Neutron Beam and Proton Beam Radiation Therapy

POLICY NUMBER UM XRT_2010	**SUBJECT** Neutron Beam and Proton Beam Radiation Therapy	**DEPT/PROGRAM** UM Dept	**PAGE 1 OF 8**
DATES COMMITTEE REVIEWED 04/14/21, 11/10/21, 11/09/22	**APPROVAL DATE** November 9, 2022	**EFFECTIVE DATE** November 28, 2022	**COMMITTEE APPROVAL DATES** 04/14/21, 11/10/21, 11/09/22
PRIMARY BUSINESS OWNER: UM		**COMMITTEE/BOARD APPROVAL** Utilization Management Committee	
URAC STANDARDS HUM v8: UM 1-2; UM 2-1	**NCQA STANDARDS** UM 2	**ADDITIONAL AREAS OF IMPACT**	
CMS REQUIREMENTS	**STATE/FEDERAL REQUIREMENTS**	**APPLICABLE LINES OF BUSINESS** Commercial, Exchange, Medicaid	

I. PURPOSE

The purpose of this policy is to provide general information applicable to the review and appropriateness of Radiation Therapy services. Although a service, supply or procedure may be medically necessary, it may be subject to limitations and/or exclusions under a member's benefit plan. If a service, supply, or procedure is not covered and the member proceeds to obtain the service, supply or procedure, the member may be responsible for the cost. Decisions regarding treatment and treatment plans are the responsibility of the physician. This policy is not intended to direct the course of clinical care a physician provides to a member, and it does not replace a physician's independent professional clinical judgment or duty to exercise special knowledge and skill in the treatment of members. NCH is not responsible for, does not provide, and does not hold itself out as a provider of medical care. The physician remains responsible for the quality and type of health care services provided to a member.

II. BACKGROUND

Neutron Beam Radiation Therapy (NBRT) differs from other forms of radiation particle treatment such as protons or electrons as they have no electrical charge. The treatment effects are the results of the neutron mass producing dense radiation energy distributions. This effect is high energy linear transfer (LET) and may offset the negative effects of low oxygen tension in tumors leading to increased rate of control in hypoxic tumors. Proton Beam Radiation Therapy (PBRT) is a type of external radiation treatment. Using a stereotactic planning and delivery system, positively charged subatomic particles (protons) are targeted to a specific cancer. Protons behave differently than x-rays or photons in that

they have a low energy deposition rate as they enter the body, followed by a steep increased energy deposition when they reach their target (the Bragg peak).

Radiation Therapy Treatment Process:

A. Consultation

B. Simulation

C. Treatment Planning

D. Treatment Delivery

III. TABLE OF CONTENTS

III. NEUTRON BEAM RADIATION THERAPY (NBRT)

Indications for Use/Inclusion Criteria[1-10]

All requests for NBRT require Clinical Review by an NCH Physician.

A. Neutron Beam Radiation Therapy is medically necessary only in the treatment of:

1. Salivary gland cancers – when recurrent OR in the case of a second primary cancer OR following resection with gross residual disease or positive margins OR for re-treatment of a previously irradiated area.

Exclusion Criteria

A. All other cancers are not considered medically necessary for Neutron Beam Radiation Therapy.

IV. PROTON BEAM RADIATION THERAPY (PBRT)

Indications for Use/Inclusion Criteria[11-88]

All requests for PBRT require Clinical Review by an NCH Physician.

A. Proton Beam Radiation Therapy is medically necessary only in the treatment of:

1. Chordomas and Chondrosarcomas of the base of the skull or spine when disease is localized (non-metastatic).
2. Primary or metastatic CNS malignancies when adjacent to critical structures such as the optic nerve, optic chiasm, brain stem, or spinal cord (an IMRT vs PBRT comparison study is required).
3. Hepatocellular cancer or intrahepatic cholangiocarcinoma – when unresectable and non-metastatic
4. Melanoma of the uveal tract – with no evidence of metastasis or extra scleral extension.

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5. Pediatric cancers – in all cases of pediatric cancers (in patients 18 yrs. old or younger) except in cases of bone metastases (see exclusion criteria below).
6. Cancer of the nasal cavity and paranasal sinuses – when tumor involves the base of skull and proton therapy is needed to spare the orbit, optic nerve, optic chiasm, or brainstem (an IMRT vs PBRT comparison study is required)
7. Re-irradiation – for re-treatment of a previously irradiated area

Exclusion Criteria

A. All other cancers are not considered medically necessary for Proton Beam Radiation Therapy.

B. Pediatric cancers in cases where the treatment is for previously untreated bone metastases.

V. APPROVAL AUTHORITY

A. Review – Utilization Management Department

B. Final Approval – Utilization Management Committee

VI. ATTACHMENTS

A. None

VII. REFERENCES

1. NCQA UM 2022 Standards and Elements.
2. National Comprehensive Cancer Network (NCCN) Guidelines Version 2.2021 Head and Neck Cancers, Salivary Gland Tumors
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