

## MINISTER FOR VETERANS

### Report of the Veterans' Health Advisory Panel on the Impact of Exposure to Ionising Radiation: Government Response

May 2024

This paper notes the findings of the Veterans' Health Advisory Panel's report on the impacts of exposure to ionising radiation, and seeks agreement to extend the services that are currently available to the children of veterans of Operation Grapple to two other deployments (Jayforce and Mururoa).

The pack comprises the following documents:

- March 2024 Cabinet Social Outcomes Committee Minute of Decision: *Report of the Veterans' Health Advisory Panel on the Impact of Exposure to Ionising Radiation: Government Response* [SOU-24-MIN-0016];
- The associated Cabinet Paper: *Veterans' Entitlements: Government Response to Report of the Veterans' Health Advisory Panel on the Health Impacts of Exposure to Ionising Radiation*; and
- Annex A to the Cabinet Paper: *Report to the Minister for Veterans from the Veterans' Health Advisory Panel – Review and Summary of Information on the Health Impacts of Exposure to Ionising Radiation*.

This pack has been released on the New Zealand Defence Force website, available at: [www.nzdf.mil.nz/nzdf/search-our-libraries/documents/?document-type=Official+information&sort=relevance](http://www.nzdf.mil.nz/nzdf/search-our-libraries/documents/?document-type=Official+information&sort=relevance).

No information has been withheld.



# Cabinet Social Outcomes Committee

## Minute of Decision

*This document contains information for the New Zealand Cabinet. It must be treated in confidence and handled in accordance with any security classification, or other endorsement. The information can only be released, including under the Official Information Act 1982, by persons with the appropriate authority.*

### Report of the Veterans' Health Advisory Panel on the Impact of Exposure to Ionising Radiation: Government Response

Portfolio                      Veterans

On 27 March 2024, the Cabinet Social Outcomes Committee:

- 1        **noted** that the independent Veterans' Health Advisory Panel commissioned a literature review and has completed a report on the health impacts of exposure to ionising radiation (the report);
- 2        **noted** that the report, attached to the paper under SOU-24-SUB-0016, confirms previous findings on the link between various cancers and nuclear exposure, but does not identify significant new information from strong and consistent studies linking exposure to radiation and illnesses resulting from this;
- 3        **noted** that it is not proposed that any new conditions be added to the current list of conclusively presumed conditions that apply to those exposed to nuclear radiation;
- 4        **noted** that entitlement to family psychological counselling is currently available to all eligible veterans, under existing provisions of the Veterans' Support Act 2014;
- 5        **agreed**, in the interests of equity, to extend access to genetic counselling (including genetic testing) to the children of those veterans who served in the Jayforce and Mururoa deployments;
- 6        **agreed**, in the interests of equity, to extend access to out-of-pocket expenses to children of Jayforce and Mururoa veterans who have accepted conditions;
- 7        **agreed** that Veterans' Affairs will not accept claims for retrospective payment of any services outlined in paragraphs 5 and 6 above that are extended, and that only eligible claims for any services sought after the implementation date of the relevant amended policy will be covered;
- 8        **noted** that the impact of the above decisions is an estimated increase in the veterans' support entitlement liability of \$0.100 million, and that this expense is able to be funded within the existing appropriation for *Service Cost – Veterans' Entitlements*;
- 9        **noted** that if demand for these services is significantly higher than expected in future, any changes to the *Service Cost – Veterans' Entitlements* appropriation will be sought in line with CO (18) 2 *Proposals with Financial Implications and Financial Authorities*;

- 10 **noted** that the passage of time will provide a more accurate estimate of the uptake rate and costs, including the changes to the longer-term veterans' entitlements liability;
- 11 **agreed** that a review of studies on the health impacts of nuclear radiation be repeated every seven to ten years to ensure New Zealand is aware of the most up-to-date information on this topic.

Rebecca Davies  
Committee Secretary

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**Present:**

Rt Hon Christopher Luxon  
Rt Hon Winston Peters  
Hon David Seymour  
Hon Chris Bishop  
Hon Dr Shane Reti  
Hon Erica Stanford  
Hon Louise Upston (Chair)  
Hon Mark Mitchell  
Hon Tama Potaka  
Hon Nicole McKee  
Hon Penny Simmonds  
Hon Chris Penk  
Hon Karen Chhour

**Officials present from:**

Office of the Prime Minister  
Officials Committee for SOU

Proactively Released by the Minister for Veterans

Office of the Minister for Veterans

Chair, Cabinet Social Outcomes Committee

## **VETERANS' ENTITLEMENTS: GOVERNMENT RESPONSE TO REPORT OF THE VETERANS' HEALTH ADVISORY PANEL ON THE HEALTH IMPACTS OF EXPOSURE TO IONISING RADIATION**

### **Proposal**

1. This paper reviews the Veterans' Health Advisory Panel report on the impacts of exposure to ionising radiation, and seeks agreement to extend services currently available to the children of veterans of Operation Grapple to Jayforce and Mururoa deployments.

### **Executive Summary**

2. Three groups of veterans have served in deployments that may have exposed them to ionising radiation – in Japan after WW2 (Jayforce 1946-1949); in the Pacific in 1957-58 (Operation Grapple); and at Mururoa in July of 1973.

3. All nuclear veterans a covered for conditions associated with their service and children of veterans of Operation Grapple are entitled to a range of services but they are not available to the children of veterans of Jayforce or Mururoa.

4. In 2021 the Minister for Veterans requested the independent Veterans' Health Advisory Panel commission a review regarding the health impacts of exposure to ionising radiation on veterans and their descendants.

5. The review recommended that consideration be given to extending entitlements to the children of Jayforce and Mururoa veterans.

6. This paper requests that the Cabinet Social Outcomes Committee notes the options for responding to this recommendation and proposes to extend all of the services.

### **Background**

7. There are three main groups of veterans in New Zealand whose deployments may have exposed them to ionising radiation: those who served in Japan after the Second World War (Jayforce); those who served in Operation Grapple (observing British tests in the Pacific in the 1950s) and those who went to Mururoa in 1973.

8. All of New Zealand's nuclear veterans are deemed to have qualifying operational service and receive support and services from Veterans' Affairs. However, there are some additional entitlements available to the children of Operation Grapple veterans, as a result of Cabinet decisions in 2001 and 2002 and a Veterans' Affairs policy decision of 2021 (genetic testing).

9. For a number of years, Operation Grapple and Mururoa veterans have expressed concern about the possibility of transgenerational transmission of damage caused by exposure, and how this may impact on their children.

10. In April 2021, the then Minister for Veterans requested the independent Veterans' Health Advisory Panel (the Panel) to provide:

- 11.1 a review and summary of the most up-to-date information on the health impacts of exposure to nuclear radiation on veterans and their descendants; and
- 11.2 their views on whether that information suggests there should be any changes to the approach New Zealand currently takes to these veterans and their families.

### **The Veterans' Health Advisory Panel Review**

11. The Panel commissioned Allen + Clarke Consulting to undertake a literature review to examine this topic. The review focused on the physical and psychological health impacts of exposure to ionising radiation; and the intergenerational impacts of ionising radiation exposure on descendants of those exposed.

12. The literature review concluded:

- 14.1 there is strong and well-documented evidence confirming the impact of radiation on solid and non-solid cancers; considerable evidence of psychological effects; and more diverse findings relating to other non-cancer effects;
- 14.2 there is mixed evidence about health effects from genetic alterations in adults exposed to ionising radiation; and
- 14.3 none of the studies that were reviewed reported statistically significant findings about the effects on descendants of the people exposed to ionising radiation.

### **Veterans' Health Advisory Panel's Recommendations**

13. In its report (appended to this paper), the Panel noted that the literature review had been robust and confirmed previous findings on the link between various cancers and nuclear exposure, but did not highlight any significant new information.

### **The Panel's Views on Possible Changes to New Zealand's Policy Towards Veterans and Their Families**

#### **Current Policy**

14. The Panel's report summarises the current policy towards nuclear veterans and their families:

*"New Zealand has had, since 2007, a list of presumptively accepted conditions related to ionising radiation exposure<sup>1</sup>. All veterans who served in Jayforce, Operation Grapple, or at Mururoa are covered by this. Under the Presumptive List, an injury or illness is automatically deemed to be attributable to service if the veteran served in the deployment for which there is a presumptive list; and the injury or illness is on the list.*

*In addition to the presumptively accepted conditions listed above, New Zealand's nuclear veterans, like other eligible veterans, can apply for cover under the Veterans' Support Act for any condition which they believe to be related to their qualifying operational service.*

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<sup>1</sup> In 2007, by Secretary of War Pensions Directive, a list of conclusively presumed conditions for veterans exposed to nuclear radiation was introduced as a precautionary measure. These conditions were carried over to the Veterans' Support Regulations 2014. A veteran who claims for one of these conditions will have it automatically accepted as service-related if it can be linked to the veteran's service in Jayforce, Operation Grapple, or Mururoa.

*The children of Operation Grapple veterans have some entitlements that are not provided to the children of Jayforce or Mururoa veterans.”*

## **The Future**

15. The Panel recommended that no new conditions need to be added to the list of conclusively presumed conditions that applies to those exposed to nuclear radiation.

16. I propose to accept that recommendation.

17. They also recommended that a review of studies on health impacts of nuclear radiation be repeated every seven to ten years to ensure New Zealand is aware of the most up-to-date information on this topic (unless a major new study provides grounds for earlier review).

18. I recommend that this be agreed to.

19. The Panel made a third recommendation which is that:

*“consideration be given to extending the entitlements currently available only to the children of Operation Grapple veterans to the children of Jayforce and Mururoa veterans.”*

20. Given that no new information has become available to confirm transgenerational damage, this extension was proposed on equity grounds. The Panel report stated that:

*“We learned nothing from the literature review to indicate that the children of Operation Grapple veterans are likely to face different risks compared to the children of veterans deployed in Jayforce or to Mururoa.”*

21. I am proposing that Cabinet agree to extend entitlements to the children of Jayforce and Mururoa veterans.

## **Analysis of Options for Extending Support to Nuclear Veterans**

### **Current Services to Children of Operation Grapple Veterans**

22. Current services to children of Operation Grapple veterans include:

25.1 genetic counselling and genetic testing to ascertain whether there may have been health effects from their father’s exposure (available only to natural born children of the veteran born after the relevant qualifying operational service);

25.2 family psychological counselling (up to ten sessions) for natural-born children; adopted children, including whāngai; stepchildren (if raised as the veteran’s children), and grandchildren, if raised as the veteran’s children; and

25.3 out-of-pocket health expenses for natural children born after the relevant qualifying service for accepted conditions (cleft lip, cleft palate, adrenal gland cancer, acute myeloid leukaemia, spina bifida manifesta).

23. Psychological counselling services have already been extended to all veterans covered by the Veterans’ Support Act 2014, following a legislative amendment in 2020 but are only available to the children of Operation Grapple veterans.

24. The current cost for genetic counselling, genetic testing and follow-up appointment through private genetic services is \$900.

25. Very few children of Operation Grapple veterans have received out-of-pocket health expenses (GP visits, pharmaceuticals on the Pharmac list, scans up to \$1,000, physiotherapy on the public system, travel costs for assessment or treatment) for a condition accepted as being related to their father's exposure to nuclear radiation.

### **Option A**

26. Option A would retain the status quo which provides entitlements to the children of Operation Grapple veterans that are not available to the children of the veterans who served in New Zealand's other nuclear deployments (Jayforce and Mururoa).

27. Following their review of the latest scientific information on the health impacts of exposure to nuclear radiation, the independent Veterans' Health Advisory Panel, concluded that they had "learned nothing from [their] literature review to indicate that the children of Operation Grapple veterans are likely to face different risks compared to the children of veterans deployed in Jayforce or to Mururoa".

### **Option B**

28. Option B would extend entitlement to genetic counselling and genetic testing to the children of Jayforce and Mururoa veterans.

29. This may help to alleviate the psychological stress of children of these veterans who, despite no significant scientific evidence of confirmation, believe that there may have been transgenerational health effects from their fathers' service.

30. I do not propose that genetic counselling and genetic testing be offered to the grandchildren of these veterans. However, a review on the health impacts of exposure to nuclear radiation every seven to ten years should ensure that New Zealand is made aware any new evidence on transgenerational transmission that could call for a change of policy.

### **Option C**

31. Option C would extend the entitlement to genetic counselling and testing, and out-of-pocket expenses for accepted conditions.

32. As noted for Option B (paragraph 33 above) genetic counselling and testing may help to alleviate psychological stress in the children of these veterans.

33. In addition, knowing that there would be access to out-of-pocket expenses should the child of a Jayforce or Mururoa veteran develop an accepted condition, may again help to alleviate psychological stress in the children of veterans who believe that there may have been transgenerational health effects from their fathers' service.

### **Preferred Option**

34. I recommend that, in the interests of equity, access to genetic counselling and genetic testing, and out-of-pocket expenses for accepted conditions, should be extended to children of those who served in Jayforce and Mururoa. This is Option C.

### **Estimated Costings and Financial Implications**

35. A total of 528 veterans were deployed to Operation Grapple (1957-1958), of whom 200 are currently registered with Veterans' Affairs. An estimated 12,000 New Zealanders participated in Jayforce (1946-1949), of whom 665 are registered with Veterans' Affairs. Four hundred and ninety-two veterans participated in the deployment to Mururoa (July 1973), of whom 213 are registered with Veterans' Affairs.

36. Veterans' Affairs holds very little data about these veterans' children and an applied mortality rate has been used to estimate the number of children who remain alive. On average, children of Jayforce veterans born after return from their service would now likely be in their seventies, children of Operation Grapple veterans in their fifties to sixties, and children of Mururoa veterans in their forties to fifties.

37. The cost for genetic counselling, genetic testing and follow-up appointment through private genetic services is \$900 and very few Operation Grapple veterans' children have used the services. Similarly, not many have received out-of-pocket health expenses for accepted conditions. An average cost assumption per descendant for these expenses is \$2,000, although this could be significantly increased for accepted conditions such as acute myeloid leukaemia and spina bifida.

38. Operation Grapple and Jayforce and Mururoa veterans and families all have access to general psychological counselling following a 2020 amendment.

39. The table below shows the indicative cost of Option C - extending entitlements to genetic counselling and testing, and out-of-pocket health expenses to the children of Jayforce and Mururoa veterans based on a range of uptake rates:

Assumed uptake rate	Expected number of descendants accessing services	Maximum indicative cost of additional entitlements
0.1%	25-35	\$101,500
1.0%	345-355	\$1,029,500
2.0%	685-695	\$2,015,500
5.0%	1,725-1,735	\$5,031,500

40. As stated above, a small number of claims for expenses related to specific conditions, particularly leukaemia and spina bifida, could significantly increase the overall cost of extending these entitlements. The likelihood of these costs arising is expected to be relatively low due to the advanced age of the relevant descendants of veterans.

41. I propose that only eligible claims for any services sought after the implementation of the policy will be covered. Claims for retrospective payments for any of the services having been paid for by the claimant before the implementation of the policy extending services to them will not be accepted.

42. After consideration of the factors in paragraphs 44-46 above, the forecast costs are most likely to reflect the 0.1% scenario in paragraph 44. Therefore, the impact of this policy decision is an estimated increase in the veterans' support entitlement liability of \$0.100 million. The expense is able to be funded within the existing appropriation for *Service Cost – Veterans' Entitlements*. No additional funding is required.

43. Only through the passage of time will a more accurate estimate of the uptake rate and costs be revealed. If demand for these services is significantly higher than expected in future, any changes to the *Service Cost – Veterans' Entitlements* appropriation will be sought in line with CO(18)2 *Proposals with Financial Implications and Financial Authorities*.

#### **Cost-of-Living Implications**

44. This proposal will have no specific impacts on the cost of living.

#### **Legislative Implications**



45. It is proposed that any changes to the support given to veterans of Jayforce and Mururoa be made by Cabinet decision and the relevant updating of Veterans' Affairs operational policy rather than amendment legislation.

## Compliance

46. The recommended action with regard to extension of entitlements to the children of Jayforce and Mururoa complies with each of the following:

- 51.1 the principles of the Treaty of Waitangi;
- 51.2 the rights and freedoms contained in the New Zealand Bill of Rights Act 1990 or the Human Rights Act 1993;
- 51.3 the principles and guidelines set out in the Privacy Act 2020;
- 51.4 the relevant international standards and obligations; and
- 51.5 the Legislation Design and Advisory Committee Guidelines (2021) which are maintained by the Legislation Design and Advisory Committee.

## Use of External Resources

47. The information contained in this paper relating to the financial implications of the recommendations that are being made was developed by PwC New Zealand. The New Zealand Defence Force seeks expert analytical assessment from PwC when there is potential for impact on Crown liability for veterans' entitlements. PwC carried out this analysis over a period of two weeks.

## Consultation

48. The Treasury has been consulted on this paper.

## Communications

49. Veterans' Affairs will publish the proposed changes on its website, and communicate them through other means, such as correspondence with nuclear veterans' groups.

50. I intend to release this paper in full apart from any legally privileged material. Financial information provided by PwC may only be distributed as permitted by PwC.

## Recommendations

51. I recommend that the Cabinet Social Outcomes Committee:

1. **Note** that the independent Veterans' Health Advisory Panel commissioned a literature review and has completed a report on the health impacts of exposure to ionising radiation;
2. **Note** that this report confirms previous findings on the link between various cancers and nuclear exposure, but does not identify significant new information from strong and consistent studies linking exposure to radiation and illnesses resulting from this;
3. **Note** that it is not proposed that any new conditions be added to the current list of conclusively presumed conditions that apply to those exposed to nuclear radiation;

4. **Note** that entitlement to family psychological counselling is currently available to all eligible veterans, under existing provisions of the Veterans' Support Act 2014;
5. **Agree**, in the interests of equity, to extend access to genetic counselling (including genetic testing) to the children of those veterans who served in the Jayforce and Mururoa deployments;
6. **Agree**, in the interests of equity, to extend access to out-of-pocket expenses to children of Jayforce and Mururoa veterans who have accepted conditions;
7. **Agree** that Veterans' Affairs will not accept claims for retrospective payment of any services outlined in recommendations 5 and 6 that are extended and that only eligible claims for any services sought after the implementation date of the relevant amended policy will be covered;
8. **Note** the impact of this policy decision is an estimated increase in the veterans' support entitlement liability of \$0.100 million; and this expense is able to be funded within the existing appropriation for *Service Cost – Veterans' Entitlements*;
9. **Note** if demand for these services is significantly higher than expected in future, any changes to the *Service Cost – Veterans' Entitlements* appropriation will be sought in line with CO(18)2 *Proposals with Financial Implications and Financial Authorities*;
10. **Note** that the passage of time will provide a more accurate estimate of the uptake rate and costs including the changes to the longer-term veterans' entitlements liability;
11. **Agree** that a review of studies on the health impacts of nuclear radiation should be repeated every seven to ten years to ensure New Zealand is aware of the most up-to-date information on this topic; and
12. **Agree** to recommend to Cabinet that it approve recommendations 5 to 7, and 11 above.

Authorised for lodgement

Hon Chris Penk  
Minister for Veterans

Date:

**Annex:**

- A. Veterans' Health Advisory Panel Review and Summary of Information on the Health Impacts of Exposure to Ionising radiation.

**Report to the Minister for Veterans  
from  
The Veterans' Health Advisory Panel**

**Review and Summary of Information on  
the Health Impacts of Exposure to Ionising Radiation**

**March 2023**

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## Introduction

1. In April 2021 the Minister for Veterans asked the Veterans' Health Advisory Panel to provide a review and summary of the most up-to-date information on the health impact of exposure to nuclear radiation on veterans and their descendants; and to provide their views on whether that information suggests there should be any changes to the approach that New Zealand currently takes to these veterans and their families.
2. The Panel engaged an independent third party to undertake a systematic literature review. Applications were sought from New Zealand-based researchers and, following a selection process, the successful applicant was Allen and Clarke Consulting.
3. Work on the review got under way in May 2022. It soon became clear that the scope of the project would need to be extended to provide maximum value.
4. The original statement of work had focused the review on military populations only, and thus excluded the significantly larger body of evidence extending back 70 years from civilian exposures. Once it was realised that this limited the usefulness of the study and effectively excluded any reasonable statement of risk, the project was re-scoped to ensure that a broader range of material would be taken into account. While this extended the timeframe for the work, it has resulted in a final report that covers information that can be used with confidence to understand the implications of nuclear radiation exposure for New Zealand veterans and their whānau.
5. The Panel considers that the methodology used in the review was robust. It is noted that the review focused on high quality literature that has been critically appraised using internationally accepted guidelines.

## Limitations of the studies that were reviewed

6. The authors of the review make it clear that there is not a simple relationship between exposure events and effects. They note, for example, that determining levels of ionising radiation is complex - including what is measured, how it is measured, what units are used, what organs are studied, whether the dose received was low, medium or high, and whether exposure was chronic or acute. Adding to the complexity is age at exposure. There are more studies available on mortality (death from radiation) than morbidity (having a disease or medical condition as a result of exposure); the level of detail in reports varies; and as some of the research was authored in Japan, translations may have resulted in lost or inaccurate information.
7. The study notes that "the level of information in the academic literature relating to New Zealand Defence Force personnel was limited". The report does, however, acknowledge previous studies on Operation Grapple (Massey University 2005-07) and Operation Pilaster – Mururoa (ESR - 2015). As one of the inclusion criteria in the literature review was that the studied papers had been published in the scientific literature, these reports were not included, as neither had been promulgated in peer reviewed sources. The findings of the previous papers were not discounted, and the review included current peer reviewed papers considering the potential for genetic damage after exposure to ionising radiation.

## **The overall conclusions of the literature review**

8. The review concluded:

- there is strong and well-documented evidence confirming the impact of radiation on non-solid cancers, and solid cancers, including a number of site-specific solid cancers; there is considerable evidence of psychological effects of exposure; and there are more diverse findings in relation to other non-cancer effects;
- there is mixed evidence about health effects from genetic alterations in adults exposed to ionising radiation; and
- none of the studies that were reviewed (and robustly re-analysed) reported statistically significant findings about the effects on the descendants of people exposed to ionising radiation.

### ***The impact of exposure to radiation on solid and non-solid cancers***

9. The literature review states the following:

**Non-solid cancers.** Findings for non-solid cancers vary by cohort characteristics and the multiple types of disease. There appears to be more and stronger evidence of an association between exposure to ionising radiation and leukaemia, lymphoma, and multiple myeloma than for other non-solid disease conditions. This review found associations in relation to Hiroshima and Nagasaki, the Marshall Islands and Three Mile Island, and Sellafield/Windscale Fire.

**Solid cancers.** The evidence suggests an excess risk of solid cancer incidence and solid cancer mortality among the [Japanese life span study] cohort and nuclear workers. However, this remains a contested finding. This review found associations in relation to Hiroshima and Nagasaki, Chernobyl, and Fukushima.

**Site-specific solid cancers.** Site-specific solid cancers considered to have a well-documented dose-response relationship with ionising radiation include the bladder, breast, colon, oesophagus, lung, and thyroid. There is some evidence for a dose-response relationship for bone cancer. The evidence is mixed for associations between ionising radiation and prostate, testicular, liver, and central nervous system cancers. This review found associations for Nagasaki and Hiroshima and colon, liver, lung, prostate, and kidney cancers; the Marshall Islands and Three Mile Island and oesophagus and lung cancers; and Sellafield/Windscale Fire and lung cancer.

### ***Psychological effects of exposure to radiation***

10. The literature review states the following:

There is considerable evidence that people exposed to ionising radiation experience adverse effects on mental health, in particular PTSD, depression, anxiety, alcohol and tobacco use, and suicide. This review found associations in relation to adverse mental health and Hiroshima and Nagasaki, Chernobyl, and Fukushima.

11. The Panel noted that much of the evidence regarding psychological outcomes is related to traumatic exposures to radiation through acts of war and accident. The effect of exposure in less traumatic circumstances is less clear, although it is reasonable to assume that fear of radiation exposure would likely have had adverse effects on the psychological wellbeing of those exposed and possibly their families.

### ***Other non-cancer effects of exposure to radiation***

12. The literature review states the following:

The literature produced diverse findings regarding cataract; excess risk of circulatory disease; increased incidence of Parkinson's disease; some evidence that low-dose environmental exposure may be associated with higher-than-expected prevalence of antithyroid antibodies; and a possible association between chronic renal dysfunction and later cardiovascular disease mortality. This review found associations for circulatory disease and Hiroshima and Nagasaki, and Fukushima, as well as for Parkinson's disease and the Marshall Islands and Three Mile Island.

### ***Genetic effects for exposed adults***

13. The literature review states the following:

There is mixed evidence about health effects from genetic alterations in adults exposed to ionising radiation. There is some evidence for changes in molecular markers demonstrating DNA damage, and some evidence for genomic changes in mutated genes for people who later developed MDS [Myelodysplastic syndromes]. This review found associations in relation to Chernobyl and Fukushima.

### ***Genetic effects for descendants***

14. The literature review states the following:

Among 15 reviews and studies included in this review, and despite the reanalysis of data using more robust methods, none reported statistically significant findings about effects on the descendants of people exposed to ionising radiation.

### ***New Zealand's nuclear veterans***

15. The purpose of this literature review was to establish whether the most up-to-date evidence indicates that there may be implications not previously identified for New Zealand veterans who may have been exposed to ionising radiation; and whether the new information indicates that New Zealand should change the approach it currently takes to these veterans and their families.

16. There are three main groups of veterans in New Zealand whose deployments may have exposed them to ionising radiation: those who served in Jayforce in Japan (1946 – 1949); those who served in Operation Grapple (Kiribati – Christmas and Malden Islands 1957 - 1958); and those who served on the New Zealand frigates that deployed to Mururoa in 1973.

### ***Entitlements specifically for New Zealand's nuclear veterans***

17. New Zealand has had, since 2007, a list of presumptively accepted conditions related to ionising radiation exposure. All veterans who served in Jayforce, Operation Grapple, or at Mururoa are covered by this. Under the Presumptive List, an injury or illness is automatically deemed to be attributable to service if the veteran served in the deployment for which there is a presumptive list; and the injury or illness is on the list.

18. The following table summarises what entitlements are available specifically for New Zealand's nuclear veterans.

## Veterans' Affairs entitlements for veterans of Jayforce, Operation Grapple, and Mururoa deployments

**Note:** In addition to the entitlements set out in the table below, veterans (and their families) may apply for any of the entitlements available under the Veterans' Support Act 2014 (and previously could do so under the War Pensions Act 1954).

Entitlement	Jayforce	Operation Grapple	Mururoa
<p><b>Conclusively presumed injuries, illnesses and conditions</b></p> <p>For these deployments there are lists of conclusively presumed injuries, illnesses, and conditions, which have been incorporated into legislation, and which must be treated as service-related. In other words, if a veteran with the relevant service applies for cover for one of the conditions on the list, it is automatically accepted.</p>	<p><b>Exposure to nuclear radiation</b></p> <p>(Regulation 12 of the Veterans' Support Regulations 2014).</p> <p>(a) all forms of leukaemia (except for chronic lymphocytic leukaemia);</p> <p>(b) bronchioloalveolar carcinoma;</p> <p>(c) cancer of the thyroid, breast, pharynx, oesophagus, stomach, small intestine, pancreas, bile ducts, gall bladder, salivary gland, urinary tract (renal, ureter, urinary bladder, or urethra), brain, bone, lung, colon, or ovary;</p> <p>(d) lymphomas (other than Hodgkin's disease);</p>	<p><b>Exposure to nuclear radiation</b></p> <p>(Regulation 12 of the Veterans' Support Regulations 2014).</p> <p>(a) all forms of leukaemia (except for chronic lymphocytic leukaemia);</p> <p>(b) bronchioloalveolar carcinoma;</p> <p>(c) cancer of the thyroid, breast, pharynx, oesophagus, stomach, small intestine, pancreas, bile ducts, gall bladder, salivary gland, urinary tract (renal, ureter, urinary bladder, or urethra), brain, bone, lung, colon, or ovary;</p> <p>(d) lymphomas (other than Hodgkin's disease);</p> <p>(e) multiple myeloma;</p> <p>(f) primary liver cancer (except if</p>	<p><b>Exposure to nuclear radiation</b></p> <p>(Regulation 12 of the Veterans' Support Regulations 2014).</p> <p>(a) all forms of leukaemia (except for chronic lymphocytic leukaemia);</p> <p>(b) bronchioloalveolar carcinoma;</p> <p>(c) cancer of the thyroid, breast, pharynx, oesophagus, stomach, small intestine, pancreas, bile ducts, gall bladder, salivary gland, urinary tract (renal, ureter, urinary bladder, or urethra), brain, bone, lung, colon, or ovary;</p> <p>(d) lymphomas (other than Hodgkin's disease);</p> <p>(e) multiple myeloma;</p> <p>(f) primary liver cancer (except if</p>



	<p>(e) multiple myeloma;</p> <p>(f) primary liver cancer (except if cirrhosis or hepatitis B is indicated).</p>	<p>cirrhosis or hepatitis B is indicated).</p>	<p>cirrhosis or hepatitis B is indicated).</p>
<p><b>Services for children specific to nuclear veterans</b></p>	<p>Not available for Jayforce.</p>	<p>Provided under Cabinet decisions made in 2001 and 2002.</p> <ul style="list-style-type: none"> <li>• Family/psychological counselling (usually up to 10 sessions, but there is discretion to approve more);</li> <li>• Genetic Counselling (GP appointment and costs for counselling that are not publicly funded);</li> <li>• As clarified by 2021 VA policy, Genetic Testing may be funded if not covered by public policy, but must always be preceded by genetic assessment and genetic counselling (may include pre-symptomatic/predictive or diagnostic testing if a possible genetic condition has been identified through the family history, or the genetic testing of other family members;</li> <li>• Out-of-pocket health costs for an accepted condition (accepted conditions include: cleft lip; cleft palate; adrenal gland cancer;</li> </ul>	<p>Not available for Mururoa.</p>

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		<p>acute myeloid leukaemia; spina bifida manifesta).</p> <p>Costs that can be reimbursed without pre-approval include GP visits, pharmaceuticals on the PHARMAC list, and scans up to \$1,000. Other services, such as physiotherapy, may be funded if incurred as part of treatment in the public system.</p> <p>Most of the services are restricted to a veteran's natural born children, born after return (temporary or permanent) from Operation Grapple). The exception is psychological counselling, which can be for the veteran's natural children; adopted children, including whāngai; stepchildren, if raised as the veteran's children; and grandchildren, if raised as the veteran's children.</p>	
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19. It is noted that all of the cancers where the literature review reports that the evidence is relatively strong and consistent across explored exposures are included on the New Zealand Presumptive List.

#### ***Entitlements for nuclear veterans under the Veterans' Support Act 2014***

20. In addition to the presumptively accepted conditions listed above, New Zealand's nuclear veterans, like other eligible veterans, can apply for cover under the Veterans' Support Act for any condition which they believe to be related to their qualifying operational service.

21. Veterans' Affairs is required to make decisions on applications according to a process set out in its legislation. It must consider all relevant information and decide whether it is consistent with a hypothesis that the veteran's illness, injury, or death was service-related. In this, Veterans' Affairs is guided by Statements of Principles, developed in Australia and confirmed in New Zealand by the Veterans' Health Advisory Panel.

22. These Statements of Principles contain a list of factors that, on the basis of sound medical-scientific evidence, link the condition to service. The factor may link to causation or aggravation (clinical worsening of an existing condition). If there is no Statement of Principles, decisions are made on whether a hypothesis is reasonable i.e. more than a possibility, consistent with known facts, and not inconsistent with provided or known scientific facts.

23. There are Statements of Principles for a number of the conditions for which the literature review found studies that showed possible associations with exposure to ionising radiation, including cataracts, Parkinson's disease, circulatory and cardiovascular diseases. The underlying pathologies causing renal dysfunction are considered in various Statements of Principles, and there are Statements of Principles for thyroid disease.

24. The literature review recognises that the evidence supporting the relationship between exposure to ionising radiation and most of these conditions is inconsistent and the relationships unclear. A quantitative factor is included where the evidence is strong enough to support the inclusion of such a factor in the relevant Statements of Principles. The exception is Parkinson's disease. The evidence relating Parkinson's disease to ionising radiation is contradictory and inconclusive. This is reflected both in the review and in the exclusion of a radiation factor in the related Statement of Principles.

25. The literature review noted that there is strong evidence of the psychological impact of being exposed to ionising radiation. Treatment of mental health conditions is available to veterans under the Veterans' Support Act. Although the literature review did not focus on the psychological impact of the exposure of a parent to ionising radiation, the Panel notes that section 107 of the Act makes provision for counselling funded by Veterans' Affairs to be made available to the families of veterans suffering from mental harms or illness associated with the veteran's service-related conditions.

#### **The Panel's conclusions**

26. The Panel considers that this systematic literature review has been robust and is academically sound. Those conducting it followed best practice in selection and assessment of the available material. Although they carried out their work independently, they were responsive to Panel requirements to amend the scope of the project in order to encompass a broader range of research than that initially agreed, in order to enhance the value of the work.

27. The final document confirms what has been known for many years, in particular, the link between exposure to radiation and a number of cancers. It does not, however, highlight any significant new information from strong and consistent studies to show previously unknown links between exposure to ionising radiation and illnesses that result from that exposure.

28. Based on this systematic literature review, the Panel sees no need for New Zealand to add new conditions to the current list of conclusively presumed conditions that applies to those exposed to nuclear radiation (the Presumptive List).

29. The Panel is aware of concern amongst veterans about the possible impact of their deployments on their descendants. We note that, while the literature review reported mixed evidence about health effects from genetic alterations in adults exposed to ionising radiation, the review found no statistically significant findings about genetic effects on the descendants of those who had been exposed.

30. We have noted, however, the difference in treatment of veterans from Operation Grapple and those who served in Jayforce or deployed to Mururoa. The children of Operation Grapple veterans have some entitlements that are not provided to the children of Jayforce or Mururoa veterans. While the family/psychological counselling that has been available since 2001/02 for the children of Grapple veterans is now available to the families of all eligible veterans, genetic counselling, genetic testing, and out-of-pocket health costs for accepted conditions are not. Accepted conditions for the natural born children of veterans born after the veteran's return (temporary or permanent) from Operation Grapple include cleft lip; cleft palate; adrenal gland cancer; acute myeloid leukaemia; and spina bifida manifesta.

31. We learned nothing from the literature review to indicate that the children of Operation Grapple veterans are likely to face different risks compared to the children of veterans deployed in Jayforce or to Mururoa. The Minister may wish to consider whether, in the interests of equity, the entitlements that have been available for more than twenty years to Grapple children could now be extended to also include the children of Jayforce and Mururoa veterans.

32. Our final recommendation relates to the need to keep this matter under review. While the work just completed has summarised the evidence that is currently available, it is recommended that consideration be given to repeating a review every seven to ten years (unless a major new study provides grounds for earlier review). That would ensure New Zealand remains aware of the most up-to-date information, and can respond to any new evidence that could be relevant to those veterans who served in nuclear deployments and to their whānau.

### **Summary of recommendations**

33. The Panel recommends that:

- a. no new conditions need to be added to the current list of conclusively presumed conditions that apply to those exposed to nuclear radiation (the Presumptive List);
- b. consideration be given to extending the entitlements that are currently available only to the children of Operation Grapple veterans to the children of Jayforce and Mururoa veterans; and
- c. consideration be given to repeating a review on the health impacts of exposure to nuclear radiation every seven to ten years (unless a major new study provides grounds for earlier review).