiation is currently in Schedule 2, however this should be expanded to explicitly identify 'solar ultraviolet radiation' as a specific sub-category.

Please see response to Question 2.

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

Driscoll T. Deemed diseases in Australia (https://www.safeworkaustralia.gov.au/doc/revised-list-deemed-diseases-australia). Safe Work Australia; 2021, Dec.[3]

Mathieu B, Bayan H, Ivan I, Bálint N, Maria N, Ann O, et al. The effect of occupational exposure to solar ultraviolet radiation on malignant skin melanoma and non-melanoma skin cancer: A systematic review and meta-analysis from the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury. 2021. Report No.: 9240040838.[1]

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

Australia and NZ consistently have the world's highest melanoma incidence and mortality rates.[11] In 2018, 296 New Zealanders died from melanoma and in 2021 there were 2,859 registered new melanoma diagnoses.[1] In NZ, the majority of melanomas occur among those who self-identify as of European ethnicities.[12] Melanoma is substantially less common in Māori and Pacific people, accounting for less than 2% of diagnoses.[13] Despite being much less common, melanoma in Māori tend to be significantly thicker, making them more difficult to treat, or patients may present with more advanced melanoma that has a likely poorer prognosis.[14]

Epidemiological evidence clearly shows that incidence rates for both melanoma and NMSC increase with age.[15] In NZ, between 2008 and 2012, the median age at diagnosis for melanoma was 62 and 66 among females and males respectively.[13] As the NZ Cancer Registry does not register NMSC, the mean age at diagnosis is not known.[13] Melanoma and NMSC are rare in individuals under the age of 40.[16]

In NZ, the age-standardised registration rate for melanoma in 2021 was 20% higher in males (39.3 per 100,000) than females (32.2 per 100,000).[15] Because of the low case fatality ratio, sheer volume of cases, and health system resource constraints, new cases of NMS are not currently recorded by the Cancer Registry unless a death occurs.[17] In 2018 there were 204 deaths from NMSC.[18] The most recent review conservatively estimated that in excess of 90,000 New Zealanders would be diagnosed with at least one *in situ* or invasive KC in 2018.[17] These researchers reported an age-adjusted rate for non-Māori of 786.1 cases per 100,000 people and 51.0 cases per 100,000 for Māori.[17] Brougham *et al.* calculated that by the age of 80 years over half (52%) of males and one third (33%) of females in NZ will have been treated for NMSC.[16]

[1] https://www.ehinz.ac.nz/indicators/uv-exposure/melanoma/#there-were-2859-melanoma-registrations-in-2021

There is a substantial economic burden on NZ from the costs associated with a skin cancer diagnosis.[19] These include the direct costs associated with treatment, both to the public health system and to patients for private treatment, and indirect costs such as years of life lost, lost production, and loss of quality of life as well as the social burden to whānau and wider society. An recent economic analysis found the direct health cost for treatment of melanoma and NMSC in NZ is currently $180M per year projected to escalate to $295M by 2025.[20]

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