

fondazione **CNAO**



Networking WP 9 - 10

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Pavia 16 September 2012

WP 9.1: Development of criteria and tools for an objective evaluation of the impact of a new Hadron-Therapy facility on the improvement of cancer treatment in certain European regions and countries and for Europe on the whole.

Deliverables: **NA9.1** Report on scientific and technical aspects of the existing and planned infrastructures, on demographic and geographic aspects of the European facility distribution and on clinical criteria of eligibility for Hadron-therapy

The data collection form created within WP9 has been submitted to existing and planned facilities

Response rate has been so far dismal. The situation has changed significantly

WP 9.1: Development of criteria and tools for an objective evaluation of the impact of a new Hadron-Therapy facility on the improvement of cancer treatment in certain European regions and countries and for Europe on the whole.

Deliverables: **NA9.2** Provisional model to assess impact of a new facility location

- Accessibility
- Language
- Potential number of national patient
- Potential number of international patient
- Accademic and scientific level of the location
- Ancillary medical facility available
- Other facility in the same area

**Re-assess dinamically
as evidence is
produced**

WP 9.2 : General European guidelines for the preliminary proposal of the design of a new Hadron-Therapy facility

Deliverables: NA 9.3 Guidelines and indications of the financial legal and administrative steps for new facility proposal submission and approval

regrouping of existing facilities experience (e.g. CNAO 77 authorizations)

WP 10 Development and spreading of Europe wide common protocols standardizing operational procedures to facilitate access to hadron-therapy facility and intercomparison of results

TASK	STATUS	WORK PERFORMED /RESULTS REACHED @M 36
Task 1.1 Collation and comparison of protocols for future Europe-wide use	On going	New protocol on skull base chordoma contouring at CNAO
Task 1.2 Training of the practical applications of protocols for researchers working in hadron-therapy facilities (existing or under construction) and for external researchers in order to facilitate correct application for access	On going	First stage ongoing at CNAO

Title:

Imaging and contouring procedures for chordoma of the skull base at the Italian National Center for Hadrontherapy Oncology (CNAO)

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2 University of “Piemonte Orientale”

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4 University of Milan

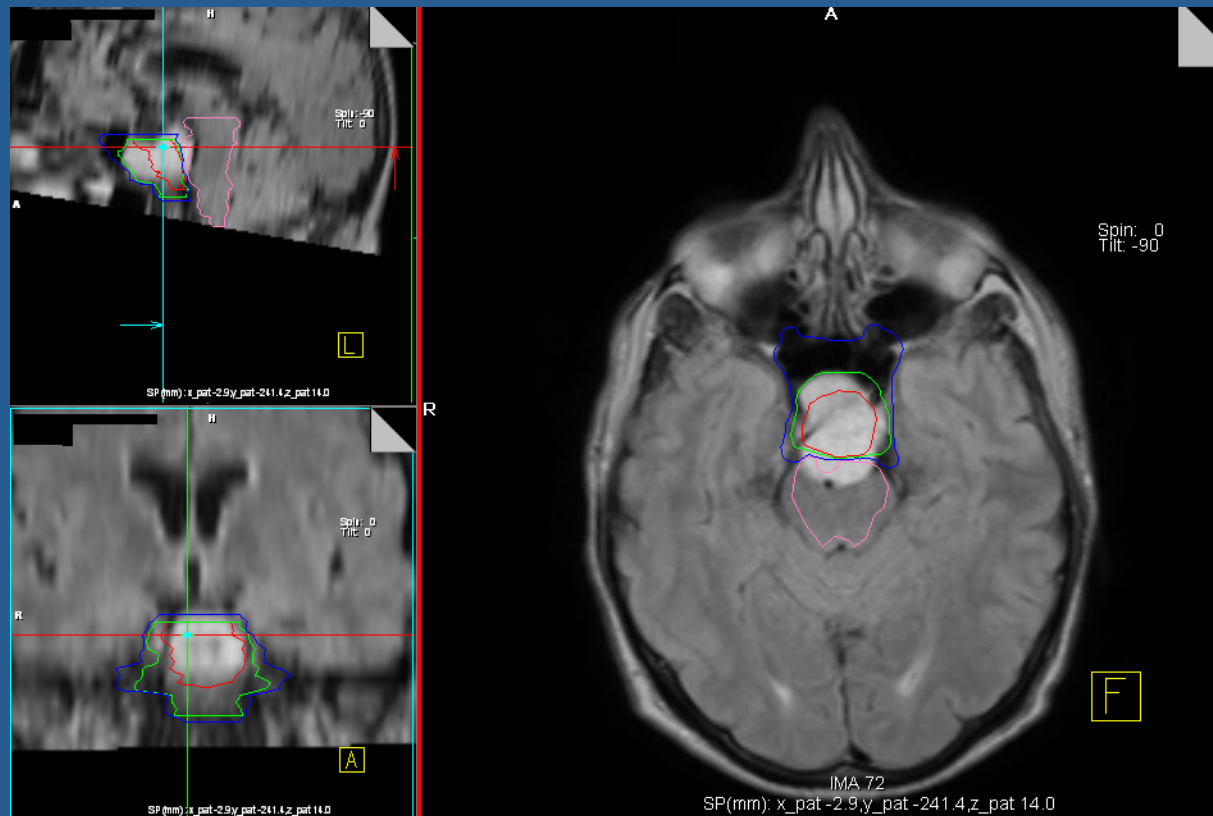
5 European Institute of Oncology

This document describes, in detail, the contouring procedures for chordoma of the skull base employed at the CNAO during treatment planning.

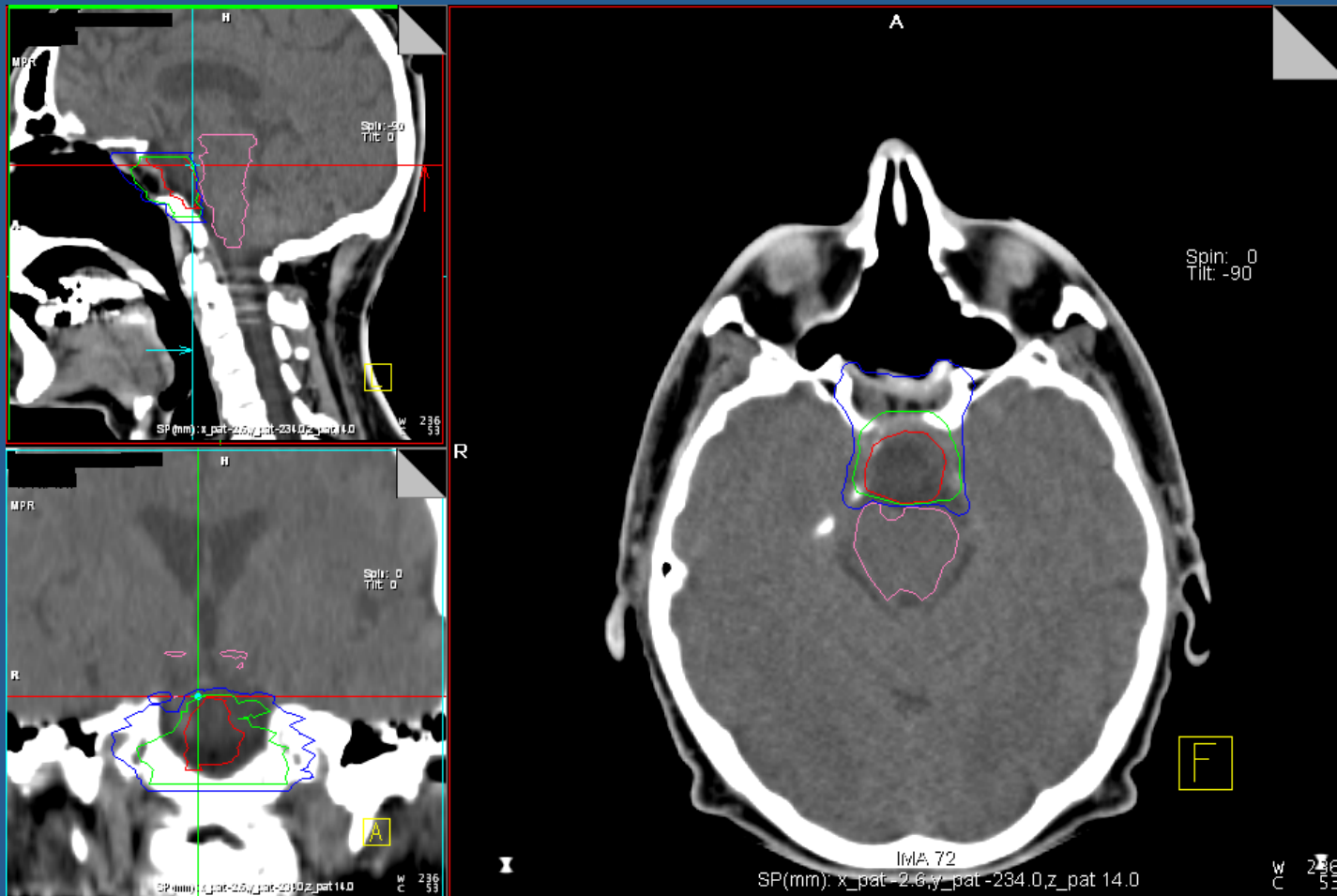
Exemplary cases

Macroscopic clival chordoma after debulking surgery

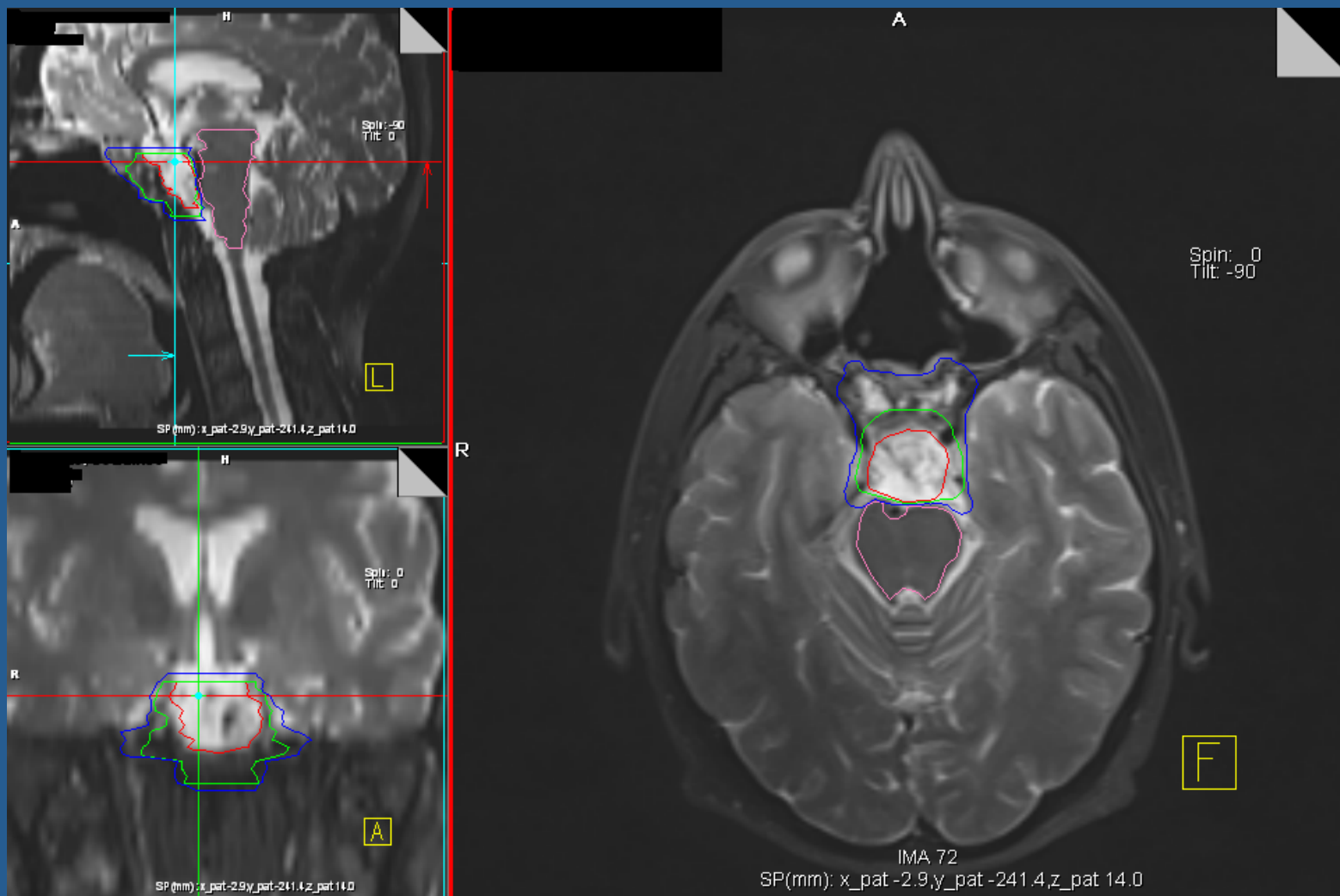
This 65 years old male patient presented with diplopia. He received two trans-nasosphenoidal surgical procedures for a clival chordoma achieving a good decompression of brainstem and optic pathways.



FLAIR pre operative MRI (blue CTV1, green contour is CTV2, red contour is post-operative GTV, pink contour is brainstem after surgery).



Simulation CT (blue CTV1, green contour is CTV2, red contour is post-operative GTV, pink contour is brainstem after surgery).



T2 post operative MRI (blue CTV1, green contour is CTV2, red contour is post-operative GTV, pink contour is brainstem after surgery).

Project acronym: ULICE

Project full title: Union of Light-Ion Centres in Europe

First Stage to be held at CNAO

within the activities of ULICE work package 10

Location: CNAO, National Center for Oncological Hadrontherapy Pavia, Italy**Dates:** From 10 September 2012 to 5 October 2012**Who can apply:** Medical doctors, Biologists, Physicists, Engineers and Dosimetrists.**Number of positions available:** 3**How to apply:** by e-mail to bono@cnao.it. A Curriculum vitae should be sent together with a motivation letter.**Application Deadline:** 20 July 2012

Ideal candidate: The stage is thought for a scientist who is either working in an existing or planned hadrontherapy facility or has an interest in designing and developing a tool that may be used in the field of hadrontherapy or has the intention to carry out research activities in fields connected to hadrontherapy that involve the use of accelerated particle beams.

The ULICE project:

ULICE (Union of Light-Ion Centers in Europe) is a four year project financed by the European Community within the seventh frame work program (<http://ulice.web.cern.ch>). One of the aims of ULICE is to provide access to beam time in hadrontherapy facilities to European researchers. The Tenth work-package of ULICE (named "Development and spreading of Europe wide common protocols standardizing operational procedures to facilitate access to hadrontherapy facility and intercomparison of results") has the task to organize stages in which procedures employed in active facilities are shown to participants; these stages will also be beneficial in focusing future beam time requests.

The CNAO Facility:

CNAO (<http://www.cnao.it/>) is a clinical hadrontherapy facility located in PAVIA, 30 Km south of Milan. The facility is equipped with a synchrotron capable of accelerating ions from H to O and three treatment rooms with fixed horizontal and vertical beams with spot scanning delivery system. Since September 2011 patient treatments with protontherapy is performed at CNAO. Carbon ion radiotherapy is foreseen to start in October 2012. Physical commissioning and biological characterization of both proton and carbon ion beams have been successfully completed.

Stage program: participants will take party in daily activities in CNAO including: treatment planning, treatment delivery, patient follow up, QA, dosimetry. Most of the time will be devoted to hands on experience.

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Short presentations (30-45 minutes) will be given on the following topics:

- patient immobilization devices
- imaging for simulation and target definition
- treatment planning softwares
- radiobiological models for carbon ions
- QA for patients plans
- daily QA for the beam
- Monte Carlo simulations for treatment plans
- physical beam commissioning
- active scanning delivery systems
- treatment duration and its optimization
- patient positioning and position verification
- optoelectronic tracking
- chairs for hadrontherapy
- in vitro radiobiological experiments at CNAO
- in vivo radiobiological experiments at CNAO
- radioprotection issues

Selection procedures:

Three candidates will be selected among applicants. The CV will be evaluated and scored according to the subsequent criteria: previous experience in the fields of hadrontherapy (0-10 points), published results with a connection to the field of hadrontherapy (0-10 points), potential impact for the future development of hadrontherapy (i.e. connection with planned facilities) (0-10 points), overall scientific merit (i.e. education, publications in other fields, patents) (0-10 points).

Support provided:

Free accommodation within the Pavia University campus will be available. economy class flight tickets will be provided. Participants will have access to basic informatic and logistic services in CNAO (e-mail, PC, desk, white board, etc.).

The stage is free and no reimbursement is foreseen for participants.

Ten applications

					previous experience in the fields of hadrontherapy (0-10 points)		published results with a connection to the field of hadrontherapy (0-10 points)		potential impact for the future development of hadrontherapy (i.e. connection with planned facilities) (0-10 points)		overall scientific merit (i.e. education, publications in other fields, patents) (0-10 points)		total score
	name	family name	nationality	qualification	CV								
1	Faustin-Laur	Roman	Romanian	applied physics	Roman\CV_FLRoman201207.pdf	9		10		10		10	39
2	Urszula	Jelenu	Polish	medical physicist	Urszula Jelenu\JelenU CV.pdf	9		8		10		8	35
3	Antonio	Carlino	Italian	medical physicist st.	Antonio Carlino\CV_english Antonio Carlino.doc	7		4		10		5	26
4	Elisabeth	Steiner	Austrian	medical physicist	Elisabeth Steiner\CV_ElisabethSteiner.pdf	4		6		8		6	24
5	Giancarlo	Sportelli	Italian	electronic engineer	Giancarlo Sportelli\CV - ENG - Giancarlo Sportelli.pdf	5		6		4		8	23
6	Monica Huerta	Parajon	Spanish	chemist	Monica Huerta Parajon\CV.pdf	4		7		5		5	21
7	Antonella	Stravato	Italian	medical physicist	Antonella Stravato\Antonella Stravato EN.pdf	2		6		5		7	20
8	Francesca	Fiorini	Italian	medical physicist	Francesca Fiorini\cv_francesca_fiorini.pdf	2		5		5		8	20
9	Ilaria	Improta	Italian	medical physicist	Ilaria Improta\Curriculum Ilaria Improta.pdf	4		3		5		3	15
10	Francesca	Belosi	Italian	applied physics	Francesca Belosi\CVpdf.pdf	3		0		10		0	13

2013

January 1st one week course at CNAO

April 2nd one month stage at CNAO

June 2nd one week course at CNAO

HIT Timetables to be
announced soon



H.J. Draper - Ulysses e le sirene

Thank you for your attention