



NIHDI

# Hadrontherapy

## reimbursement procedure indication – evidence

NIHDI- Belgium



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# Scientific Committee/Agreement Council

- **Patients treated abroad → European hadrontherapy centers**
  
- **Scientific Committee:**
  - **Inclusion/exclusion criteria for proton / carbon ion therapy (“standard indications”)**
  
- **Agreement Council:**
  - **Evaluation of individual reimbursement requests**
  - **Application inclusion/exclusion criteria**
  
- **ParTICLE : protontherapy center under construction**
  - **consortium Kuleuven/UCL (University of Leuven)**
  - **collaboration UZGent/UZA/UZBrussel/CHU UCL Namur**



# Indications – Children (< 20 years)

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### **Protontherapy - Type of tumour:**

(Para)spinal , skull base chordoma

Skull base chondrosarcoma

(Para)spinal 'adult soft tissue' sarcoma

Pelvic sarcoma

Rhabdomyosarcoma

Ewing's sarcoma

Retinoblastoma

Low-grade glioma (including optic pathway glioma)

Ependymoma

Craniopharyngeoma

Pineal parenchymal tumours (not pineoblastoma)

Esthesioneuroblastoma

Medulloblastoma / primitive neuroectodermal tumours (PNET)

Central nervous system germ cell tumour

Non-resectable osteosarcoma



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## Indications – Adults

### **Protontherapy - Type of tumour:**

Ocular melanoma ( brachytherapy not possible)

Paraspinal, sacral, skull base chordoma

Paraspinal, sacral , skull base chondrosarcoma/sarcoma

Meningioma ( no other treatment available)

Cerebral arterio-venous malformations (no other treatment available)

Medulloblastoma

### **Carbon ion therapy - Type of tumour:**

Malignant mucosal melanoma

Non-resectable or insufficiently resected adenoid cystic carcinoma

Non-resectable or insufficiently resected salivary gland carcinoma (except for squamous cell carcinoma)

Paraspinal , sacral, skull base chordoma

Paraspinal , sacral, skull base chondrosarcoma/sarcoma



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## Additional criteria

- **Cancer → Multidisciplinary Oncology Consultation :**
  - Hadrontherapy is the most appropriate treatment
  - Curative intent
- **“Benign” tumours of the central nervous system → Multidisciplinary Consultation:**
  - no other treatment available
  - Curative intent
- **Performance status:** grade 0 or 1, WHO classification
- **Co-morbidity?** Life expectancy > 5 yrs
- **Re-irradiation ?** only carbon ion radiation therapy



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# Referral procedure

## **1. Referral by Belgian radiotherapy centre:**

→ Belgian hospitals having signed an agreement with NIHDI

## **2. Request to NIHDI to obtain financing of treatment abroad**

→ application form ( indication, MOC report...)

→ consent of Hadrontherapy Centre to treat

## **3. Agreement Council NIHDI:**

→ case by case evaluation (inclusion/exclusion criteria)

→ advice within 5 working days

## **4. Positive advice: Payment guarantee issued by NIHDI**



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## Available evidence

1. Many publications ( often small series, non comparative, lack of long term follow up studies...)
2. Expert opinion
3. (Randomised ) clinical trails ongoing
4. Systematic reviews
  - KCE report: “update scientific evidence for 15 paediatric cancers” <https://www.ncbi.nlm.nih.gov/pubmed/27084646>
  - L Boltzman Institute (Austria): report Carbon Ion therapy <http://eprints.hta.lbg.ac.at/1174/>
  - NISSS report proton therapy (Canada) [https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Oncologie/INESSS\\_Protontherapie.pdf](https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Oncologie/INESSS_Protontherapie.pdf)



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## Available evidence

### **General conclusions / recommendations**

→ *many indications: “At present insufficient or no scientific evidence to support or to refute PTB , CIRT ”*

→ *long term follow up studies needed: side effects / clinical efficacy / harms...*

→ *(European) registries*

→ *cost – effectiveness ?*