Exposure Reference Guide for Adjudicating Exposure Claims

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Agent Orange and other Unregistered US Military Herbicides

Veterans Affairs Canada grants entitlement to conditions associated with Agent Orange exposure following the VAC Agent Orange Policy: Exposure to Agent Orange and Other Unregistered US Military Herbicides. Only conditions listed in the policy are granted entitlement. Any other conditions are declined entitlement based on exposure to Agent Orange.

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of Agent Orange exposure claims.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Preamble

From 1962 to 1971, the U.S. military sprayed herbicides over Vietnam to strip the thick jungle canopy. Canadian military served in Vietnam during this time, mostly as members of the International Commission for Control and Supervision. Mixtures of **2,4-D** (2,4-dichlorophenoxyacetic acid), **2,4,5-T** (2,4,5-trichlorophenoxyacetic acid) , picloram, and cacodylic acid (collectively, the "chemicals of interest" or COIs) made up the bulk of the herbicides sprayed. Herbicides were identified by the color of a band on 55-gallon shipping containers and were called Agent Pink, Agent Green, Agent Purple, Agent Orange, Agent White, and Agent Blue.

The most-used chemical mixture sprayed was Agent Orange, a 50:50 mixture of 2,4-D and 2,4,5-T. At the time of the spraying, **TCDD** (2,3,7,8-tetrachlorodibenzo*p*-dioxin), the most toxic form of dioxin, was an unintended contaminant generated during the production of 2,4,5-T and so was present in Agent Orange as well as some of the other formulations sprayed in Vietnam. Two different formulations of Agent Orange were used in the course of military operations in Vietnam. All agents were liquid except Agent Blue, which was used in powder form in 1962–1964 and as a liquid in 1964–1971. Agent Pink, Agent Green, Agent Purple, Agent Orange, and Agent Orange II all contained 2,4,5-T and were contaminated to some extent with TCDD. Agent White contained 2,4-D and picloram. Agent Blue (powder and liquid) contained cacodylic acid.

The U.S. Military conducted spray testing of some of these herbicides in CFB Gagetown, New Brunswick in June 1966 and June 1967. In each of these years less than one barrel (55 gallons) was sprayed.

In 1994, the Institute of Medicine (IOM) produced Veterans and Agent Orange: Health Effects of Herbicides Used in Vietnam (1994). This was at the request of the US Congress to investigate a number of chronic conditions that were suspected to be linked to Agent Orange exposure in Vietnam. This document produced a list of conditions with sufficient or limited evidence of association with herbicide exposure.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Veterans Affairs Canada (VAC)'s policy Exposure to Agent Orange and Other Unregistered US Military Herbicides is based on the IOM report of 2012. This policy provides a list of illnesses/medical conditions recognized by VAC as being associated with exposure to Agent Orange and other herbicides for disability benefit purposes.

SDA (Indo-China) which includes service in Vietnam

1. VAC accepts that Veterans who served in Vietnam between January 9, 1962 and May 7, 1975 were exposed to Agent Orange.
2. For disability benefit claims related to service in Vietnam as part of SDA (Indo-China), the applicant must have an illness that VAC accepts as being associated with exposure to Agent Orange.

CFB Gagetown and Other Locations

Review with Disability Consultant prior to entitlement

Herbicide Use in Gagetown:
https://www.canada.ca/en/department-national-defence/corporate/reports-publications/health/use-of-herbicides-at-cfb-gagetown-from-1952-to-present-day.html

1. For disability benefit claims related to exposure outside of Vietnam, e.g., on a US military base or at CFB Gagetown, the applicant must have an illness that VAC accepts as being associated with exposure to Agent Orange (see policy conditions list below), and must provide evidence of exposure.

2. An individual's mere presence at CFB Gagetown from June 14-16, 1966 and/or from June 21-24, 1967, during the testing of unregistered US military herbicides, including Agent Orange, does not constitute exposure that would place an individual at an increased risk for long-term, irreversible health effects.
3. The applicant must provide reasonable evidence of service-related exposure. See Hazardous Material and Radiation Exposure policy.

Review with Disability Consultant prior to entitlement.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Illnesses/Medical Conditions Accepted by VAC as Associated with Agent Orange Exposure

Only those conditions included in the list should be entitled as due to Agent Orange exposure.

VAC recognizes the following illnesses/medical conditions as being associated with exposure to Agent Orange and other herbicides for disability benefit purposes:

a. Acute and Subacute Transient Peripheral Neuropathy
b. AL amyloidosis
c. B cell leukemias (See Annex A)
d. Chloracne
e. Chronic lymphocytic leukemia (CLL)
f. Diabetes Mellitus (Type 2)
g. Hodgkin's Disease
h. Ischemic Heart Disease
i. Multiple Myeloma
j. Non-Hodgkin's Lymphoma (See Annex B)
k. Parkinson's Disease
l. Porphyria Cutanea Tarda
m. Prostate Cancer
n. Respiratory Cancers – includes cancers of the lung, larynx, trachea and bronchus; and/or
o. Soft-Tissue Sarcomas

Hematological cancers, which include leukemias and lymphomas among others, have had changes in name and classification over the years. If a hematological cancer is not listed, Medical Advisory should be consulted for diagnosis verification and possible coverage under the policy.

Note: The following conditions are currently *not* included in the Policy:

Acute Myelogenous Leukemia (AML)

Chronic Myelogenous Leukemia (CML)

Monoclonal Gammopathy of undetermined significance (MGUS), IgM

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Verify Service	**SDA (Indo-China) which includes service in Vietnam** 9 January 1962 – 7 May 1975	**Regular Force** **Reserve Force**
Service Relationship	SDA (Indo-China) which includes service in Vietnam 9 June 1962 – 7 May 1975	Gagetown: • 14-16 June 1966 • 21-24 June 1967 • Review with Disability Consultant
High Risk Posting	SDA (Indo-China) which includes service in Vietnam 9 June 1962 – 7 May 1975	Gagetown: • 14-16 June 1966 • 21-24 June 1967 • Review with Disability Consultant
Entitlement Considerations	For conditions included in VAC Agent Orange policy, Entitle to SDA (Indo-China)	For conditions included in VAC Agent Orange policy, **and** Evidence of hazardous exposure to Agent Orange/ Agent Purple or similar agent, Entitle to Regular/Reserve Force Mere presence at CFB Gagetown is not sufficient.
Diagnosis	Accepted from Medical Practitioner	Accepted from Medical Practitioner
Assessment	Assessment provided by MA	Assessment provided by MA
Consult Medical Advisory	Diagnosis Clarification and/or Assessment Any Hematological Cancers/Malignancies not included In list, Annex A	Diagnosis Clarification and/or Assessment Any Hematological Cancers/Malignancies not included In list, Annex A

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Malignancies of the Hematopoietic and Lymphoid tissues included in Exposure to Agent Orange and Other Unregistered US Military Herbicides

The classification of leukemias and lymphomas has changed over the last few decades. For some specific neoplasms, it is difficult to ascertain whether they are now classified as a lymphoma or a leukemia, even if this term appears in the diagnosis.

The current NAS policy include Hodgkin's disease, non-Hodgkin's lymphoma and chronic B-cell leukemia, including hairy cell leukemia. Chronic lymphocytic leukemia and hairy cell leukemia are now considered to be classified with the lymphomas (therefore included in non-Hodgkin's lymphoma). The reports do not indicate that there is a link between the herbicides studied and leukemia.

Veterans Affairs Canada policy indicates "B cell leukemias" rather than chronic B-cell leukemia. Therefore, acute B-cell leukemia is included, giving the veteran the benefit of the most generous interpretation of the policy.

T-cell leukemias are not included under the VAC policy.

Myeloid leukemias are not included under the VAC policy.

For VAC adjudicative purposes, the policy includes all lymphomas included in Annex A. Any diagnosis indicating "lymphoma" but not included in Annex A should be sent to Medical Advisory for diagnosis clarification **if a hazardous exposure has occurred.**

The following descriptions and lists of conditions are **not** considered to be comprehensive. If the malignancy is indicated to be included, link to significant Agent Orange exposure can be made. For all others, the exact type of malignancy should be ascertained and usual adjudicative practices followed.

Some exclusions to the policy have been listed.

Hodgkin's Disease / Lymphoma (HL)

IC9-201 ICD_10-C81

Included in VAC policy

Non-Hodgkin's Lymphoma (NHL)

ICD-9 200.0–200.8, 202.0–202.2, 202.4, 202.7, 202.8; ICD-10 C82–85, C91.1-91.4

Included in VAC policy

- a general name for malignancies of the lymphatic system other than Hodgkin's Lymphoma (HL) or plasma cell dyscrasias

NHL consists of a large group of lymphomas that includes types of either B-cell or T-cell origin. Both types of lymphoma are included under VAC policy.

B-cell NHL includes Burkitt lymphoma, diffuse large B-cell lymphoma, follicular lymphoma, large-cell lymphoma, precursor B-lymphoblastic lymphoma, and mantle-cell lymphoma.

T-cell NHL includes mycosis fungoides and anaplastic large-cell lymphoma.

Precursor T-lymphoblastic lymphoma is not considered a type of NHL and is considered instead part of T-lymphoblastic lymphoma/leukemia by NAS. It would not be included in the VAC policy.

B cell Leukemias

Included in VAC policy: Leukemias listed under: ICD-9 204 ICD -10 C91

- Leukemia is divided into four primary types: acute and chronic lymphocytic leukemias and acute and chronic myeloid leukemias. B-cell leukemias are in the lymphocytic group.

The National Academy of Sciences, 2018, committee concluded that there is inadequate or insufficient evidence to determine whether there is an association between exposure to the studied herbicides and leukemias in general. An exception is the specific leukemia subtypes of chronic B-cell diseases, including Chronic Lymphocytic Leukemia (CLL) and Hairy Cell Leukemia (HCL), which are more appropriately grouped with lymphomas.

However, the Exposure to Agent Orange and Other Unregistered US Military Herbicides policy indicates the inclusion of “B cell Leukemias”. When applying the VAC policy “Agent Orange and other Unregistered US Military Herbicides” the following diagnoses are considered, for VAC adjudicative purposes, to be included under “B cell Leukemias” :

B cell Acute lymphoblastic/lymphocytic leukemia (B-ALL)

Precursor B lymphoblastic leukemia

B cell prolymphocytic leukemia (Listed with leukemia and NHL)

Chronic lymphocytic leukemia (CLL) (Listed with leukemia and NHL)

Hairy Cell Leukemia HCL) (Listed with leukemia and NHL)

NOT Included: T-cell leukemias, Chronic Myelogenous Leukemia, Acute Myelogenous leukemia

Multiple Myeloma

Included in VAC policy: Multiple Myeloma (ICD-9 203.0; ICD-10 C90.0)

- characterized by a proliferation of bone marrow cells that results in an excess of neoplastic plasma cells and in the production of excess immunoglobulin protein.

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Included in VAC policy.

Monocolonal Gammopathy of Undetermined Significance (MGUS). MGUS is a precursor condition of multiple myeloma. An estimated 1% of MGUS cases progress to multiple myeloma each year. *This condition is **not** included in the VAC policy*.

Amyloid Light Chain Amyloidosis

AL amyloidosis is a rare condition that is a complication of multiple myeloma.

Included in VAC policy.

Annex A for Agent Orange

When applying the VAC policy "Agent Orange and other Unregistered US Military Herbicides" the following diagnoses are considered, for VAC adjudicative purposes, to be included under "B cell leukemias" :

Acute lymphoblastic/lymphocytic leukemia (ALL)
B cell prolymphocytic leukemia
Chronic lymphocytic leukemia (CLL)
Hairy cell leukemia
Precursor B lymphoblastic leukemia

Not included: Acute Myelogenous Leukemia (AML)

Chronic Myelogenous Leukemia (CML)

When applying the VAC policy "Agent Orange and other Unregistered US Military Herbicides" the following diagnoses are considered, for VAC adjudicative purposes, to be included under "Non-Hodgkin's Lymphoma" :

Anaplastic large cell lymphoma
B cell prolymphocytic leukemia
B cell prolymphocytic leukemia (B-PLL)
B cell type lymphoma
Burkitt's lymphoma (BL)
Chronic lymphocytic leukemia
Chronic small lymphocytic lymphoma
Diffuse large B cell lymphoma (DLBCL)
Follicular Lymphoma (FL)
Hairy cell leukemia
In situ follicular neoplasia

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Large B cell lymphoma, lymphomatoid granulomatosis type
Lymphomatoid granulomatosis
Lymphoplasmacytic lymphoma (LPL) plus/minus Waldenström macroglobulinemia
MALT Lymphoma (Extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue)
Maltoma see MALT Lymphoma
Mantle cell lymphoma (MCL)
Marginal zone B cell lymphoma (MZL)
Mycosis Fungoides
Precursor B lymphoblastic lymphoma
Small Lymphocytic Lymphoma (SLL)
T cell lymphoma

Not included in NAS listing under NHL:

Precursor T-lymphoblastic lymphoma is not considered a type of NHL and is considered instead part of T-lymphoblastic lymphoma/leukemia, a precursor lymphoid neoplasm included with the broad group of "acute lymphoid leukemias," which can be of either T-cell or B-cell origin

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Amyotrophic Lateral Sclerosis / ALS

Amyotrophic lateral sclerosis (ALS), is a relentlessly progressive, presently incurable, neurodegenerative disorder that causes muscle weakness, disability, and eventually death. ALS initially causes weakness, and then paralysis, of the muscles resulting in difficulty/inability to perform all movements including arm movements, walking, talking, swallowing and breathing.

Entitlement:

VAC policy re ALS - Amyotrophic Lateral Sclerosis (ALS)

This policy indicates the link between rigorous exercise and increased incidence of ALS. Any diagnosis other than Amyotrophic Lateral Sclerosis/ALS is **not** included in this policy. (Primary Lateral Sclerosis (PLS) and Progressive Muscular Atrophy (PMA) have been accepted as variants of ALS for entitlement purposes.)

Assessment:

VAC directive re ALS Effective 2017-01-05. These clients are assessed at 100%. For assessment purposes, the PCT is not applied to the 100% assessment, regardless of other conditions (entitled or nonentitled).

Primary Lateral Sclerosis (PLS) and Progressive Muscular Atrophy (PMA)

Primary Lateral Sclerosis (PLS) and Progressive Muscular Atrophy (PMA) have been accepted as variants of ALS for entitlement purposes.

These conditions can be entitled under the ALS policy but are to be assessed on functional disability level by Medical Advisory. They are **not** assessed automatically at 100%.

In the case where PLS or PMA is initially diagnosed and entitled, and then the clinical picture of ALS arises and the diagnosis is confirmed, the client would also be entitled for ALS and the two conditions would be bracketed for assessment. The assessment would be at 100%.

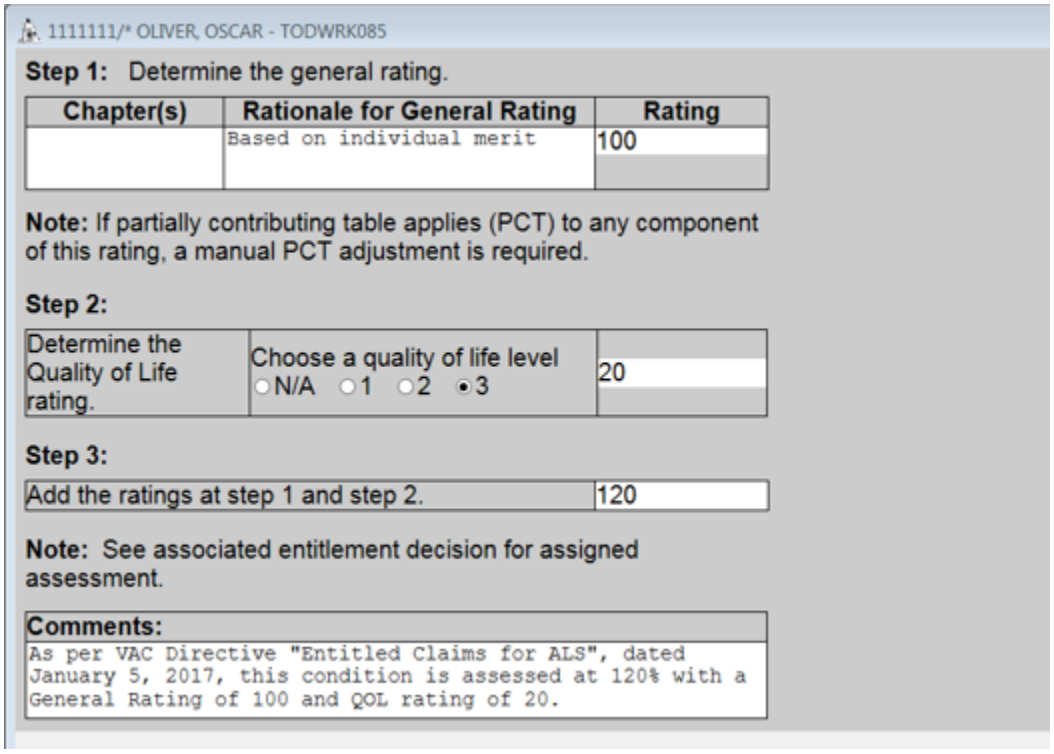
In adjudicating “death due to” claims for PLS and PMA, usual adjudicative practices should be applied.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Verify Service	**Active Force** **Merchant Navy** **Special Duty Area** **Special Duty Operation**	**Regular Force** **Reserve Force**	**RCMP**
Service Relationship	Initial onset or worsening of Signs/symptoms or diagnosis during Active Force Service or SDA/SDO service	Rigours of exercise to maintain level of fitness	Rigours of exercise to maintain level of fitness **Does not include civilian RCMP**
Diagnosis	Accepted from: Neurologist or ALS clinic Any other source: To Medical advisory for diagnostic clarification	Accepted from: Neurologist or ALS clinic Any other source: To Medical advisory for diagnostic clarification	Accepted from: Neurologist or ALS clinic Any other source: To Medical advisory for diagnostic clarification
Entitlement	Entitle to Active Force or SDA/SDO service	Regular/Reserve Force	Entitle to RCMP service
Assessment	**ALS**: Assessment provided by Exposure Adjudicator. See Sample Worksheet Below Diagnosis of either Primary Lateral Sclerosis (**PLS**) or Progressive Muscular Atrophy (**PMA**) to Medical Advisory		
Consult Medical Advisory	Diagnosis Clarification Assessment of Primary Lateral Sclerosis (PLS) and Progressive Muscular Atrophy (PMA)		

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Sample Worksheet for ALS



1111111/* OLIVER, OSCAR - TODWRK085

Step 1: Determine the general rating.

Chapter(s)	Rationale for General Rating	Rating
	Based on individual merit	100

Note: If partially contributing table applies (PCT) to any component of this rating, a manual PCT adjustment is required.

Step 2:

Determine the Quality of Life rating.	Choose a quality of life level ○ N/A ○ 1 ○ 2 ● 3	20

Step 3:

Add the ratings at step 1 and step 2.	120

Note: See associated entitlement decision for assigned assessment.

Comments:
As per VAC Directive "Entitled Claims for ALS", dated January 5, 2017, this condition is assessed at 120% with a General Rating of 100 and QOL rating of 20.

Amyotrophic Lateral Sclerosis /ALS Variants Medical Directive

Currently, VAC entitles Amyotrophic Lateral Sclerosis under the ALS policy - [Amyotrophic Lateral Sclerosis (ALS)].

An [ALS Medical Directive] indicates the method of assessment for the confirmed diagnosis of ALS. **These clients are assessed at 100%.**

Primary Lateral Sclerosis (PLS) and Progressive Muscular Atrophy (PMA) have been accepted as variants of ALS for entitlement purposes.

These conditions can be entitled under the ALS policy but are to be assessed on functional disability level, not automatically at 100%.

In the case where PLS or PMA is initially diagnosed , and entitled, and then the clinical picture of ALS arises and the diagnosis is confirmed, the client would also be entitled for ALS and the two conditions would be bracketed for assessment. The assessment would be at a 100%.

Asbestos

Preamble

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Asbestos

"Asbestos" is the name of a group of minerals that are shaped like long, thin fibers. For many years, asbestos was commonly used in insulation, car brakes, ships, ceiling tiles, fabrics, fireproofing, and many other materials. Since the 1970s, the health risks of asbestos have been known. The use of asbestos was phased out in construction since 1979 but some materials containing asbestos were still used until 1990-12-31.

Asbestos, left undisturbed, is not considered a major health risk. Asbestos fibers are a risk when they are disturbed and become airborne. This can occur with renovation or demolition.

Asbestos exposure is associated with lung diseases and multiple kinds of cancers.

Asbestos exposure can be a chronic, small exposure or a single massive exposure. Malignancies are associated with a smaller exposure than lung diseases. There is a 20-30 year latency period from the inhalation of asbestos fibers to the development of lung disease; the latency period for malignancies is 10-30 years. Exposure at a young age causes increased risk as there is more time for disease to develop. The risk of lung cancer is much higher in smokers than nonsmokers.

Asbestos related cancers

Except for Malignant Mesothelioma of the Pleura[i], includes carcinomas only. For other histological types, refer to Medical Advisory. For more information, see Cancer. The latency period for malignancies is 10-30 years.

Malignant Mesothelioma of the Pleura

(Malignant Mesothelioma of other sites **may** be related to asbestos; all should be referred to Medical Advisory)[ii]

Lung Cancer

Cancer of Larynx

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Cancer of the Pharynx including the posterior one third of the tongue, the soft palate, the side and back walls of the throat and the tonsils.

For Details see Asbestos and Cancer of the Pharynx

Cancer of the Stomach

Cancer of the GE (gastroesophageal) junction(where the esophagus empties into the stomach)

Colorectal Cancer (Colon cancer, Rectal cancer) Note: Does not include small bowel: duodenum, jejunum or ileum. Cancer of the appendix: Refer to Medical Advisory

Cancer of the Ovary

Asbestos related Interstitial Lung diseases (nonmalignant)

***There is a 20-30 year latency period from the inhalation of asbestos fibers to the development of lung disease.**

Note: Interstitial Lung Disease is an umbrella term used for a large group of diseases that cause scarring /fibrosis of the lungs. It is not a specific diagnosis and is not acceptable for VAC adjudication purposes.

Asbestosis

Pulmonary Fibrosis

Interstitial Fibrosis

Asbestosis: Asbestosis specifically refers to the slowly progressive, diffuse pulmonary fibrosis caused by inhalation of asbestos fibers. The definitive diagnosis of asbestosis is based on a lung biopsy, but this is rarely obtained. There are characteristic findings on HRCT (high-resolution CAT scan) of the lungs which are more characteristic of asbestosis than other types of fibrosis. These include honeycombing, pleural plaques and rounded atelectasis. However, asbestosis on **HRCT** can have many appearances.

For VAC adjudication purposes, if it is determined that the client has had a significant asbestos exposure, the diagnosis of Pulmonary Fibrosis / Interstitial Fibrosis / Interstitial Pulmonary Fibrosis can be accepted as due to asbestos exposure **if** there is no other causative factor as confirmed by a respirologist. The diagnosis is not changed to Asbestosis. If the attending respirologist indicates a specific cause other than asbestos, refer to Medical Advisory.

The diagnosis of Asbestosis / Pulmonary Fibrosis / Interstitial Fibrosis is best provided by a respirologist with supporting investigative findings from HRCT. In some cases, it can be accepted from a general practitioner with supporting evidence that includes HRCT scan of the chest.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Asbestos Related Pleural Disease (nonmalignant)

This group of conditions includes asbestos related: pleural plaques, pleural effusion, diffuse pleural thickening and fibrothorax. When entitled due to asbestos exposure, the best diagnosis for VAC adjudicative purposes is **Asbestos Related Pleural Disease**. This condition includes all listed conditions.

Pleural Plaques: Pleural plaques are distinctive, smooth, white, raised lesions on the pleural surface. Plaques may be calcified. The diagnosis can be made on plain chest X-ray or CT scan. Generally pleural plaques do not cause any disability but large plaques/diffuse pleural thickening can cause some restrictive disease (fibrothorax) as seen on Pulmonary Function Tests (PFT's).

The presence of Pleural Plaques / Asbestos Related Pleural Disease does **not** confirm the diagnosis of Asbestosis. Claims are often submitted as "Asbestosis" when there is evidence of pulmonary plaques or other pleural diseases but no evidence of fibrosis of the lung tissue. Medical Advisory should be consulted in these cases to establish the correct diagnosis.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Conditions NOT related to asbestos exposure

COPD (Chronic Obstructive Pulmonary Disease) There is insufficient information in the literature to indicate that there is a causal relationship between asbestos exposure and the development of COPD.

Renal Cancer: For VAC entitlement purposes, as of 2017-03-07 Renal Cancer is no longer included in the list of cancers related to asbestos.[2]

Esophageal cancer, other than cancer of the gastroesophageal junction (where the esophagus empties into the stomach), is not related to asbestos exposure. If unsure, consult Medical Advisory.

Verify Service	**Active Force** **Merchant Navy** **Special Duty Area** **Special Duty Operations**	**Regular Force** **Reserve Force**	**RCMP**
Service Relationship	• World War II (WII) service in Europe, Africa or Asia • Korean War service if transported to Korea by ship • Navy service on a ship built prior to 1971 and/or no asbestos refit • Merchant Navy • Lancaster bomber service • Indoor firefighter • Fire inspector • High risk trade **See table below for list of occupations identified as confirmed or probable exposure to asbestos while in the performance of duty.	• Navy service on a ship built prior to 1971 and/or no asbestos refit • Memo to file Re: asbestos exposure • High risk trade • Indoor firefighter • Fire inspector **See table below for list of occupations identified as confirmed or probable exposure to asbestos while in the performance of duty.	• Memo to file Re: asbestos exposure • Working in the Mulock Building 1970s to March 1996 • Marine Branch service on a ship built prior to 1971 and/or no asbestos refit • Fire inspector • High risk job duties **See table below for list of occupations identified as confirmed or probable exposure to asbestos while in the performance of duty.
Diagnosis	Asbestosis Pulmonary Fibrosis/Interstitial Fibrosis indicated to be due to asbestos exposure • Accepted from a respirologist; accepted from other appropriate Medical Practitioners with supporting HRCT . In those not meeting this criteria, refer to Medical Advisory. Asbestos-Related Pleural Diseases: (Pleural Plaques) • Accepted from appropriate Medical Practitioners with supporting investigative findings (Chest X-Ray, CT scan). Cancer: • Accepted from an oncologist; accepted from other appropriate Medical Practitioners with supporting pathology report.	Asbestosis Pulmonary Fibrosis/Interstitial Fibrosis indicated to be due to asbestos exposure • Accepted from a respirologist; accepted from other appropriate Medical Practitioners with supporting HRCT . In those not meeting this criteria, refer to Medical Advisory. Asbestos-Related Pleural Diseases: (Pleural Plaques) • Accepted from appropriate Medical Practitioners with supporting investigative findings (Chest X-Ray, CT scan). Cancer:	Asbestosis Pulmonary Fibrosis/Interstitial Fibrosis indicated to be due to asbestos exposure • Accepted from a respirologist; accepted from other appropriate Medical Practitioners with supporting HRCT . In those not meeting this criteria, refer to Medical Advisory. Asbestos-Related Pleural Diseases: (Pleural Plaques) • Accepted from appropriate Medical Practitioners with supporting investigative findings (Chest X-Ray, CT scan). Cancer: • Accepted from an oncologist; accepted from other appropriate Medical Practitioners with supporting pathology report. See list for Cancers Related to Asbestos Exposure

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

	See list for Cancers Related to Asbestos Exposure	• Accepted from an oncologist; accepted from other appropriate Medical Practitioners with supporting pathology report. See list for Cancers Related to Asbestos Exposure	
Assessment	• Provided by Medical Advisory. • Cardiorespiratory Medical Questionnaire and **full** PFTs with all values required for lung conditions. • Malignant Questionnaire and system specific medical questionnaire(s) required for cancer. Full PFTs preferred for lung cancer.	• Provided by Medical Advisory. • Cardiorespiratory Medical Questionnaire and **full** PFTs with all values required for lung conditions. • Malignant Questionnaire and system specific medical questionnaire(s) required for cancer. Full PFTs preferred for lung cancer.	• Provided by Medical Advisory. • Cardiorespiratory Medical Questionnaire and **full** PFTs with all values required for lung conditions. • Malignant Questionnaire and system specific medical questionnaire(s) required for cancer. Full PFTs preferred for lung cancer.
Consult Medical Advisory	• Further guidance required regarding the diagnosis and/or entitlement. • For assessment. • Diagnosis Asbestosis / Pulmonary Fibrosis / Interstitial Fibrosis • Diagnosis of stand-alone pleural effusion	• Further guidance required regarding the diagnosis and/or entitlement. • For assessment. • Diagnosis Asbestosis / Pulmonary Fibrosis / Interstitial Fibrosis • Diagnosis of stand-alone pleural effusion	• Further guidance required regarding the diagnosis and/or entitlement. • For assessment. • Diagnosis Asbestosis / Pulmonary Fibrosis / Interstitial Fibrosis • Diagnosis of stand-alone pleural effusion

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

**List of occupations identified as confirmed or probable exposure to asbestos while in the performance of duty

(Please note that this list is not exhaustive. Other occupations may be considered. Please discuss with a disability consultant)

A
Aero Engine Technician (MOC 511)
Aircraft Structures Technician (MOC 565)
Air Frame Technician (MOC 512)
Air Weapons System Technician (MOC 572)
Armament Systems Technician (no MOC, with RAF in 1950's)
Aviation Technician (MOC 513)
Aviation Systems Technician (MOC 514)
Avionic Technician (MOC 525)

B
Boatswain (MOC 181)

C
Carpenter
Combat Engineer (MOC 043)
Communications Technician (MOC 252, 224)
Construction Engineering Technician (MOC 611)
Construction Technician (MOC 648)
Construction and Maintenance Technician (MOC 615)

D
Driver (no MOC, usually infantry; up to 1970)
Driver Mechanic (became 411)

E
Electrician (MOC 614)
Electrical Technician (MOC 331)
Electro-Mechanical Technician (MOC 431)
Electrical Construction Technician (MOC 622)
Electrical Generation Systems Technician (MOC 643)

F
Field Engineer (MOC 041)
Field Engineer Equipment Operator (MOC 042)
Firefighter (MOC 651) Hull Technician (MOC 321)

M
Machinist (MOC 562)
Marine Engineering Mechanic (MOC 312)
Marine Engineering Technician (MOC 313)
Marine Engineering Artificer (MOC 314)
Marine Electrician (MOC 332)
Maritime Surface and Subsurface (MOC 71)
Materials Technician (MOC 441)
Metals Technician (MOC 561)
Mobile Support Equipment Operator (MOC 935)

N
Naval Electronics Technician (MOC's 283, 284, 285, 286)

P
Pilot **-Active Force Only**
Plumber
Plumber Gas Fitter (MOC 613)
Plumbing and Heating Technician (MOC 646)
Pipefitters

R
Radio Technician (MOC 221)
Radar Technician (MOC 231)
Radar Systems Technician (MOC 523)
Refinisher Technician (MOC 563)
Refrigeration and Mechanical Technician (MOC 621)
Refrigeration and Mechanical Systems Technician (MOC 641)

S
Safety Systems Technician (MOC 531)
Stationary Engineer (MOC 623)
Structures Technician (MOC 612)

T
Teletype Operator (MOC 212)

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

H Hull Technician (MOC 321) **I** Instrument Electrical Technician (MOC 551) **L** Lineman (MOC 052)	Terminal Equipment Technician (MOC 222) **V** Vehicle Technician (MOC 411) **W** Water, Sanitation and POL Technician (MOC 624) Weapons Technician (MOC 421) Weapons Technician Air (571)

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Cancer

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the time of onset of a cancer/malignancy is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

The International Agency For Research On Cancer (IARC) annually publishes a list of cancers, by anatomical site, that indicates known hazardous risk factors. This list can be found here: Agents Classified by the IARC Monographs, Volumes 1–132 – IARC Monographs on the Identification of Carcinogenic Hazards to Humans (who.int). For exposures listed here, information regarding significance of the amount, frequency and duration of exposure and/or the latency period prior to the development of a cancer/malignancy should be obtained from other sources as per usual adjudication practices. (The latency period is the time from the first exposure to the development of a condition.) For exposures found on the IARC list but not included in this Exposure Reference Guide, consultation with Medical Advisory should occur.

There are many different types of cancer. Both the location of the cancer cells and their histological type are used to determine the specific cancer diagnosis. Cancers are classified in two ways: by the type of tissue in which the cancer originates (histological type) and by primary site where the cancer first developed.

All cancers fall into one of five broad categories:

- Carcinomas are tumors that appear in the tissues lining the body's organs. About 80% of all cancer cases are carcinomas. Carcinomas are divided into two major subtypes: adenocarcinoma, which develops in an organ or gland, and squamous cell carcinoma, which originates in the squamous epithelium.
- Sarcomas are tumors that originate in the body’s bone, muscle, cartilage, fibrous tissue or fat.
- Leukemia is a cancer of the blood or blood-forming organs.
- Lymphomas develop in the glands or nodes of the lymphatic system, a network of vessels, nodes, and organs (specifically the spleen, tonsils, and thymus). Lymphomas may also occur in specific organs such as the stomach, breast or brain.
- Myeloma is cancer that originates in the plasma cells of bone marrow. The plasma cells produce some of the proteins found in blood.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Precancerous conditions

Precancerous cells are abnormal cells that may develop into cancer. Some of these cells have mild changes that may disappear without any treatment. But some precancerous cells pass on genetic changes and gradually become more and more abnormal as they divide until they turn into cancer. It can take a long time for a precancerous condition to develop into cancer.

Precancerous changes can be mild to severe. There are different ways of describing precancerous changes based on how mild or severe the changes are. Hyperplasia, atypia and metaplasia are changes which may be due to causes other than precancer. They are not included under cancer for VAC adjudicative purposes.

Dysplasia means that cells are abnormal, the cells are growing faster than normal and they aren't arranged like normal cells. Dysplasia is a precancerous condition. **Carcinoma in situ** is the most severe type of precancerous change. The cells are very abnormal but have not grown into nearby tissue. Carcinoma in situ is usually treated because it has a high risk of developing into cancer.

Dysplasia and Carcinoma in Situ can be entitled using the same risk factors as a fully developed carcinoma. The client does not need further entitlement rulings for further development/extension of carcinoma in the same organ. The Medical Pension codes are the same and should provide the same treatment benefits. If the client develops carcinoma ,there may be a need for diagnosis expansion or adding the diagnosis of cancer and bracketing for assessment. This would be done if the client requests the entitlement.

This does not apply in the case of **skin cancer**. For Skin cancer, this would only apply for a skin cancer developing at the same site as the previously entitled precancerous lesion. For assessment purposes the following would be bracketed, regardless of cause:

-Dysplasia of a specific location/of the skin

-Carcinoma in Situ of a specific location / of the skin

-Basal Cell carcinoma of a specific location/of the skin

-Squamous Cell carcinoma of a specific location/ of the skin

Tumor Types

For VAC adjudication purposes, **the risk factors included for a cancer in a specific organ are for neoplasms arising from epithelial tissues, usually adenocarcinoma or squamous cell carcinomas**. Any other types should be referred to Medical Advisory.

For example, a cancer originating in the lung may be an adenocarcinoma or a squamous cell carcinoma. These cancers are considered to be linked to the risk factors listed. However, other cancers, such as a sarcoma, may develop within the lung. The sarcoma would **not** be included as a cancer linked to the risk factors for lung cancer. The following tumor types often cause confusion during entitlement.

Medical Advisory consult should be obtained to verify type of pathology and link to known exposures.

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

- **Carcinoid tumors**
- **Lymphoma in a solid organ**
- **Melanoma not on the skin**
- **Neuroendocrine tumors**
- **Neurofibroma**
- **Small Cell carcinoma**
- **Sarcoma**
- **Schwannoma**
- **Unknown Primary**

Appendix A

Indicates diagnoses which should / should not be included in the diagnosis of cancer of a specific organ.

Site	Included	Excluded **MA consult required**
Bladder (Urinary)	Adenocarcinoma Squamous cell carcinoma Urothelial carcinoma (transitional cell carcinoma of the bladder) Clear cell carcinoma	Lymphoma Sarcoma Neuroendocrine Small cell Carcinoid
Colorectal/colon or rectal	Adenocarcinoma Squamous cell carcinoma	GIST (Gastrointestinal Stromal Tumor) Lymphoma Sarcoma Neuroendocrine Small cell Carcinoid Melanoma
Lung (Bronchogenic)	Adenocarcinoma Squamous cell carcinoma Non–small cell lung cancer (NSCLC) Oat cell carcinoma Large cell carcinoma	Lymphoma Sarcoma Neuroendocrine Small cell Carcinoid
Pleura	Malignant Mesothelioma of the Pleura[iii]	
Skin	Squamous cell carcinoma Basal Cell carcinoma Bowen's disease Melanoma	Lymphoma Sarcoma Neuroendocrine Small cell

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

		Carcinoid Mantleoma
Testes	Adenocarcinoma Squamous cell carcinoma Germ cell tumors of early childhood (infantile tumors, mainly mature teratoma, and yolk sac tumor) seminoma, nonseminomatous tumors combined tumors spermatocytic seminoma	Lymphoma Sarcoma Neuroendocrine Small cell Carcinoid

For direction on conditions included in a cancer entitlement versus those that would be consequential see:

Consequentials to Malignant Conditions

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Verify Service	**Active Force Merchant Navy Special Duty Area Special Duty Operation**	**Regular Force Reserve Force**	**RCMP**
Service Relationship	-Initial onset or worsening of Signs/symptoms or diagnosis during Active Force Service or SDA/SDO service -High risk posting, occupation or exposure	-High risk posting, occupation or exposure	-High risk posting, job duties or exposure
High Risk Posting (Includes but not limited to)	Active Force Indo - China (Vietnam) Korea Navy	Australia Chalk River Gagetown Navy Nevada	Mulock Building
Occupation (Includes but not limited to)	Firefighter Mechanic Painter Welder	Firefighter Mechanic Painter Welder	Fire Inspector Forensic Investigator (to MA)
Exposure (Includes but not limited to)	Agent Orange Asbestos Benzene Cadmium Diesel Fuel Exhaust Helicobacter Pylori Mustard Gas Radiation, Ionizing Solvents, POL's Sun Exposure TCE (Trichloroethylene)	Agent Orange Asbestos Benzene Cadmium Diesel Fuel Exhaust Helicobacter Pylori Mustard Gas Radiation, Ionizing Solvents, POL's Sun Exposure TCE(Trichloroethylene)	Asbestos Cadmium Fingerprint Powder Sun Exposure
Consider Cancer as consequential to previously entitled condition ***All should be referred to Medical Advisory***	Cirrhosis COPD Crohn's Disease Cystic Fibrosis GERD Helicobacter Pylori infection Hepatitis B Hepatitis C HIV infection	Cirrhosis COPD Crohn's Disease Cystic Fibrosis GERD Helicobacter Pylori Infection Hepatitis B Hepatitis C HIV infection	Cirrhosis COPD Crohn's Disease Cystic Fibrosis GERD Helicobacter Pylori infection Hepatitis B Hepatitis C HIV infection

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

	Idiopathic Pulmonary Fibrosis Tuberculosis, Active Ulcerative Colitis	Idiopathic Pulmonary Fibrosis Tuberculosis, Active Ulcerative Colitis	Idiopathic Pulmonary Fibrosis Tuberculosis, Active Ulcerative Colitis
Diagnosis	Accepted from Appropriate Medical Practitioner	Accepted from Appropriate Medical Practitioner	Accepted from Appropriate Medical Practitioner
Entitlement	Entitle to Active Force or SDA/SDO service	If not related to Active Force/SDA/SDO service, entitle to Regular/Reserve Force	Entitle to RCMP service
Assessment	Assessment provided by Medical Advisory Skin cancer: adjudicators trained in skin cancer assessments	Assessment provided by Medical Advisory Skin cancer: adjudicators trained in skin cancer assessments	Assessment provided by Medical Advisory Skin cancer: adjudicators trained in skin cancer assessments
Consult Medical Advisory	-Diagnosis Clarification -Consequential conditions - immunosuppression* -solid organ transplantation -Radiation, ionizing	Diagnosis Clarification -Consequential conditions - immunosuppression* -solid organ transplantation -Radiation, ionizing	Diagnosis Clarification -Consequential conditions - immunosuppression* -solid organ transplantation -Radiation, ionizing

*Conditions that may cause immunocompromise includes, but is not limited to, transplant recipient , AIDS, HIV, chronic renal failure requiring hemodialysis, some types of chemotherapy, TNF-alpha inhibitors, diabetes, chronic steroids).

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Cancer by Posting / Exposure/Occupation

Cancer by Posting

Active Force / World War II (WW II)

Asbestos

World War II (WII) service in Europe, Africa or Asia

Sun Exposure

Australia

Ionizing radiation if at test sites 1956 and 1967. Consult Disability consultant

Chalk River

Ionizing radiation during accidents 1952 and 1958

Gagetown* 14-16 June 1966 , 21-24 June 1967

*Please review with Disability Consultant before ruling

SDA Indo - China (which include Vietnam, Laos &Cambodia)

Indo China (Vietnam): 9 June 1962 – 7 May 1975

Agent Orange: **(as per Agent Orange policy)**

Cancers related to Agent Orange

p. AL amyloidosis
q. B cell leukemias
r. Cancer of the Lung
s. Cancer of the Larynx
t. Cancer of the trachea
u. Cancer of the Bronchus/Bronchi
v. Chronic lymphocytic leukemia (CLL)
w. Hodgkin's Disease
x. Multiple Myeloma
y. Non-Hodgkin's Lymphoma

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

z. Prostate Cancer

aa. Respiratory Cancers – includes cancers of the lung, larynx, trachea and bronchus; and/or

Soft Tissue Sarcomas

Korea 5 July 1950 – 30 April 1956 Link to **Korea Guide**

Asbestos

- Korean War service if transported to Korea by ship

Cancers included in Policy:

Special Force service (Korea) (July 5, 1950-October 31, 1953)

Regular Force service attached to the Special Force (Korea) (July 5, 1950-October 31, 1953)

Special Duty Service (SDA Korea) (November 1,1953-April30,1956)

Cancer: Primary malignant neoplasms (including "in situ" neoplasms) of the following sites:

i. Primary malignant neoplasms of the head and neck - includes only the following sites:
   - lip (excludes skin of the lip)
   - tongue
   - salivary glands
   - gums
   - mouth
   - tonsils
   - oropharynx
   - nasopharynx; and
   - hypopharynx

ii. Primary malignant neoplasms of the larynx

iii. Primary malignant neoplasms of the trachea

iv. Primary malignant neoplasms of the lung

v. Primary malignant neoplasms of the esophagus which includes:
   - gastroesophageal junction
   - squamous cell carcinoma of the cardia of the stomach (Consult Medical Advisory if uncertainty concerning anatomic site)

vi. Primary malignant neoplasms of the colon

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

vii. Primary malignant neoplasms of the rectum and anus (excludes skin of the anus)

viii. Primary malignant neoplasms of the prostate

ix. Malignant melanoma of the skin including the lip and anus

Cancer: Malignant melanomas of the following sites:

x. skin of the lip

xi. skin of the anus

Mulock Building **RCMP Service only**

Asbestos

All other exposures discuss with Disability Consultant responsible for exposure claims.

The Sir William Mulock Building, 241 Jarvis Street, Toronto, Ontario, was owned by the Federal Government and was the location of the "O" Division of the R.C.M.P. during the late seventies and through to March 1990.

This building was built in the 1880's and, is now used as a hotel.

Several investigations, assessments and designated substances surveys were completed, dated between 1986 and 1998. Many substances in the building were tested, examined, and assessed for amounts and levels of hazards. These included: friable and non-friable asbestos, PCB's, lead in paint and arsenic. Most conclusions indicated that there was evidence of friable asbestos-containing materials throughout the building but there were no health hazards from other substances investigated.

Navy (Ships & Submarines)

Asbestos

If ship was built prior to 1971, contained asbestos. Ships later refitted/refurbished may have had asbestos removed. Further investigation will be required.

https://readyayeready.com/ships/ provides data on dates of DND ships with construction and refurbishment dates.

Nevada

Ionizing radiation if at test sites 1955 and 1967

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Cancer by Exposures

Agent Orange related cancers

(as per Agent Orange policy)

Link to Agent Orange Guide

Cancers related to Agent Orange

a. AL amyloidosis
b. B cell leukemias
c. Cancer of the Lung
d. Cancer of the Larynx
e. Cancer of the trachea
f. Cancer of the Bronchus/Bronchi
g. Chronic lymphocytic leukemia (CLL)
h. Hodgkin's Disease
i. Multiple Myeloma
j. Non-Hodgkin's Lymphoma
k. Prostate Cancer
l. Respiratory Cancers – includes cancers of the lung, larynx, trachea and bronchus
m. Soft Tissue Sarcomas

Asbestos related cancers

(N.B. does not include renal cancer)

Link to Asbestos Guide

High risk Postings: Mulock, Navy RCMP Marine Branch For high risk occupations see list in Asbestos Guide

Malignant Mesothelioma of the Pleura Mesothelioma (Malignant Mesothelioma of other sites may be related to asbestos; all should be referred to Medical Advisory.) [iv]

Lung Cancer

Cancer of Larynx

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Cancer of the Pharynx including the posterior one third of the tongue, the soft palate, the side and back walls of the throat and the tonsils

> Note : Does not include the oral cavity. See Medical Directive re Asbestos and Carcinoma of the Pharynx

Cancer of the Stomach, including the cardia

Cancer of the GE (gastroesophageal) junction

Colon and Rectum Cancer (does not include small bowel cancers)

Cancer of the Ovary

Benzene related cancers

Acute Myelogenous Leukemia/ Acute Nonlymphocytic Leukemia

Acute Lymphocytic Leukemia

Chronic Lymphocytic Leukemia

Chronic Myelogenous Leukemia

Multiple Myeloma

Myelodysplastic Syndrome

Non-Hodgkin Lymphoma (excluding Extranodal marginal zone (MALT) lymphoma)[v]

Cadmium related cancers

(There is evidence of cadmium in fingerprint powder used by the RCMP(Forensic Investigator) in the 1960's and 1970's.)

Lung

Prostate

Renal (Kidney)

Diesel Fuel Exhaust related cancers

(N.B. does not include benzene related cancers)

Bladder (urinary)

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Lung

Gasoline Fuel Exhaust

Nil IARC review indicates that there is inadequate evidence in humans for the carcinogenicity of gasoline engine exhaust.

Helicobacter pylori (H. Pylori) infection [vi]

Gastric MALT lymphoma

Mustard Gas related cancers **Link to Mustard Gas Guide**

Chronic Myelogenous Leukemia

Cancer of the Larynx

Cancer of the Pharynx

Cancer of the Trachea

Cancer of the Lung

Cancer of the Bronchus/Bronchi

Respiratory cancers (laryngeal, pharyngeal, upper-respiratory-tract, and lung cancer)

Squamous Cell Carcinoma Skin at sites of patch test.

Radiation (Ionizing) related cancers

Ionizing radiation included in the 14th Report on Carcinogens as carcinogenic to humans are:

X-radiation (X-Ray), gamma radiation, neutrons, radon, and thorium dioxide.

Biological damage by ionizing radiation is related to dose and dose rate, which may affect the probability that cancer will occur. All exposure files concerning ionizing radiation should be referred to Medical Advisory, regardless of diagnosis.

Basal cell carcinoma of the Skin

Bladder (urinary)

Bone

Brain and CNS

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Breast

Colon

Esophagus

Kidney / Renal

Leukemia excluding CLL (Chronic Lymphocytic Leukemia, Chronic Non-Myelogenous Leukemia),

Lung

Ovary

Salivary gland

Stomach

Thyroid

Solvents, POL's related cancers

(Petroleums, oils,lubricants) For this group, specific exposure and the amount and timing of exposure must be identified.

May include

- Benzene
- TCE (Trichloroethylene)

Other possible solvent, POL exposures refer to Medical Advisory.

Sun Exposure related Cancers

Link to Sun Exposure Guide

Basal Cell Cancer of the Skin

Malignant Melanoma of the Skin

Squamous Cell Cancer of the Skin

Any other cancer type on the skin (ie. lymphoid), should be referred to Medical Advisory.

TCE (Trichloroethylene) related cancers

Liver/ Hepatocellular Cancer

Non Hodgkin Lymphoma

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Renal Cancer (kidney)

Occupational Exposures

Firefighter

Asbestos related cancers if significant exposure to structural fires. Not applicable to fighting forest fires only.

Non-Hodgkin Lymphoma[vii]

Prostate Cancer

Testes

Fire Inspector

Asbestos related cancers if significant exposure to structural fires

Mechanic

Benzene

Diesel Fuel Exhaust

Solvents, POL's

TCE

Painter

Bladder (urinary) Cancer

Lung

Malignant Mesothelioma of the Pleura [viii]

Welder

Lung Cancer

Melanoma of the Eye (based on UV exposure)

Renal Cancer (Kidney)

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Cancer by Site

Bladder (urinary)	Diesel Exhaust, Painter, Radiation (ionizing), Mustard Gas
Brain	Radiation (ionizing)
Colon and rectum	Asbestos, Crohn's Disease that involves the colon/rectum, Korea, Radiation (ionizing), Ulcerative Colitis with pancolitis,
Esophagus	Barrett's Esophagus(adenocarcinoma only), Korea, Radiation (ionizing), GERD greater than 5 years duration(adenocarcinoma only)
Gastroesophageal Junction	Asbestos
Kidney (Renal)	Cadmium, Radiation (ionizing), TCE(Trichloroethylene), Welding Fumes
Larynx	Agent Orange, Asbestos, Korea, Mustard Gas
Leukemia	Agent Orange, Benzene, Mustard Gas (CML), Radiation (ionizing), TCE(Trichloroethylene),
Liver and Bile Duct	Hepatitis B, Hepatitis C, Cirrhosis
Lung and bronchus	Asbestos, Agent Orange, Cadmium, COPD, Diesel Exhaust, HIV infection, Korea, Mustard Gas, Radiation (ionizing),including therapeutic radiation, Organ transplantation, Pulmonary Fibrosis, Tuberculosis(Active), Painter, Welder
Lymphoma	Agent Orange, Benzene, Firefighters(non-Hodgkin Lymphoma), Malaria (endemic): Burkitt Lymphoma, TCE(Trichloroethylene), (non-Hodgkin Lymphoma), Helicobacter Pylori (Gastric MALT lymphoma)
Malignant Mesothelioma of the Pleura[ix]	Asbestos, Painter
Oropharynx	Asbestos , Korea
Oral Cavity	Korea
Ovary	Asbestos, Radiation (ionizing)
Pancreas	
Pharynx	Asbestos, Korea, Mustard Gas for nasopharynx only Note : Does not include the oral cavity. See Medical Directive re Asbestos and Carcinoma of the Pharynx
Prostate	Agent Orange, Cadmium, Firefighter (structural fires), Korea
Rectum	Asbestos, Crohn's Disease involving colon/rectum, Radiation (ionizing), Ulcerative Colitits

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Skin	Non-Melanomatous Skin Cancer (SSC Squamous Cell Cancer of the Skin, BCC Basal Cell Carcinoma of the Skin)
	SCC Mustard Gas at site of skin patch testing
	BCC Radiation (ionizing)
	SCC and BCC Solar/Sun Exposure as per Sun Exposure Directive
	Melanoma of the Skin
	Solar/Sun Exposure as per Sun Exposure Directive
	Sun burn as per Sun Exposure Directive
Stomach /Gastric	Asbestos, Korea (cardia of the stomach), Radiation (ionizing)
Testis	Firefighter
Thyroid	Radiation (ionizing),

Cancer consequential to previously entitled conditions

Previously Entitled Condition	***Immediate positive entitlement decision may be considered based on policy and/or research. Always consider timelines and latency period.***	***Consider relationship Consult Medical Advisory***
Cirrhosis	Hepatocellular/Liver	
COPD	Cancer of the lung	
Crohn's Disease		With colon involvement: Cancer of the colon or rectum (note: not small bowel) With small bowel involvement: Cancer of the small bowel
Cystic Fibrosis	Cancer of the colon or rectum	
GERD / Barrett's esophagus		Adenocarcinoma of the esophagus : consult regarding latency Squamous cell carcinoma of the esophagus
Helicobacter Pylori Infection		Gastric Malt Lymphoma[x]
Hepatitis B	Hepatocellular/Liver	
Hepatitis C	Hepatocellular/Liver	
HIV infection		Cancer of the lung
Idiopathic Pulmonary Fibrosis	Cancer of the lung	

Tuberculosis, Active	Cancer of the lung	
Ulcerative Colitis with pancolitis		Cancer of the colon or rectum (note: not small bowel)

Chronic Obstructive Pulmonary Disease / COPD

Equivalent Diagnoses: Emphysema, Chronic Bronchitis, Chronic Obstructive Lung Disease

This diagnosis includes Emphysema, Chronic Bronchitis, Bronchiectasis, Asthma for assessment purposes.

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Preamble

Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases. Chronic inflammation causes structural changes, small airways narrowing, and destruction of lung parenchyma. The most common respiratory symptoms include dyspnea, cough, wheezing, chest tightness and/or sputum production.

Note: Obstructive lung disease is an umbrella term used for a large group of diseases that cause blockage / restriction /inflammation of the respiratory airways. It is not a specific diagnosis and is not acceptable for VAC adjudication purposes. COPD is a type of obstructive lung disease.

Spirometry is required to make the diagnosis of COPD. The presence of a post-bronchodilator ratio of FEV1/FVC less than 0.70 confirms the presence of persistent airflow limitation.

Generally, COPD is caused by a prolonged exposure to a specific chemical, gas, vapor or dust. The most common cause of COPD is tobacco smoking.

The diagnosis of COPD includes its subtypes: emphysema, chronic bronchitis, and asthma. COPD also includes bronchiectasis.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Chronic bronchitis is defined as a chronic productive cough for three months in each of two successive years in a patient in whom other causes of chronic cough have been excluded.

Emphysema is a pathological term that describes some of the structural changes sometimes associated with COPD. These changes include abnormal and permanent enlargement of the airspaces distal to the terminal bronchioles that is accompanied by destruction of the airspace walls.

Bronchiectasis is a disorder of the major bronchi and bronchioles that is characterized by permanent abnormal dilatation and destruction of bronchial walls. The onset of bronchiectasis requires an infectious insult plus impairment of drainage/ airway obstruction.

The classic clinical manifestations of bronchiectasis are cough and the daily production of sputum lasting months to years. Less specific complaints include dyspnea (shortness of breath), hemoptysis, wheezing, and pleuritic chest pain. Bronchiectasis shares many clinical features with chronic obstructive pulmonary disease (COPD).

The diagnosis is established clinically on the basis of cough on most days with sputum production, often one or more exacerbations/year, and radiographically by the presence of bronchial wall thickening and airway dilatation on chest computed tomographic (CT) scans.

Pulmonary function testing is used for functional assessment of impairment due to bronchiectasis. Obstructive impairment (ie, reduced or normal FVC, low FEV_1, and low FEV_1/FVC) is the most frequent finding.

Asthma is a chronic inflammatory disorder of the airways. The diagnosis is based on symptoms and spirometry. Asthma in adults may be persistence of childhood-onset asthma (usually allergic) or may reflect new onset in adulthood (often nonallergic).

The chronic inflammation of asthma is associated with airway hyperresponsiveness that leads to recurrent episodes of wheezing, difficulty breathing, chest tightness, and coughing.

These episodes are usually associated with airflow obstruction within the lung that is **reversible** either spontaneously or with treatment. Spirometry is used to determine the presence of obstruction, and degree of reversibility (generally defined as combination of increase in forced expiratory volume in 1 second [FEV_1] > 200 mL and ≥ 12% from baseline after inhalation of short-acting bronchodilator).

Bronchial provocation with a methacholine challenge test can be considered to diagnose airway hyperresponsiveness . The diagnosis is less likely in the presence of a negative test.

Patients with asthma whose airflow obstruction is completely reversible are **not** considered to have COPD.

Patients with asthma whose airflow obstruction does **not remit completely** are considered to have COPD. In those entitled for asthma, the entitlement and assessment for COPD is included. If the asthma is partially entitled at less than 5/5, a consequential ruling for COPD can be done. If the asthma is fully entitled at 5/5, no further action is required.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

For VAC entitlement purposes:

The following are considered to be **causal** factors for COPD:

-Service in Korea from July 5, 1950 to April 30,1956

-Active Tuberculosis

-Asthma

- Firefighters If the firefighter has been involved in incidents that cause acute distress requiring medical attention within 48 hours *and* onset or worsening of COPD was within 10 years, can be seen to contribute to COPD

-**Diesel exhaust fumes** Chronic **daily** occupational exposure to diesel exhaust fumes for more than 15 years

-Mustard Gas exposure

-Shipboard Fires

-The shipboard fire on HMCS Kootenay 1969-10-23 In those who had evidence of lung irritation during and immediately following the incident, and who developed ongoing asthma or COPD, the fire incident would be considered as causal.

- The shipboard fire on HMCS Chicoutimi 2004-10-05 In those who had evidence of lung irritation during and immediately following the incident, and who developed ongoing asthma or COPD, the fire incident would be considered as causal.

-the shipboard fire on HMCS Protecteur 2014-02-27. A fire occurred in the engine room onboard the destroyer, the HMCS Protecteur on February 27, 2014. _ In those who had evidence of lung irritation during and immediately following the incident, and who developed ongoing asthma or COPD, the fire incident would be considered as causal.

Refer to Medical Advisory

Fumes associated with Spray Paint, Welding, Firefighting may be associated with COPD. Exposure, length of exposure and latency must be considered. Consult Medical Advisory

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

For VAC Disability Adjudication Purposes:

Asbestos exposure is not considered a risk factor for development of COPD.

COPD

Verify Service	**Active Force Merchant Navy Special Duty Area Special Duty Operation**	**Regular Force Reserve Force**	**RCMP**
Service Relationship	***Initial onset or worsening of Signs/symptoms or diagnosis during Active Force Service or SDA/SDO service -Onset of signs/symptoms post release: High risk posting, occupation or exposure***	High risk posting, occupation or exposure	High risk posting, job duties or exposure
High risk posting	***Mustard Gas Korea***	Mustard Gas Shipboard Fire incidents including: -HMCS Kootenay 1969-10-23 -HMCS Chicoutimi 2004-10-05 -HMCS Protecteur 2014-02-27	
Occupation: Consult Medical Advisory	Firefighter Painter (Spray Paint) Welder		
Research and/or Policy supports Causal Association with Exposure	Active Tuberculosis Asthma Korean Service 1950-07-05 to 1956-04-30 Mustard Gas Diesel exhaust for 15 years		
Consult Medical Advisory	Firefighter Spray Paint Vapor, Gas and Dust exposures not listed above Welder		

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Diagnosis	-Accepted from Respirologist or General Internist (PFT/spirometry not required) -General practitioner when supported by PFT/spirometry -If diagnosis from General practitioner and PFT/Spirometry unavailable, consult Medical Advisory
Assessment	Assessment provided by Medical Advisory Cardiorespiratory Questionnaire required Spirometry or PFT's if possible
Consult Medical Advisory	Diagnosis clarification and assessment If diagnosis from General practitioner and PFT/Spirometry not possible, consult Medical Advisory

Appendix A

Diesel Fuel Exhaust Effective June 19/18:

Exposure to diesel fuel exhaust, especially in an enclosed area is associated with an increased incidence of COPD in those with a 15 year diesel fuel exhaust exposure history.

Exposure to diesel exhaust is associated with COPD in those with a significant regular exposure to exhaust fumes over at least a 15 year period.

This association is based on a study of railroad workers which indicated that those who worked on the trains with prolonged exposure had an increased risk of COPD after 15 years. Those who worked in the train station did not have a similar increase in COPD incidence .

For VAC entitlement purposes, the types of occupations considered to have significant regular exposure to diesel exhaust fumes include railroad workers, vehicle mechanics, transportation, construction workers and motor vehicle operators.

For VAC purposes, those working regularly in an engine room are also included.

This includes diesel fuel exhaust only. It does not include gasoline exhaust or jet fuel exhaust.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Korea

Korean Service - As per VAC's Policy on Australia's Korean War Veterans Studies

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Preamble

This flowchart applies to entitlement under VAC's policy on Australia's Korean War Veterans Studies found in the VS tool box at http://intranet.vac-acc.gc.ca/eng/operations/vs-toolbox/policies/policy/1445

Other than usual considerations such as the application of the Insurance Principle or exposure, Korean service between July 5, 1950 – April 30, 1956 provides eligibility for entitlement for a list of conditions provided in the current policy regarding Australia's Korean War Veterans Studies found in the VS tool box at http://intranet.vac-acc.gc.ca/eng/operations/vs-toolbox/policies/policy/1445

This policy is applicable to those Canadian Korean Veterans who served in Korea between July 5, 1950 and April 30, 1956. This includes Merchant Navy veterans (Chapter 10, Periods of Service, Adjudication Manual).

This includes those who served as Special Force Korea, Regular Force service attached to Special Force Korea, and SDA Korea. This policy provides a list of conditions which are linked to service in Korea between these dates. Clients are eligible for entitlement for these conditions because of their Korean service, during the specified time period of July 5, 1950 and April 30, 1956 .

For exposures related to Korean service but **not** included in the list in this policy, usual adjudication practices would apply.

The insurance principle applies for all Korean service. All Korean service is either wartime :(Special Force Service (Korea) or Regular Force attached to Special Force (Korea) July 5, 1950 to October 31,1953) **or** SDA/Special Duty Service Area (November 1, 1953-March 31,1981). SDA service includes service on ships as outlined in Disability Benefits In Respect Of Wartime And Special Duty Service.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Service in Korea differs from other wartime/SDA service areas in the following respect:

1. The dates of the veteran's service must be taken into consideration.
   Any veteran with Korean service up to, and including, 1953-10-31 would be provided a ruling under the Pension Act. This includes those with SDA Korea service combined with Korean wartime service, and/or Active Force service up to, and including, 1953-10-31 .

   SDA Korea service is from 1953-11-01 to 1981-03-31. Veterans with **only** SDA Korea service would be provided a ruling under the Veterans Well-being Act. In addition, the Australia's Korean War Veterans Studies Policy applies to SDA service 1953-11-01 to 1956-04-30

Dual Service Flow Chart: To aid adjudicators in selecting the correct legislation/ Act when providing decisions.

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Elements of Claim	Finding Facts/Evidence/Decision
Verify Service For Application of Policy	Korean Service July 5,1950 and April 30, 1956 Includes: Special Force service (Korea) (July 5, 1950-October 31, 1953) Regular Force service attached to the Special Force (Korea) (July 5, 1950-October 31, 1953) Special Duty Service (SDA Korea) (November 1,1953-April 30,1956) Merchant Navy
Service Relationship	Service in Korea July 5, 1950 - April 30,1956
Entitlement as per VAC's Policy on Australia's Korean War Veterans Studies ***Korean Service July 5,1950 and April 30, 1956*** ***Entitlement for listed conditions and service dates only.*** ***For other conditions, this policy does not apply. Usual adjudication guidelines, including insurance principle would apply.*** ***For service outside these dates (SDA Korea November 1, 1953-March 31,1981), this policy does not apply. Usual adjudication guidelines, including insurance principle would apply.***	**Cancer: Primary malignant neoplasms** (including "in situ" neoplasms) of the following sites: xii. Primary malignant neoplasms of the head and neck - includes only the following sites: • lip (excludes skin of the lip) • tongue • salivary glands • gums • mouth • tonsils • oropharynx • nasopharynx • hypopharynx xiii. Primary malignant neoplasms of the larynx xiv. Primary malignant neoplasms of the trachea xv. Primary malignant neoplasms of the lung xvi. Primary malignant neoplasms of the esophagus which includes: • gastroesophageal junction • squamous cell carcinoma of the cardia of the stomach xvii. Primary malignant neoplasms of the colon xviii. Primary malignant neoplasms of the rectum and anus (excludes skin of the anus) xix. Primary malignant neoplasms of the prostate xx. Malignant melanoma of the skin xxi. **Cancer:** Malignant melanomas of the following sites: xxii. skin of the lip xxiii. skin of the anus

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

	Other General Medical Conditions: xxiv. Chronic obstructive lung disease (includes chronic bronchitis and emphysema)/ COPD xxv. Ischemic heart disease xxvi. Cerebrovascular disease
Policy Clarifications	Cerebrovascular Disease includes:[1] • Transient Ischemic Attacks • Stroke If uncertain that diagnosis included/excluded under policy, refer to Medical Advisory
Conditions NOT included Under Korea policy	Peripheral Vascular Disease[2] Valvular Heart Disease
Diagnosis	**Cancer** : Accepted from appropriate specialist or any Medical Practitioner with investigative evidence including pathology report **COPD** -Accepted from Respirologist or General Internist (PFT/spirometry not required) General practitioner when supported by PFT/spirometry -If diagnosis from General practitioner and PFT/Spirometry unavailable, consult Medical Advisory **Ischemic heart Disease** Accepted from appropriate specialist or any Medical Practitioner with investigative evidence **Cerebrovascular Disease** Accepted from appropriate specialist or any Medical Practitioner with investigative evidence
Assessment	Assessment provided by Medical Advisory
Consult Medical Advisory	Diagnosis Clarification Assessment

[1] As per direction by Policy at time of release of VAC's policy on Australia's Korean War Veterans Studies.
[2] As per direction by Policy at time of release of VAC's policy on Australia's Korean War Veterans Studies.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Mustard Gas

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Mustard gas, consisting of sulfur mustard, is also known as mustard agent, or Yperite (it was first used in Ypres, Belgium)," or by the military designations H, HD, and HT. It is a powerful irritant and blistering agent that damages the skin, eyes, and respiratory tract on contact. It is actually odorless but contaminants cause it to smell like mustard or garlic.

Nitrogen mustards were produced in the 1920s and 1930s as potential chemical warfare weapons. They are vesicants (or blister agents) similar to the sulfur mustards. The nitrogen mustards are also known by their military designations of HN-1, HN-2, and HN-3. The nitrogen mustards were never used in warfare. However, there is indication that nitrogen mustard was used in the testing during WWII.[3] HN-2 was designed as a military agent but was later used in cancer treatment. Other treatment agents now have replaced it.

Lewisite is also a blistering agent that contains organic arsenic. Purified Lewisite is a colorless, oily liquid at room temperature with a faint "geranium-like" odor. More volatile than sulfur mustard, this agent can be used as a vapor over large distances and has been mixed with sulfur mustard to achieve greater effectiveness in combat. It causes symptoms of exposure immediately.

- Sulfur mustard is a type of chemical warfare agent.
- It was introduced and used extensively in World War I.
- In WWII, it was stockpiled but rarely used. Since WWII, it has been used sporadically throughout the world; these events would be treated on a case by case basis for possibility of exposure. Sulfur mustard was tested on Canadian soldiers in Canada during WWII.
- Sulfur mustard is not found naturally in the environment.

How people can be exposed to sulfur mustard

- If sulfur mustard is released into the air as a vapor, people can be exposed through skin contact, eye contact, or breathing. Sulfur mustard vapor can be carried long distances by wind.

[3] The Use of Human Subjects in Chemical Warfare Agent Experiments: An Ethical Perspective By/par Clément H. Laforce May 2006 https://www.cfc.forces.gc.ca/259/281/278/laforce.pdf

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

- If sulfur mustard is released into water, people can be exposed by drinking the contaminated water or getting it on their skin.
- People can be exposed to liquid sulfur mustard by eating it or getting it on their skin.
- Sulfur mustard can last from 1 to 2 days in the environment under average weather conditions and from weeks to months under very cold conditions.
- Sulfur mustard breaks down slowly in the body, so repeated exposure may have a cumulative effect (that is, it can build up in the body).
- Sulfur mustard vapor is heavier than air, so it will settle in low-lying areas.

Immediate signs and symptoms of sulfur mustard exposure

- Exposure to sulfur mustard usually is not fatal. When sulfur mustard was used during World War I, it killed fewer than 5% of the people who were exposed and received medical care.
- People may not know right away that they have been exposed, because sulfur mustard may not have a smell or have a smell that might not cause alarm.
- Typically, signs and symptoms do not occur immediately. Depending on the severity of the exposure, symptoms may not occur for up to 24 hours. Some people are more sensitive to sulfur mustard than are other people, and may have signs and symptoms sooner.
- Sulfur mustard can have the following effects on specific parts of the body:
    - *Skin*: redness and itching of the skin may occur 2 to 48 hours after exposure and may eventually change to yellow blistering of the skin.
    - *Eyes*: irritation, pain, swelling, and tearing may occur within 3 to 12 hours of a mild to moderate exposure. A severe exposure may cause signs and symptoms within 1 to 2 hours and may include the symptoms of a mild or moderate exposure plus light sensitivity, severe pain, or blindness lasting up to 10 days.
    - *Respiratory tract*: runny nose, sneezing, hoarseness, bloody nose, sinus pain, shortness of breath, and cough within 12 to 24 hours of a mild exposure and within 2 to 4 hours of a severe exposure.
    - *Digestive tract*: abdominal pain, diarrhea, fever, nausea, and vomiting.
    - *Bone marrow*: decreased formation of blood cells (aplastic anemia) or decreased red or white blood cells and platelets (pancytopenia) leading to weakness, bleeding and infections.
- Showing these signs and symptoms does not necessarily mean that a person has been exposed to sulfur mustard.

RCMP service is not known to be related to Mustard Gas exposure.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

References: List of Health Conditions for Sufficient and Insufficient Causal Relationships to Mustard Gas Agent Exposures

Verify Service	**Active Force** **Merchant Navy** **SDA/SDO Service**	**Regular Force** **Reserve Force**
Service Relationship	Exposure to Mustard Gas WWII confirmed with documentation usually found in posting sheets	Exposure to Mustard Gas Regular Force confirmed in posting sheets
Conditions related to Mustard Gas Exposure	• Respiratory Cancers • Cancer Larynx • Cancer Nasopharynx • Cancer Upper Respiratory Tract (4) • Cancer Lungs • Leukemia (all types) (1) • Cancer Urinary Bladder (Transitional cell carcinomas) (2) • Squamous Cell Carcinoma Skin at sites of patch test • Skin conditions at sites of patch test ○ Pigmentation abnormalities of the skin ○ Chronic skin ulcerations ○ Scar formation • Asthma • Bronchiectasis (3) • Chronic Obstructive Pulmonary Disease/COPD includes Chronic Bronchitis and Emphysema • Pulmonary Fibrosis/ Interstitial Fibrosis (3) • Laryngitis • Eye conditions: ○ Recurrent corneal ulcerative disease ○ Corneal opacities ○ Delayed recurrent Keratitis ○ Chronic conjunctivitis Psychological disorders -mood disorders, anxiety disorders (PTSD), other traumatic stress disorder responses. These	• Respiratory Cancers • Cancer Larynx • Cancer Nasopharynx • Cancer Upper Respiratory Tract (4) • Cancer Lungs • Leukemia (all types) (1) • Cancer Urinary Bladder (Transitional cell carcinomas) (2) • Squamous Cell Carcinoma Skin at sites of patch test • Skin conditions at sites of patch test ○ Pigmentation abnormalities of the skin ○ Chronic skin ulcerations ○ Scar formation • Asthma • Bronchiectasis (3) • Chronic Obstructive Pulmonary Disease/COPD includes Chronic Bronchitis and Emphysema • Pulmonary Fibrosis/ Interstitial Fibrosis (3) • Laryngitis • Eye conditions: ○ Recurrent corneal ulcerative disease ○ Corneal opacities ○ Delayed recurrent Keratitis ○ Chronic conjunctivitis

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

	may result from traumatic or stressful features of the exposure experience, not a toxic effect of the agents themselves • Sexual Dysfunction - as a result of genital scarring which prevents or inhibits normal sexual performance or activity	Psychological disorders -mood disorders, anxiety disorders (PTSD), other traumatic stress disorder responses. These may result from traumatic or stressful features of the exposure experience, not a toxic effect of the agents themselves • Sexual Dysfunction - as a result of genital scarring which prevents or inhibits normal sexual performance or activity
Diagnosis	Accepted from appropriate Medical Practitioner	Accepted from appropriate Medical Practitioner
Entitlement	Entitle to Active Force, Merchant Navy,SDA/SDO	Entitle to Regular Force
Assessment	Assessment provided by Medical Advisory or Disability Adjudicator based on claim type	Assessment provided by Medical Advisory or Disability Adjudicator based on claim type
Consult Medical Advisory	• Restrictive Lung Disease not listed above • Diagnosis Clarification • Assessment • Any eye condition	• Restrictive Lung Disease not listed above • Diagnosis Clarification • Assessment • Any eye condition

1. Wording from original directive indicates “Leukemia (typically acute nonlymphocytic type)”. All types of leukemia are included, providing most generous interpretation for the veteran. Dated 2021-01-27
2. Wording from original directive indicates the inclusion of: “Bladder cancer - (transitional cell carcinomas”). Currently, little support in the literature but remains included at this time, providing most generous interpretation for the veteran. Dated 2021-01-27

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

3. Bronchiectasis, pulmonary fibrosis, and interstitial fibrosis were excluded in the original medical directive. Medical literature currently supports mustard gas is a risk factor for the development of these conditions and therefore they are included at this time. Dated 2021-01-27
4. Included in IARC

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Mustard Gas World War II

- Exposure of Mustard Gas confirmed with documentation of:
    a. Test Subject
    b. Observer number
    c. Entry in Soldier Pay book
    d. Info from DND or VAC
    e. Suffield Experimental Station (SES)
    f. Defense Research Establishment Suffield (DRES)
    g. Chemical Warfare Laboratories (CWL) in Ottawa
    h. Posting sheets or pay book may show additional monies paid and leave
    i. Granted pay… Followed by: Granted furlough for 14 days (maybe longer)
    j. Exercise Gopher in 1943
    k. Porton Down, England (training location)

Mustard Gas Regular/Reserve Force

Exposure of Mustard Gas confirmed in posting sheets with documentation of:

- **Wainwright/Sarcee:**
    a. Spot Check I, Aug. 1960
    b. Spot Check II, Sept. 1961
    c. Spot Check IV
    d. Spot Check V, Sept. 12-13, 1966
- **Suffield/DRES:**
    a. Bell Hop I, May-June, 1966
    b. Adobe, Sept. 26-29, 1966
    c. Bell Hop II, Feb 21, 1967

Exercise VACUUM, Sept. 16 – Oct.6, 1968, *See list below

Exercise VACUM

- 1st Combat Group, Calgary
- Queen's Own Rifles of Canada, Victoria
- 3rd Regiment, Royal Canadian Horse Artillery, Winnipeg
- Fort Garry Horse, Calgary
- 3 Field Squadron, Royal Canadian Engineers, Chilliwack, BC
- 1 Service Battalion, Calgary
- Medical Support Unit, Calgary
- 1 Signals Squadron, Calgary
- Air Support Element Rivers, Edmonton, Trenton
- Umpires, observers and recorders from CFHQ (Ottawa), Mobile Command HQ (St
    - Hubert) and various Canadian Armed Forces, Commands and Units

UNITED STATES

One Mechanized Company, 61st Infantry, 5th Division, Fort Carlson, Colorado

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

UNITED KINGDOM

One Rifle Company, Black Watch, Edinburgh, Scotland

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Shipboard Fires: Royal Canadian Navy Vessel Fire Incidents

This guide addresses only three specific shipboard fires. The occurrence and significance of any other shipboard fire(s) must be established using usual adjudicative practices.[xi]

HMCS Chicoutimi (submarine) 2004-10-05

This flowsheet pertains to injuries /exposures sustained as a result of being onboard HMCS Chicoutimi during the shipboard fire incident of 2004-10-05. Any other exposures due to serving on HMCS Chicoutimi are not included here and would be adjudicated using usual practices.

On 2004-10-05 a fire occurred onboard the HMCS Chicoutimi, a submarine, one day after departing from Faslane, Scotland for Canada. The fire originated in the commanding officer's cabin and spread one deck below to electrical space before being extinguished. Large amounts of thick black smoke were rapidly produced by the fire. Nine of the crewmembers out of 57 onboard sustained smoke inhalation injuries as result of fire. On October 6 2004, 3 of the injured crewmembers were airlifted off the HMCS Chicoutimi and transferred to the hospital. One of these members died as a result of his injuries. The remaining crew stayed onboard the smoke damaged vessel while it was towed back to Scotland, where it arrived 2004-10-10.

A report entitled **HMCS CHICOUTIMI Fire Incident of 5 October 2004, Potential Chemical Exposures and Health Consequences** was prepared by DND. It looked at aspects of the fire which may have represented a health problem. The conclusions are below.

Conclusions

The HMCS CHICOUTIMI fire of 5 Oct 2004 was a dramatic event that produced highly toxic smoke. Smoke exposure has the potential to result in acute injury, and may also cause long-term health problems. The risk of harm and the severity of harm depend on the amount of smoke exposure.

Current medical knowledge regarding smoke inhalation indicates that, in general, individuals who go on to develop long-term health problems from smoke inhalation injury show signs of these problems within hours to weeks after smoke inhalation. For crewmembers who fit this description, it is important that they receive appropriate medical care and follow-up.

Crewmembers who were clinically well several months after the fire would be expected to remain well; it is not anticipated that they would go on to develop long-term health problems because of their exposures.

It must be emphasized that this report is specific to health effects related to chemical exposures only. As in any life-threatening scenario, the HMCS CHICOUTIMI incident represented significant psychological trauma. The effects of such trauma are experienced variably by different individuals, possibly causing psychological, cognitive, and/or physical symptoms. This is an important area for consideration regarding the long-term health of the crew, but this topic was beyond the scope of this report.

For VAC entitlement purposes:

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Lung disease: In those with evidence of lung irritation during and immediately following the incident, ongoing asthma or COPD would be considered related to the fire incident. In those without such evidence but current diagnosis of a respiratory condition, Medical Advisory should be consulted.

Cancers: There is no indication in the report that there would be an expected increased incidence of cancer among the crewmembers. Of note, while there was asbestos found on the ship, air studies following the fire indicated that there were no asbestos fibers released during the fire incident. There would be no expected increase in asbestos related illnesses due to the fire incident.

Psychological/Mental Health Disorders: This was a very stressful situation with loss of life and potential for injury and further loss of life. Being onboard the HMCS Chicoutimi during this incident would be considered a severe stressor.

HMCS Chicoutimi

Elements of Claim	Finding Facts/ Evidence/Decision
Verify Service	Regular Force HMCS Chicoutimi
Service Relationship	Letter on Head Office file to confirm onboard 5 October 2004
Exposure	Fire onboard submarine, 5 October 2004
Conditions considered	Asthma COPD Psychiatric Disorders
Diagnosis	Accepted from Appropriate Medical Practitioner
Entitlement	Entitle to Regular Force
Assessment	Assessment provided by Medical Advisory for Asthma/COPD Assessment provided by Adjudication/Medical advisory for Mental Health Disorders
Consult Medical Advisory	Diagnosis Clarification Assessment for Asthma/COPD

HMCS Kootenay (ship) 1969-10-23

This flowsheet pertains to injuries /exposures sustained as a result of being onboard HMCS Kootenay during the shipboard fire incident of 1969-10-23. Any other exposures due to serving on HMCS Kootenay are not included here and would be adjudicated using usual practices.

A blast occurred in the engine room onboard the destroyer, the HMCS KOOTENAY on **October 23, 1969**. This was one of the worst peacetime disasters in the history of the Canadian Forces. The ship was

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

westbound out of the English Channel in a Task Group with the HMCS BONAVENTURE, HMCS TERRA NOVA, HMCS FRASER, HMCS ST- LAURENT, HMCS OTTAWA, HMCS ASSINIBOINE, HMCS MARGAREE, and HMCS SAGUENAY. Despite efforts by crewmembers to extinguish the fire, nine seamen were killed, and injured sixty-two. This accident marked the last time servicemen who died overseas had to be buried abroad. They were buried in Plymouth, England.

Adjudication on these files should be reviewed with the Disability Consultant of the Exposure Team.

HMCS Kootenay

Elements of Claim	Finding Facts/Evidence/Decision
Verify Service	Regular Force/Reserve Force HMCS Kootenay
Service Relationship	Onboard 23 October 1969 As per posting sheet Or Documentation in Service Health Records
Conditions of Concern	Chronic Respiratory Disease, Ear, Nose and Throat Conditions Psychiatric Disorders
Occupation	
Exposure	Fire in engine room onboard ship, 23 October 1969
Diagnosis	Accepted from Appropriate Medical Practitioner
Entitlement	Entitle to Regular/Reserve Force
Assessment	Assessment provided by Medical Advisory
Consult Medical Advisory	Diagnosis Clarification Assessment

HMCS Protecteur (ship) 2014-02-27

This flowsheet pertains to injuries /exposures sustained as a result of being onboard HMCS Protecteur during the shipboard fire incident of 2014-02-27. Any other exposures due to serving on HMCS Protecteur are not included here and would be adjudicated using usual practices.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

A fire occurred in the engine room onboard the destroyer, the HMCS Protecteur on **February 27, 2014**. In those who had evidence of lung irritation during and immediately following the incident, and who developed ongoing asthma or COPD, the fire incident would be considered as causal.

Adjudication on these files should be reviewed with the Team Leader of the Exposure Team.

HMCS Protecteur

Elements of Claim	Finding Facts/Evidence/Decision
Verify Service	Regular Force/ Reserve Force HMCS Protecteur
Service Relationship	Onboard 2014-02-27 As per posting sheet Or Documentation in Service Health Records
Conditions of Concern	Chronic Respiratory Disease, Ear, Nose and Throat Conditions Psychiatric conditions
Exposure	Fire in engine room onboard ship, 2014-02-27
Diagnosis	Accepted from appropriate Medical Practitioner
Entitlement	Entitle to Regular/Reserve Force
Assessment	Assessment provided by Medical Advisory
Consult Medical Advisory	Diagnosis clarification Assessment

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Sun Exposure

Chronic Sun Exposure: Skin Conditions and Skin Cancer

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Preamble

See Medical Directive Sun Exposure L'Exposition Chronique au Soleil for full information on entitlement and assessment.

VAC recognizes the relationship between significant chronic sun exposure to skin and later development of:
- malignant melanoma of the skin,
- basal cell carcinoma of the skin,
-squamous cell carcinoma of the skin
- actinic/solar keratoses.

(Note: VAC also recognizes the relationship between significant chronic sun exposure and the later development of some types of cataract. For details see Medical Directive on Cataract and Sun Exposure).

This directive does not include malignancy of the anus, genitalia or nail beds(subungual). These areas are not considered to be generally at risk for sun exposure. Entitlements for malignancy “of the skin” do not include these areas. Malignancy of these areas should be referred to Medical Advisory for review of other identified risk factors.

Any malignant melanoma should be identified by site and given a separate assessment and entitlement.

For basal cell carcinoma, squamous cell carcinoma or actinic keratosis due to chronic sun exposure, the entitlement should not identify a specific lesion or area but rather state Basal Cell Carcinoma of the Skin, Squamous Cell Carcinoma of the Skin or Actinic Keratosis. When these conditions result from exposures other than chronic sun exposure, the site should be specified.

The diagnoses of Basal Cell Carcinoma of the Skin and/or Squamous Cell Carcinoma of the Skin do not include malignancy of the anus, genitalia or nail beds (subungual). These sites require separate entitlement and require consult with Medical Advisory. The requirement for bracketing with other entitlements for assessment would be done on a case by case basis. The assessment will be provided by Medical Advisory

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Entitlement for Basal Cell Carcinoma of the Skin includes all basal cell carcinomas of the skin. A new entitlement is not needed for further lesions.

Entitlement for Squamous Cell Carcinoma of the Skin includes all squamous cell carcinomas of the skin. A new entitlement is not needed for further lesions.

Basal Cell Carcinoma of the Skin and Squamous Cell Carcinoma of the Skin are bracketed for assessment but should be entitled separately.

Entitlement for Actinic Keratosis due to chronic sun exposure includes all involved areas. A new entitlement is not needed for further lesions/areas of involvement. Actinic Keratosis is **not** bracketed with skin cancers for assessment purposes.

Entitlement

This flow chart refers to length of service, place of service and occupation. It indicates if the client can be provided with a positive or negative entitlement decision, without filling in a worksheet. In those requiring a worksheet, the directive will be followed.

Length of service refers to **service prior to onset of skin condition/cancer** and to **daily, full time service only**. Any other type of service requires a worksheet.

This flow chart is not applicable to sun exposure resulting in sunburn. See [Sun Exposure Medical Directive.]

Verify Service	**Active Force Special Duty Area Special Duty Operation**	**Regular Force Reserve Force**	**RCMP**
Immediate positive Entitlement decision	Initial onset or worsening of Signs/symptoms or diagnosis during Active Force Service or SDA/SDO service and/or Greater than 6 months service Zone 1 * and/or Greater than 12 months service Zone 0.75 *Includes Active Force in Canada	Greater than 19 years of any fulltime service And/or Greater than 10 years of fulltime primarily outdoor service	Initial onset or worsening of Signs/symptoms or diagnosis during or SDA/SDO service And/or Greater than 19 years of any fulltime service And/or Greater than 10 years of fulltime primarily outdoor service

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Immediate negative Entitlement decision		No SDA/SDO service Less than 8 years of any fulltime service Less than 16 years of primarily indoor service	No SDA/SDO service Less than 8 years of any fulltime service Less than 16 years of primarily indoor service
Worksheet (link in Medical Directive)	Required if no immediate decision possible	Required if no immediate decision possible	Required if no immediate decision possible
Exposure	Chronic Sun Exposure	Chronic Sun Exposure	Chronic Sun Exposure
Diagnosis	Accepted from Appropriate Medical Practitioner	Accepted from Appropriate Medical Practitioner	Accepted from Appropriate Medical Practitioner
Entitlement	Entitle to Active Force or SDA/SDO service Consult Medical Advisory for cancers of anus, genitalia or nail beds (subungual)	If not related to Active Force/SDA/SDO service, entitle to Regular/Reserve Force Consult Medical Advisory for cancers of anus, genitalia or nail beds (subungual)	Entitle to RCMP service Consult Medical Advisory for cancers of anus, genitalia or nail beds (subungual)
Assessment	Assessment provided by qualified Disability Adjudicator or Medical Advisory If Mohs procedure, skin graft or melanoma provided by Medical Advisory	Assessment provided by qualified Disability Adjudicator or Medical Advisory If Mohs procedure, skin graft or melanoma provided by Medical Advisory	Assessment provided by qualified Disability Adjudicator or Medical Advisory If Mohs procedure, skin graft or melanoma provided by Medical Advisory
Consult Medical Advisory	For diagnosis clarification For service hours between 4300 and 4500 (as determined on worksheet)	For diagnosis clarification For service hours between 4300 and 4500 (as determined on worksheet)	For diagnosis clarification For service hours between 4300 and 4500 (as determined on worksheet)
Consequential ruling required, not included	Skin graft from remote site	Skin graft from remote site	Skin graft from remote site

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Tuberculosis, Active

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Preamble

Tuberculosis is a complex medical condition. For more information see the Medical Directive on Tuberculosis

The course of Tuberculosis is either:

1. Primary Tuberculosis leading to:

   Latent (Dormant) Tuberculosis or

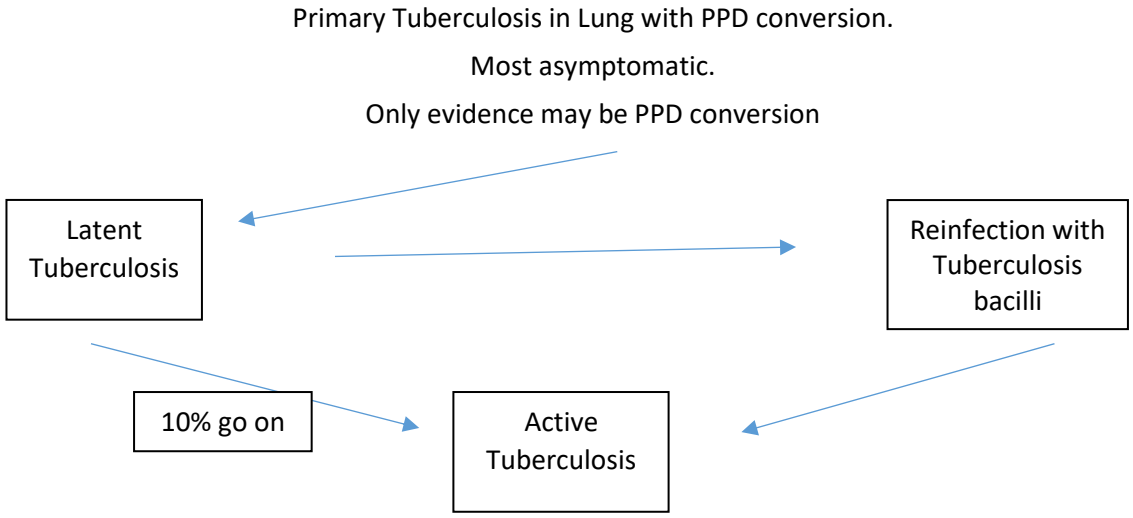
   Active Tuberculosis

   or

2. Primary Tuberculosis leading to:

   Latent Tuberculosis, which may remain permanently inactive **or** reactivate leading to:

   Reactivation/Reinfection (Active) Tuberculosis



Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Primary Tuberculosis

The individual is exposed to Tuberculosis mycobacteria usually by inhaling infected air droplets from a close contact with Active Tuberculosis.

The immune system does not initially respond and for several weeks the mycobacteria are free to multiply and spread to the hilar lymph nodes and into the blood stream to distant organs such as the kidney, meninges or spine/other bones.

During Primary Tuberculosis the individual may feel entirely well or they may experience symptoms such as cough, fever, night sweats and fatigue. The symptoms tend to be relatively mild. The CXR usually remains normal. The initial primary infection may begin to heal. Tubercle bacilli persist in the body. Granulomas or Ghon Complexes may appear on the Chest Xray (CXR).

The individual may now develop a positive PPD skin test, commonly known as a 'PPD converter or Latent tuberculosis' or develop a positive IGRA blood test. It may require up to ten weeks to develop a positive skin test after exposure to Tuberculosis mycobacterium.

If the initial primary infection is not well contained by the immune system response the individual may develop Active Tuberculosis.

Latent Tuberculosis /PPD convertor

The Primary Tuberculosis regresses and heals. The tuberculosis infection persists without producing illness.

The individual develops a positive tuberculosis test, a PPD skin test or an IGRAI blood test. **For VAC entitlement purposes, Latent Tuberculosis and PPD Convertor are equivalent**. Either term is an acceptable term for VAC entitlement purposes. PPD Conversion /Latent Tuberculosis is considered to be a permanent disability because it requires antibiotics to prevent progression to Active Tuberculosis along with long term follow up. Its presence can interfere with the treatment of other medical conditions.

Latent Tuberculosis may remain dormant but can develop into Reactivation (Active) Tuberculosis at any time throughout the individual's lifetime. Approximately 10% of PPD converters will develop Active Tuberculosis. Although most individuals who do develop Active Tuberculosis will do so within one to two years of their positive PPD skin test, it may take years.

The Medical Code for Pulmonary Tuberculosis is applied.

If Latent Tuberculosis/PPD Conversion progresses to Active Tuberculosis, a new entitlement decision is not required. An expansion of diagnosis is required and site specific Medical Codes are added.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Active Tuberculosis

The individual typically experiences symptoms such as cough, fever, night sweats and fatigue. Most cases of Active Tuberculosis involve the lung. Active Tuberculosis can spread to almost any organ in the body. The most commonly affected sites are the spine, meninges, and kidney. For entitlement, the specific sites should be identified.

PPD skin test can remain negative in known cases of Active Tuberculosis.

The diagnosis is often made with the combination of a Positive PPD or IGRA, typical CXR findings and therapeutic trial of antituberculous medication for several months to determine if there is improvement of symptoms or abnormalities on chest X-ray.

In clients previously entitled for Latent Tuberculosis/PPD convertor, an expansion of diagnosis is required and site specific Medical Codes are added.

Recurrent Tuberculosis

Recurrent tuberculosis can be one of two types: either "reactivation" or "reinfection". The signs, symptoms and progress of the two types are indistinguishable clinically.

Reactivation tuberculosis results from a previously treated tuberculosis. This may happen with a change in the patient's immune status such as an acquired HIV infection or use of steroids.

Reinfection tuberculosis is a second infection of tuberculosis with a different strain. This can happen in any situation which has an increased risk for tuberculosis. **For VAC entitlement purposes, if a client develops Active Tuberculosis after a high risk exposure, the Tuberculosis will be deemed due to that high risk exposure even if the client was known to be a PPD convertor prior to the exposure**.

High risk Posting/Occupation (not all inclusive)
Northern posting. Working in countries with a high rate of tuberculosis (http://www.stoptb.org/countries/tbdata.asp) Working with immigrants originating from countries with high rate of tuberculosis Healthcare worker Handling of prisoners Working with homeless population.

Being immunocompromised is a risk factor for developing Active Tuberculosis. Conditions causing immunocompromise includes transplant recipient , AIDS, HIV, chronic renal failure requiring hemodialysis, some cancer treatments, TNF-alpha inhibitors, diabetes, chronic steroids).

NOTE:

Entitlement for Active Tuberculosis includes signs and symptoms of restrictive lung disease.

Active Tuberculosis is considered causative for Chronic Obstructive Pulmonary Disease (COPD).

Active Tuberculosis is considered causative for Lung cancer.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

NOTE: This chart does not address latent tuberculosis (PPD conversion). Refer to the Latent Tuberculosis chart.

Verify Service	**Active Force Merchant Navy Special Duty Area Special Duty Operations**	**Regular Force Reserve Force**	**RCMP**	**Previous entitlement For PPD Conversion/Latent Tuberculosis**
Service Relationship	Diagnosed or first manifestation during or following AF/SDA/SDO service. Previously entitled for Latent Tuberculosis/PPD convertor due to AF/SDA/SDO service	Diagnosed during or following a high risk posting or working in a high risk occupation. Previously entitled for Latent Tuberculosis/PPD convertor	Diagnosed during or following a high risk posting or performing high risk job duties. Previously entitled for Latent Tuberculosis/PPD convertor	Reactivation of TB previously entitled as Latent Tuberculosis or PDD Conversion.
Diagnosis	Accepted from appropriate Medical Specialist. Pulmonary Tuberculosis*:* • Respirologist, Infectious Diseases, General Internist • Other body systems affected: (Extra-pulmonary) System specific specialist, Infectious Diseases, General Internist.	Accepted from appropriate Medical Specialist. Pulmonary Tuberculosis*:* • Respirologist, Infectious Diseases, General Internist • Other body systems affected: (Extra-pulmonary) System specific specialist, Infectious Diseases, General Internist.	Accepted from appropriate Medical Specialist. Pulmonary Tuberculosis*:* • Respirologist, Infectious Diseases, General Internist • Other body systems affected: (Extra-pulmonary) System specific specialist, Infectious Diseases, General Internist.	Accepted from appropriate Medical Specialist. Pulmonary Tuberculosis*:* • Respirologist, Infectious Diseases, General Internist • Other body systems affected: (Extra-pulmonary) System specific specialist, Infectious Diseases, General Internist.
Entitlement Considerations	Entitle to AF/SDA/SDO service. Entitlement includes restrictive lung disease Tuberculosis **may** be consequential to : Immunocompromised (transplant recipient , AIDS, HIV, chronic renal failure requiring hemodialysis, head and neck cancer, TNF-alpha inhibitors, diabetes, chronic steroids)	Entitle to Regular/Reserve Force Service Entitlement includes restrictive lung disease Tuberculosis may be consequential to : Immunocompromised (transplant recipient , AIDS, HIV, chronic renal failure requiring hemodialysis, head and neck cancer, TNF-alpha inhibitors, diabetes, chronic steroids)	Entitle to RCMP service. Entitlement includes restrictive lung disease Tuberculosis may be consequential to : Immunocompromised (transplant recipient , AIDS, HIV, chronic renal failure requiring hemodialysis, head and neck cancer, TNF-alpha inhibitors, diabetes, chronic steroids)	A new entitlement decision is **not** required. The diagnosis is expanded to include the site(s) of active TB and a site specific medical code(s) is added.
Consider possible consequentials to	COPD (Chronic Obstructive Pulmonary Disease)	COPD (Chronic Obstructive Pulmonary Disease)	COPD (Chronic Obstructive Pulmonary Disease)	COPD (Chronic Obstructive Pulmonary Disease)

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Active Tuberculosis Assessment	Lung Cancer • Provided by Medical Advisory. • System specific medical questionnaire(s) required. • Full PFTs required for Pulmonary TB.	Lung Cancer • Provided by Medical Advisory. • System specific medical questionnaire(s) required. Full PFTs required for Pulmonary TB.	Lung Cancer • Provided by Medical Advisory. • System specific medical questionnaire(s) required. Full PFTs required for Pulmonary TB.	Lung Cancer • Provided by Medical Advisory. • System specific medical questionnaire(s) required. Full PFTs required for Pulmonary TB.
Consult Medical Advisory	• Positive screening test prior to AF or SDA/SDO service • Diagnosis clarification	Diagnosis clarification	Diagnosis clarification	Diagnosis clarification

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Tests for the Diagnosis of Tuberculosis

Tuberculin Skin Test/ PPD Conversion

The Tuberculin Skin Test (TST) is referred to as:

- TST (Tuberculin Skin Test)
- PPD (Purified Protein Derivative)
- Mantoux Test

The Tuberculin Skin Test (TST) is used in diagnosing Latent Tuberculosis Infection (LTBI) and Active Tuberculosis.

TST is typically completed with Tuberculin Purified Protein Derivative (PPD). In the Mantoux Method, a solution containing PPD is injected under the skin. A positive skin test is a skin reaction of redness, swelling and induration.

A positive TST completed with PPD is commonly referred to as “PPD conversion”.

The definition of a positive TST varies with each particular risk group. See Medical Directive for information on test interpretation.

The BCG vaccine used to prevent tuberculosis can result in a positive TST.

IGRA – Interferon Gamma Release Assay – Blood Test

IGRA is a blood test used in diagnosing Latent Tuberculosis Infection and Active Tuberculosis. The IGRAs can be used to diagnose latent tuberculosis or an active tuberculosis infection in individuals who have received a previous BCG vaccination

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Tuberculosis, Latent (PPD Convertor)

This flowsheet indicates some occupations, postings and exposures which should be considered in the adjudication of exposure claims. For many of the listed exposures, information regarding significance of the amount, frequency and duration of an exposure and/or the latency period to the onset of an illness is not included here and should be obtained from other sources as per usual adjudication practices.

Any list provided should not be considered comprehensive. If an occupation, posting and/or exposure is not included in the list, it can/should still be considered using usual adjudication practices as outlined in VAC policies Hazardous Material and Radiation Exposure and Assessing and Categorizing Health-Related Expert Opinion(s) and Scientific Evidence.

Preamble

Tuberculosis is a complex medical condition. For more information see the Medical Directive on Tuberculosis

The course of Tuberculosis is either:

1. Primary Tuberculosis leading to:

   Latent (Dormant) Tuberculosis or

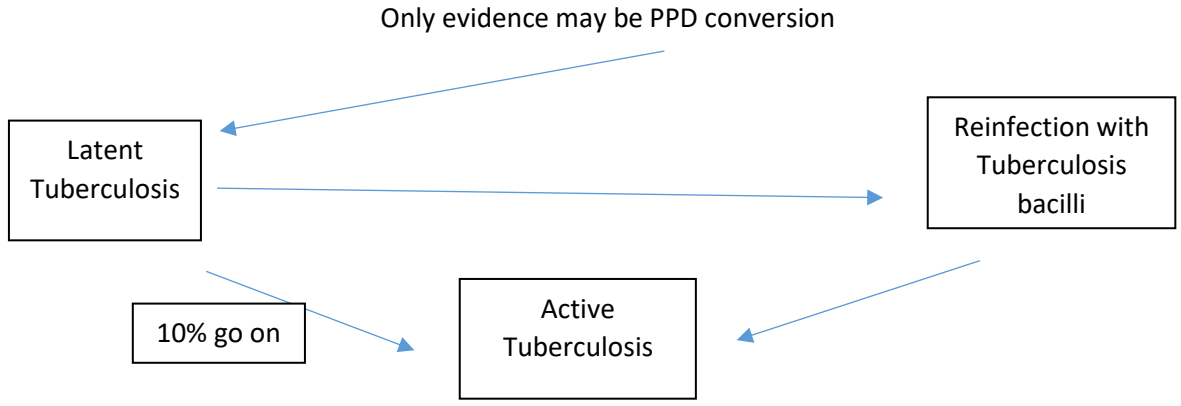
   Active Tuberculosis

   or

2. Primary Tuberculosis leading to:

   Latent Tuberculosis, which may remain permanently inactive **or** reactivate leading to:

   Reactivation/Reinfection (Active) Tuberculosis



Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Tests for the Diagnosis of Tuberculosis

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TST is typically completed with Tuberculin Purified Protein Derivative (PPD). In the Mantoux Method, a solution containing PPD is injected under the skin. A positive skin test is a skin reaction of redness, swelling and induration.

A positive TST completed with PPD is commonly referred to as “PPD conversion”.

The definition of a positive TST varies with each particular risk group. See Medical Directive for information on test interpretation.

The BCG vaccine used to prevent tuberculosis can result in a positive TST.

IGRA – Interferon Gamma Release Assay – Blood Test

IGRA is a blood test used in diagnosing Latent Tuberculosis Infection and Active Tuberculosis. The IGRAs can be used to diagnose latent tuberculosis or an active tuberculosis infection in individuals who have received a previous BCG vaccination

The currently available IGRAs are:

Quanti-FERON-TB Gold

T-SPOT.TB

Primary Tuberculosis

The individual is exposed to Tuberculosis mycobacteria usually by inhaling infected air droplets from a close contact with Active Tuberculosis.

The immune system does not initially respond and for several weeks the mycobacteria are free to multiply and spread to the hilar lymph nodes and into the blood stream to distant organs such as the kidney, meninges or spine.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

During Primary Tuberculosis the individual may feel entirely well or they may experience symptoms such as cough, fever, night sweats and fatigue. The symptoms tend to be relatively mild. The CXR usually remains normal. The initial primary infection may begin to heal. Tubercle bacilli persist in the body. Granulomas or Ghon Complexes may appear on the Chest Xray (CXR).

The individual may now develop a positive PPD skin test, commonly known as a 'PPD converter' or develop a positive IGRA blood test. It may require up to ten weeks to develop a positive TST skin test after exposure to Tuberculosis mycobacterium.

If the initial primary infection is not well contained by the immune system response the individual may develop Active Tuberculosis.

Latent Tuberculosis /PPD convertor

The Primary Tuberculosis regresses and heals. The tuberculosis infection persists without producing illness.

The individual develops a positive tuberculosis test, a PPD skin test or an IGRA blood test. For VAC entitlement purposes, Latent Tuberculosis and PPD Convertor are equivalent. Either term is an acceptable term for VAC entitlement purposes. PPD Conversion /Latent Tuberculosis is considered to be a permanent disability because it requires antibiotics to prevent progression to Active Tuberculosis along with long term follow up. Its presence can interfere with the treatment of other medical conditions.

Latent Tuberculosis may remain dormant but can develop into Reactivation (Active) Tuberculosis at any time throughout the individual's lifetime. Approximately 10% of PPD converters will develop Tuberculosis. Although most individuals who do develop Active Tuberculosis will do so within one to two years of their positive PPD skin test, it may take years.

The Medical Code for Pulmonary Tuberculosis is applied.

If Latent Tuberculosis/PPD Conversion progresses to Active Tuberculosis, a new entitlement decision is not required. An expansion of diagnosis is required and site specific Medical Codes are added.

Latent Tuberculosis/PPD Conversion is considered a disability because of the need for medical supervision, need for medications and potential to progress to Active Tuberculosis.

When entitled for Latent Tuberculosis/PPD convertor, the assessment provided is :

On a General Assessment Worksheet: The criteria is "PPD conversion". The rating is nil and then Quality of Life is added.[xii]

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Entitled condition(s) to be assessed:	Current Assessment:
Latent Tuberculosis OR PPD convertor	

Documents Reviewed:	Date of report:

GENERAL ASSESSMENT

Step 1: Determine the general rating.

Chapter(s)	Rationale for General Rating	Rating
	PPd conversion	0

Active Tuberculosis

The individual typically experiences symptoms such as cough, fever, night sweats and fatigue. Most cases of Active Tuberculosis involve the lung. Active Tuberculosis can spread to almost any organ in the body. The most commonly affected sites are the spine, meninges, and kidney. For entitlement, the specific sites should be identified.

PPD skin test can remain negative in known cases of Active Tuberculosis.

The diagnosis is often made with the combination of a Positive PPD or IGRA, typical CXR findings and therapeutic trial of antituberculous medication for several months to determine if there is improvement of symptoms or abnormalities on chest X-ray.

In clients previously entitled for Latent Tuberculosis/PPD convertor, an expansion of diagnosis is required and site specific Medical Codes are added.

Recurrent Tuberculosis

Recurrent tuberculosis can be one of two types: either "reactivation" or "reinfection". The signs, symptoms and progress of the two types are indistinguishable clinically.

Reactivation tuberculosis results from a previously treated tuberculosis. This can happen with a change in the patient's immune status such as an acquired HIV infection or use of steroids.

Reinfection tuberculosis is a second infection of tuberculosis with a different strain. This can happen in any situation which has an increased risk for tuberculosis. For VAC adjudication purposes, if a client

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

develops Active Tuberculosis after a high risk exposure, the Tuberculosis will be deemed due to that high risk exposure even if the client was known to be a PPD convertor prior to the exposure.

Tests for the Diagnosis of Tuberculosis

Tuberculin Skin Test/ PPD Conversion

The Tuberculin Skin Test (TST) is referred to as:

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TST is typically completed with Tuberculin Purified Protein Derivative (PPD). In the Mantoux Method, a solution containing PPD is injected under the skin. A positive skin test is a skin reaction of redness, swelling and induration.

A positive TST completed with PPD is commonly referred to as "PPD conversion".

The definition of a positive TST varies with each particular risk group. See Medical Directive for information on test interpretation.

The BCG vaccine used to prevent tuberculosis can result in a positive TST.

IGRA – Interferon Gamma Release Assay – Blood Test

IGRA is a blood test used in diagnosing Latent Tuberculosis Infection and Active Tuberculosis. The IGRAs can be used to diagnose latent tuberculosis or an active tuberculosis infection in individuals who have received a previous BCG vaccination

NOTE: This chart does not address active tuberculosis. Refer to the Active Tuberculosis chart.

NOTE: This chart is a guideline. See the Exposure chapter in the Adjudication Manual for further information.

High risk Posting/Occupation (not all inclusive)
Northern posting. Working in countries with a high rate of tuberculosis (http://www.stoptb.org/countries/tbdata.asp) Working with immigrants originating from countries with high rate of tuberculosis* Healthcare worker. Handling of prisoners. Working with homeless population.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Verify Service	**Active Force** **Merchant Navy** **Special Duty Area** **Special Duty Operations**	**Regular Force** **Reserve Force**	**RCMP**
Service Relationship	• No evidence of positive screening test prior to AF or SDO/SDA service. Positive screening test during or after AF or SDA/SDO service	• No evidence of positive screening test prior to enrollment / high risk posting /the start of work in a high risk occupation • Positive screening test during/after a high risk posting or high risk occupation	• No evidence of positive screening test prior to service • Positive screening test after a high risk posting or the start of high risk job duties
Diagnosis	Accepted from Medical Practitioner	Accepted from Medical Practitioner	Accepted from Medical Practitioner
Entitlement Considerations	If first positive screening test post AF/SDA/SDO entitle to AF/SDA/SDO service	• If not related to AF/SDA/SDO service, entitle to Regular/Reserve Force service • There are situations in which individuals may be exposed to TB who were not assigned to a high risk posting or work in a high risk occupation. Every claim must be adjudicated on an individual basis.	• Entitle to RCMP service • There are situations in which individuals may be exposed to TB who were not assigned to a high risk posting or high risk job duties. Every claim must be adjudicated on an individual basis.
Assessment	Nil assessment provided by Adjudicator	Nil assessment provided by Adjudicator	Nil assessment provided by Adjudicator
Consult Medical Advisory	• Positive screening test prior to AF or SDA/SDO service • Any indication of active TB • Further guidance required regarding the diagnosis, entitlement and/or assessment.	• Positive screening test prior to a high risk posting/start of work in a high risk occupation. • Any indication of active TB • Further guidance required regarding the diagnosis, entitlement and/or assessment.	• Positive screening test prior to a high risk posting/start of high risk job duties • Any indication of active TB • Further guidance required regarding the diagnosis, entitlement and/or assessment.

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Addendum - Exposure/Condition Information Table

Note : Any updates should be added to the Exposure Reference Guide English and French
At https://gcdocs.gc.ca/veterans/llisapi.dll/link/26798758

The following are some of the conditions, exposures and types of service for which background information, approach and/or direction have been provided. Please note, there may be other such documents available; this list is not totally inclusive and may not be up to date.

Medical Directives

Full folder:
Current Medical Directives / Directive Médicales
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29812935

Individual Directives

Amyotrophic Lateral Sclerosis Sclérose Latérale Amyotrophique
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29805082

Ankylosis Ankylose https://gcdocs.gc.ca/veterans/llisapi.dll/link/29804684

Asbestos and cancers of the pharynx https://gcdocs.gc.ca/veterans/llisapi.dll/link/24335923

Cataract Occupation pilot.docx
https://gcdocs.gc.ca/veterans/llisapi.dll/link/30761652

Cataract Radiation.docx
https://gcdocs.gc.ca/veterans/llisapi.dll/link/28440422

Cataract and Sun Exposure.docx
https://gcdocs.gc.ca/veterans/llisapi.dll/link/28441433

Chronic Mechanical Spinal pain Douleurs Rachidiennes Mécaniques Chroniques
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29814049

Diesel exhaust and COPD

Essentially normal range of motion https://gcdocs.gc.ca/veterans/llisapi.dll/Overview/14695869

Gastroesophageal Reflux Disease GERD Reflux gastro-oesophagien pathologique (RGO)
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29816268

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Head Injury Assessment Évaluation d'un traumatisme crânien
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29815768

Intractable pain Douleur Rebelle https://gcdocs.gc.ca/veterans/llisapi.dll/link/29814050

Partially Contributing Impairment Contributions Partielles
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29816269

Piriformis Syndrome Syndrome du piriforme https://gcdocs.gc.ca/veterans/llisapi.dll/link/29815486

Relevant Loss of Muscle Strength Assymetrical Reflexes Force Musculaire Asymetrie reflexes
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29815487

Restless leg syndrome and periodic limb movement disorder
https://gcdocs.gc.ca/veterans/llisapi.dll/link/14223415

Sciatica (Radicular Pain) Névralgie sciatique (douleur radiculaire)
https://gcdocs.gc.ca/veterans/llisapi.dll/link/29815488

Sun Exposure L'Exposition Chronique au Soleil https://gcdocs.gc.ca/veterans/llisapi.dll/link/29862150

Tuberculosis Tuberculose https://gcdocs.gc.ca/veterans/llisapi.dll/link/29812651

Policies/departmental directive

Amyotrophic Lateral Sclerosis http://intranet.vac-acc.gc.ca/eng/operations/vs-toolbox/policies/policy/1177

Agent Orange http://intranet.vac-acc.gc.ca/eng/operations/vs-toolbox/policies/policy/1190

Korea http://intranet.vac-acc.gc.ca/eng/operations/vs-toolbox/policies/policy/1445

Mustard gas https://gcdocs.gc.ca/veterans/llisapi.dll/link/26229377

Entitlement Eligibility Guidelines (EEG's)

https://www.veterans.gc.ca/eng/health-support/physical-health-and-wellness/compensation-illness-injury/disability-benefits/benefits-determined/entitlement-eligibility-guidelines/az-intro

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Consequentials to Malignant Conditions

Included conditions/symptoms/signs vs required consequential entitlements

Updated 2021-02-09

Note : Any updates should be added to the Exposure Reference Guide English and French

At https://gcdocs.gc.ca/veterans/llisapi.dll/link/26798758

Distant Metastases are included in the original entitlement. Consequential not required. Addition of Medical Pension Codes may be required.

Pension Disease Classification Manual

<http://intranet.vac-acc.gc.ca/eng/operations/vs-toolbox/business-processes/business-process/1301>

Well healed surgical scars are included in the original entitlement. No additional assessment is provided. Scars causing disfigurement, especially of the head and neck, are done under independent consideration.

Consequential ruling is generally required:

-for conditions resulting from side effects of treatment

-for some conditions with multiple etiologies

If an entitled malignancy causes disability which overlaps with a previously entitled condition (ie COPD and Lung cancer), the entitlements are not bracketed for assessment. The Partially Contributing Table should be applied, when applicable.

If bracketing the two conditions would be to the client's advantage, case should be discussed at Medical Advisory rounds.

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Malignant Primary Site	Include	Consequential Required
All	Distant Metastases	Conditions resulting from side effects of treatment Conditions with multiple etiologies
Acoustic Neuroma	- Hearing Loss	Tinnitus Vertigo Trigeminal nerve injury Facial nerve injury
Breast	- Lymphedema of arm	
Colon	- Colostomy; colectomy	- ED
Gastric	- Dumping Syndrome	
Kidney / renal	- Nephrectomy	-
Larynx / Head & Neck	- Determine based on individual case	- Superior vena cava obstruction - Xerostomia - Osteonecrosis of mandible/maxilla
Lung	- Post-thoracotomy Pain - Restrictive Lung Disease from surgery - Pulmonary fibrosis from radiation - In those with other lung diseases, do case by case to client's advantage	- Post-thoracotomy neuralgia - Recurrent laryngeal nerve injury - Superior vena cava obstruction
Prostate	- Radiation cystitis - All urinary symptoms even if BPH - Incontinence (if due to) - Symptoms from hormonal therapy - Testicular atrophy - Bilateral loss of testicles	- Gynecomastia - ED - Radiation Proctitis
Skin	-	- Limb/digit amputation
General	Stem cell transplant - Pathological Fractures	Paraneoplastic syndromes Pulmonary embolism - Superior vena cava obstruction
Surgery (in general)		- Incisional Hernias - Adhesions/obstructions Nerve injury
Radiation (in general)		- Peripheral neuropathy
Chemotherapy (in general)		- DVT - Xerostomia - Peripheral neuropathy - Sterility - Early onset menopause

Link to Quick Reference Flowcharts - Quick Reference Exposure Flowcharts (gcdocs.gc.ca)

Endnotes with references

[i] Updated 2022-03-01 as per Dr. V. Lentini Malignant Mesothelioma of the Pleura

[ii] Updated 2022-03-01 as per Dr. V. Lentini Malignant Mesothelioma of the pleura (Malignant Mesothelioma of other sites may be related to asbestos; all should be referred to Medical Advisory.)

[iii] Updated 2022-03-01 as per Dr. V. Lentini Malignant Mesothelioma of the Pleura

[iv] Updated 2022-03-01 as per Dr. V. Lentini Malignant Mesothelioma of the pleura (Malignant Mesothelioma of other sites may be related to asbestos; all should be referred to Medical Advisory.) Mesothelioma

[v] Updated 2022-03-01 as per Dr. V. Lentini
Non-Hodgkin Lymphoma (excluding Extranodal marginal zone (MALT) lymphoma)

Reference:

In the International Agency for Research on Cancer report of **2020-10-09**, leukemia and lymphoma were listed together and benzene was indicated to be a risk factor for both with the following footnote:

For benzene, the evidence in humans is sufficient for acute non lymphocytic leukemia, including acute myeloid leukemia; and the evidence in humans is limited for non Hodgkin lymphoma, chronic lymphoid leukemia, multiple myeloma, chronic myeloid leukemia, and acute myeloid leukemia in children.

VAC Accepted that benzene was a risk factor for all of these conditions.

In the IARC report of **2021-12-08**, cancers of the lymphoid, hemopoietic and related tissues are broken down into the following groups: childhood leukemia, leukemia, lymphoma, multiple myeloma.

Under lymphoma, the following classification now exists.

2021-12-08

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Cancer site	Carcinogenic agents with *sufficient evidence* in humans	Agents with *limited evidence* in humans
Lymphoma		
Hodgkin lymphoma [f]	Epstein–Barr virus Human immunodeficiency virus type 1 (infection with)	
Primary effusion lymphoma [f]	Kaposi sarcoma herpesvirus	
Non-Hodgkin lymphoma: immunosuppression-related lymphoma [f, g]	Epstein–Barr virus	
Non-Hodgkin lymphoma: Burkitt lymphoma [f, g]	Epstein–Barr virus	Malaria (caused by infection with *Plasmodium falciparum* in holoendemic areas)
Non-Hodgkin lymphoma: extranodal NK/T-cell lymphoma (nasal type) [f, g]	Epstein–Barr virus	
Non-Hodgkin lymphoma: low-grade B-cell mucosa associated lymphoid tissue (MALT) gastric lymphoma [f, g]	*Helicobacter pylori* (infection with)	
Non-Hodgkin lymphoma: all combined [f]	Azathioprine Cyclosporine Hepatitis C virus (chronic infection with) Human immunodeficiency virus type 1 (infection with) Lindane Pentachlorophenol	Benzene Chlorophenoxy herbicides DDT (4,4'-dichlorodiphenyl-trichloroethane) Diazinon Dichloromethane (methylene chloride) Firefighter (occupational exposure as a) Glyphosate Hepatitis B virus (chronic infection with) Malathion Polychlorinated biphenyls Polychlorophenols and their sodium salts (mixed exposures) 2,3,7,8-Tetrachlorodibenzo-para-dioxin Trichloroethylene X- and Gamma-radiationEthylene oxide

A literature search shows that it is becoming more common to identify risk factors for specific types of non Hodgkin lymphoma. Article below summarizes the data found.

Link to Quick Reference Flowcharts - [Quick Reference Exposure Flowcharts (gcdocs.gc.ca)]

Cerhan JR, Habermann TM. Epidemiology of Marginal Zone Lymphoma. Ann Lymphoma. 2021 Mar;5:1. doi: 10.21037/aol-20-28. Epub 2021 Mar 30. PMID: 33829216; PMCID: PMC8020862. Indicates the following:

Established risk factors for MZL (or MZL subtypes) include family history of NHL, genetic loci in the HLA region, Helicobacter pylori infection (gastric MALT lymphoma), and several autoimmune diseases (Sjögren syndrome, systemic lupus erythematosus and Hashimoto thyroiditis), with strong (but not definitive) evidence for Chlamydia psittaci (ocular adnexal MALT lymphoma), Borrelia burgdorferi (cutaneous MZL), hepatitis C virus, human immunodeficiency virus, and solid organ transplantation. Promising risk factors that require additional study include other infections, other autoimmune conditions, trichloroethylene exposure, certain occupations, hair dye, cigarette smoking, sun exposure (protective), and alcohol use (protective)

[vi] Updated 2022-03-01 as per Dr. V. Lentini
As per 2022-03-01 above for Non-Hodgkin Lymphoma (excluding Extranodal marginal zone (MALT) lymphoma)

[vii] Added 2022-03-01 as per V Lentini
Reference: IARC https://monographs.iarc.who.int/wp-content/uploads/2019/07/Classifications_by_cancer_site.pdf

[viii] Updated 2022-03-01 as per Dr. V. Lentini Malignant Mesothelioma of the Pleura

[ix] Updated 2022-03-01 as per Dr. V. Lentini Malignant Mesothelioma of the Pleura

[x] Updated 2022-03-01 as per Dr. V. Lentini
As per 2022-03-01 above for Non-Hodgkin Lymphoma (excluding Extranodal marginal zone (MALT) lymphoma)

[xi] Updated 2022-03-01 as per Dr. V. Lentini Insertion: This guide addresses only three specific shipboard fires. The occurrence and significance of any other shipboard fire(s) must be established using usual adjudicative practices.

[xii] Updated 2022-03-01 as per Dr. V. Lentini Insertion: When entitled for Latent Tuberculosis/PPD convertor, the assessment provided is :
On a General Assessment Worksheet: The criteria is "PPD conversion". The rating is 1 and then Quality of Life is added.