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2025 Proton Beam Radiation Therapy (PBRT) Publication

Radiation Therapy

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2025 Proton Beam Radiation Therapy (PBRT) Blood, Bone and Lymphatic System Cancer

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Proton Beam Radiation Therapy (PBRT) for Blood, Bone Marrow and Lymphatic System Cancers

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Acute Lymphoblastic Leukemia (ALL) • Acute Myeloid Leukemia (AML) • Chronic Lymphocytic Leukemia (CLL) /Small Lymphocytic Lymphoma (SLL) • Chronic Myeloid Leukemia (CML) • Hairy Cell Leukemia Guideline

Proton beam radiation therapy (PBRT) for ALL, AML, CLL/SLL, CML and hairy cell leukemia is considered medically appropriate if the documentation demonstrates **ALL** of the following:

1. **ANY** of the following:

a. Age is 22 to 39 **AND** curative treatment

b. Hematologic malignancy known, photon-based treatment unacceptable and **ANY** of the following advantage of PBRT:

i. Decrease normal tissue toxicity

ii. Previous irradiation at the same or an immediately adjacent area

iii. Target area is near one or more critical structures and PBRT is needed to avoid exceeding the tolerance dose

c. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.

d. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical.

2. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[1]

References: [21] [18] [22] [20] [23]

Histiocytic Neoplasms • Myelodysplastic Syndromes • Myeloid/Lymphoid Neoplasms • Myeloproliferative Neoplasms • Systemic Light Chain Amyloidosis • Systemic Mastocytosis • Waldenstrom Macroglobulinemia/Lymphoplasmacytic Lymphoma Guideline

PBRT for histiocytic neoplasms, myelodysplastic syndromes, myeloid/lymphoid neoplasms, myeloproliferative neoplasms, systemic light chain amyloidosis, systemic mastocytosis and waldenstrom macroglobulinemia/lymphoplasmacytic lymphoma:

- The role of this therapy is uncertain/unclear in the current evidence. Requests for this therapy require review by a physician reviewer, medical director and/or the individual's healthplan.

[1]The Lansky performance status scale can be utilized for ages 16 or less.

References: [7] [8] [4] [5] [6] [13] [14]

Hodgkin Lymphoma Guideline

PBRT for hodgkin lymphoma is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. **ANY** of the following:
    a. Mediastinal lymphoma known, photon-based treatment unacceptable and **ANY** of the following advantage of PBRT:
        i. Decrease normal tissue toxicity
        ii. Previous irradiation at the same or an immediately adjacent area
        iii. Target volume is near one or more critical structures and PBRT is needed to avoid exceeding the tolerance dose
    b. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[2]

References: [10] [1] [25] [15]

Multiple Myeloma Guideline

PBRT for multiple myeloma is considered medically appropriate if the documentation demonstrates **ALL** of the following:

1. **ANY** of the following:
    a. Solitary plasmacytoma **AND** proton is preferred to limit radiation doses to surrounding organs at risk
    b. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[3]

[2]The Lansky performance status scale can be utilized for ages 16 or less.
[3]The Lansky performance status scale can be utilized for ages 16 or less.

References: [1] [12]

Primary Bone Cancer Guideline

PBRT for primary bone cancer is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Age is 22 to 39 with curative treatment and **ALL** of the following:
    a. Primary bone tumor, malignant or benign, photon-based treatment unacceptable and **ANY** of the following advantages of PBRT:
        i. Decrease normal tissue toxicity
        ii. Previous irradiation at the same or an immediately adjacent area
        iii. Target area is near one or more critical structures and PBRT is needed to avoid exceeding the tolerance dose
    b. Physical ability and clinical status of **ANY** of the following:
        - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
        - Karnofsky performance status (KPS) grade of 70 or more[4]

    Reference: [1]
2. **ALL** of the following:
    a. **ANY** of the following:
        i. Primary bone tumor, malignant or benign including **ANY** of the following:
            A. Cancer type typically treated with surgery **AND** both of the following:
                I. Dose escalation is required
                II. Unresectable
            B. Chondrosarcoma
            C. Chordoma
            D. Craniopharyngioma
            E. Extracranial hemangiopericytoma
            F. Hemangioblastoma

[4]The Lansky performance status scale can be utilized for ages 16 or less.

ii. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

b. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[5]

Reference: [1] [2] [3] [9] [17]

T-Cell Lymphomas Guideline

PBRT for T-cell lymphomas:

- The role of this therapy is uncertain/unclear in the current evidence. Requests for this therapy require review by a physician reviewer, medical director and/or the individual's healthplan.

References: [11] [1]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Blood, Bone Marrow and Lymphatic System Cancer Summary of Changes

PBRT guideline for blood, bone marrow and lymphatic system cancer had the following changes from 2024 to 2025:

- Acute Lymphoblastic Leukemia (ALL) • Acute Myeloid Leukemia (AML) • Chronic Lymphocytic Leukemia (CLL) /Small Lymphocytic Lymphoma (SLL) • Chronic Myeloid Leukemia (CML) • Hairy Cell Leukemia Guideline changes:
  - Added the following based on ASTRO PBT model policy:
    - Age is 22 to 39 **AND** curative treatment

[5]The Lansky performance status scale can be utilized for ages 16 or less.

    - Hematologic malignancy, photon-based treatment unacceptable and advantage of PBRT
    - Genetic syndromes
    - Re-irradiation

- Hodgkin lymphoma guideline changes:
  - Added new indications based on ASTRO PBT model policy to reduce exposure to OAR:
    - Mediastinal lymphoma known, photon-based treatment unacceptable and any advantage of PBRT
    - Re-irradiation
- Multiple myeloma guideline:
  - Added new indications based on ASTRO PBT model policy:
    - Solitary plasmacytoma **AND** proton preferred to limit radiation doses to surrounding organs at risk
    - Re-irradiation
- Primary bone marrow cancer guideline changed to Primary bone cancer guideline:
  - Added new indications based on ASTRO PBT model policy:
    - Age is 22 to 39 **AND** curative treatment
    - Primary bone tumor, malignant or benign, photon-based treatment unacceptable and any advantage of PBRT
    - Re-irradiation
  - Added new indications generally based on ASTRO PBT model policy and specified disease based on reference/s:
    - Primary bone tumor, malignant or benign including any of the following: Chondrosarcoma, Chordoma, Craniopharyngioma, Extracranial hemangiopericytoma, Hemanioblastoma, Cancer type typically treated with surgery
- Added definitions: mediastinal lymphoma, multiple myeloma, extracranial hemangiopericytoma, chondrosarcoma, chordoma, craniopharyngioma, hemanioblastoma, meningioma, pituitary adenoma, solitary plasmacytoma, sinonasal, rhabdomyosarcoma, vestibular schwannomas, Neurofibromatosis type 1 (NF1), deleterious ATM mutations, Li-Fraumeni,retinoblastoma, BRCA, Lynch syndrome

- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively per evidence.

PBRT Blood, Bone and Lymphatic System Cancer Definitions

Acute lymphoblastic leukemia (ALL) is a type of cancer of the blood and bone marrow where blood cells are made. The disease progresses rapidly and creates immature blood cells. The word "lymphocytic" in ALL refers to the white blood cells called lymphocytes. It is the most common type of cancer in children, and treatments result in a good chance for a cure. ALL can also occur in adults, though the chance of a cure is greatly reduced.

Acute myeloid leukemia (AML) is a malignant neoplasm characterized by the overproduction of immature myeloid precursor cells (blasts) in the bone marrow and peripheral blood, leading to anemia, thrombocytopenia and neutropenia and is diagnosed by the presence of more than 20% myeloid blasts in the peripheral blood or bone marrow.

B-cell lymphoma is a type of cancer that forms in B-cells (a type of immune system cell). B-cell lymphomas may be either indolent (slow-growing) or aggressive (fast-growing). Most B-cell lymphomas are non-Hodgkin lymphomas. There are many different types of B-cell non-Hodgkin lymphomas. These include Burkitt lymphoma, chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL), diffuse large B-cell lymphoma, follicular lymphoma, and mantle cell lymphoma.

BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.

Chordoma is a rare, slow-growing bone cancer that can occur in the spine or skull base.

Chondrosarcoma is a malignant tumor of cartilage origin that can develop primarily or secondarily from benign cartilage lesions such as enchondromas or osteochondromas.

Chronic lymphocytic leukemia (CLL) is the most common type of leukemia in adults. It's a type of cancer that starts in cells that become certain white blood cells (called lymphocytes) in the bone marrow. The cancer (leukemia) cells start in the bone marrow but then moves into the blood.

Chronic myeloid leukemia (CML), also known as chronic myelogenous leukemia, is a type of cancer that starts in certain blood-forming cells of the bone marrow.

Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.

Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Hairy cell leukemia is a chronic leukemia that is usually of B-cell origin and is characterized by malignant cells with a ciliated appearance.

Histiocytic neoplasm is a group of rare disorders in which too many histiocytes (a type of white blood cell) build up in certain tissues and organs, including the skin, bones, spleen, liver, lungs, and lymph nodes.

Hodgkin lymphoma is a malignant lymphoma marked by the presence of Reed-Sternberg cells and characterized by progressive enlargement of lymph nodes, spleen and liver and progressive anemia.

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lymphoid neoplasm is a neoplasm composed of a lymphocytic cell population which is usually malignant (clonal) by molecular genetic and/or immunophenotypic analysis. Lymphocytic neoplasms include Hodgkin and non-Hodgkin lymphomas, acute and chronic lymphocytic leukemias, and plasma cell neoplasms.

Lymphoplasmacytic lymphoma, also called Waldenström macroglobulinemia, is indolent (slow-growing) type of non-Hodgkin lymphoma marked by abnormal levels of IgM antibodies in the blood and an enlarged liver, spleen, or lymph nodes.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Multiple myeloma is a blood cancer that develops in plasma cells in the bone marrow. Plasma cells are white blood cells that produce antibodies to protect the body from infection. In multiple myeloma, the plasma cells grow too much, crowding out normal bone marrow cells.

Myelodysplastic syndrome (MDS) is a type of cancer in which the bone marrow does not make enough healthy blood cells (white blood cells, red blood cells, and platelets) and there are abnormal cells in the blood and/or bone marrow. When there are fewer healthy blood cells, infection, anemia, or bleeding may occur.

Myeloid neoplasm is a type of disease in which the bone marrow makes too many red blood cells, platelets, or certain white blood cells.

Myeloproliferative neoplasm is a group of diseases in which the bone marrow makes too many red blood cells, white blood cells, or platelets.

Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Primary bone cancer is cancer that forms in cells of the bone. Some types of primary bone cancer are chondrosarcoma, Ewing sarcoma, malignant fibrous histiocytoma, and osteosarcoma.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.
Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).
Small lymphocytic lymphoma is a slow growing non-Hodgkin lymphoma that affects B cells (also known as B lymphocytes), which are specialized white blood cells that produce immunoglobulins (also called antibodies) that help protect against infection and disease.
Solitary plasmacytoma is a rare type of cancer that develops when a single clone of plasma cells grows in a localized area, usually in the bone marrow or soft tissues.
Systemic light chain amyloidosis is a protein misfolding and metabolism disorder in which insoluble fibrils are deposited in various tissues, causing organ dysfunction and eventually death.
Systemic mastocytosis is a rare disease in which too many mast cells (a type of immune system cell) are found in the skin, bones, joints, lymph nodes, liver, spleen, and gastrointestinal tract.
T-Cell lymphoma is a type of cancer that forms in T-cells (a type of immune system cell). T-cell lymphomas may be either indolent (slow-growing) or aggressive (fast-growing). Most T-cell lymphomas are non-Hodgkin lymphomas. There are many different types of T-cell non-Hodgkin lymphomas. These include mycosis fungoides, anaplastic large cell lymphoma and precursor T-cell lymphoblastic lymphoma.
Waldenstrom macroglobulinemia is a rare, slow-growing type of non-Hodgkin lymphoma. It's a blood cell cancer that starts in malignant B-cells.

PBRT Blood, Bone Marrow and Lymphatic System Cancers References

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2025 Proton Beam Radiation Therapy (PBRT) Breast Cancer

Radiation Therapy

Last Review Date: 03/24/2025

Previous Review Date: 06/27/2024

Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) Breast Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Breast Cancer Guideline

Proton Beam Radiation Therapy (PBRT) for breast cancer, all stages is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. **ANY** of the following:
    a. Enrolled in clinical trial and **ANY**of the following:
        i. Definitive treatment for unfavorable anatomy ie, pectus excavatum, that would deliver high dose to organs-at-risk (OAR).
        ii. Early stage breast cancer in which dose to heart is unacceptably high with other forms of radiation therapy using cardiac sparing techniques.
        iii. Locally advance breast cancer for treatment of internal mammary nodes
    b. **ANY** of the following:
        i. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers

at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.

ii. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical.

References [1] [5] [1] [3]

2. Physical ability and clinical status of **ANY** of the following:
   - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
   - Karnofsky performance status (KPS) grade of 70 or more[6]

References [1] [5] [1] [3]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Breast Cancer Summary of Changes

PBRT guideline for breast cancer had the following changes from 2024 to 2025:

- Added new definitions: nodal treatment, ipsilateral, mammary lymph nodes, pectus excavatum, Neurofibromatosis type 1 (NF1), deleterious ATM mutations, retinoblastoma, BRCA.
- Added new indications based on ASTRO PBT model policy group 1:
  - Genetic syndromes
  - Reirradiation
- Changed the following:
  - Updated KPS/ECOG scoring from KPS 80/ECOG 1 to KPS 70/ECOG 2 per evidence
  - Updated indications for breast cancer with clinical trial enrollment based on ASTRO PBT model policy group 2:
    - Definitive treatment

[6]The Lansky performance status scale can be utilized for ages 16 or less.

- Early stage breast cancer
- Locally advanced breast cancer

- Citations updated, evidence review completed.

PBRT Breast Cancer Definition Section

BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.

Breast cancer is a disease in which cells in the breast grow out of control. The kind of breast cancer depends on which cells in the breast turn into cancer. There are different kinds of breast cancer, including invasive ductal carcinoma, invasive lobular carcinoma, ductal carcinoma in situ (DCIS), paget's disease, medullary, mucinous, and inflammatory breast cancer.

Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.

Ipsilateral refers to the same side of the body as another structure or a given point.

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Mammary lymph nodes are lymph nodes in the breast that can be intramammary or internal mammary.

Neurofibromatosis is a rare genetic disorder that causes benign tumors to grow on nerves and other parts of the body. There are three types of neurofibromatosis: neurofibromatosis 1 (NF1), neurofibromatosis 2 (NF2) and schwannomatosis.

Nodal radiation therapy also known as regional nodal irradiation (RNI), is a treatment that uses radiation to destroy cancer cells in the lymph nodes. It can help prevent cancer from spreading to other parts of the body.
Pectus excavatum, also known as funnel chest or sunken chest, is a congenital chest wall deformity characterized by an inward depression of the breastbone (sternum) and ribs.
Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.
Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).

PBRT Breast Cancer References

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2025 Proton Beam Radiation Therapy (PBRT) Central Nervous System Cancer

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Central Nervous System Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Brain Metastases • Medulloblastoma • Primary Central Nervous System Lymphoma Guideline

Proton beam radiation therapy (PBRT) for brain metastases, medulloblastoma and primary central nervous system:

- The role of this therapy is uncertain/unclear in the current evidence. Requests for this therapy require review by a physician reviewer, medical director and/or the individual's health plan.

References: [7] [9] [1]

Glioma Guideline

PBRT for glioma is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Curative intent **AND** with favorable long term prognosis (grade 2 gliomas, grade 3 Isocitrate Dehydrogenase Enzyme Mutation (IDH)-mutant tumors, and 1p19q codeleted tumors)

b. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

2. Physical ability and clinical status of **ANY** of the following:
   - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
   - Karnofsky performance status (KPS) grade of 70 or more[7]

References: [6] [7] [10] [2] [9] [1]

Intracranial and Spinal Ependymoma Guideline

PBRT for intracranial and spinal ependymoma is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. **ANY** of the following:
   a. Metastatic disease known
   b. Positive CSF (cerebrospinal fluid)
   c. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.
2. Craniospinal irradiation
3. Physical ability and clinical status of **ANY** of the following:
   - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
   - Karnofsky performance status (KPS) grade of 70 or more[8]

References: [7] [9] [1]

Leptomeningeal Metastases Guideline

PBRT for leptomeningeal metastases is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. Craniospinal irradiation
2. Metastatic solid tumor malignancies

[7]The Lansky performance status scale can be utilized for ages 16 or less.
[8]The Lansky performance status scale can be utilized for ages 16 or less.

3. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[9]

References: [7] [8] [9] [1] [11]

Meningioma Guideline

PBRT for meningioma is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Benign meningioma
    b. Cancer type typically treated with surgery **AND** both of the following:
        i. Dose escalation is required
        ii. Unresectable
    c. Meningioma grade II-III
    d. Re-irradiation of recurring or progressive tumors
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[10]

References: [7] [10] [9] [1] [9]

Pituitary Adenoma Guideline

PBRT for pituitary adenoma is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Pituitary adenoma
    b. Cancer type typically treated with surgery **AND** both of the following:
        i. Dose escalation is required
        ii. Unresectable
    c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

[9]The Lansky performance status scale can be utilized for ages 16 or less.
[10]The Lansky performance status scale can be utilized for ages 16 or less.

2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[11]

References: [7] [9] [1] [9]

Primary Spinal Cord Tumor and Metastatic Spine Tumor Guideline

PBRT for primary spinal cord tumor is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. **ANY** of the following:
    a. Metastatic tumors to the spine or spinal cord
    b. Primary spine or spinal cord tumors
    c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
2. Organ at risk sparring that cannot be achieved by photon treatment
3. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[12]

References: [7] [9] [1]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Central Nervous System Cancer Summary of Changes

PBRT guideline for central nervous system cancer had the following changes from 2024 to 2025:

[11]The Lansky performance status scale can be utilized for ages 16 or less.
[12]The Lansky performance status scale can be utilized for ages 16 or less.

Added new guideline for Glioma:

- Added new indications based on national guideline and with ASTRO PBT model policy:
  - Curative intent **AND** with good long term prognosis
  - Reirradiation

Added new guideline for Intracranial and Spinal Ependymoma:

- Added new indications based on national guideline and ASTRO PBT model policy:
  - Positive CSF (cerebrospinal fluid)
  - Genetic syndromes
  - Metastatic disease known
  - Craniospinal irradiation

Added new guideline for Leptomeningeal Metastases

- Added new indications based on national guideline and ASTRO PBT model policy:
  - Craniospinal irradiation
  - Metastatic solid tumor malignancies

Added new guideline for Meningioma

- Added new indications based on national guideline and ASTRO PBT model policy:
  - Benign meningioma
  - Cancer type typically treated with surgery
  - Meningioma grade II-III
  - Re-irradiation

Added new guideline for Primary Spinal Cord Tumor and Metastatic Spine Tumor

- Added new indications based on national guideline and ASTRO PBT model policy:
  - Metastatic tumors to the spine or spinal cord
  - Primary spine or spinal cord tumors
  - Organ at risk sparring that not be achieved by photon treatment
  - Re-irradiation

Added new guideline for Pituitary adenoma Guideline

- Added new indications based on national guideline and ASTRO PBT model policy:

  - Pituitary adenoma
  - Cancer type typically treated with surgery
  - Re-irradiation
- Added definitions:
  - BRCA
  - CSF
  - Craniospinal irradiation
  - Deleterious ATM mutations
  - IDH1-mutated tumor
  - Intracranial and spinal ependymoma
  - Leptomeningeal
  - Li-Fraumeni
  - Lynch syndrome
  - Neurofibromatosis type 1 (NF1)
  - Retinoblastoma
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively per evidence.
- Citations updated, evidence review completed.

PBRT Central Nervous System Cancer Definitions

1p/19q-codeleted tumor is a genetic loss event that is somewhat rare in gliomas that involves the complete deletion of the short arm of chromosome 1 alongside the deletion of the long arm of chromosome 19.

BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.

Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.

Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Ependymoma is a type of brain tumor that begins in the cells lining the spinal cord central canal (fluid-filled space down the center) or the ventricles (fluid-filled spaces of the brain). Ependymomas may also form in the choroid plexus (tissue in the ventricles that makes cerebrospinal fluid).

Glioma is a type of tumor that occurs in the brain and spinal cord. Gliomas begin in the gluey supportive cells (glial cells) that surround nerve cells and help them function.

IDH1-mutated tumor is a tumor with somatic mutations, found only in cells that become cancerous. They change a single protein building block (amino acid) in the isocitrate dehydrogenase 1 enzyme, replacing the amino acid arginine at position 132 with another amino acid.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance

Score	Status
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Medulloblastoma is fast-growing type of cancer that forms in the cerebellum (the lower, back part of the brain). Medulloblastomas tend to spread through the cerebrospinal fluid to the spinal cord or to other parts of the brain. They may also spread to other parts of the body, but this is rare. Medulloblastomas are most common in children and young adults. They are a type of central nervous system embryonal tumor.

Meningioma is a tumor, usually benign, arising from meningeal tissue of the brain

Metastases is the spread of a disease-producing agency (such as cancer cells) from the initial or primary site of disease to another part of the body.

Neurofibromatosis is a rare genetic disorder that causes benign tumors to grow on nerves and other parts of the body. There are three types of neurofibromatosis: neurofibromatosis 1 (NF1), neurofibromatosis 2 (NF2) and schwannomatosis.

Primary central nervous system lymphoma is a disease in which malignant (cancer) cells form in the lymph tissue of the brain and/or spinal cord.

Primary spinal cord tumor is a tumor that originates in the spine. They are relatively rare, typically benign (noncancerous) and represent a small percentage of spinal tumors. Malignant tumors may also originate in the spine, although more often they spread to the spine from elsewhere in the body.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.

Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).

PBRT Central Nervous System Cancer References

[1] American Society for Radiation Oncology (2023). Astro Model Policies Proton Beam Therapy (PBT). *American Society for Radiation Oncology*. Retrieved: February 2025. https://www.astro.org/ASTRO/media/ASTRO/Daily%20Practice/PDFs/ASTROPBTModelPolicy.pdf

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2025 Proton Beam Radiation Therapy (PBRT) Gastrointestinal Cancer Publication

Radiation Therapy

Last Review Date: 03/24/2025
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Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Gastrointestinal System Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Anal Cancer • Colon Cancer • Gastrointestinal Stromal Tumors (GISTs) • Pancreatic Cancer • Rectal Cancer • Small Bowel Adenocarcinoma Guideline

Proton beam radiation therapy (PBRT) for adrenal cancer, anal cancer, colon cancer, esophageal cancer, gastric cancer, gastrointestinal stromal tumors (GISTs), kidney cancer, pancreatic cancer, rectal cancer and small bowel adenocarcinoma is considered medically appropriate if the documentation demonstrates **ANY** of the following:

1. Post kidney transplant **OR** with single kidney and **ALL** of the following:
    a. Maximal organ avoidance is crucial
    b. Physical ability and clinical status of **ANY** of the following:
        - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less

- Karnofsky performance status (KPS) grade of 70 or more[13]

References: [2] [3] [4] [5] [6] [7] [9] [11] [8] [1]

2. **ALL** of the following:
   a. **ANY** of the following:
      i. Non-metastatic primary pancreatic cancer
      ii. Tumor of the pelvis including (ie, anal cancer, proximal thigh cancer) and photon treatment would significantly reduce dose to genitalia or reproductive organs
   b. Enrolled in clinical trial
   c. Physical ability and clinical status of **ANY** of the following:
      - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
      - Karnofsky performance status (KPS) grade of 70 or more[14]

   References: [2] [3] [4] [5] [6] [7] [9] [11] [8] [1]

3. **BOTH** of the following:
   a. **ANY** of the following:
      i. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.
      ii. Cancer type typically treated with surgery **AND** both of the following:
         A. Dose escalation is required
         B. Unresectable
      iii. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
   b. Physical ability and clinical status of **ANY** of the following:

[13]The Lansky performance status scale can be utilized for ages 16 or less.
[14]The Lansky performance status scale can be utilized for ages 16 or less.

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[15]

References: [1]

Esophageal, Esophagogastric Junction and Gastric Cancer Guideline

PBRT for esophageal cancer is considered medically appropriate if the documentation demonstrate **ALL** of the following:

1. **ANY** of the following:
   a. Esophageal or esophagogastric junction cancer known
   b. Siewert I or II tumor known
   c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
2. Enrolled in clinical trial
3. Physical ability and clinical status of **ANY** of the following:
   - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
   - Karnofsky performance status (KPS) grade of 70 or more[16]
4. 3D technique unable to achieve dose reduction to organs at risk

References: [2] [8] [12] [13] [1]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Gastrointestinal Cancer Summary of Changes

PBRT guideline for gastrointestinal cancer had the following changes from 2024 to 2025:

[15]The Lansky performance status scale can be utilized for ages 16 or less.
[16]The Lansky performance status scale can be utilized for ages 16 or less.

- Added the following based on ASTRO PBT model policy and national guideline:
  - Clinical trial involvement for appropriate cancer types for group 2:
    - Non-metastatic primary pancreatic
    - Tumors of the pelvis
  - Indications based on ASTRO PBT model policy group 1:
    - Genetic syndromes
    - Re-irradiation
- Added the following based on published clinical data to reduce exposure to OAR:
  - Esophageal or Esophagogastric Junction Cancer
  - Siewert I or II tumor
- Added the following definitions:
  - Anal cancer
  - BRCA 1/2
  - Deleterious ATM mutations
  - Esophageal and esophagogastric junction cancers
  - Li-Fraumeni syndrome
  - Lynch syndrome
  - Neurofibromatosis type 1 (NF1)
  - Proximal
  - Retinoblastoma
  - Siewert tumor
- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Gastrointestinal Cancer Definitions

2D/3D Radiation Therapy

2D Radiation Therapy also known as conventional radiation therapy, utilizes radiographic films to determine the best position to place the radiation beams in order to deliver an adequate dose of radiation to the tumor while limiting the exposure to surrounding tissue and organs. Planning for this type of therapy is normally done with the use of a fluoroscopic simulator.

3D Radiation Therapy also known as conformal radiation therapy, utilizes computed tomography scan (CT) images mostly, but may also utilize magnetic resonance imaging (MRI) or positron emission testing with CT (PET/CT) for correlation. This is done to determine the best position in which to place the radiation beams in order to deliver an adequate dose of radiation to the tumor while limiting the exposure to surrounding tissue and organs. This is an improvement over the utilization of the flat images used to plan beam placement in conventional radiation therapy as it provides a 3D image of the surrounding tissue and organs. This imaging improves the ability to map the radiation beam more accurately to the tumor.

1p/19q-codeleted tumor is a genetic loss event that is somewhat rare in gliomas that involves the complete deletion of the short arm of chromosome 1 alongside the deletion of the long arm of chromosome 19.

Adenocarcinoma is a malignant tumor originating in glandular epithelium.

Anal cancer is a disease in which malignant (cancer) cells form in the tissues of the anus

BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.

Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.

Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Esophageal and esophagogastric junction cancers are cancers that develop in the area where the esophagus and stomach meet.

Gastrointestinal Stromal Tumor (GIST) is a disease in which abnormal cells form in the tissues of the gastrointestinal tract. Genetic factors can increase the risk of having a gastrointestinal stromal tumor. Signs of gastrointestinal stromal tumors include blood in the stool or vomit.

IDH1-mutated tumor is a tumor with somatic mutations, found only in cells that become cancerous. They change a single protein building block (amino acid) in the isocitrate dehydrogenase 1 enzyme, replacing the amino acid arginine at position 132 with another amino acid.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.
Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.
Proximal is something situated nearer to the center of the body or the point of attachment.
Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).
The **Siewert** classification separates EGJ tumors into three types based on the tumor's location. Type I tumors are located 1–5 cm above the EGJ. Type II tumors are located 1 cm above and 2 cm below the EGJ. Type III tumors are located 2–5 cm below the EGJ.

PBRT Gastrointestinal Cancer References

[1] American Society for Radiation Oncology (2023). Astro Model Policies Proton Beam Therapy (PBT). *American Society for Radiation Oncology*. Retrieved: February 2025. https://www.astro.org/ASTRO/media/ASTRO/Daily%20Practice/PDFs/ASTROPBTModelPolicy.pdf

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2025 Proton Beam Radiation Therapy (PBRT) Genitourinary Cancer Publication

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Genitourinary System Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Bladder Cancer • Hereditary Renal Cell Carcinoma • Kidney Cancer • Penile Cancer

Proton beam radiation therapy (PBRT) for bladder cancer, hereditary renal cell carcinoma, kidney cancer and penile cancer is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Cancer type typically treated with surgery and **ALL** of the following:
        i. Dose escalation is required
        ii. Unresectable
    b. Non-metastatic bladder cancer **AND** enrolled in a clinical trial
    c. Post kidney transplant **OR** with single kidney and **ALL** of the following:
        i. Maximal organ avoidance is crucial
        ii. Treatment target is adjacent
    d. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[17]

    References: [3] [9] [4] [5] [1]

Prostate Cancer (Any Type) Guideline

PBRT for prostate cancer (any type) is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Cancer type typically treated with surgery and **ALL** of the following:

[17]The Lansky performance status scale can be utilized for ages 16 or less.

i. Dose escalation is required

ii. Unresectable

b. Localized prostate cancer

c. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.

d. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

2. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[18]

References: [11] [2] [10] [1]

Testicular Cancer (Pure Seminoma) Guideline

PBRT for Testicular Cancer (Pure Seminoma) is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. Pure seminoma known
2. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[19]

References: [2] [5] [7] [8] [7] [1]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation

[18]The Lansky performance status scale can be utilized for ages 16 or less.

[19]The Lansky performance status scale can be utilized for ages 16 or less.

CODE	DESCRIPTION
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Genitourinary Cancer Summary of Changes

PBRT guideline for genitourinary cancer has the following changes from 2024 to 2025:

- Added definitions:
  - BRCA
  - Deleterious ATM mutations
  - Dose escalation
  - Li-Fraumeni
  - Lynch syndrome
  - Neurofibromatosis type 1 (NF1)
  - Reirradiation
- Added Testicular Cancer (Pure Seminoma) Guideline:
  - Added new indication based on published clinical data to reduce radiation-induced toxicity:
    - Pure seminoma known
- Bladder Cancer • Hereditary Renal Cell Carcinoma • Kidney Cancer • Penile Cancer Guideline changes:
  - Added new indications based on ASTRO PBT model policy groups 1 and 2:
    - Cancer type typically treated with surgery
    - Enrolled in clinical trial
    - Non-metastatic bladder cancer
    - Maximal organ avoidance
    - Post kidney transplant **OR** with single kidney
    - Re-irradiation
- Prostate Cancer (Any Type) Guideline changes:
  - Clinical trial indication removed as evidence does not support this criteria
  - Added new indications based on ASTRO PBT model policy:

- Cancer type typically treated with surgery
- Localized prostate cancer
- Genetic syndromes
- Re-irradiation

- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Genitourinary Cancer Definitions

Bladder cancer is cancer that forms in tissues of the bladder (the organ that stores urine).
BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.
Dose escalation refers to the systematic increase of a drug dose to determine the maximum tolerated dose (MTD) or to achieve a desired therapeutic effect while monitoring for toxicity.
Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.
Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Hereditary renal cell carcinoma is an inherited disorder that causes an increased risk of kidney cancer. It can also cause lesions in the skin and uterus (in females).

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Kidney cancer is cancer that forms in tissues of the kidneys.

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Metastases is the spread of a disease-producing agency (such as cancer cells) from the initial or primary site of disease to another part of the body.

Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.

Orchiectomy is the surgical removal of one or both testes.

Penile cancer is a rare cancer that forms in the penis (an external male reproductive organ). Most penile cancers are squamous cell carcinomas (cancer that begins in flat cells lining the penis).

Prostate cancer develops when abnormal cells form and grow in the prostate gland. Cancerous growths can spread (metastasize) to nearby organs and tissues such as the bladder or rectum, or to other parts of the body. If the abnormal growth is removed, it can still grow back. Prostate cancer can be life threatening if it spreads far beyond the prostate (metastatic disease). Prostate cancer is often grouped into four stages:

- Early stage (stages I & II): The tumor has not spread beyond the prostate. This is often called "early stage" or "localized" prostate cancer.
- Locally advanced (stage III): Cancer has spread outside the prostate, but only to nearby tissues. This is often called "locally advanced" prostate cancer.
- Advanced (stage IV): Cancer has spread outside the prostate to other parts such as the lymph nodes, bones, liver or lungs. This stage is often called "advanced" prostate cancer.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.

Pure seminoma is a malignant germ cell tumor that involves most commonly the testicle or less frequently the mediastinum, the retroperitoneum, or other extra-gonadal sites. It is one of the treatable and curable cancers, with a survival rate of over 95% if discovered in early stages.

Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.

Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).

PBRT Genitourinary Cancer References

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2025 Proton Beam Radiation Therapy (PBRT) Gynecological Cancer Publication

Radiation Therapy

Last Review Date: 03/24/2025

Previous Review Date: 06/27/2024

Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Gynecological System Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Cervical Cancer, Endometrial (Uterine) Cancer and Vaginal Cancer Guideline

Proton beam radiation therapy (PBRT) for cervical cancer, endometrial (uterine) cancer and vaginal cancer is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Post hysterectomy and **ANY** of the following:
        i. Cervical cancer
        ii. Uterine cancer
        iii. Vaginal cancer
    b. Pelvic tumor, advanced or unresectable and **ALL** of the following:
        i. Enrolled in clinical trial
        ii. Swollen lymph nodes in the pelvis **OR** pelvic lymph node metastases **OR** peri-aortic nodal disease

c. Non-metastatic cervical cancer **AND** enrolled in clinical trial

d. Post kidney transplant OR with single kidney, treatment target is adjacent AND maximal organ avoidance is crucial

e. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

2. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[20]

References: [2] [3] [4] [8] [10] [11] [7] [1] [9]

Ovarian Cancer and Vulvar Cancer Guideline

Proton beam radiation therapy (PBRT) for ovarian cancer and vulvar cancer is considered medically appropriate if the documentation demonstrates the **BOTH** of the following:

1. **ANY** of the following:

a. Pelvic tumor, advanced or unresectable and **ALL** of the following:

i. Enrolled in clinical trial

ii. Swollen lymph nodes in the pelvis **OR** pelvic lymph node metastases **OR** peri-aortic nodal disease

b. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.

c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

2. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[21]

References: [5] [6] [8] [10] [9]

[20]The Lansky performance status scale can be utilized for ages 16 or less.

[21]The Lansky performance status scale can be utilized for ages 16 or less.

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Gynecological Cancer Summary of Changes

PBRT guideline for gynecological cancer had the following changes from 2024 to 2025:

- Added clinical trial enrollment to appropriate situations based on ASTRO PBT model policy.
- Added definitions:
  - BRCA
  - Deleterious ATM mutations
  - Dose escalation
  - Hysterectomy
  - Li-Fraumeni
  - Lynch syndrome
  - Neurofibromatosis type 1 (NF1)
  - Pelvic tumor
  - Peri-aortic nodal disease
  - Re-irradiation
  - Retinoblastoma
- Ovarian Cancer and Vulvar Cancer Guideline changes:
  - Added new indications based on ASTRO PBT model policy:
    - Pelvic tumor with lymph node involvement
    - Genetic syndromes
    - Re-irradiation
- Separated the Cervical Cancer, Endometrial (Uterine) Cancer and Vaginal Cancer Guideline:

- Added new indications based on published clinical data and ASTRO model policy:
  - Cervical cancer, Uterine cancer, Vaginal cancer
  - Post hysterectomy
  - Pelvic tumor with lymph node involvement
  - Non-metastatic cervical cancer
- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Gynecological Cancer Definitions

BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.
Cervical cancer forms in tissues of the cervix (the organ connecting the uterus and vagina).
Chordoma is a rare, slow-growing bone cancer that can occur in the spine or skull base.
Chondrosarcoma is a malignant tumor of cartilage origin that can develop primarily or secondarily from benign cartilage lesions such as enchondromas or osteochondromas.
Craniopharyngioma is a rare, non-cancerous (benign) brain tumor that typically develops near the pituitary gland at the base of the brain.
Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.
Dose escalation refers to the systematic increase of a drug dose to determine the maximum tolerated dose (MTD) or to achieve a desired therapeutic effect while monitoring for toxicity.
Endometrial cancer is a type of cancer that begins in the lining of the uterus.
Extracranial hemangiopericytoma is a rare, soft tissue tumor that can occur in many parts of the body.
Hemangioblastoma is a rare, benign (non-cancerous) tumor that typically develops in the central nervous system (brain or spinal cord). It is composed of blood vessels (hemangioblasts) and supportive tissue.
Hysterectomy is a surgical operation to remove all or part of the uterus

Ovarian cancer is cancer that forms in the tissues of the ovary (one of a pair of female reproductive glands in which the ova or eggs are formed).
Pituitary adenoma is a benign tumor originating from the pituitary gland.
Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.
Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.
Meningioma is a tumor, usually benign, arising from meningeal tissue of the brain
Mediastinal gray zone lymphoma is a type of b-cell lymphoma that is commonly seen in young adult males between the ages of 20-40 and are characterized by a large anterior mediastinal mass with or without supraclavicular lymph node involvement.
Multiple myeloma is a blood cancer that develops in plasma cells in the bone marrow. Plasma cells are white blood cells that produce antibodies to protect the body from infection. In multiple myeloma, the plasma cells grow too much, crowding out normal bone marrow cells.
Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.
Pelvic tumors can be benign or malignant and may originate from various tissues within the pelvis, including mesenchymal tumors such as leiomyomas, myxomas, chordomas, solitary fibrous tumors, and sarcomas. Gynecologic malignancies like ovarian tumors and leiomyomas are also common pelvic neoplasms.
Peri-aortic nodal disease can refer to lymph node metastasis near the aorta or to chronic inflammation of the tissues around the aorta.
Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.
Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.
Rhabdomyosarcoma is a cancer that forms in the soft tissues in a type of muscle called striated muscle. Rhabdomyosarcoma can occur anywhere in the body.
Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).
Vaginal cancer is cancer that forms in the tissues of the vagina (birth canal).

Vulvar cancer is cancer of the vulva (the external female genital organs, including the clitoris, vaginal lips and the opening to the vagina).

PBRT Gynecological Cancer References

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2025 Proton Beam Radiation Therapy (PBRT) Head and Neck Cancer

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Head and Neck Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Head and Neck Cancer Guideline

Proton beam radiation therapy (PBRT) for head and neck cancer is considered medically appropriate for reirradiation when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Unresectable disease and **ALL** of the following:
        i. **ANY** of the following:
            A. HPV (human papillomavirus)-positive head and neck cancer

B. Mucosal melanoma

C. Sinonasal cancer

D. Tonsillar cancer

ii. Cancer type typically treated with surgery

iii. Dose escalation is required

b. Enrolled in clinical trial and **ANY** of the following:

i. Head and neck cancer, ipsilateral treatment required **AND** with indications for concurrent systemic therapy

ii. Occult primary of head and neck

iii. Periorbital tumor

iv. Primary tumor of salivary gland

c. **ANY** of the following:

i. Photon based treatment unacceptable, treatment with curative intent and treatment includes areas of known disease only for **ANY** of the following:

A. Primary tumor extend intracranially or exhibit extensive perineural invasion

B. Primary tumor invasion of **ANY** of the following:

I. Cavernous sinus

II. Orbit

III. Skull base

C. Primary tumor in periocular location

d. Photon based treatment unacceptable and postoperative of **ANY** of the following:

i. Oropharynx

ii. Nasopharynx

iii. Sinonasal region

e. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.

f. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

2. Physical ability and clinical status of **ANY** of the following:
   - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
   - Karnofsky performance status (KPS) grade of 70 or more[22]

References: [2] [1] [6] [10]

Ocular Cancer (Uveal Melanoma) Guideline

PBRT for ocular cancer (uveal melanoma) is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. Diagnosis of uveal melanoma
2. Tumor is localized using indirect ophthalmoscopy, transillumination, and/or ultrasound (intraoperative or postoperative **AND** prior to PBRT), x-ray, MRI and/or CT
3. Physical ability and clinical status of **ANY** of the following:
   - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
   - Karnofsky performance status (KPS) grade of 70 or more[23]

References: [3] [9] [8] [11]

Thyroid Cancer Guideline

PBRT for the treatment of thyroid cancer:

- The role of this therapy is uncertain/unclear in the current evidence. Requests for this therapy require review by a physician reviewer, medical director and/or the individual's healthplan.

References: [1] [4]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation

[22]The Lansky performance status scale can be utilized for ages 16 or less.
[23]The Lansky performance status scale can be utilized for ages 16 or less.

CODE	DESCRIPTION
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Head and Neck Cancer Summary of Changes

PBRT guideline for head and neck cancer had the following changes from 2024 to 2025:

- Head and Neck Cancer Guideline changes:
  - Added new indications based on ASTRO PBT model policy and published clincal data to reduce exposure to OAR:
    - HPV (human papillomavirus)-positive head and neck cancer
    - Mucosal melanoma
    - Sinonasal cancer
    - Tonsillar cancer
    - Cancer type typically treated with surgery
    - Head and neck cancer with ipsilateral treatment with indications for concurrent systemic therapy
    - Occult primary of head and neck
    - Periorbital tumor
    - Primary tumor of salivary gland
    - Enrolled in clinical trial
    - Primary tumor extend intracranially or exhibit extensive perineural invasion
    - Primary tumor invasion of cavernous sinus, orbit or skull base
    - Primary tumor in periocular location
    - Postoperative of oropharynx, nasopharynx, sinonasal region
    - Re-irradiation
- Ocular Cancer (Uveal Melanoma) Guideline:
  - Updated the terminology: added (intraoperative or postoperative **AND** prior to PBRT), x-ray, on tumor indication based on national guideline
- Added definitions:
  - Cavernous sinus

  - Dose escalation
  - HPV
  - Ipsilateral treatment
  - Occult primary tumor
  - Oropharynx
  - Nasopharynx
  - Periocular
  - Periorbital tumor
  - Perineural invasion
  - Mucosal melanoma
  - Sinonasal
  - Tonsillar cancer
- Citations updated and evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Head and Neck Cancer Definitions

Advanced disease is also called end-stage or terminal cancer. Advanced disease can occur when there are few signs that remission is possible.
Cavernous sinus is a paired dural venous sinus located at the base of the skull, on either side of the pituitary fossa, containing important neurovascular structures
Computed tomography (CT) is an imaging test that uses X-rays to computer analysis to generate cross sectional images of the internal structures of the body that can be displayed in multiple planes.
Definitive treatment is the treatment plan for a disease or disorder that has been chosen as the best one for a patient after all other choices have been considered.
Dose escalation refers to the systematic increase of a drug dose to determine the maximum tolerated dose (MTD) or to achieve a desired therapeutic effect while monitoring for toxicity.
Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Human papillomavirus (HPV) is a group of viruses that infect the cells on the surface of the skin or on the moist surfaces or inner lining of some organs and body cavities, such as the cervix, vagina, vulva, penis, anus, mouth, and throat. Human papillomavirus infections can cause abnormal tissue growth, such as skin warts or genital warts, and other changes to cells, including cancer.

Ipsilateral refers to the same side of the body as another structure or a given point.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Magnetic resonance imaging (MRI) is a non-invasive diagnostic technique that produces computerized images of internal body tissues and is based on nuclear magnetic resonance of atoms within the body induced by the application of radio waves.

Mucosal melanoma is cancer that develops in melanocytes, cells that produce melanin (pigment that produces color in the eyes, hair and skin). Although melanoma usually grows on the skin, it can also grow in mucosal membranes.
Occult primary tumor is cancer in which the site of the primary (original) tumor cannot be found. Most metastases from occult primary tumors are found in the head and neck.
Ophthalmoscopy is an exam that uses a magnifying lens and a light to check the fundus of the eye (back of the inside of the eye, including the retina and optic nerve).
Oropharynx is located between the nasopharynx and hypopharynx, extending from the soft palate to the level of the hyoid bone, and includes structures such as the base of the tongue, palatine tonsils, and posterior pharyngeal wall.
Nasopharynx is the upper part of the pharynx continuous with the nasal passages.
Palliative treatment is treatment given to help relieve the symptoms and reduce the suffering caused by cancer or other life-threatening diseases. Palliative therapy may help a person feel more comfortable, but it does not treat or cure the disease.
Periorbital tumor is an abnormal growth in the tissue around the eye. They can be benign or malignant, and can arise from the eye or spread from other parts of the body.
Periocular refers to the area around the eye, including: eyelids, eyebrows, ear ducts, and skin surrounding the eye.
Perineural invasion (PNI) refers to the invasion of cancer to the space surrounding a nerve. It is common in head and neck cancer, prostate cancer and colorectal cancer.
Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.

Thyroid cancer is a cancer that forms in the thyroid gland (an organ at the base of the throat that makes hormones that help control heart rate, blood pressure, body temperature, and weight). Four main types of thyroid cancer are papillary, follicular, medullary, and anaplastic thyroid cancer. The four types are based on how the cancer cells look under a microscope.
Tonsillar cancer is a malignancy that originates in the tonsillar region of the oropharynx, often presenting as squamous cell carcinoma (SCC).
Transillumination is the shining of a light through a body area or organ to check for abnormalities.
Uveal melanoma begins in the cells that make the dark-colored pigment, called melanin, in the uvea or uveal tract of the eye. Uveal melanoma of the iris is usually a small tumor that grows slowly and rarely spreads to other parts of the body. Uveal melanoma of the ciliary body and choroid are usually larger tumors and are more likely to spread to other parts of the body.

PBRT Head and Neck Cancer References

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2025 Proton Beam Radiation Therapy (PBRT) Hepatocellular Cancer Publication

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Hepatobiliary System Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Extrahepatic Cholangiocarcinoma, Gallbladder Cancer, Hepatobiliary Cancer, Hepatocellular Carcinoma and Intrahepatic Cholangiocarcinoma Guideline

Proton beam radiation therapy (PBRT) for extrahepatic cholangiocarcinoma, gallbladder cancer, hepatobiliary cancer, hepatocellular carcinoma and intrahepatic cholangiocarcinoma is considered medically appropriate when the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. **ANY** of the following:
        i. Hepatocellular carcinoma
        ii. Intra-hepatic biliary cancer
        iii. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
    b. Oligometastic liver lesion and **ALL** of the following:

i. Curative intent

ii. Enrolled in clinical trial

iii. Photon based treatment unable to meet constraints

2. Physical ability and clinical status of **ANY** of the following:

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[24]

References: [4] [3] [7] [1] [6] [5]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Hepatobiliary Cancer Summary of Changes

PBRT guideline for hepatobiliary cancer had the following changes from 2024 to 2025:

- Extrahepatic Cholangiocarcinoma, Gallbladder Cancer, Hepatobiliary Cancer, Hepatocellular Carcinoma and Intrahepatic Cholangiocarcinoma Guideline changes:
  - Added new indications based on ASTRO PBT model policy and published clinical data to reduce exposure to OAR:
    - Hepatocellular carcinoma
    - Intra-hepatic biliary cancer
    - Re-irradiation
    - Oligometastic liver lesion
- Added definitions:
  - Oligometastatic liver lesion
  - Reirradiation
- Citations updated, evidence review completed.

[24]The Lansky performance status scale can be utilized for ages 16 or less.

- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Hepatobiliary Cancer Definitions

Cholangiocarcinoma is a usually slow-growing malignant tumor of the bile duct that arises from biliary epithelium and is typically an adenocarcinoma.
Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/
Extrahepatic is situated or originating outside the liver.
Hepatobiliary refers to the system of organs that includes the liver, bile ducts and/or gallbladder.
Hepatocellular carcinoma is a malignant epithelial neoplasm originating in the liver, characterized by hepatic differentiation and often associated with cirrhosis or chronic viral hepatitis.[
Hypofractionation is a treatment schedule in which the total dose of radiation is divided into large doses and treatments are given once a day or less often.
Intrahepatic is something that is situated or occurring within or originating in the liver.
Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work

Score	Status
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Oligometastatic liver lesion is a cancerous lesion in the liver that is part of a stage of cancer progression where there are a limited number of metastases.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.

Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.

Unresectable disease is disease that is not able to be removed with surgery.

PBRT Hepatobiliary Cancer References

[1] American Society for Radiation Oncology (2023). Astro Model Policies Proton Beam Therapy (PBT). *American Society for Radiation Oncology*. Retrieved: February 2025. https://www.astro.org/ASTRO/media/ASTRO/Daily%20Practice/PDFs/ASTROPBTModelPolicy.pdf

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2025 Proton Beam Radiation Therapy (PBRT) Pediatric Cancer Publication

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Pediatric Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Pediatric Benign, Malignant or Hematologic Malignancies Guideline

Proton beam radiation therapy (PBRT) for pediatric benign, malignant or hematologic malignancies is considered medically appropriate if the documentation demonstrates **ALL** of the following:

1. Age is 21 years or younger
2. **ANY** of the following advantage of PBRT:
    a. Decrease normal tissue toxicity
    b. Previous irradiation at the same or an immediately adjacent area
    c. Target area is near one or more critical structures and PBRT is needed to avoid exceeding the tolerance threshold
3. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[25]

References: [2] [8] [1] [4] [3] [9] [7] [5] [6]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Pediatric Cancer Summary of Changes

PBRT guideline for pediatric cancer had the following changes from 2024 to 2025:

- Revised and compiled all pediatric guidelines to new guideline Pediatric Benign, Malignant or Hematologic Malignancies Guideline

[25]The Lansky performance status scale can be utilized for ages 16 or less.

  - Added indications based on ASTRO PBT model policy and national guideline:
    - Age is 21 years or younger
    - Advantage of PBRT
    - ECOG 2 or KPS 70
- Added definitions:
  - BRCA
  - Deleterious ATM mutations
  - Li-Fraumeni
  - Lynch syndrome
  - Neurofibromatosis type 1 (NF1)
  - Reirradiation
  - Retinoblastoma
- Citations updated and evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Pediatric Cancer Definitions

Acute lymphoblastic leukemia (ALL) is a type of cancer of the blood and bone marrow where blood cells are made. The disease progresses rapidly and creates immature blood cells. The word "lymphocytic" in ALL refers to the white blood cells called lymphocytes. It is the most common type of cancer in children, and treatments result in a good chance for a cure. ALL can also occur in adults, though the chance of a cure is greatly reduced.
Adjuvant treatment refers to enhancing the effectiveness of medical treatment.
Aggressive mature B-cell lymphoma is a B-cell lymphoma subtype that grows and spreads very quickly. It may involve the jaw, bones of the face, bowel, kidneys, ovaries, bone marrow, blood, central nervous system (CNS) and other organs.
BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.

Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.

Diffuse intrinsic pontine gliomas are highly-aggressive and difficult-to-treat brain tumors found at the base of the brain. They are glial tumors, meaning they arise from the brain's glial tissue — tissue made up of cells that help support and protect the brain's neurons.

Diffuse midline gliomas are primary central nervous system (CNS) tumors (they begin in the brain or spinal cord). They are a rare subtype of glial tumors; to get an accurate diagnosis, a piece of tumor tissue will be removed during surgery, if possible.

Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Glioma is a type of tumor that occurs in the brain and spinal cord. Gliomas begin in the gluey supportive cells (glial cells) that surround nerve cells and help them function.

High-grade is being near the upper, most serious, or most life-threatening extreme of a specified range.

Hodgkin lymphoma is a malignant lymphoma marked by the presence of Reed-Sternberg cells and characterized by progressive enlargement of lymph nodes, spleen and liver and progressive anemia.

IDH1-mutated tumor is a tumor with somatic mutations, found only in cells that become cancerous. They change a single protein building block (amino acid) in the isocitrate dehydrogenase 1 enzyme, replacing the amino acid arginine at position 132 with another amino acid.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Lansky Play-Performance Scale (LPPS) measures and monitors the performance status (ability to perform activities of daily living) of children 16 years or less with cancer before, during, and after treatment.

Table 3. LANSKY PLAY PERFORMANCE SCALE (LPPS)

Score	Description
100	Fully active, normal
90	Minor restrictions in strenuous physical activity
80	Active, but gets tired more quickly
70	Greater restriction of play and less time spent in play activity
60	Up and around, but active play minimal; keeps busy by being involved in quieter activities
50	Lying around much of the day, but gets dressed; no active playing participates in all quiet play and activities
40	Mainly in bed; participates in quiet activities
30	Bedbound; needing assistance even for quiet play
20	Sleeping often; play entirely limited to very passive activities
10	Doesn't play; does not get out of bed
0	Unresponsive

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily

colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.

Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.

Resection is the process of cutting out tissue or part of an organ.

Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).

1p/19q-codeleted tumor is a genetic loss event that is somewhat rare in gliomas that involves the complete deletion of the short arm of chromosome 1 alongside the deletion of the long arm of chromosome 19.

PBRT Pediatric Cancer References

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2025 Proton Beam Radiation Therapy (PBRT) Sarcoma Publication

Radiation Therapy

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Proton Beam Radiation Therapy (PBRT) for Sarcoma

LCD 33937

See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075

See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658

See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Desmoid Tumors, Kaposi Sarcoma and Soft Tissue of Extremity/Body Wall/Head and Neck Guideline

Proton beam radiation therapy (PBRT) for desmoid tumors, kaposi sarcoma and soft tissue of extremity/body wall/head and neck is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.
    b. Primary tumor of the mediastinum including thoracic sarcoma
    c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
    d. Soft tissue sarcoma of extremity
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[26]

References: [1] [8] [5] [9] [7] [4] [1]

Retroperitoneal/Intra-Abdominal Sarcoma Guideline

PBRT for retroperitoneal/intra-abdominal sarcoma is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Non-metastatic retroperitoneal sarcoma
    b. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less

[26]The Lansky performance status scale can be utilized for ages 16 or less.

- Karnofsky performance status (KPS) grade of 70 or more[27]

References: [3] [6] [9] [1]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Sarcoma Summary of Changes

Sarcoma guideline from 2024 to 2025 had the following changes:

- Desmoid Tumors, Kaposi Sarcoma and Soft Tissue of Extremity/Body Wall/Head and Neck Guideline changes:
  - Added new indications based on ASTRO PBT model policy and national guideline :
    - Genetic syndromes
    - Thoracic sarcoma
    - Reirradiation
    - Soft tissue sarcoma of extremity
- Retroperitoneal/Intra-Abdominal Sarcoma Guideline changes:
  - Added new indications based on ASTRO PBT model policy:
    - Non-metastatic retroperitoneal sarcoma
    - Reirradiation
- Added definitions:
  - BRCA
  - Deleterious ATM mutations
  - Li-Fraumeni
  - Lynch syndrome

[27]The Lansky performance status scale can be utilized for ages 16 or less.

- Neurofibromatosis type 1 (NF1)
- Reirradiation
- Retinoblastoma

- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively

PBRT Sarcoma Definitions

BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.

Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.

Desmoid tumor is a soft tissue tumor that forms in fibrous (connective) tissue, usually in the arms, legs or abdomen. It may also occur in the head and neck. Desmoid tumors are usually benign (not cancer). They often recur (come back) after treatment and spread to nearby tissue, but they rarely spread to other parts of the body.

Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Kaposi sarcoma is a disease in which cancer cells are found in the skin or mucous membranes that line the gastrointestinal (GI) tract, from mouth to anus, including the stomach and intestines. These tumors appear as purple patches or nodules on the skin and/or mucous membranes and can spread to lymph nodes and lungs.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Neoadjuvant treatment is treatment (such as chemotherapy or hormone therapy) administered before primary cancer treatment (such as surgery) to enhance the outcome of primary treatment.

Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.
Recurrence is a new occurrence of something that happened or appeared before.
Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.
Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).
Retroperitoneal describes the area behind the smooth transparent serous membrane that lines the cavity of the abdomen.
Sarcoma is a malignant tumor arising in tissue (such as connective tissue, bone, cartilage or striated muscle) of mesodermal origin.

PBRT Sarcoma References

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2025 Proton Beam Radiation Therapy (PBRT) Skin Cancer Guideline

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Skin Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Basal Cell Skin Cancer • Dermatofibrosarcoma Protuberans • Melanoma • Merkel Cell Carcinoma • Squamous Cell Skin Cancer (SCC) Guideline

Proton beam radiation therapy (PBRT) for basal cell skin cancer, dermatofibrosarcoma protuberans, melanoma, merkel cell carcinoma and squamous cell skin cancer is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Adjuvant treatment post surgery and **ANY** of the following:
        i. Basal cell
        ii. Melanoma
        iii. Merkel cell
        iv. Squamous cell

        References: [3] [4] [5] [6] [7] [8] [1] [2]
    b. Enrolled in a clinical trial **AND** cutaneous tumor with cranial nerve invasion to **ANY** of the following:
        i. Base of skull
        ii. Brainstem
        iii. Cavernous sinus

        References: [3] [4] [5] [6] [7] [8] [1]
    c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
    References: [3] [4] [5] [6] [7] [8] [1]
    d. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.
    Reference: [1]
    e. SCC involving the parotid
    References: [3] [4] [5] [6] [7] [8] [1] [2] [8]
    f. Unresectable disease and **ALL** of the following:
        i. Cancer type typically treated with surgery
        ii. Dose escalation is required

        References: [3] [4] [5] [6] [7] [8] [1]
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[28]

References: [3] [4] [5] [6] [7] [8] [1] [2]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Skin Cancer Summary of Changes

PBRT guideline for skin cancer had the following changes from 2024 to 2025:

- Added new indications based on published clinical data to reduce the risk of recurrence or reduce exposure to OAR:
  - Adjuvant treatment post surgery
  - Basal cell, Melanoma, Merkel cell, Squamous cell
  - Enrolled in a clinical trial and cutaneous tumor
  - Genetic syndromes
  - Re-irradiation
  - SCC involving the parotid
  - Unresectable disease
- Added definitions: dose escalation, brain stem, cavernous sinus, reirradiation
  - Brain stem
  - BRCA
  - Cavernous sinus
  - Deleterious ATM mutations
  - Dose escalation
  - Li-Fraumeni
  - Lynch syndrome

[28]The Lansky performance status scale can be utilized for ages 16 or less.

- Neurofibromatosis type 1 (NF1)
- Reirradiation
- Retinoblastoma

- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Skin Cancer Definitions

Basal cell carcinoma (BCC) is the most common malignant neoplasm of the epidermis, typically occurring on the head or neck, and rarely metastasizes
Brainstem is the part of the brain that is connected to the spinal cord.
BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.
Cavernous sinus is a paired dural venous sinus located at the base of the skull, on either side of the pituitary fossa, containing important neurovascular structures
Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.
Dermatofibrosarcoma protuberans (DFSP) is a rare type of skin cancer that starts in connective tissue cells in the middle layer of the skin (dermis).
Dose escalation refers to the systematic increase of a drug dose to determine the maximum tolerated dose (MTD) or to achieve a desired therapeutic effect while monitoring for toxicity.
Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.
Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Melanoma is a highly malignant tumor that starts in melanocytes of normal skin or moles and metastasizes rapidly and widely.
Merkel cell carcinoma is a very rare disease in which merkel cells of the skin grow rapidly.
Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.
Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.
Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).
Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.
Squamous cell carcinoma (SCC) is carcinoma that is made up of or arises from squamous cells (stratified epithelium that consists at least in its outer layers of small scale like cells) and usually occurs in areas of the body exposed to strong sunlight over many years.

PBRT Skin Cancer References

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2025 Proton Beam Radiation Therapy (PBRT) Thoracic Cancer

Radiation Therapy

Last Review Date: 03/24/2025
Previous Review Date: 06/27/2024
Guideline Initiated: 06/30/2019

Proton Beam Radiation Therapy (PBRT) for Thoracic Cancer

LCD 33937
See also, **LCD 33937**: Proton Beam Radiotherapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 35075
See also, **LCD 35075**: Proton Beam Therapy at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

LCD 36658
See also, **LCD 36658**: Proton Beam Therapy https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

Mesothelioma Guideline

Proton Beam Radiation Therapy (PBRT) for mesothelioma is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Malignant pleural mesothelioma
    b. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

    References: [13] [8] [1] [6]

2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[29]

    References: [13] [8] [1] [6]

Non-Small Cell Lung Cancer (NSCLC) Guideline

PBRT for non-small cell lung cancer (NSCLC) is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Early lung stage lung cancer, enrolled in a clinical trial **AND** photon treatment unable to meet prespecified constraints or with higher risk of toxicity
    b. Presence of genetic syndromes making total volume of radiation minimization crucial, such as but not limited to Neurofibromatosis type 1 (NF-1), deleterious ATM mutations, Li-Fraumeni, retinoblastoma, and known or suspected genetic mutations. In addition, individuals with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.
    c. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
    d. Unresectable NSCLC stage II to IIIB

    References: [10] [7] [1] [4]

2. Physical ability and clinical status of **ANY** of the following:

[29]The Lansky performance status scale can be utilized for ages 16 or less.

- Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
- Karnofsky performance status (KPS) grade of 70 or more[30]

References: [10] [7] [1] [4]

Small Cell Lung Cancer (SCLC) Guideline

PBRT for small cell lung cancer (SCLC) is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Early lung stage lung cancer, enrolled in a clinical trial **AND** photon treatment unable to meet prespecified constraints or with higher risk of toxicity
    b. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical

    References: [3] [11] [1] [5]
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[31]

    References: [3] [11] [1] [5]

Thymoma or Thymic Cancer Guideline

PBRT for thymoma or thymic cancer is considered medically appropriate if the documentation demonstrates **BOTH** of the following:

1. **ANY** of the following:
    a. Re-irradiation of previously treated area **AND** further damage to normal tissue could be critical
    b. Thymoma or thymic tumor known

    References: [2] [9] [1] [12]
2. Physical ability and clinical status of **ANY** of the following:
    - Eastern cooperative oncology group (ECOG) performance status grade of 2 or less
    - Karnofsky performance status (KPS) grade of 70 or more[32]

[30]The Lansky performance status scale can be utilized for ages 16 or less.
[31]The Lansky performance status scale can be utilized for ages 16 or less.
[32]The Lansky performance status scale can be utilized for ages 16 or less.

References: [2] [9] [1] [12]

PBRT Procedure Codes

Table 1. PBRT Associated Procedure Codes

CODE	DESCRIPTION
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

PBRT Thoracic Cancer Summary of Changes

PBRT guideline for thoracic cancer had the following changes from 2024 to 2025:

- Mesothelioma Guideline changes
  - Added new indications based on ASTRO PBT model policy:
    - Malignant pleural mesothelioma
    - Reirradiation
- Non-Small Cell Lung Cancer (NSCLC) Guideline changes:
  - Added new indications based on ASTRO PBT model policy and national guideline to reduce normal tissue irradiation:
    - Early lung stage lung cancer
    - Genetic syndromes
    - Reirradiation
    - Unresectable NSCLC stage II to IIIB
- Small Cell Lung Cancer (SCLC) Guideline changes:
  - Added new indication based on ASTRO PBT model policy to reduce normal tissue irradiation:
    - Early lung stage lung cancer
    - Reirradiation
- Thymoma or Thymic Cancer Guideline changes:
  - Added new indications based on ASTRO PBT model policy to reduce normal tissue irradiation:

    - Reirradiation
    - Thymoma or thymic tumor
- Added definitions:
    - BRCA
    - Deleterious ATM mutations
    - Li-Fraumeni
    - Lynch syndrome
    - Neurofibromatosis type 1 (NF1)
    - Reirradiation
    - Retinoblastoma
- Citations updated, evidence review completed.
- Updated ECOG/KPS scoring from 1 to 2 and 80 to 70 respectively.

PBRT Thoracic Cancer Definitions

Adjuvant refers to enhancing the effectiveness of medical treatment.
BRCA BRCA1 and BRCA2 are the first two genes found to be associated with inherited forms of breast cancer and ovarian cancer. People with mutations in either BRCA1 or BRCA2 have a much higher risk for developing breast, ovarian or other types of cancer than those without mutations in the genes. Both BRCA1 and BRCA2 normally act as tumor suppressors, meaning they help to regulate cell division. Most people have two active copies of these genes. When one of the two copies becomes inactive due to an inherited mutation, a person's cells are left with only one copy. If this remaining copy also becomes inactivated, then uncontrolled cell growth results, which leads to breast, ovarian or other types of cancer.
Contralateral is something that relates to the opposite side of the body.
Definitive treatment is the treatment plan for a disease or disorder that has been chosen as the best one for a patient after all other choices have been considered.
Deleterious ATM mutations are rare genetic variants in the ATM gene that can increase the risk of cancer. ATM mutations are associated with pancreatic cancer, lung adenocarcinoma, and other cancers.
Eastern Cooperative Oncology Group (ECOG) scale describes an individual's level of functioning in terms of the ability to care for one's self, daily activity and physical ability (eg, walking, working).

Table 1. ECOG Performance Status Scale

Grade	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair
5	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Extrapleural Pneumonectomy (EPP) is a surgical procedure for treating pleural mesothelioma. It involves the removal of the impacted lung, portions of the diaphragm and the linings of the lung and heart (pleura and pericardium). The surgery is often part of a multimodal treatment plan with chemotherapy and radiation.

Induction therapy is the first treatment given for a disease.

Karnofsky performance status (KPS) is an assessment tool for functional impairment. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. In most serious illnesses, the lower the Karnofsky score, the worse the likelihood of survival.

Table 2. KARNOFSKY PERFORMANCE STATUS SCALE

Score	Status
100	Normal, no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort, some signs or symptoms of disease
70	Cares for self but unable to carry on normal activity or to do active work
60	Requires occasional assistance but is able to care for most of personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalization is indicated although death not imminent
20	Very ill; hospitalization and active supportive care necessary
10	Moribund
0	Dead

Source: https://ecog-acrin.org/resources/ecog-performance-status/

Li-Fraumeni syndrome (LFS) is a rare, inherited disorder that significantly increases the risk of developing various cancers, often at an early age. It is caused by mutations in the TP53 gene, which is a tumor suppressor gene. Individuals with LFS are predisposed to developing multiple

cancers, including breast cancer, brain tumors, soft tissue sarcomas, osteosarcomas, and adrenal cortical carcinomas.

Locally advanced disease is cancer which has grown outside the body part it started in but has not yet spread to other parts of the body.

Lynch syndrome also known as hereditary nonpolyposis colorectal cancer (HNPCC), is an inherited condition that significantly increases the risk of developing various cancers, primarily colorectal and endometrial cancers, but also cancers of the stomach, small intestine, pancreas, ovaries, and more. It's caused by mutations in genes responsible for DNA mismatch repair, leading to genetic instability and increased cancer risk.

Mesothelioma is a usually malignant tumor derived from mesothelial tissue (such as the tissue that lines the peritoneum or pleura).

Metastases is the spread of a disease-producing agency (such as cancer cells) from the initial or primary site of disease to another part of the body.

Non-small cell lung cancer is a group of lung cancers named for the kinds of cells found in the cancer and how the cells look under a microscope. The three main types of non-small cell lung cancer are adenocarcinoma (most common), squamous cell carcinoma and large cell carcinoma. Non-small cell lung cancer is the most common of the two main types of lung cancer (non-small cell lung cancer and small cell lung cancer).

Neurofibromatosis type 1 (NF1) is a genetic condition that causes tumors to grow along your nerves, which are usually non-cancerous (benign) but may cause a range of symptoms.

Palliative treatment is treatment given to help relieve the symptoms and reduce the suffering caused by cancer or other life-threatening diseases. Palliative therapy may help a person feel more comfortable, but it does not treat or cure the disease.

Proton therapy (PBRT), also called proton beam therapy, is a type of radiation therapy that uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells.

Reirradiation refers to the administration of radiation therapy to a previously irradiated area, often used in cases of recurrent or progressive disease. It is associated with increased risks of toxicity compared to initial radiation therapy.

Retinoblastoma is a cancer that forms in the tissues of the retina (the light-sensitive layers of nerve tissue at the back of the eye).

Small cell lung cancer is a highly malignant form of cancer that affects the lungs, tends to metastasize to other parts of the body, is characterized by small round or oval cells which resemble oat grains and have little cytoplasm.

Thymoma and thymic carcinoma are diseases in which malignant (cancer) cells form on the outside surface of the thymus.

Unresectable disease is disease that is not able to be removed with surgery.

PBRT Thoracic Cancer References

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Disclaimer section

Purpose

The purpose of the HealthHelp's clinical guidelines is to assist healthcare professionals in selecting the medical service that may be appropriate and supported by evidence to safely improve outcomes. Medical information is constantly evolving, and HealthHelp reserves the right to review and update these clinical guidelines periodically. HealthHelp reserves the right to include in these guidelines the clinical indications as appropriate for the organization's program objectives. Therefore the guidelines are not a list of all the clinical indications for a stated procedure, and associated Procedure Code Tables may not represent all codes available for that state procedure or that are managed by a specific client-organization.

Clinician Review

These clinical guidelines neither preempt clinical judgment of trained professionals nor advise anyone on how to practice medicine. Healthcare professionals using these clinical guidelines are responsible for all clinical decisions based on their assessment. All Clinical Reviewers are instructed to apply clinical indications based on individual patient assessment and documentation, within the scope of their clinical license.

Payment

The use of these clinical guidelines does not provide authorization, certification, explanation of benefits, or guarantee of payment; nor do the guidelines substitute for, or constitute, medical advice. Federal and State law, as well as member benefit contract language (including definitions and specific contract provisions/exclusions) take precedence over clinical guidelines and must be considered first when determining eligibility for coverage. All final determinations on coverage and payment are the responsibility of the health plan. Nothing contained within this document can be interpreted to mean otherwise.

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National and Local Coverage Determination (NCD and LCD)

NOTICE
To ensure appropriate review occurs to the most current NCD and/or LCD, always defer to https://www.cms.gov/medicare-coverage-database/search.aspx.

Background

National Coverage Determinations (NCD) and Local Coverage Determinations (LCD) are payment policy documents outlined by the Centers for Medicare and Medicaid Services (CMS) and the government's delegated Medicare Audit Contractors (MACs) that operate regionally in jurisdictions.
CMS introduced variation between different jurisdictions/Medicare Audit Contractors (MACs) and their associated covered code lists with the transition to ICD 10. The variation resulted in jurisdictions independently defining how codes are applied for exclusions, limitations, groupings, ranges, etc. for the medical necessity indications outlined in the NCD and LCD. Due to this variation, there is an inconsistent use/application of codes and coverage determinations across the United States between the different MACs.
In addition, **WITHOUT** notice, CMS can change the codes that indicate medical necessity and the format of the coverage determinations/associated documents (eg, Articles). This is an additional challenge for organizations to keep up with ongoing, unplanned changes in covered codes and medical necessity indications.

Medical Necessity Codes

Due to the variation in code application between jurisdictions/MACs and that updates can happen without notification, HealthHelp is not able to guarantee full accuracy of the codes listed for any Coverage Determination, and advises that prior to use, the associated Coverage Determination Articles are reviewed to ensure applicability to HealthHelp's programs and any associated NCDs and LCDs.

For Internal Use Only:

11248 11249 11253 11282 11325 11328 11333 11349 11350 11351 11352 11354 11355 11356 11358 11359 11360 11361 11362 11365 11366 11367 11368 11369 11370 11374 11375 11394 11395 11396 11565