

PROTON THERAPY CONGRESS

28-30 March 2017 | RAI Amsterdam Convention Centre, Amsterdam

TURNING THE PROTON THERAPY VISION INTO A
CLINICALLY AND COMMERCIALY VIABLE REALITY



ACTIVE CLINICAL TRIALS



PROTON THERAPY CENTRES



TREATMENT ROOMS



**THE PROTON THERAPY INDUSTRY IS AT A PIVOTAL MOMENT,
WITH ACTIVE RECRUITING CLINICAL TRIALS HAVING DOUBLED
SINCE 2013 AND OVER 1,200 TREATMENT ROOMS PREDICTED BY 2030**

INTRODUCTION

Dear Colleague,

For the first time, final results from a randomised controlled clinical trial comparing proton therapy with conventional photon treatment have been published. The data illustrate the continuing efforts around determining suitable evidence-based indications for proton therapy.

The Proton Therapy Congress will bring together leaders from a multitude of scientific disciplines to show case unpublished data, new technological advances and translational case studies to highlight not only the strengths of proton therapy, but also the challenges surrounding its optimisation, and practical implementation.

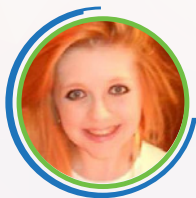
As the proton therapy industry maintains its rapid growth, and the local demand for proton therapy increases, it is estimated that that between 300,000 to 600,000 patients will be treated with particle therapy in one of the 1,800 expected particle therapy treatment rooms worldwide in 2030. **Therefore, it is becoming increasingly important to develop effective methods for patient selection**, and representatives such as Petra Witt Nyström and Cai Grau share the model-based selection approach currently accepted by their county's health authority, whilst Jérôme Doyen and Stephanie Combs share findings from their ongoing clinical trials to determine suitable indications for treatment.

Although in recent years' proton therapy has caught up with conventional radiotherapy technology, uncertainties around planning and delivering treatment still remain. Leading medical physicists such as Marco Schwarz touch upon these uncertainties whilst Giuseppe Schettino presents the importance of relative biological effectiveness in clinical proton therapy. The wider context of proton therapy will be recognised as Oliver Jäkel and Tadashi Kamada discuss the use of Helium and Carbon as potentially viable alternatives to proton therapy.

The conference will not only combine content from academics carrying out research and clinicians delivering treatment, but most importantly consider the practical aspects of proton therapy, from health economics to practical implications of patient data collection and the use of big data in clinical decision support. **The processes involved in developing and managing a successful centre will be explored in a unique workshop**, facilitated by Professor James Metz, highlighting case studies and lessons to be learned from prestigious centres and examining the challenges around building a business case for proton therapy, turning the proton therapy vision into a clinically and commercially viable reality.

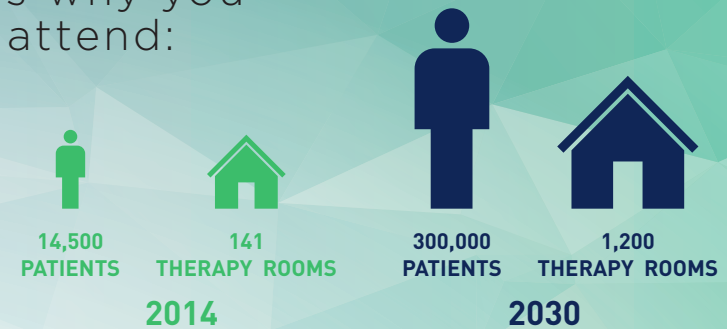
Whether you are a practicing clinician, an academic in the field, a ground-breaking solution provider, or just want to find out how proton therapy is relevant to your work, this meeting will be beneficial to you. This is a unique opportunity to discuss ideas and identify strategies for development in all aspects of proton therapy optimisation. Network with senior clinical oncologists and medical physicists, from both current and planned proton therapy facilities, to form collaborations and benefit from peer to peer benchmarking to improve your current clinical practice and patient outcomes.

I look forward to meeting you all in Amsterdam.



Stephanie
Conference Director | Kisaco Research

Reasons why you should attend:



The Proton Therapy industry is growing rapidly

Discuss ideas and identify strategies for development in all aspects of proton therapy optimisation; clinical, biological, technological, logistical and financial.

Network and collaborate with senior clinical oncologists and medical physicists, from both current and planned proton therapy facilities, and benefit from peer to peer benchmarking to improve your current clinical practice and patient outcomes.

Unique pre-conference workshop day

- Case studies and lessons to be learned
- Overcome challenges around building a business case for proton therapy
- Explore the process involved in planning and developing a successful centre

Turn the proton therapy vision into a clinically and commercially viable reality.

EVENT SPONSORS



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BIOMEDICAL
IMAGING AND
THERAPY FOR
PERSONALIZED
HEALTHCARE

What to expect at the Proton Therapy Congress

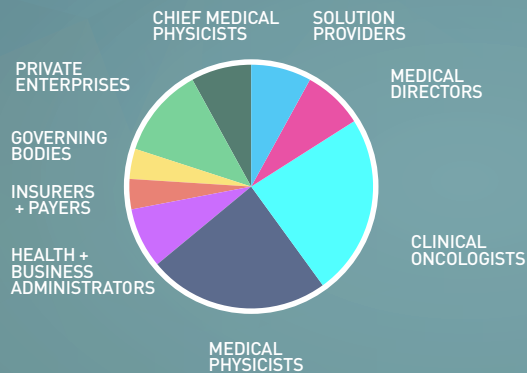
25+ SPEAKERS



200+ ATTENDEES



7 HOURS
DEDICATED
NETWORKING
TIME



1:1
RATIO OF
CLINICAL
ONCOLOGISTS
AND MEDICAL
PHYSICISTS

REPRESENTATIVES FROM
25+ COUNTRIES



A great meeting with world experts on PBT all in one place. Great networking experience

JAMES SNELL
LEAD RADIOGRAPHER
PROTON PARTNERS

Scientific lectures were interesting but talks on the economics and IT infrastructure/registry were enlightening

ASHLEY RICHMOND
HEAD OF MEDICAL PHYSICS,
THE LONDON CLINIC

Very comprehensive, all aspects discussed

JOSEF KOVARIK
CONSULTANT CLINICAL ONCOLOGIST,
NORTHERN CENTRE FOR CANCER CARE

This was a useful meeting with great collaboration and networking opportunities. It was not without controversial claims but that served to provoke some robust debate

STEVE BLAKE
HEAD OF RADIOTHERAPY PHYSICS,
BRISTOL HAEMATOLOGY AND ONCOLOGY CENTRE

Excellent and well organised meeting

KAROL SIKORA
CEO, PROTON PARTNERS INTERNATIONAL

It was excellent to hear the experience and advice from the major international PBT centres on how to set-up a PBT service

JOHN STAFFURTH
CLINICAL ONCOLOGIST,
VELINDRE NHS TRUST

PRESTIGIOUS SPEAKERS



**PROFESSOR
JOHANNES
LANGENDIJK**
Chair of Department
of Radiation Oncology,
University of Groningen



**PROFESSOR
OLIVER JÄKEL**
Medical Physics Director,
HIT GmbH, Heidelberg



**PROFESSOR
PHILIPPE LAMBIN**
Director, Maastricht
Radiation Oncology Clinic,
University of Maastricht
and MAASTRO Clinic



**PROFESSOR
TADASHI KAMADA**
Director, NIRS Research
Center for Charged
Particle Therapy



DR JIRI KUBES
Medical Director, Proton
Therapy Centre Czech



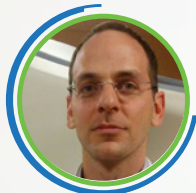
**PROFESSOR
DAMIEN WEBER**
Head and Chairman, PSI



**PROFESSOR
DR YOLANDE
LIEVENS**
Chair of the Radiation
Oncology Department,
Ghent University Hospital,
Belgium



**PROFESSOR CAI
GRAU**
Professor of
Radiotherapy,
Department of Oncology,
Aarhus University
Hospital



DR JÉRÔME DOYEN
Radiation Oncologist,
Antoine Lacassagne
Cancer Center



**PROFESSOR
SANDRINE LACOMBE**
Group Leader
Nanomedicine and
Hadrontherapy,
Institut des Sciences
Moléculaires d'Orsay



**PROFESSOR
GIUSEPPE
SCHETTINO**
Principal Research
Scientist in the Radiation
Dosimetry Group, NPL



**PROFESSOR DIRK
DE RUYSSCHER**
Radiation Oncologist,
Maastricht Clinic,
Maastricht University
Medical Center



**DR VLADIMÍR
VONDRAČEK**
Head of Clinical Physics,
Proton Therapy Centre
Czech



DR JEM RASHBASS
Director for National
Disease Registration,
Public Health England



**DR HÅKAN
NYSTRÖM**
Chief Physician, Head of
Clinic, Skandion, Uppsala



**PROFESSOR
STEPHANIE COMBS**
Director of the Clinic
for Radiation Oncology
and Radiation, Technical
University of Munich



JORN VERWEIJ
Project Leader Proton
Therapy, Trees with
Character



**PROFESSOR
MICHAEL BRADA**
Professor of Radiation
Oncology, University of
Liverpool



**PROFESSOR GILLIES
MCKENNA**
Director of Oxford
Institute for Radiation
Oncology, University of
Oxford



**PROFESSOR PETRA
WITT NYSTRÖM**
Specialist Physician,
Experimental and Clinical
Oncology, Uppsala
University



**PROFESSOR BEATE
TIMMERMANN**
Director of the Clinic for
Particle Therapy and
Medical Director, The
West German Proton
Therapy Centre, Essen

AGENDA OVERVIEW

PLANNING AND DEVELOPING A SUCCESSFUL PROTON THERAPY CENTRE

These sessions will explore the challenges and hurdles associated with building a proton therapy centre and offer advice and guidance on how best to overcome them. [Read more](#)

HEALTH ECONOMICS, QUALITY ASSURANCE AND PRACTICAL IMPLEMENTATION

These sessions will explore the challenges and hurdles associated with the practical implementation of proton therapy into general radiotherapy practice and discuss innovative ways to use patient data to further improve patient outcomes. [Read more](#)

DETERMINING SUITABLE INDICATIONS FOR PROTON THERAPY

These sessions will explore current clinical trial data and model-based selection approaches, touching not only upon the positive data but also the challenges encountered during each clinical trial and how they were overcome. [Read more](#)

OPTIMISING PROTON THERAPY AND TRANSLATING ACADEMIC RESEARCH INTO THE CLINIC

These sessions will explore the current uncertainties in proton therapy and discuss how academic research working to overcome these challenges will be translated into the clinic. [Read more](#)

SESSION OVERVIEW

PRE-DAY WORKSHOP: 28.03.17

13:00	REGISTRATION
13:30	INTERACTIVE WORKSHOP
14:30	END OF PRE-DAY WORKSHOP

DAY ONE: 29.03.17

08:00	REGISTRATION
08:55	CHAIRMAN'S OPENING REMARKS
09:00	RESULTS OF THE EORTC FACILITY QUESTIONNAIRE SURVEY OF EUROPEAN PARTICLE CENTRES
09:30	SELECTION OF PATIENTS FOR PROTON THERAPY
10:00	STARTING UP A NATIONAL CENTRE FOR PROTON THERAPY
10:30	MORNING NETWORKING BREAK
11:00	RADIO THERAPY WITH HELIUM IONS
11:30	COMBINING PROTON THERAPY WITH OTHER TREATMENT OPTIONS
12:00	BIOLOGICAL EFFECTIVENESS OF PROTON & ION BEAMS
12:30	NETWORKING LUNCH
13:30	CLINICAL BENEFITS & CHALLENGES FOR PARTICLE THERAPY IN PAEDIATRIC TUMOURS
14:00	PRESENTATION ABSTRACT TO BE CONFIRMED
14:30	PROTON THERAPY IN DENMARK
15:00	AFTERNOON NETWORKING BREAK
16:00	DISCUSSION
17:00	PROTON RADIO THERAPY WITH PENCIL BEAM SCANNING
17:30	IMPROVING PROTON THERAPY BY METAL-CONTAINING NANOPARTICLES
18:00	CLOSE OF CONFERENCE DAY ONE

DAY TWO: 30.03.17

08:00	REGISTRATION
08:55	CHAIRMAN'S OPENING REMARKS
09:00	BIG DATA-BASED DECISION SUPPORT SYSTEMS FOR PROTON THERAPY
09:30	PROTON BEAMS IN CANCER TREATMENTS
10:00	PRESENTATION ABSTRACT TO BE CONFIRMED
10:30	MORNING NETWORKING BREAK
11:00	PRACTICAL IMPLICATIONS OF PATIENT DATA COLLECTION AND ANALYSIS
11:30	CLINICAL EVALUATION OF PROTON THERAPY
12:00	PROTON THERAPY: HOW TO MAKE IT HAPPEN FROM AN ECONOMIC PERSPECTIVE
12:30	NETWORKING LUNCH
13:30	SUSTAINABLE CARBON-ION RADIO THERAPY FACILITIES USING NEXT-GENERATION TECHNOLOGY
14:00	PROTON THERAPY: HOPE, HYPE, MISINFORMATION AND CLINICAL EVIDENCE
14:30	HOW TO COLLABORATE ON A NATIONAL LEVEL TO SECURE QUALITY AND PATIENT RECRUITMENT
15:30	AFTERNOON NETWORKING BREAK
16:00	DISCUSSION
17:00	THE ROBUSTNESS OF PBS TREATMENT
17:30	COMBINING PROTON TREATMENT WITH IMMUNE THERAPY: NATURAL PARTNERS?
18:00	CLOSE OF CONFERENCE DAY TWO

TIMETABLE

PRE-DAY WORKSHOP: 28.03.17 | 13.00 REGISTRATION | 16.30 END OF PRE-DAY WORKSHOP

13.30

INTERACTIVE WORKSHOP

This workshop will dive deep into the process of planning, building and ultimately running a successful proton therapy centre, drawing upon the extensive experiences of its facilitators. It will explore lessons to be learnt from current centres and discuss the challenges and hurdles associated with turning the proton therapy vision into a clinically and commercially viable reality.

With sessions including: How to Buy Proton Therapy Equipment Without Decision Making **Jorn Verweij, Project Leader Proton Therapy, Trees with Character.**

For proton therapy initiatives selecting the vendor/equipment combination is the challenge that carries the greatest risk. As the building is built around the equipment there is a vendor lockin for the entire operational lifetime of your center, largely determining the success of your project. But how to select a vendor based on features and performances you might not really understand, and the relevance of which for your project, now and in the future, is not really clear to you? Presented will be a tried and proven method to identify the vendor best able to achieve your aims which does not involve decision making, and hence minimises risk.

DAY ONE: 29.03.17

08:00

REGISTRATION

08.55

CHAIRMAN'S OPENING REMARKS

09:00

RESULTS OF THE EORTC FACILITY QUESTIONNAIRE SURVEY OF EUROPEAN PARTICLE CENTRES

Professor Damien Weber, Head and Chairman, PSI

The particle Facility Questionnaire (pFQ) of the European Organisation for Research and Treatment of Cancer Radiation Oncology Group (EORTC-ROG) has evaluated the human, technical and organizational resources of European particle centers. The purpose of this study is to use the pFQ database to assess the structures and resources of proton or heavy ion centers in Europe.

09:30

SELECTION OF PATIENTS FOR PROTON THERAPY: PRINCIPLES AND PRACTICE OF THE MODEL-BASED APPROACH

J.A. Langendijk, Department of Radiation Oncology, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands

The last decade, many new radiation delivery techniques have been clinically introduced without being subjected to randomized controlled trials. Many of these new techniques have been introduced in order to reduce the dose to the healthy tissues and subsequently to prevent radiation-induced side effects.

10:00

STARTING UP A NATIONAL CENTRE FOR PROTON THERAPY: HURDLES AND CHALLENGES FROM A PHYSICIST PERSPECTIVE

Dr Håkan Nyström, Chief Physicist, Head of Clinic, Skandion, Uppsala

10.30

MORNING NETWORKING BREAK

11:00

RADIOTHERAPY WITH HELIUM IONS - AN ALTERNATIVE TO PROTONS

Professor Oliver Jäkel, Medical Physics Director, HIT GmbH, Heidelberg

Within the last two decades not only photon radiotherapy has rapidly developed, but also particle therapy with protons, helium and carbon ions has gained increasing interest. While helium ions are very similar to protons in their biological properties, heavy ions exhibit an increased relative biological

effectiveness in the Bragg peak as compared to the entrance region. In this talk the rationale for ion radiotherapy will be explained and research projects in the field of medical physics and the clinical research will be highlighted and future research perspectives will be outlined.

11.30

COMBINING PROTON THERAPY WITH OTHER TREATMENT OPTIONS

Professor Gillies McKenna, Director of Oxford Institute for Radiation Oncology, University of Oxford

Charged particle therapy is becoming increasing used around the world for radiotherapy and offers advantages over conventional radiotherapy, since a far lower radiation dose is delivered to healthy tissues. As charged particles slow down the amount of energy transferred to a material per unit track length increases (referred to as LET – linear energy transfer) up to the Bragg peak, this not only leads to an increase in dose, but also an increase in biological effectiveness with depth. In conventional X-ray radiotherapy, the use of molecularly targeted agents is currently being studied to improve the effectiveness of radiotherapy treatment by making the tumour cells more sensitive to radiation.

Although this looks promising for conventional x-rays, it is unclear what the effect of these agents will be in charged particle therapy. I will discuss some of the issues that may arise in combination therapies that may differentiate particle from conventional therapy, and also the role of the biology of higher LET particles

12.00

BIOLOGICAL EFFECTIVENESS OF PROTON AND ION BEAMS

Professor Giuseppe Schettino, Principal Research Scientist in the Radiation Dosimetry Group, NPL

Clinical adoption of a constant cell killing relative biological effectiveness (RBE) for acute exposures underestimates the effect of increased linear energy transfer (LET) in the distal regions of clinical proton beams. The estimation of proton beam RBE compared with energetic X-rays presents a key issue in radiation therapy because any uncertainty in the RBE transfers directly to an uncertainty in the biologically effective dose delivered to a patient.

12.30

NETWORKING LUNCH

13.30

CLINICAL BENEFITS AND CHALLENGES FOR

PARTICLE THERAPY IN PAEDIATRIC TUMOURS

Professor Beate Timmermann, Director of the Clinic for Particle Therapy and Medical Director, The West German Proton Therapy Centre, Essen

Proton therapy for non-ocular tumours in children is a relatively new development in Europe. Main arguments for proton therapy are the reduced risk for secondary cancers as well as a more precise sparing of organs at risk. Due to interdisciplinary advances more children survive their childhood cancer and have to deal with late effects of their primary cancer treatment. A main challenge of proton therapy remains the prolonged time for treatment planning. Metal or breathing movements in the irradiated volume pose additional challenges and sometimes develop into a pitfall during treatment planning.

14.00

PRESENTATION ABSTRACT TO BE CONFIRMED

14:30

PROTON THERAPY IN DENMARK

Professor Cai Grau, Professor of Radiotherapy, Department of Oncology, Aarhus University Hospital

The DCPT will be a public, national research center, offering proton therapy free of charge to all appropriate Danish patients. The clinicians and scientists will aim to strengthen both the national and international collaboration, which are essential for advancing this novel treatment modality. Research will be a major part of the activity of the centre. The clinical treatment protocols will aim to establish evidence for the clinical outcome of proton radiotherapy. The translational research conducted in the radiobiology and functional imaging programmes will aim to characterise the individual normal tissue and tumour biology, relevant for proton therapy. This will be facilitated by building on existing national databases with clinical data, outcome measures, radiotherapy dose plans, and biobanks.

15.00

AFTERNOON NETWORKING BREAK

16.00

DISCUSSION

Relative Biological Effectiveness in Achieving the Full Clinical Potential of Proton Therapy

This panel will address the importance of multidisciplinary collaborations to translate academic research into the clinic and improve understanding

of RBE in clinical proton therapy. Uncertainties still remain around RBE for different tissues and tumours and at difference doses, which once overcome, could impact clinical outcomes.

17.00

PROTON RADIOTHERAPY WITH PENCIL BEAM SCANNING IN THE TREATMENT OF HEAD AND NECK CANCER AND MALIGNANT LYMPHOMAS

Dr Jiří Kubeš, Medical Director, Proton Therapy Centre Czech

Pencil beam scanning technology opened space for the use of proton radiotherapy in the treatment of complicated target volumes and indications in which it was not possible with passive scattering proton radiotherapy. Head and neck cancer radiotherapy, especially with irradiation of bilateral cervical lymph nodes, is an example of an indication for which the toxicity of modern radiotherapy is significant, and dose reduction to the organ at risk (OAR) is required. For such tumours, an adaptive approach is necessary. The use of PBS, adaptive approach and clinical experiences with such treatment of head and neck tumours will be presented. Malignant lymphomas, especially mediastinal forms, are other indication that were difficult to treat with passive scattered protons due to respiratory and cardiac motion. Experiences with PBS radiotherapy in combination with deep respiratory breath old technique will be presented.

17.30

IMPROVING PROTON THERAPY BY METAL-CONTAINING NANOPARTICLES

Professor Sandrine Lacombe, Group Leader Nanomedicine and Hadrontherapy, Institut des Sciences Moléculaires d'Orsay

The use of nanoparticles to enhance the effect of radiation-based cancer treatments is a growing field of study and recently, even nanoparticle-induced improvement of proton therapy performance has been investigated. Aiming at a clinical implementation of this approach, it is essential to characterize the mechanisms underlying the synergistic effects of nanoparticles combined with proton irradiation. This presentation gives a new insight into the underlying mechanisms on the nanoscale and indicates that the addition of metal-based nanoparticles is a promising strategy not only to increase the cell killing action of fast protons, but also to improve tumor targeting.

18.00

CLOSE OF CONFERENCE DAY ONE

TIMETABLE CONTINUED

DAY TWO: 30.03.17

08:00 REGISTRATION

08.55 CHAIRMAN'S OPENING REMARKS

09:00 BIG DATA-BASED DECISION SUPPORT SYSTEMS FOR PROTON THERAPY
Professor Philippe Lambin, Director, Maastricht Radiation Oncology Clinic, University of Maastricht and MAASTRO Clinic

We strongly believe that proton therapy will benefit to a subgroup of patients and that we will have to sue several biomarkers to identify this subgroup. Our main goal has been therefore to develop a multifactorial Clinical Decision Support System for cancer treatment. Clinical decision support systems are essential in personalized medicine as they help physicians decide how best to treat their individual patients. They are based on data from large groups of patients and their cancers. We pioneered this concept in the field of cancer treatment and radiotherapy. To quantitatively assess the effectiveness of proton therapy for individual patients, we developed prototypes for an online platform for proton decision support comparing photon and proton treatments on dosimetric, toxicity and cost-effectiveness levels..

09:30 PROTON BEAMS IN CANCER TREATMENTS: CLINICAL OUTCOMES AND DOSIMETRIC COMPARISONS WITH PHOTON THERAPY
Dr Jérôme Doyen, Radiation Oncologist, Antoine Lacassagne Cancer Center

In silico studies have shown superiority (better dose delivery to the target and/or to organs at risk) of PT toward photon-therapy in most of thoracic and abdominal malignant tumors. Potential benefits of PT could be: reduction of toxicities (including radiation-induced cancer), increase of tumor control through a dose-escalation approach, hypofractionation.

PT may be associated with a great advantage compared to the best photon-therapies in various types of cancers. Accumulation of clinical data is on-going and will challenge the in silico data analysis. Some indications are associated with strong superiority of PT and may be discussed as a new standard within prospective observational studies.

10:00 PRESENTATION ABSTRACT TO BE CONFIRMED

10.30 MORNING NETWORKING BREAK

11:00 PRACTICAL IMPLICATIONS OF PATIENT DATA COLLECTION AND ANALYSIS
Dr Jem Rashbass, Director for National Disease Registration, Public Health England

The introduction of Proton Beam Therapy into routine NHS practice has considerable potential to revolutionise the treatment of patients. However, we will need access to high-quality patient-level data if

we are to ensure that the treatments are given to the right patients and rich and detailed follow-up data to evaluate the success of this intervention on those who are treated. This presentation will cover the practical aspects of cancer data collection by the National Cancer Registration and Analysis Service in Public Health England. It will explain how data is collected, linked and analysed and the how this resource can be used to assess the benefits of Proton Beam Therapy.

11.30 CLINICAL EVALUATION OF PROTON THERAPY
Professor Stephanie Combs, Director of the Clinic for Radiation Oncology and Radiation, Technical University of Munich

The clinical introduction of proton therapy requires an extensive analysis of its benefits compared to conventional radiotherapy and a detailed analysis of possible uncertainties which might have serious consequences for patient treatment. More robust prospective clinical trials are needed to determine the appropriate clinical setting for PBT.

12.00 PROTON THERAPY: HOW TO MAKE IT HAPPEN FROM AN ECONOMIC PERSPECTIVE
Professor Dr. Yolande Lievens, Chair of the Radiation Oncology Department, Ghent University Hospital, Belgium

Owing to increasing healthcare costs, there is a need to examine whether the benefits of new technologies are worth the extra cost. In proton therapy, where the evidence in favour is limited, it is heavily debated whether the expected benefit justifies the higher capital and operating costs. There is an urgent need to collect appropriate data to allow for reimbursement of such novel technology.

12.30 NETWORKING LUNCH

13.30 SUSTAINABLE CARBON-ION RADIOTHERAPY FACILITIES USING NEXT-GENERATION TECHNOLOGY: A VIABLE ALTERNATIVE TO PROTON THERAPY
Professor Tadashi Kamada, Director, NIRS Research Center for Charged Particle Therapy

Despite the enormous initial investment required, five carbon-ion radiotherapy centers are in operation and another two are under construction in Japan. After twenty years of experience with carbon-ion radiotherapy, and following substantial technological progress, improved profitability with better clinical outcomes has been seen at carbon-ion radiotherapy facilities, constituting a viable alternative to proton therapy.

14.00 PROTON THERAPY; HOPE, HYPE, MISINFORMATION AND CLINICAL EVIDENCE
Professor Michael Brada, Professor of Radiation Oncology, University of Liverpool

Despite the absence of high level evidence of the

benefits of proton therapy, showing improved efficacy, reduced toxicity, or both, compared to best photon radiotherapy, the number of proton facilities continues to increase at an exponential rate. This growth is based on the belief in the clinical benefits, which must surely follow the more localised deposition of energy of charged particles compared to photons. While such belief and enthusiasm is necessary for bringing new technically challenging technology into clinical practice, it needs to be tempered by realism which takes into account not only the potential advantages but also the potential uncertainties and risks inherent in such complex technology. As with the introduction of new drugs, the potential value should be tested in well-designed prospective trials; this is particularly true in a situation where even the prediction of clinically relevant benefits based on technical advantages are likely to be marginal. The academic clinical community, together with healthcare providers and funders, should ensure that proton therapy is appropriately tested and subsequently only used in indications with evidence of true clinical benefit.

14:30 HOW TO COLLABORATE ON A NATIONAL LEVEL TO SECURE QUALITY AND PATIENT RECRUITMENT - EXPERIENCES FROM THE SWEDISH MODEL WITH THE FOCUS ON PATIENT SELECTION AND CNS TREATMENTS
Professor Petra Witt Nyström, Specialist Physician, Experimental and Clinical Oncology, Uppsala University

15.30 AFTERNOON NETWORKING BREAK

16.00 DISCUSSION
The Place of Proton Therapy in Future Radiotherapy Practice

This panel will explore the requirement for randomised clinical trials compared to phase 1 and 11 trials and touch upon various models used in patient selection and the identification of evidence-based indications for proton therapy. The importance and challenges of integrating proton therapy with other treatment options will be discussed, alongside the potential of alternative ion therapy such as Helium and Carbon. The cost effectiveness of proton therapy and challenges around reimbursement will also be debated and the clinical and commercial viability of personalised radiotherapy will be deliberated.

17.00 THE ROBUSTNESS OF PBS TREATMENT
Dr Vladimír Vondráček, Head of Clinical Physics, Proton Therapy Centre Czech

17.30 COMBINING PROTON TREATMENT WITH IMMUNE THERAPY: NATURAL PARTNERS?
Professor Dirk De Ruyscher, Radiation Oncologist, Maastricht Clinic, Maastricht University Medical Center

Radiotherapy induces profound effects on tumor cells and on the tumor microenvironment that may be

beneficial to trigger an anti-cancer immune response. Radiation can induce immunogenic cell death (ICD) of cancer cells, leading to maturation of dendritic cells that present tumor antigens to the immune system. Radiotherapy induces upregulation of MHC class I molecules, which are crucial for T-cell activation and upregulates tumor-associated antigens (TAA), which are expressed at the surface of cells in association with MHC class I antigens. Radiation may alter the MHC class I associated peptide profile. These phenomena allow for radiation to act as an in situ vaccination, to cause T-cell priming and to affect trafficking, infiltration and killing of cancer cells. However, when radiotherapy alone is delivered, "abscopal" responses are hardly observed. The reason is that efficient mechanisms aiming to prevent auto-immunity dampen the anti-cancer immune response. The combination of radiotherapy with immunomodulatory drugs is therefore an attractive approach to enhance this abscopal effect and thus generate both local and systemic immune responses. As an intact immune system is central to allow an abscopal effect, strategies to reduce lymphopenia are needed. Proton therapy reduces lymphopenia and lowers the dose to normal tissues, possibly leading to improved immune responses with less side effects.

18.00 CLOSE OF CONFERENCE DAY TWO

PLANNING AND DEVELOPING A SUCCESSFUL PROTON THERAPY CENTRE



PROFESSOR CAI GRAU
Professor of
Radiotherapy,
Department of Oncology,
Aarhus University
Hospital
DAY ONE 14:30



DR HÅKAN NYSTRÖM
Chief Physicist, Head of
Clinic, Skandion, Uppsala
DAY ONE 10:00



JORN VERWEIJ
Project Leader Proton
Therapy, Trees with
Character
PRE-DAY 13:30

There are many aspects that are important to consider when planning and building a proton therapy centre in order to establish appropriate clinical and research capabilities. From building a business case for proton therapy and selecting and commissioning vendors, to determining the clinical workflow and seamlessly integrating proton therapy into other oncology services, each step requires careful preparation and an in depth understanding, to ensure success. These sessions will explore the challenges and hurdles associated with building a proton therapy centre and offer advice and guidance on how best to overcome them. Case studies and lessons to be learnt from successful centres will allow participants to take the mistakes of others and apply these lessons to their own development plan.

SESSION OVERVIEW

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DAY TWO: 30.03.17

08:00	REGISTRATION
08:55	CHAIRMAN'S OPENING REMARKS
09:00	BIG DATA-BASED DECISION SUPPORT SYSTEMS FOR PROTON THERAPY
09:30	PROTON BEAMS IN CANCER TREATMENTS
10:00	PRESENTATION ABSTRACT TO BE CONFIRMED
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12:00	PROTON THERAPY: HOW TO MAKE IT HAPPEN FROM AN ECONOMIC PERSPECTIVE
12:30	NETWORKING LUNCH
13:30	SUSTAINABLE CARBON-ION RADIO THERAPY FACILITIES USING NEXT-GENERATION TECHNOLOGY
14:00	PROTON THERAPY; HOPE, HYPE, MISINFORMATION AND CLINICAL EVIDENCE
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15:30	AFTERNOON NETWORKING BREAK
16:00	DISCUSSION
17:00	THE ROBUSTNESS OF PBS TREATMENT
17:30	COMBINING PROTON TREATMENT WITH IMMUNE THERAPY: NATURAL PARTNERS?
18:00	CLOSE OF CONFERENCE DAY TWO

HEALTH ECONOMICS, QUALITY ASSURANCE AND PRACTICAL IMPLEMENTATION



**PROFESSOR
DAMIEN WEBER**
Head and Chairman, PSI

DAY ONE 09:00



**PROFESSOR
DR YOLANDE
LIEVENS**
Chair of the Radiation
Oncology Department,
Ghent University Hospital,
Belgium

DAY TWO 12:00



DR JEM RASHBASS
Director for National
Disease Registration,
Public Health England

DAY TWO 11:00



**PROFESSOR
PHILIPPE LAMBIN**
Director, Maastricht
Radiation Oncology Clinic,
University of Maastricht
and MAASTRO Clinic

DAY TWO 09:00

Increasing healthcare costs means there is a great demand to examine whether the benefits of new technologies such as proton therapy justify the higher capital and operating costs. With limited clinical evidence comparing protons to conventional radiotherapy, there is much debate around reimbursement strategies for this treatment. In addition, new ways to collect and analyse patient data and using such data to develop clinical decision support systems, are important aspects to explore when considering the practical aspects of implementing proton therapy into the clinic. These sessions will explore the challenges and hurdles associated with the practical implementation of proton therapy into general radiotherapy practice and discuss innovative ways to use patient data to further improve patient outcomes, as well as the clinical and commercial viability of personalised radiotherapy.

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18:00	CLOSE OF CONFERENCE DAY TWO

DETERMINING SUITABLE INDICATIONS FOR PROTON THERAPY



PROFESSOR JOHANNES LANGENDIJK

Chair of Department of Radiation Oncology, University of Groningen

DAY ONE 09:30



DR JIRI KUBES
Medical Director, Proton Therapy Centre Czech

DAY ONE 17:00



DR JÉRÔME DOYEN
Radiation Oncologist, Antoine Lacassagne Cancer Center

DAY TWO 09:30



PROFESSOR PETRA WITT NYSTRÖM
Specialist Physician, Experimental and Clinical Oncology, Uppsala University

DAY TWO 14:30



PROFESSOR DIRK DE RUYSSCHER
Radiation Oncologist, Maastricht University Medical Center

DAY TWO 17:30



PROFESSOR STEPHANIE COMBS
Director of the Clinic for Radiation Oncology and Radiation, Technical University of Munich

DAY TWO 11:30



PROFESSOR BEATE TIMMERMANN
Director of the Clinic for Particle Therapy and Medical Director, The West German Proton Therapy Centre, Essen

DAY ONE 13:30



PROFESSOR MICHAEL BRADA
Professor of Radiation Oncology, University of Liverpool

DAY TWO 14:00

Currently, only around 10% of all patients eligible for radiotherapy are treated with protons. To increase this number and successfully improve patient outcomes, more clinical data supporting the benefits of proton therapy compared with photon therapy are needed. There is much debate around the requirement for randomised controlled clinical trials in determining suitable evidence-based indications for proton therapy. These sessions will explore current clinical trial data, touching not only upon the positive data but also the challenges encountered during each clinical trial and how they were overcome. Throughout Europe, various model-based approaches to patient selection are used and representatives from a number of countries will discuss their approach to determining suitable indications for proton therapy.

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HEALTH ECONOMICS, QUALITY ASSURANCE AND PRACTICAL IMPLEMENTATION



**PROFESSOR
OLIVER JÄKEL**
Medical Physics Director,
HIT GmbH, Heidelberg

DAY ONE 11:00



**PROFESSOR
TADASHI KAMADA**
Director, NIRS Research
Center for Charged
Particle Therapy

DAY TWO 13:30



**PROFESSOR
GIUSEPPE
SCHETTINO**
Principal Research
Scientist in the Radiation
Dosimetry Group, NPL

DAY ONE 12:00



**PROFESSOR GILLIES
MCKENNA**
Director of Oxford
Institute for Radiation
Oncology, University of
Oxford

DAY ONE 11:30



**PROFESSOR
SANDRINE LACOMBE**
Group Leader
Nanomedicine and
Hadrontherapy,
Institut des Sciences
Moléculaires d'Orsay

DAY ONE 17:30



**DR VLADIMÍR
VONDRAČEK**
Head of Clinical Physics,
Proton Therapy Centre
Czech

DAY TWO 17:00

Proton therapy is rapidly catching up to conventional photon therapy technology. This said, there are still numerous important uncertainties in planning and delivering proton therapy, from both the clinical and physics perspective. These sessions will explore the current uncertainties in proton therapy and discuss how academic research working to overcome these challenges will be translated into the clinic. From treatment planning and motion mitigation to relative biological effectiveness, multidisciplinary collaborations are required to successfully overcome these uncertainties in proton therapy. These sessions will also explore innovative and novel methods to optimise the treatment such as with the use of nanoparticles.

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[CLICK FOR MORE INFO](#)

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