ESTRO GUIDE

2017

EUROPEAN SOCIETY FOR RADIOTHERAPY & ONCOLOGY

ESTRO

ESTRO
European Society for Radiotherapy & Oncology

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Belgium

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WWW.ESTRO.ORG

CONTENT

Introduction 6

1 ABOUT ESTRO 9

Contact 10
ESTRO Vision 2020 11
ESTRO Staff 12

2 ESTRO MEMBERSHIP 15

ESTRO Membership 16

3 ESTRO SCHOOL 21

Introduction: The ESTRO School in 2017 23

3.1 EDUCATIONAL ACTIVITIES 24
Overview 24
Which Course to Attend? 28
Live Teaching Courses 2017: Postgraduate Training in Radiation Oncology 30
Live Teaching Courses 2017: Undergraduate Training for Medical Students 101
School Calendar 2017 and 2018 106
Online Contouring Workshops 108
ESTRO Online Educational Resources and Tools 109
Information and Registration 112

3.2 PUBLICATIONS 114
Educational Publications 114

3.3 GRANTS 116
Mobility Grants (TTG) 116
Educational Grants 119

3.4 REDUCED FEES 120

4 ESTRO CONFERENCES 123

4.1 ESTRO CONFERENCES 125
ESTRO 36 127
5th GEC-ESTRO Workshop 151
Information and Registration 152

4.2 SCIENTIFIC COLLABORATION 155
ECCO 2017 156
6th ICHNO 159
ELCC 2017 162

Introduction

ESTRO is well known for the quality of its education and teaching programmes. This is reflected in the demand for these activities by professionals not only from Europe but worldwide. Hence the Society continuously ameliorates and diversifies the portfolio of these programmes, be they courses or conferences, to meet the needs of professionals in the radiation oncology and allied community seeking to better their skills to improve patient care.

The ESTRO School comes with over 30 years of experience of developing and running courses. These range from basic to advanced level to cater to the different skills needed by professionals at varying levels of career development. In 2017, 36 courses are on offer; the majority will be held in Europe and four in Asia. The details of each course are presented in this 2017 Guide.

Over the years, ESTRO has also expanded its e-learning platform for use in online workshops and live courses through the FALCON - Fellowship in Anatomic deLineation and CONtouring programme. The online workshops also give a chance to those professionals who cannot afford to take time away from their work place and home, to further improve their tumour delineation skills for better treatment planning. I am happy to inform you that the number of FALCON workshops has increased for 2017 and several tumour sites form part of the programme.

Peer-reviewed information on all our education material, conferences and projects is continuously added to our virtual library DOVE (Dynamic Oncology Virtual ESTRO). So increasing your radiation oncology knowledge is but a click away.

Of utmost importance to us involved within the radiation oncology disciplines, is our annual conference ESTRO 36 which will take place in Vienna in May. As usual the meeting is a great opportunity for networking and it also draws attention to the multidisciplinary and interdisciplinary components of our practice, with emphasis on the new opportunities that they represent for all professionals of oncology, not only in research but also in the daily care of patients.

In its quest for the further development of radiotherapy, ESTRO continues to collaborate with other societies to advance multidisciplinary cancer care. In 2017 ESTRO will jointly collaborate with other societies on a number of conferences: ECCO2017, a focal point event in multidisciplinary cancer care that will zero in on Phase II practice changing data; ELCC 2017 (7th European lung cancer conference) that brings together top academic experts in lung cancer and thoracic malignancies, co-organised by ESMO and IASLC; ICHNO (6th International Conference on Innovative Approaches in Head & Neck Oncology) for head and neck cancer specialists, jointly organised by ESTRO, ESMO and EHNS; EMUC (9th European Meeting on Urological Cancers) for uro-oncology experts, partnered by ESMO, ESTRO and EAU.

The autumn of 2017 will be marked by the 5th GEC-ESTRO workshop, an opportunity for brachytherapy enthusiasts to get together and exchange ideas.

For all the above activities, watch out during the year for information and updates on our website (www.estro.org) and also the monthly ESTRO Flash, Facebook and Twitter.

In the meantime, I would like to remind you to renew your membership for 2017 in order to take advantage of the benefits offered to expand your professional knowledge

Finally, all these initiatives would not be possible without the contribution of our members who are distinguished experts in their fields, and are willing to spend some of their precious free time to commit to teaching or sharing their knowledge. To them we are thankful. We are also grateful for the support we receive from the ESTRO staff in running these activities.

Keep this guide close to you so as not to miss out on an activity. I hope you find it useful.

Kind regards

Yolande Lievens
ESTRO President

Yolande Lievens
ESTRO President

ABOUT 1

Contact 10
ESTRO Vision 2020 11
ESTRO Staff 12

Contact

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ESTRO Vision 2020

“

Every cancer patient in Europe will have access to state-of-the-art radiation therapy as part of a multidisciplinary approach where treatment is individualised for the specific patient’s cancer, taking account of the patient’s personal circumstances.

”

- ESTRO vision 2020 -

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Tania Wolff
General Manager ESTRO Cancer Foundation

MEMBERSHIP

2

ESTRO Membership 16

ESTRO Membership

Discover the opportunities that only ESTRO membership can bring to you, your career, your practice, your profession, and ultimately, your patients.

ESTRO is devoted to advancing the goals of radiation oncology. This includes providing its members with outstanding science and education in order to support them in their career advancement.

Join ESTRO and gain access to exclusive member benefits such as:
- Online subscription to *Radiotherapy & Oncology*
- Reduced fees for attending ESTRO courses, conferences and joint events
- Online access to scientific material (events webcasts, delineation cases, etc.) through the e-library (DOVE)
- Eligibility for grants, awards, faculties and governance positions.

Add your voice to the 6,500 ESTRO members
ESTRO members are professionals of radiation oncology and beyond: radiation oncologists, clinical oncologists, medical physicists, radiobiologists, radiation therapists (RTTs), dosimetrists, radiotherapy nurses, medical oncologists, surgeons, industry representatives, organ specialists, other medical and non medical professions, coming from more than 100 countries spread all over the world.

ESTRO offers several categories of membership to fit your professional needs:

Individual membership

FULL MEMBERSHIP

- ACTIVE (€ 95 for one year or € 170 for two consecutive years):
  You wish to access all the services ESTRO has on offer: subscription to *Radiotherapy & Oncology* (electronic and printed upon request), discount on the article publication charge related to the new open access journals (*ctRO, phiRO, tipsRO*), reduced fees for attending ESTRO and joint conferences and teaching courses, online access to e-contouring cases, publications and scientific information through our e-library (DOVE), eligibility for grants, awards, working groups, governance positions, voting rights and much more.
  For a cheaper and easier solution, full members (supporting ambassador members and active members) may sign up or renew for two consecutive years at a discounted rate.

- SUPPORTING AMBASSADOR (€ 250 for one year or € 450 for two consecutive years):
  You wish to be strongly committed to the Society by contributing to the ESTRO's Ambassador Solidarity Fund. You will have the same benefits as an Active member plus access to the available educational material produced by ESTRO School, immediate access to the ESTRO events webcasts, access to the VIP registration desk and VIP lounge at the ESTRO annual congress.

ASSOCIATE MEMBERSHIP

- IN TRAINING (€ 75):
  You can benefit from a large range of services and specific reduced fees for attending ESTRO conferences, teaching courses and joint events. To be eligible, you should be under the age of 40, have a relevant university diploma granted less than 10 years ago and currently be in training or enrolled in a full time PhD programme in a European institute.

- AFFILIATE (€ 55):
  You do not require full involvement in the Society but still wish to enjoy some of the more basic advantages on offer. You will have access to *Radiotherapy & Oncology* (electronic), discount on the article publication charge related to the new open access journals (*ctRO, phiRO, tipsRO*) and to one reduced fee per year at an ESTRO event or teaching course.

- CORPORATE REPRESENTATIVE (€ 55):
  This category is reserved for individual members working for a company and offers them access to *Radiotherapy & Oncology* (electronic) and to one reduced fee per year at an ESTRO event or teaching course.

More info on estro.org/members
Please register online via www.estro.org

Institutional membership

ESTRO offers European institutes the possibility to pay collectively for the membership of their employees (minimum of 5), who will enjoy all the usual advantages of individual membership. This is the most cost-effective option for institutes who will also benefit from a host of advantages such as a dedicated promotional webpage on the ESTRO website and in the newsletter, a monthly ESTRO public affairs newsletter exclusively tailored to their needs, and the privilege to apply for a free exhibition booth at the annual event (2017 ESTRO Communities Pavilion).

More info on estro.org/members
To register, please contact institutional-membership@estro.org

Dual membership

This category can be granted to individual members who benefit from a joint membership agreement, signed on a case by case basis between ESTRO and a non–European national society or a European young national society. We invite you to check with your national society whether they have an agreement with ESTRO.

Corporate membership

ESTRO has a membership programme dedicated for companies who can opt for either regular or gold membership. Gold membership gives the right to a seat on the ESTRO corporate council that serves to facilitate the collaboration and coordination between the research and development activities of the companies and the academic and scientific developments within ESTRO.

More info on estro.org/members
To register, please contact corporate@estro.org

ESTRO membership runs from the 1st of January to the 31st of December. Radiation therapists (RTTs), dosimetrists, radiotherapy nurses belong to all membership categories without distinction of disciplines. When registering for ESTRO events, whatever the membership category they belong to, they will benefit from the In Training rate.

We strongly advise you to renew your membership at least 3 days before the early and late course/event deadlines. The members' rates will only be applied once the payment has been finalised and processed.
For any question, please contact membership@estro.org.

Notes

SCHOOL 3

Introduction: The ESTRO School in 2017 23

3.1 EDUCATIONAL ACTIVITIES 24
Overview 24
Which Course to Attend? 28
Live Teaching Courses 2017: Postgraduate Training in Radiation Oncology 30
Live Teaching Courses 2017: Undergraduate Training for Medical Students 101
School Calendar 2017 and 2018 106
Online Contouring Workshops 108
ESTRO Online Educational Resources and Tools 109
Information and Registration 112

3.2 PUBLICATIONS 114
Educational Publications 114

3.3 GRANTS 116
Mobility Grants (TTG) 116
Educational Grants 119

3.4 REDUCED FEES 120

EDUCATIONAL PARTNERS OF THE ESTRO SCHOOL

Special thanks to our sponsors in 2016:

ELEKTA iba VARIAN medical systems

Our gratitude to companies for their participation in teaching courses in 2016:
Accuray, Brainlab, BSM Diagnostica, Eckert & Ziegler BEBIG, Elekta, IBA, INTRAOP, MIM Software Inc, Nanovi Radiotherapy, Philips Healthcare, RaySearch Laboratories, Varian Medical Systems.

ESTRO wishes to thank all its collaborators in the 2017 teaching courses programme:

Introduction: The ESTRO School in 2017

Education is the key to improved treatment for your patients

It's a pleasure to share with you the educational programme of the upcoming year. We hope you will enjoy browsing through the 2017 ESTRO Guide and will find it useful to select the course or activity you wish to attend.

On the following pages you will find an overview of the scope of the ESTRO School activities: the live courses that have been successful for 30 years. Other and more educational opportunities are also offered to you during the year: blended learning, e-learning, the e-library, grants, education at the annual congress…

As part of its mission, ESTRO is striving to provide education to the entire radiation oncology community: whatever your discipline is, your level of experience, there are educational activities tailored to your specific needs.

Throughout the year, updates and further information on all these activities, the mobility grants, the ESTRO online educational tools will be made available continuously on the ESTRO website and the ESTRO School (www.estro.org or www.estro.org/school).

Improving knowledge, skills and practice to ensure better treatment for our patients: that's how the annual ESTRO School programmes are always built.

With best regards

Jesper Grau Eriksen
Chair ESTRO Education Council

Christine Verfaillie
Managing Director Education and Science

Education Council: Claus Belka, Kim Benstead, Jean-Emmanuel Bibault, Jesper Grau Eriksen, Ben Heijmen, Peter Hoskin, Nùria Jornet, Martijn Kamphuis, Michelle Leech, Richard Poetter, Umberto Ricardi, Sofia Rivera, Viviane Van Egten, Christine Verfaillie, Marie-Catherine Vozenin, Eduardo Zubizarretta

Jesper Grau Eriksen
Chair ESTRO Education Council

Christine Verfaillie
Managing Director Education and Science

3.1
EDUCATIONAL ACTIVITIES

Overview

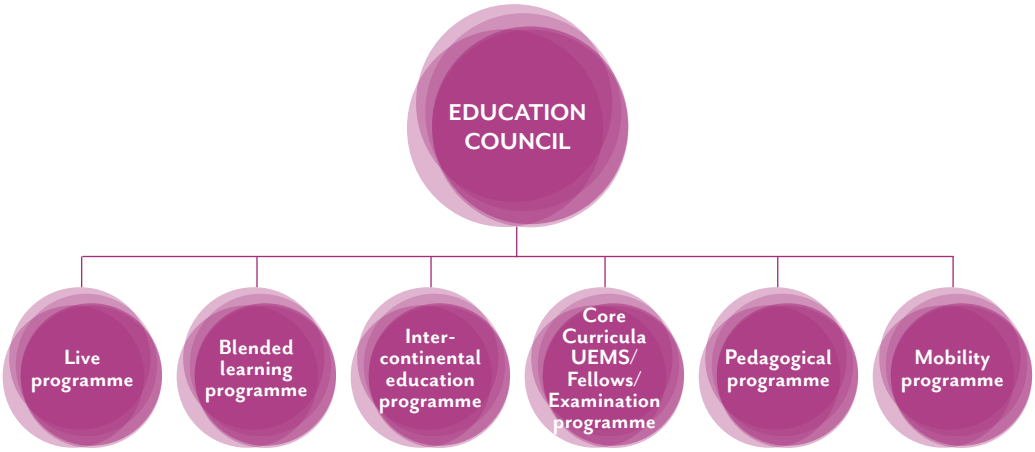
The ESTRO School priorities

FULFILLING THE SOCIETY'S MISSION THROUGH EDUCATION AND TRAINING

- The ESTRO School is an international institution that strives to improve, professionalise and harmonise knowledge and practice in radiation oncology and associated professions in Europe and beyond.
- The ESTRO School supports the implementation of the European core curricula with education and training programmes targeting both young and senior radiation oncology professionals.
- The ESTRO School offers a wide range of live educational activities and online educational resources that allow professionals worldwide to acquire the knowledge, skills and competencies to deliver high quality treatment and care to cancer patients.

NEXT DEVELOPMENTS AND PRIORITIES

- In 2016, the ESTRO Board selected Jesper Grau Eriksen as the new Director of the ESTRO School and Chair of the ESTRO Education Council. Under the previous chair of Richard Poetter, the School expanded considerably and successfully, both in terms of the number of courses and participants and in the variety of educational activities.
- This expansion will not stop and therefore the ESTRO Education and Training Committee has been restructured into a new model: The Education Council, overviewing and coordinating six dedicated educational programmes. The Council will set the strategy for education and training and the six programmes will develop plans and activities to implement the strategic objectives.



- The number of live courses and online workshops will continue to increase, with a specific focus on the development of extra educational activities in the Asia Pacific region.
- An important challenge for the next years will be the integration of different ways of learning into the School (blended learning). The School plans to set up a web-based platform that will allow professionals to learn online in a collaborative way with others and combine this with other ESTRO live education. This Virtual Learning Environment (VLE) will integrate precious educational material from the ESTRO DOVE e-library and from the FALCON platform and will enable even more people to become educated through ESTRO.
- A recent self-evaluation of the ESTRO School, according to the internationally accepted standards of the World Federation for post-graduate Medical Education (WFME), has identified how the educational expertise in the School can be further improved. The School will therefore focus more on the development of pedagogical tools for evaluation and assessment, quality improvement and instruction and support of faculties and teachers.

LIVE COURSES

±35 COURSES ARE ORGANISED PER YEAR
> SOME COURSES TAKE PLACE ONLY EVERY SECOND YEAR.

±80% OF THE COURSES TAKE PLACE IN EUROPE

±20% ARE ORGANISED OUTSIDE EUROPE

41
DIFFERENT COURSE TOPICS
Basic and advanced postgraduate courses and undergraduate oncology courses

- 14 courses on multimodal cancer treatment
  - 4 General
  - 10 Site specific
- 13 courses on radiotherapy treatment planning and delivery
  - 9 External beam
  - 4 Brachytherapy
- 2 courses on biological aspects of radiation oncology
- 4 courses on imaging
- 3 courses focusing on research
- 3 courses focusing on best practice
- 2 undergraduate oncology courses

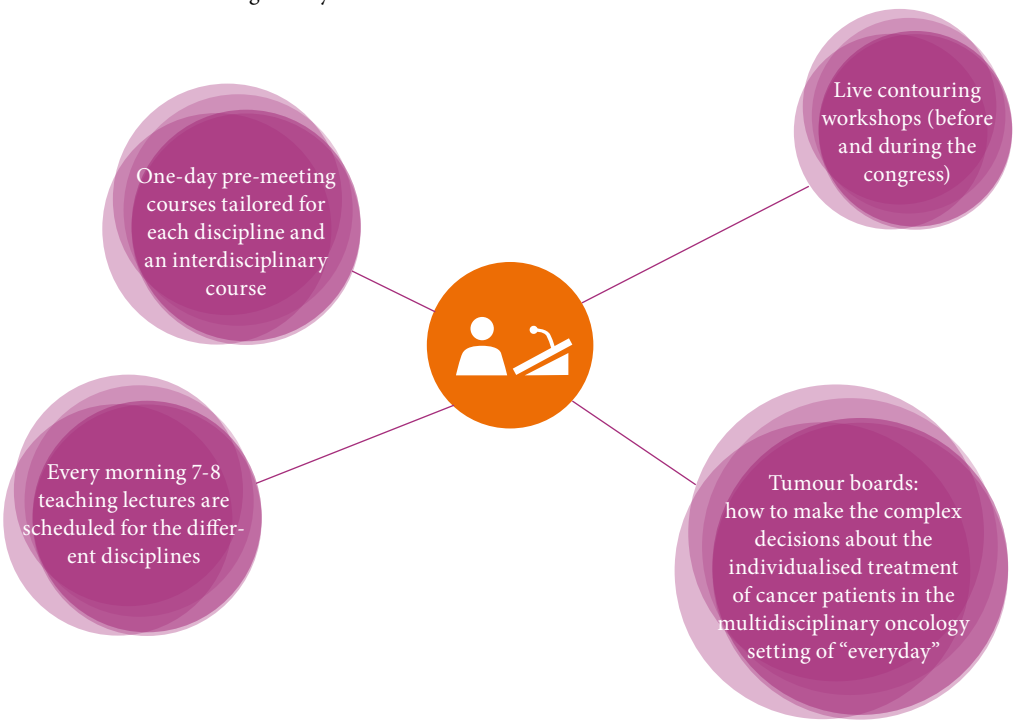
The 2017 ESTRO Guide provides a comprehensive description of each course: aims, learning outcomes, target audience, content, prerequisites, teaching and assessment methods.

The roadmap to ESTRO courses will help you to select the course that is most suited to your needs (see page 28-29).

ESTRO faculties are composed of renowned international experts who volunteer to share their knowledge and skills by teaching during these 3-5 day courses.

Education at ESTRO congresses

At all ESTRO annual congresses you can attend:



Check as of page 130 in the events section the educational programme of ESTRO 36 in Vienna.

Online education

Access to quality education is a top priority of the ESTRO School. The School therefore continues to invest in the development of e-learning opportunities as a complement to its live educational offer.

FALCON

Fellowship in Anatomic deLineation and CONtouring (more information on page 109)

ESTRO has developed an innovative and hands-on educational platform for training contouring skills.

The FALCON tool offers several uses:

- teaching contouring skills in live courses
- teaching delineation skills as part of special workshops offered at ESTRO meetings or by other radiation oncology societies and/or institutes
- in fully online workshops open to participants worldwide
- in individual exercises by accessing the FALCON cases that are available online for free to ESTRO members.

DOVE

Dynamic Oncology Virtual ESTRO (more information on page 111)

DOVE is the ESTRO educational platform for radiation oncology. It is the place to obtain up-to-date information on developments in the field of radiotherapy. It currently contains over 11,000 peer reviewed publications such as:

- webcasts from ESTRO congresses
- congress abstracts and posters
- all *Radiotherapy & Oncology* articles and ESTRO guidelines
- access to the FALCON platform and exercises
- all course material from the ESTRO live courses in flippingbook format, which makes them easy to navigate and work with and accessible on laptops, tablets and smartphones. Access to course material through DOVE is limited to course participants and to Supporting Ambassador members.

ESTRO Mobility Grants

Every year ESTRO offers a number of mobility grants (previously known as Technology Transfer Grants or TTGs). These grants are made available to radiation oncology professionals eager to visit another institute to learn about or gain experience with a technique, equipment or its application that is not easily available in their own institute and which would be useful to them and their department in future studies or clinical treatments.

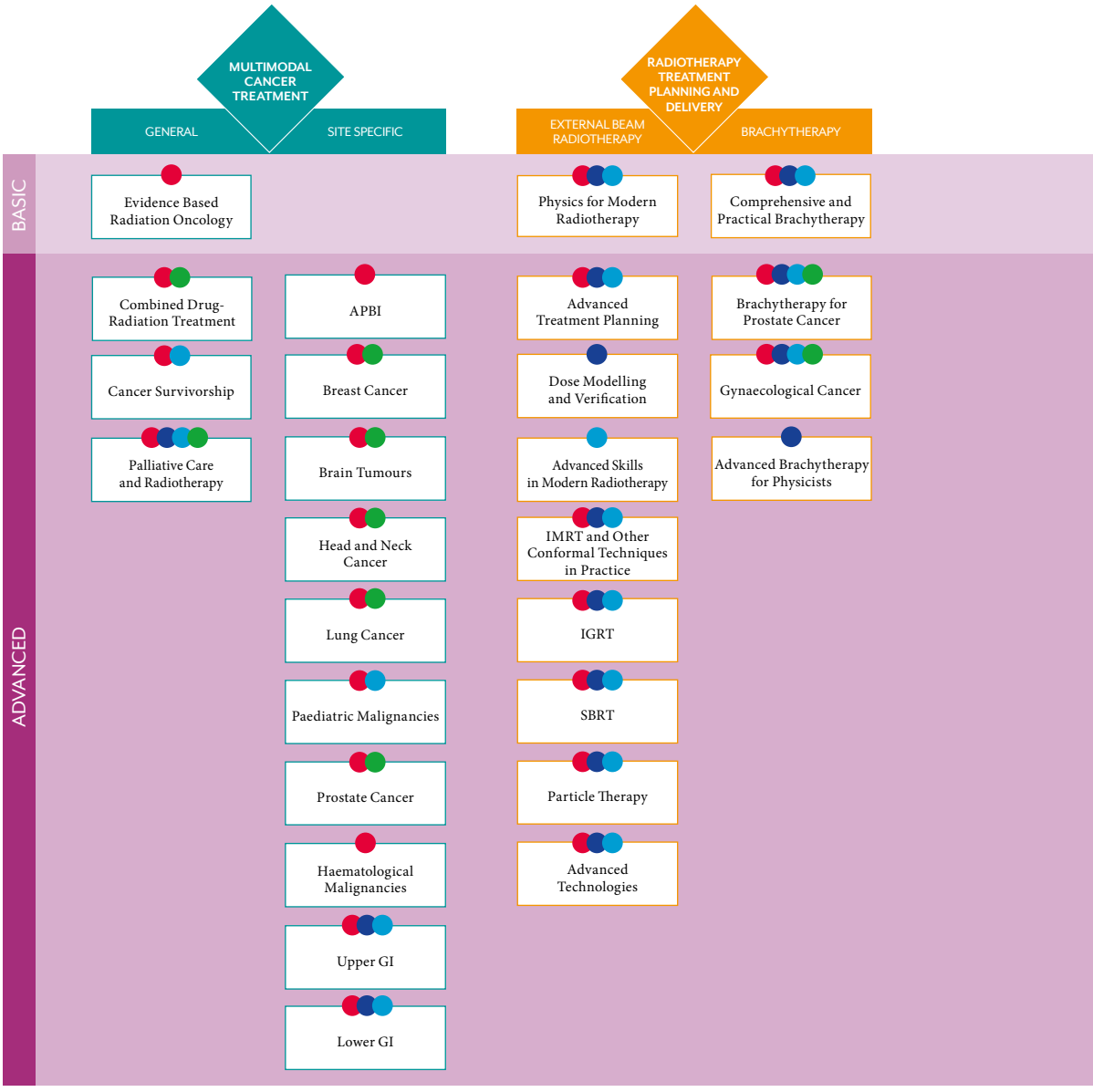
There are two application deadlines per year (spring and autumn) and dates are announced on the ESTRO website, as well as by ESTRO Flash reminders, social media and the ESTRO Newsletter. 50-70% of the applications are granted.

Deadlines: 31 May and 31 October 2017
All applications should be addressed to grants@estro.org

Which Course to Attend?

2017 Roadmap to Teaching Courses

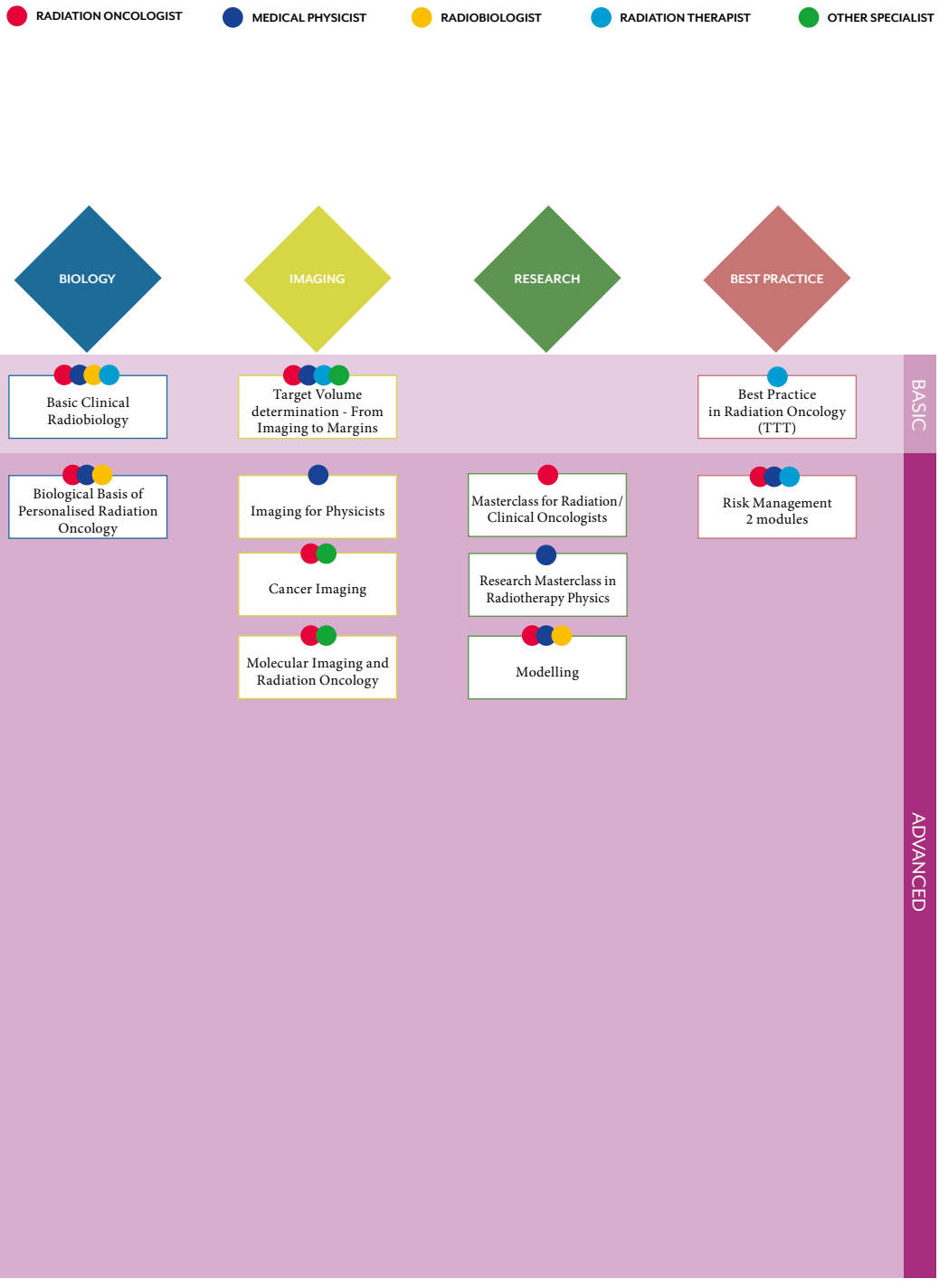
POSTGRADUATE TRAINING IN RADIATION ONCOLOGY



UNDERGRADUATE TRAINING FOR MEDICAL STUDENTS

Medical Science Summer School Oncology for Medical Students

ESO-ESSO-ESTRO Multidisciplinary Course in Oncology for Medical Students


RADIATION ONCOLOGIST
MEDICAL PHYSICIST
RADIOBIOLOGIST
RADIATION THERAPIST
OTHER SPECIALIST
BIOLOGY
IMAGING
RESEARCH
BEST PRACTICE
Basic Clinical Radiobiology
Target Volume determination - From Imaging to Margins
Best Practice in Radiation Oncology (TTT)
Biological Basis of Personalised Radiation Oncology
Imaging for Physicists
Masterclass for Radiation/ Clinical Oncologists
Risk Management 2 modules
Cancer Imaging
Research Masterclass in Radiotherapy Physics
Molecular Imaging and Radiation Oncology
Modelling
BASIC
ADVANCED

Live Teaching Courses 2017

Postgraduate Training in Radiation Oncology

Comprehensive and Practical Brachytherapy
5-8 March 2017 | Budapest, Hungary — 32

Particle Therapy
6-10 March 2017 | Essen, Germany — 34

Transition from Conventional 2D to 3D Radiotherapy with a special emphasis on Brachytherapy in Cervical Cancers
1st ESTRO-AROI GYN Teaching Course
8-11 March 2017 | Bengaluru, India — 36

Lower GI: Technical and Clinical Challenges for Radiation Oncologists
22-24 March 2017 | Rome, Italy — 38

Upper GI: Technical and Clinical Challenges for Radiation Oncologists
25-28 March 2017 | Rome, Italy — 40

Dose Modelling and Verification for External Beam Radiotherapy
2-6 April 2017 | Warsaw, Poland — 42

IMRT and Other Conformal Techniques in Practice
9-13 April 2017 | Madrid, Spain — 44

ESTRO/ESMIT Course on Molecular Imaging and Radiation Oncology
10-13 April 2017 | Bordeaux, France — 46

Cancer Survivorship
21-23 May 2017 | Brussels, Belgium — 48

Multidisciplinary Management of Prostate Cancer
21-25 May 2017 | Porto, Portugal — 50

ESTRO-KOSRO GI: Technical and Clinical Challenges for Radiation Oncologists
2-4 June 2017 | Seoul, South Korea — 52

Physics for Modern Radiotherapy
A joint course for clinicians and physicists
4-8 June 2017 | Bucharest, Romania — 54

Advanced Skills in Modern Radiotherapy
11-15 June 2017 | Prague, Czech Republic — 56

Evidence Based Radiation Oncology
How to evaluate the scientific evidence and apply it to daily practice
11-16 June 2017 | Ljubljana, Slovenia — 58

Combined Drug-Radiation Treatment: Biological Basis, Current Applications and Perspectives
15-18 June 2017 | Brussels, Belgium — 60

Target Volume determination - From Imaging to Margins
25-28 June 2017 | Lisbon, Portugal — 62

MULTIMODAL CANCER TREATMENT | RADIOTHERAPY TREATMENT PLANNING AND DELIVERY | BIOLOGY | IMAGING | BEST PRACTICE

Brachytherapy for Prostate Cancer 64
29 June - 1 July 2017 | Brussels, Belgium

Comprehensive Quality Management in Radiotherapy 66
Quality assessment and improvement
5-9 July 2017 | Chengdu, China

Advanced Treatment Planning 68
3-7 September 2017 | Barcelona, Spain

Clinical Practice and Implementation of Image-Guided Stereotactic Body Radiotherapy 70
3-7 September 2017 | Budapest, Hungary

Palliative Care and Radiotherapy 72
A course on prognosis, symptom control, re-irradiation, oligometastases
7-9 September 2017 | Brussels, Belgium

Multidisciplinary Management of Breast Cancer 74
10-13 September 2017 | Dublin, Ireland

Research Masterclass in Radiotherapy Physics 76
10-13 September 2017 | Florence, Italy

Basic Clinical Radiobiology 78
16-20 September 2017 | Paris, France

Comprehensive Quality Management in Radiotherapy 80
Quality assessment and improvement
2-5 October 2017 | Brussels, Belgium

Quantitative Methods in Radiation Oncology: Models, Trials and Clinical Outcomes 82
8-11 October 2017 | Maastricht, The Netherlands

Best Practice in Radiation Oncology 84
A Four Phase Project to Train RTT Trainers - In Collaboration with the IAEA
Part II – Train the RTT (Radiation Therapists) Trainers: Consolidation Phase
16-18 October 2017 | Vienna, Austria

Multidisciplinary Management of Brain Tumours 86
22-24 October 2017 | Vienna, Austria

Image-Guided Radiotherapy and Chemotherapy in Gynaecological Cancer: Focus on MRI Based Adaptive Brachytherapy 88
22-26 October 2017 | Prague, Czech Republic

Image Guided Radiotherapy in Clinical Practice 90
29 October - 2 November 2017 | Athens, Greece

ESTRO/ESOR Multidisciplinary Approach of Cancer Imaging 92
2-3 November 2017 | Rome, Italy

Imaging for Physicists 94
5-9 November 2017 | Malaga, Spain

Paediatric Radiotherapy 96
30 November - 2 December 2017 | Brussels, Belgium

Multidisciplinary Management of Head and Neck Oncology 98
9-13 December 2017 | Singapore, Republic of Singapore

RADIATION ONCOLOGIST MEDICAL PHYSICIST RADIOBIOLOGIST RADIATION THERAPIST OTHER SPECIALIST

Comprehensive and Practical Brachytherapy

5-8 March 2017
Budapest, Hungary

TARGET GROUP
The course is aimed primarily at trainees in radiotherapy, radiation oncologists, medical physicists and radiation therapists (RTTs) wishing to acquaint themselves with the latest developments. This course is also highly recommended as an essential basis for the brachytherapy for prostate cancer and gynaecological cancer courses.

COURSE AIM
- To cover the basic and general principles of brachytherapy: historical notes on evolution of brachytherapy, sources, after loading systems, imaging for brachytherapy, dosimetry, the essentials of ICRU reports, uncertainties in brachytherapy, radiobiology of different time dose patterns (LDR, HDR, PDR and permanent implants), radioprotection, and organisation of a brachytherapy department
- To discuss different technical and dosimetrical aspects of interstitial, endoluminal and endocavitary brachytherapy
- To discuss the main clinical subjects: gynaecological (cervix, endometrium), head and neck (oral cavity, oropharynx), urology (a.o. prostate seed implants), breast (a.o. APBI), skin, soft tissue sarcomas, and paediatric malignancies
- To illustrate practical examples of brachytherapy treatment planning
- To provide exercises for practical understanding.

LEARNING OUTCOMES
By the end of this course participants should be able to understand the:
- Essentials of brachytherapy sources, physics, applicators and afterloaders
- Essentials of brachytherapy dose planning, possibilities and pitfalls of stepping source optimisation techniques
- Essentials of low dose rate, high dose rate and pulsed dose rate radiobiology
- Indications and contraindications of brachytherapy in clinical oncology
- Essentials of different applicators to perform brachytherapy.

COURSE CONTENT
- Sources used in brachytherapy
- Physics and dose calculation
- Image-guided brachytherapy
- Dosimetric uncertainties
- Clinical radiobiology in brachytherapy: general principles and practical examples
- Radioprotection and afterloaders
- Optimisation of stepping source brachytherapy
- Permanent seed and HDR prostate implants
- Interstitial brachytherapy
- Place of intracavitary brachytherapy in cervix, endometrium and vaginal cancer
- Place of endoluminal brachytherapy in oesophageal and bronchus carcinoma
- Brachytherapy for breast, bladder, anal canal, head and neck, and skin cancer
- Brachytherapy for pediatric malignancies
- Recommendations for recording and reporting in interstitial, intracavitary and endoluminal brachytherapy
- Practical examples of interstitial, intracavitary and endoluminal brachytherapy for clinicians
- Applicator localisation for treatment planning
- Permanent and temporary brachytherapy treatment planning
- Practical exercises.

PREREQUISITES
Before commencing this course participants should be qualified or in training as a medical doctor, medical physicist or radiation therapist in the field of brachytherapy.

TEACHING METHODS

- 21 hours of lectures
- 5 hours of case discussions.

This course consists of didactic lectures, practical sessions with applicators, with interactive sessions on physics and clinical aspects and examples.

METHODS OF ASSESSMENT

- Evaluation form
- MCQ.

KEY WORDS

Brachytherapy, basic course, clinical aspects, state-of-the-art implantation techniques, physics.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Bradley Pieters, *Radiation Oncologist, Academic Medical Centre, Amsterdam (NL)*

TEACHERS

- Dimos Baltas, *Medical Physicist, University of Freiburg, Freiburg (DE)*
- José Luis Guinot Rodríguez, *Radiation Oncologist, Fundación Instituto Valenciano de Oncología, Valencia (ES)*
- Peter Hoskin, *Radiation Oncologist, Mount Vernon Hospital, London (UK)*
- Emmie Kaljouw, *Radiation Therapist, Academic Medical Centre, Amsterdam (NL)*
- Renaud Mazeron, *Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)*
- Erik van Limbergen, *Radiation Oncologist, UZ Gasthuisberg, Leuven (BE)*

LOCAL ORGANISER

Csaba Polgár, *Radiation Oncologist, National Institute of Oncology, Budapest*

Bradley Pieters

Particle Therapy

6-10 March 2017
Essen, Germany

TARGET GROUP
The course is aimed at radiation oncologists, medical physicists and professionals in allied fields, including trainees interested in particle therapy. Basic knowledge of radiation oncology and radiation physics are prerequisites. The course targets individuals who are either directly involved in a clinical particle therapy project, already practice particle therapy, or who desire to update their knowledge on particle therapy.

COURSE AIMS
- To provide a detailed overview of the clinical rationale and indications of particle therapy and the status of supporting medical evidence including status of clinical trials
- To understand the distinguishing features of particle therapy compared to other radiotherapy modalities
- To deepen knowledge of physical, biological, and technical aspects of particle therapy implementation in clinical practice
- To study particle treatment systems, dosimetry, treatment delivery, treatment planning and to learn about the latest technological developments in particle therapy
- To share challenges of particle centre projects in different health care environments.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Understand the radiobiological and physical basis and clinical rationale for particle therapy
- Have a basic understanding of accelerator technology, present equipment and the practical complexities of building a particle centre
- Understand the differences between active and passive beam delivery technology, and details of treatment planning, specifically of intensity modulated therapy and motion management
- Know the clinical rationale for proton and carbon ion therapy, the present indications and clinical practice according to various disease sites
- Know the current clinical evidence for particle therapy, and the status of clinical trials
- Have a general understanding of the integration of particle therapy in general radiation oncology
- Summarise the latest technical developments
- Have some knowledge of future directions in research and development of particle therapy.

COURSE CONTENT
- Physical aspects of particle therapy
- Ion source accelerator, beam line and beam delivery technology
- Biological aspects of particle therapy
- RBE determination, biophysical modelling plan optimisation
- Beam delivery: passive and active techniques.

Physics: image guidance techniques, dosimetry and quality assurance
- Imaging for treatment planning
- Treatment planning for proton and carbon ion therapy
- Plan evaluation, robustness, quality assurance
- Intensity-modulated particle therapy, image-guided particle therapy, dose-painting, LET-painting
- Physical and technical approaches to the treatment of moving organs.

Clinical indications, anti-cancer effects, toxicity, challenges and limitations of particle therapy
- Clinical challenges and pitfalls of proton and carbon ion therapy
- Current clinical indications and applications for proton and carbon ion therapy according to pathological and anatomical disease characteristics
- Review of the literature, clinical case reviews and discussions, review of clinical trials
- New trends in radiation oncology and integration of particle therapy
- Future clinical directions and developments.

Roadmap for a particle therapy project
- How to build a new particle therapy facility – from project planning to starting clinical operation
- New technologies for hospital based particle centres.

Protocol and journal club about latest clinical and physics developments
Guided tour of facility.

PREREQUISITES

Before commencing this course participants should:

- Have a basic understanding of radiobiology and radiation physics
- Know the basics of radiotherapy and radiotherapy planning
- Have a general understanding about the evaluation of medical evidence.

TEACHING METHODS

Tutorials, journal club, case reviews and discussions, tour of the proton facility.

METHODS OF ASSESSMENT

- MCQ
- Evaluation form.

KEY WORDS

Particle therapy, proton therapy, carbon ion therapy, radiotherapy.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTORS

- Oliver Jäkel, *Medical Physicist, German Cancer Research Centre (DKFZ) and Heidelberg Ion Beam Therapy Center, Heidelberg (DE)*
- Wilfried De Neve, *Radiation Oncologist, Ghent University Hospital, Ghent (BE)*

TEACHERS

- Piero Fossati, *Radiation Oncologist, Centro Nazionale di Adroterapia Oncologica (CNAO), Pavia (IT)*
- Jean-Louis Habrand, *Radiation Oncologist, Centre François Baclesse, Caen (FR)*
- Henrik Hauswald, *Radiation Oncologist, Heidelberg Ion Beam Therapy Center and Heidelberg University Hospital, Heidelberg (DE)*
- Eugen Hug, *Radiation Oncologist, Medical Director of MedAustron, Wiener Neustadt (AT)*
- Marco Krengli, *Radiation Oncologist, Centro Nazionale di Adroterapia Oncologica (CNAO), Pavia (IT)*
- Anthony Lomax, *Medical Physicist, Paul Scherrer Institute, Villigen (CH)*
- Alejandro Mazal, *Medical Physicist, Institut Curie Proton Therapy Centre (CPO), Orsay (FR)*
- Peter Peschke, *Biologist, German Cancer Research Centre (DKFZ), Heidelberg (DE)*
- Marco Schippers, *Medical Physicist, Paul Scherrer Institute, Villigen (CH)*

LOCAL ORGANISER

- Beate Timmermann, *Radiation Oncologist, Klinik für Partikeltherapie, Universitätsklinikum, Essen*

Oliver Jäkel

Wilfried De Neve

Transition from Conventional 2D to 3D Radiotherapy with a special emphasis on Brachytherapy in Cervical Cancers

1st ESTRO-AROI GYN Teaching Course

8-11 March 2017
Bengaluru, India

TARGET GROUP

The course is aimed at teams consisting of radiation oncologists and medical physicists from institutions with concrete plans to transition from conventional 2D to 3D radiotherapy for cervix cancer, with a special interest in Image Based Brachytherapy. The institutions should have the necessary infrastructure for 3D brachytherapy available (afterloader, access to 3D imaging, CT/MR compatible applicators and a relevant treatment planning system) to facilitate the initiation of implementation of 3D techniques after the course. The course is the first out of a series of 3 courses (2017, 2018, 2019). In the 2018 and 2019 editions the course contents will be of increasing complexity in terms of the level of 3D image guidance. By participation in succeeding courses the participants have possibility to further develop and refine their 3D approach over time and get feedback on their progress with implementation. Participants should therefore be prepared to invest time in implementation of 3D techniques in between courses and to take part in homework efforts. A finite number of teams from various set-ups and geographical locations in India will be invited by AROI. Participants from neighbouring countries and other Asia Pacific (APAC) Region (max 5-10) may also participate.

COURSE AIM

- To learn about principles of 2D and 3D image-based EBRT and Brachytherapy including techniques and treatment planning.
- To provide understanding of commissioning, quality assurance, principles of planning, plan evaluation and reporting of 2D and 3D brachytherapy in cervical cancer.
- To introduce 2D and 3D image-based target concepts of GTV, CTV and PTV including both EBRT and Brachytherapy in cervical cancer.
- To enable practical implementation of 3D techniques in EBRT and Brachytherapy in cervical cancer.
- To provide an overview on the radiation therapy (external radiation and brachytherapy) in cervical cancer.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the rationale of transition from 2D to 3D and apply concepts of advanced brachytherapy techniques in clinical practice
- Perform and practice target based brachytherapy applications on cadavers
- Perform contouring and treatment planning for 3D image guided EBRT and brachytherapy in clinical practice
- Implement procedures for 3D image guided brachytherapy in cervical cancer in own department
- Implement advanced EBRT techniques in cervical cancer in own department.

COURSE CONTENT

- Normal and pathologic anatomy of female pelvis
- Image based anatomy including US, CT, MRI and conventional radiography
- CTV/ITV/PTV for external irradiation
- Combination of external irradiation and brachytherapy
- Different application techniques in brachytherapy including cadaveric workshop
- Introduction of ICRU 89 concepts: GTV, CTV, PTV at diagnosis and at time of brachytherapy for 2D and 3D Brachytherapy
- Dose, dose-rate and fractionation and overall treatment time
- Radiobiological effects from combined external irradiation and brachytherapy, linear quadratic model
- Prescribing, recording and reporting including ICRU-GEC-ESTRO 89 recommendations (level I (first course))
- Therapeutic outcome: radio-chemotherapy, image based EBRT and brachytherapy
- Introduction to EMBRACE studies
- Commissioning & Quality Assurance of various processes involved in 2D and 3D treatment planning.

PREREQUISITES

Before commencing this course participants should have:

- Basic knowledge of principles and experience with

multi-modality management of cervical cancer
- Basic knowledge of and experience with radiological patho-anatomy relevant to cervical cancer
- Experience with existing external beam and brachytherapy workflows and processes in cervical cancer.
- Basic infrastructure in your department which facilitates post-course implementation of 3D image guided brachytherapy (afterloader, access to volumetric imaging, MRI/CT compatible applicators, and treatment planning system).

TEACHING METHODS

- Lectures / tutorials: 16 hours
- Practical workshop: 8 hours
- Applicators commissioning and reconstruction: 6 hours - Physicists
- Cadaveric workshop: 6 hours - Physicians

Description: The tutorials include discussions of basics, evidence based treatments, contouring guidelines, various processes involved in advanced EBRT and brachytherapy techniques and quality assurance. The practical hands on demonstration covers a direct learning process involved in approach, brachytherapy techniques, contouring exercises, evaluation and discussions on transition from 2D to 3D radiotherapy.

METHODS OF ASSESSMENT

- Contouring (FALCON tool) and dose planning exercises (pre- and post-course homework)
- Interactive feedback through audience voting on specific questions during lectures
- MCQ (interactive session at the end of the course)
- ESTRO teaching course evaluation form.

KEY WORDS

Evidence based multi-modality management guidelines, 2D to 3D transition, Image Guided Adaptive Brachytherapy (IGABT) in cervical cancers, contouring guidelines for advanced EBRT including IMRT/ IGRT and image based brachytherapy in cervical cancer.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obrachytherapyained from the ESTRO office.

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST, OTHER SPECIALIST

FACULTY

ESTRO COURSE DIRECTORS
- Richard Pötter, *Radiation Oncologist, Medical University Hospital, Vienna (AT)*
- Kari Tanderup, *Medical Physicist, University Hospital, Aarhus (DK)*

AROI COURSE DIRECTORS
- Umesh Mahantshetty, *Radiation Oncologist, Tata Memorial Hospital, Mumbai (IN)*
- Jamema Swamidas, *Medical Physicist, ACTREC, Tata Memorial Centre, Mumbai (IN)*

TEACHERS
- Christine Haie Meder, *Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)*
- D. N. Sharma, *Radiation Oncologist, AIIMS, Delhi (IN)*

LOCAL ORGANISERS
- M G Janaki, *Radiation Oncologist, MS Ramiah Medical College, Bengaluru*
- Revathi, *Medical Physicist, MS Ramiah Medical College, Bengaluru*


Richard Pötter


Kari Tanderup


Umesh Mahantshetty


Jamema Swamidas

Lower GI: Technical and Clinical Challenges for Radiation Oncologists

22-24 March 2017
Rome, Italy

TARGET GROUP

Mainly radiation oncologists, physicists, radiation therapists (RTTs) and researchers in the field of radiation oncology/biology who seek to improve and deepen their knowledge and practical skills in the treatment of lower gastro-intestinal malignancies (anal, rectal cancer).

COURSE AIM

The aim of the course is to provide an interactive educational set-up to learn, understand and possibly improve the major steps of radiation therapy practice for anal and rectal cancer, including planning, delivering and monitoring radiation therapy by use of modern radiation technologies and techniques (IMRT, IGRT). In a truly interactive atmosphere, participants will be able to identify the major uncertainties of daily practice and learn how to handle them. Participants will also learn how radiation therapy for anal and rectal cancer is best combined with chemotherapy and (possibly) molecularly targeted agents. The most relevant ongoing questions in multidisciplinary management of rectal cancer, including aspects of modern imaging and innovative surgical approaches, will be addressed.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand and justify indications for radiation therapy in different clinical scenarios
- Integrate modern imaging into radiotherapy treatment planning and delivery
- Tailor target volume delineation according to tumour location and stage
- Optimise dose distribution and compare different RT techniques
- Assess the usefulness of available IGRT technologies
- Monitor tumour response and discuss possible clinical consequences
- Understand and exploit the interactions between radiation therapy and concurrent systemic treatment
- Improve radiation (and concurrent systemic treatment) delivery by optimised supportive care.

COURSE CONTENT

Experts in the field will provide short lectures, interactive case discussions, small teaching groups on all technical aspects of radiotherapy planning and delivery, and open debates on controversial issues in multidisciplinary care. This will include state-of-the art teaching of pivotal clinical trials on anal and rectal cancer treatment and explanation of the background of current guidelines. This course will then have a particular focus on how to improve radiation therapy delivery, all the way down from initial patient set-up, treatment planning, delineation of target volumes, optimisation of dose distribution, image-guided monitoring of radiation delivery, and assessment of tumour response.

PREREQUISITES

Before commencing this course, participants should:

- Have studied the pivotal clinical trials that have established the role of radiation therapy and combined modality treatment approaches for anal and rectal cancer
- Be familiar with standard procedures of radiation therapy planning and delivery
- Be aware of open questions and ongoing controversies in the multidisciplinary care of both tumour entities.

TEACHING METHODS

Lectures, interactive case discussions, small teaching groups on all technical aspects of RT planning and delivery, open debates on multidisciplinary care.

METHODS OF ASSESSMENT

- Small working groups with experts
- Survey Monkey based evaluation form
- Turning Point questionnaires.

KEY WORDS

Rectal cancer, anal cancer, technical aspects of radiation treatment planning and delivery, concurrent systemic treatment, multidisciplinary care.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Claus Rödel, *Radiation Oncologist, Johann Wolfgang Goethe University, Frankfurt (DE)*

TEACHERS

- Geerard Beets, *Surgeon, Netherlands Cancer Institute, Amsterdam (NL)*
- Regina Beets-Tan, *Radiologist, Netherlands Cancer Institute, Amsterdam (NL)*
- Claudio Fiorino, *Medical Physicist, San Raffaele Scientific Institute, Milan (IT)*
- Rob Glynne-Jones, *Radiation Oncologist, Mount Vernon Centre for Cancer Treatment, London (UK)*
- Karin Haustermans, *Radiation Oncologist, University Hospital Gasthuisberg, Leuven (BE)*
- Corrie A.M. Marijnen, *Radiation Oncologist, Leiden University Medical Center, Leiden (NL)*

CONTOURING ADMINISTRATOR

Maria Antonietta Gambacorta, *Radiation Oncologist, Università Cattolica del Sacro Cuore, Rome (IT)*

LOCAL ORGANIZER

Vincenzo Valentini, *Radiation Oncologist, Università Cattolica del Sacro Cuore, Rome*

Claus Rödel

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

Upper GI: Technical and Clinical Challenges for Radiation Oncologists

25-28 March 2017
Rome, Italy

TARGET GROUP

The target group consists of radiation oncologists, physicists and radiation therapists (RTTs) who are interested to learn and improve their knowledge on optimal radiation oncology treatment modalities in upper GI malignancies following the main radiotherapy steps : indication, prescription, delineation, planning, IGRT and outcome evaluation.

COURSE AIM

The improvement of technology opportunities in radiation oncology challenges the role of radiotherapy in many tumour sites. Upper GI tumours share a very unfavourable prognosis and in the meantime they could benefit from technology innovation.

The aim of the course is to support an interactive educational environment by peer review of each step of radiation therapy practice (indication, prescription, delineation, planning, IGRT, outcome evaluation) according to the modern available technologies and knowledge while taking care of the clinician, physicist and RTT perspectives.

Specialists of different disciplines will support the radiation oncology audience in understanding the clinical needs, anatomic and pathologic details, and the therapeutic achievements needed to optimise radiation oncology knowledge.

LEARNING OUTCOMES

By the end of this course, for each upper GI tumour site, participants should be able to practice:

- Proper indication for radiation therapy in a multidisciplinary perspective
- Appropriate prescription
- Tailored delineation according to tumour location and stage
- Dose distribution optimisation and comparison
- Optimal use of available IGRT technologies
- Proper monitoring of tumour response and control.

COURSE CONTENT

Session 1: Prescription

Participants will be invited to make their prescription on cases, that will afterwards be delineated and planned in the following sessions by a Survey Monkey questionnaire. Lectures on imaging based staging and state of art of treatment will help the final discussion.

Session 2: Delineation (FALCON session)

The previously discussed cases will be available for a tutored small working group delineation exercise. A video on surgical procedure highlighting the key surgical steps to have a better understanding of the local anatomy will be commented on by a surgeon.

Session 3: Delineation

Lectures on primary tumour extension and nodal subsite involvement based on pathology evaluation and modern imaging will support the final recommendation for subsite delineation by stage and tumour position for the delineated cases.

Session 4: Planning

The choice among competitive plans for the cases by interactive systems will be supported by lectures on dose issues for tumour control and constraints for organs at risk.

Session 5: In room imaging guided radiotherapy

Drill and practice exercises in small working groups on how to determine PTV margin, and IGRT by portal imaging and CT cone beam will favour discussion on daily dose delivery issues.

Session 6: What we learn by failure analysis and future perspective

The challenge of tumour recurrence will be addressed by lectures on how to distinguish primary recurrence vs nodal recurrence by imaging, on incidence and location of local recurrences and on the new treatment perspectives.

PREREQUISITES

Before commencing this course, participants should have practiced upper GI cancer:

- Tumour board discussion
- Delineation
- Planning optimisation and comparison
- IGRT
- Outcome monitoring.

TEACHING METHODS

- Lectures
- Interactive sessions
- Small working groups
- Individual practice.

METHODS OF ASSESSMENT

- Small working groups with experts
- On site Survey Monkey
- Questionnaires.

KEY WORDS

Upper GI malignancies, oesophageal cancer, gastric cancer, pancreatic cancer, multidisciplinary management, delineation, planning, IGRT, outcome evaluation.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Vincenzo Valentini, *Radiation Oncologist, Università Cattolica S. Cuore, Rome (IT)*

TEACHERS

- William Allum, *Surgeon, The Royal Marsden NHS Foundation Trust, London (UK)*
- Florian Lordick, *Medical Oncologist, University Cancer Centre, Leipzig (DE)*
- Philippe Maingon, *Radiation Oncologist, Hôpitaux Universitaires Pitié Salpêtrière – Charles Foix, Paris (FR)*
- Alexander Quaas, *Pathologist, Universitätsklinikum Köln, Köln (DE)*
- Angela Riddell, *Radiologist, The Royal Marsden NHS Foundation Trust, London (UK)*
- Dirk Verellen, *Medical Physicist, Iridium Kankernetwerk, (Antwerp), Vrije Universiteit Brussel, Brussels (BE)*
- Marcel Verheij, *Radiation Oncologist, Netherlands Cancer Institute, Amsterdam (NL)*
- Lisa Wiersema, *Radiation Therapist, Netherlands Cancer Institute, Amsterdam (NL)*

GUEST LECTURER

Riccardo Manfredi, *Radiation Oncologist, Università Cattolica S. Cuore, Rome (IT)*

CONTOURING ADMINISTRATOR

Francesco Cellini, *Radiation Oncologist, Universita' Cattolica S. Cuore, Rome (IT)*

LOCAL ORGANISER

Vincenzo Valentini, *Radiation Oncologist, Università Cattolica S. Cuore, Rome*

Vincenzo Valentini

Dose Modelling and Verification for External Beam Radiotherapy

2-6 April 2017
Warsaw, Poland

TARGET GROUP

The course is primarily aimed at and recommended for medical physicists and experienced dosimetrists working in treatment planning. The participants should preferably have some practical experience in radiotherapy physics and treatment planning systems. A good medical physics background is required.

COURSE AIM

The course aims to:

- Review external beam radiotherapy physics and beam modelling
- Make understandable the concepts behind dose algorithms and modelling in state-of-the-art treatment planning systems
- Make understandable and examine the process of commissioning treatment planning systems
- Review dosimetry methods of importance for commissioning and verification
- Review dose verification methods and to offer an overview of available technologies and evaluation methods
- Enable practical implementation of concepts for dose verification in advanced external beam therapy including SRT and IMRT.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Identify and interpret the input data requirements for the configuration of beam models
- Illustrate modelling of the patient, treatment beam and energy deposition in the treatment planning process
- Present the concepts behind simple and advanced dose calculation algorithms as implemented on modern treatment planning systems and monitor unit or dose calculation check software tools
- Compare and critically evaluate the tools and methods available for the verification of the calculated dose
- Assess aspects of quality assurance specific to the treatment planning process.

COURSE CONTENT

- Review of basic concepts of fluence, radiation transport and convolution
- Linac head design and multisource models
- Patient and phantom characterisation for treatment planning systems
- Point, pencil beam and grid based approaches to dose calculation
- 1D, 2D and 3D detectors for measurement
- Use of measured data in beam models and uncertainty budgets
- Monitor unit calculation and relation to beam models
- Commissioning and quality assurance of a treatment planning system
- Dose based metrics
- Practical exercises on monitor unit calculation and modelling.

PREREQUISITES

Before commencing this course you should preferably have attended the ESTRO course 'Physics for Modern Radiotherapy' or equivalent.

TEACHING METHODS

- 21 hours of lectures
- 4 hours of practical workshops
- Interactive Debate
- 1h30 of Q&A.

The course consists of didactic lectures, interactive discussion sessions and practical calculation and modelling sessions. Lectures and preparation workshops will be given on monitor unit calculation and beam modelling. Participants will engage in realistic monitor unit calculation scenario exercises. Participants will also undertake computer based modelling of basic models for photon beam head scatter and kernel based dose calculations.

METHODS OF ASSESSMENT

- MCQ
- Q&A
- Practical
- Evaluation form.

KEY WORDS

Beam models and dose calculation approaches in treatment planning systems, commissioning, verification and quality assurance of treatment planning systems.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CPD recognition is submitted to the European Board for Accreditation in Medical Physics (EBAMP), as a CPD event for medical physicists. Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

MEDICAL PHYSICIST

FACULTY

COURSE DIRECTORS

- Tommy Knöös, *Medical Physicist, Skåne University Hospital, Lund University, Lund (SE)*
- Brendan Mc Clean, Medical Physicist, *St Luke's Radiation Oncology Network, Dublin (IE)*

TEACHERS

- Anders Ahnesjö, *Medical Physicist, Uppsala University, Uppsala (SE)*
- Crister Ceberg, *Medical Physicist, Lund University, Lund (SE)*
- Maria Mania Aspradakis, *Medical Physicist, Cantonal Hospital of Lucerne, Lucerne (CH)*
- Núria Jornet, *Medical Physicist, Hospital de la Santa Creu i Sant Pau, Barcelona (ES)*

LOCAL ORGANIZER

Pawel Kukolowicz, *Medical Physicist, Maria Sklodowska-Curie Memorial Cancer Center, Warsaw*

Brendan Mc Clean

Tommy Knöös

IMRT and Other Conformal Techniques in Practice

9-13 April 2017
Madrid, Spain

TARGET GROUP

The course is aimed at radiation oncologists, medical physicists and radiation therapists (RTTs) involved in the implementation and clinical use of advanced techniques in their departments. Basic knowledge of radiation oncology and radiation physics is a prerequisite, some experience in CT-based treatment planning is highly beneficial. The registrants will preferably be 'graduates' of the ESTRO course on Physics for Modern Radiotherapy or an equivalent training in radiation physics. Simultaneous participation of a physicist and/or a clinician and/or a radiation therapist from the same institute is encouraged.

COURSE AIM

To present and discuss:

- The scientific basis of IMRT and highly conformal radiation techniques
- The technical aspects of treatment preparation and treatment delivery
- Dose calculation and the quality assurance process
- Inverse planning optimisation and its practical implementation
- The latest developments in IMRT irradiation modalities
- The clinical aspects of IMRT, including clinical outcomes/site-specific issues/normal tissue tolerance
- The relation between IMRT and other advanced radiotherapy techniques (e.g. IGRT and adaptive therapy).

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Describe, at least in qualitative terms, the inverse treatment planning process and potential issues with all elements involved
- List specific contouring requirements for IMRT and, in particular for a clinician, assess the extent to which these requirements are fulfilled in their clinical practice
- Judge/revise the appropriateness of the dose-volume-constraints used in their clinical practice with respect to the current state-of-the-art
- Analyse/judge treatment plans with regard to applicability, safety and efficacy
- Evaluate their dosimetry practice with respect to the current standard of practice (specifically for physicists)
- Reassess their procedure in producing highly conformal treatment plans (specifically for a dosimetrist)
- Summarise the overall clinical outcomes and remaining open issues with highly conformal techniques across disease types.

COURSE CONTENT

- Rationale of 3DCRT/IMRT
- Delivery modalities
- Dosimetry and commissioning
- Quality assurance
- Imaging and contouring
- Treatment plan optimisation
- Normal tissue tolerance, dose-volume constraints
- Impact of motion and geometrical uncertainties on IMRT
- Clinical case discussions
- IGRT and IMRT
- Adaptive therapy and IMRT
- Volumetric IMRT techniques.

Practical demonstrations will take place on-site in close collaboration with the local staff.
This course will be organised in close cooperation with the manufacturers of equipment for planning, delivery and QA of IMRT and conformal radiotherapy. Their practical demonstrations will be an important part of the course.

PREREQUISITES

Before commencing this course participants should:

As a clinician:

- Be familiar with clinical indications for conformal radiotherapy
- Have a general understanding of the treatment planning process.

As a physicist:

- Be familiar with quality assurance measurements for conventional therapy
- Have a general knowledge of dose calculation algorithms and 3D-treatment planning.

The participants will be asked to prepare a 'homework' based on two clinical cases sent by ESTRO. The results

The participants will be asked to prepare a 'homework' based on two clinical cases sent by ESTRO. The results of such work will be discussed in small groups during the course.

TEACHING METHODS

- 16,45 hours of lectures
- 3 hours of practical demonstrations in a clinical department
- 2 hours of software demonstration
- 3 hours of case discussions.

METHODS OF ASSESSMENT

- MCQ
- Clinical case discussion
- Evaluation form
- Practical demonstrations.

KEY WORDS

IMRT, IGRT, target definition, tolerance doses, inverse treatment planning, dose calculation, recent IMRT developments.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR
Marco Schwarz, *Medical Physicist, Proton Therapy Centre, Trento (IT)*

CO-CHAIR
Frank Lohr, *Radiation Oncologist, AOU Modena, Modena (IT)*

TEACHERS

- Andrea Riccardo Filippi, *Radiation Oncologist, AOU Città della Salute e della Scienza, Turin (IT)*
- Eva Onjukka, *Medical Physicist, Karolinska University Hospital, Stockholm (SE)*
- Matthias Söhn, *Medical Physicist, LMU University Hospital, Munich (DE)*

Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

LOCAL ORGANISER
Carmen Rubio, *Radiation Oncologist, Hospital Universitario HM Sanchinarro, Madrid*

Frank Lohr

Marco Schwarz

ESTRO/ESMIT Course on Molecular Imaging and Radiation Oncology

10-13 April 2017
Bordeaux, France

TARGET GROUP

The course is aimed at senior residents or young specialists in radiation oncology, nuclear medicine or radiology, who intend to expand their knowledge and skills in the use of molecular imaging methods for radiation oncology.

COURSE AIM

The applications of molecular imaging (MI) for treatment selection, target definition and response evaluation in radiation oncology are increasing. This advanced course, jointly organised by ESTRO and ESMIT (European School of Multimodality Imaging and Therapy), aims at providing the participants with profound knowledge and skills to deal with chances and challenges in the use of MI methods in all fields of radiation oncology.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- List the implications of PET and some MRI based MI methods in radiation oncology
- Understand technical issues of PET in radiotherapy treatment planning
- Understand technical issues of functional MRI in radiotherapy treatment planning
- Have knowledge of the current evidence of PET in staging, treatment planning and response assessment in main solid tumours
- Discuss GTV delineation procedures based on MI
- Discuss nodal CTV concepts with the background of diagnostic data
- Take home some points of necessary research in this field.

COURSE CONTENT

The course will be interactive with talks and hands-on group sessions on MI based GTV delineation, the discussion of MI based CTV concepts, as well as the use of MI methods for staging and response assessment in several tumour types. The MI methods addressed will mainly be nuclear medicine based (e.g. PET) but MRI-based methods will also be touched.

Lectures on:

- Technical and biological basics of imaging methods and radiotherapy techniques involved
- Related physics (segmentation, registration, handling of 4D data, dose painting)
- Clinical application of PET and/or molecular MRI in staging and treatment planning of:
  - lung cancer
  - head and neck cancer
  - prostate cancer
  - brain tumours
  - gastro-intestinal tumours
  - gynaecological tumours
- Response assessment using molecular imaging during and after treatment.

Hands-on workshops and group discussions on:

- Diagnostic viewing
- Multimodal image coregistration
- Automatic image segmentation
- GTV delineation
- CTV concepts
- Response assessment.

PREREQUISITES

Before commencing this course participants should have acquired:

- Basic knowledge on radiation oncology
- Some basic knowledge on anatomical (CT, MRI) imaging in radiation oncology.

To participate in the hands-on delineation sessions you should bring a laptop that can run the on-line FALCON* teaching software (it is strongly suggested to confirm this functionality at home).

TEACHING METHODS

- 15 hours of lectures
- 9 hours of hands-on practical workshops
- 5 hours of discussions on clinical cases.

METHODS OF ASSESSMENT

- Theoretical knowledge and the ability to communicate the impact of imaging on target definition will be evaluated during group discussions
- Practical capabilities in target definition based on MI will be evaluated during the hands-on workshops using direct feedback on contours generated by experts and by course participants
- The course will be evaluated using standard ESTRO evaluation forms.

KEY WORDS

Molecular imaging, radiotherapy, PET, molecular MRI, treatment planning, dose painting, response assessment.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

**FALCON (Fellowship in Anatomic deLineation and CONtouring)*

ESMIT

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

IMAGING

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTORS

- Ursula Nestle, *Radiation Oncologist, Freiburg University, Freiburg (DE)*
- Wouter Vogel, *Nuclear Medicine Physician, Netherlands Cancer Institute, Amsterdam (NL)*

TEACHERS

- Vicky Goh, *Radiologist, St. Thomas Hospital, London (UK)*
- Anne Laprie, *Radiation Oncologist, Claudius Regaud Institute, Toulouse (FR)*
- Frank Pameijer, *Radiologist, UMC Utrecht, Utrecht (NL)*
- Maria Picchio, *Nuclear Medicine Physician, San Raffaele Scientific Institution, Milan (IT)*
- Daniela Thorwarth, *Medical Phycisist, Tübingen University Hospital, Tübingen (DE)*
- Uulke van der Heide, *Medical Physicist, Netherlands Cancer Institute, Amsterdam (NL)*

Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

CONTOURING ADMINISTRATOR

Oliver Oehlke, *Radiation Oncologist, Freiburg University, Freiburg (DE)*

LOCAL ORGANISERS

Guy Kantor, *Radiation Oncologist, Institut Bergonié, Bordeaux*

Ursula Nestle

Wouter Vogel

Cancer Survivorship

21-23 May 2017
Brussels, Belgium

TARGET GROUP

The course is primarily aimed at trainees in radiation oncology, supportive care personnel, radiation therapists (RTTs) and at radiation oncologists early in their career and/or eager to update their knowledge of general and organ specific morbidity aspects in modern radio-(chemo-/targeted-) therapy. For PhD students in radiation oncology and related disciplines, this course can broaden their knowledge. As the focus is on clinical applications, the competences of the teachers' team comprise radiation oncology, gastroenterology, psychology and radiobiology.

COURSE AIM

For the lectures, the aims are to:

- Introduce general principles of normal tissue radiopathogenesis and radiobiology
- Provide approaches for assessment and documentation of treatment-related morbidity
- Provide management strategies for "systemic" morbidity (nausea/emesis, fatigue)
- Illustrate important facets of treatment-/morbidity-related quality of life (including assessment instruments) and emotional dysfunction
- Provide a comprehensive overview over relevant and currently accepted approaches for prevention, mitigation and treatment of adverse events and supportive care
- Detail specific aspects of morbidity in abdominal and pelvic radiation oncology (gastrointestinal tract including. liver and pancreas, urinary tract including kidney, sexual organs and function).

Complimentary to the lectures, general discussion sessions and clinical case presentations will serve to illustrate the relevance of the various aspects of morbidity for daily clinical work, and to answer specific (morbidity-related) questions.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the underlying (radio)biology of treatment-related morbidity
- Identify, classify and document treatment-related morbidity in cancer survivors
- Identify the impact of treatment-related morbidity on patients' quality of life
- Provide strategies for management of systemic morbidity
- Provide strategies for prevention of treatment-related morbidity
- Provide supportive care and organ-specific morbidity management to cancer survivors.

COURSE CONTENT

1. General lectures on:

- The relevance of treatment-related morbidity for cancer survivors
- General pathogenesis of normal tissue reactions
- Classification and documentation of morbidity
- Reporting: prevalence vs. incidence
- Impact of exposure parameters (4 R's of radiotherapy)
- Volume effects and tolerance concepts
- General morbidity: fatigue, nausea and emesis
- Quality of life: general aspects, documentation
- Psychological disorders/emotional dysfunction
- Coping with disease and post-disease life
- Management and supportive care guidelines
- Specific aspects of chemo-/immunotherapy.

2. Module-specific lectures on:

- Skin and adnexae
- Spinal cord, peripheral nerves
- Gastrointestinal tract
- Liver and pancreas
- Urinary tract, including kidneys
- Sexual organs and function
- Aspects of paediatric (radio-)oncology.

3. Clinical case discussions:

The participants are invited to collectively discuss expected (based on treatment protocol and planning) morbidity and to develop management strategies of observed adverse events in clinical cases prepared by the faculty and/or put forward by participants.

PREREQUISITES
Before commencing this course participants should have basic experience with patients experiencing adverse events of radio(chemo)therapy.

TEACHING METHODS
- >15 hours of lectures
- >2 hours of case discussions
- 1 hour of general discussion.

METHODS OF ASSESSMENT
- MCQ
- Evaluation form
- Clinical case discussions.

KEY WORDS
Cancer survivorship, morbidity, quality-of-life.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION
Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP
MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, RADIATION THERAPIST

FACULTY
COURSE DIRECTOR
Wolfgang Dörr, *Radiation Biologist, Medical University of Vienna, Vienna (AT)*

COURSE CO-DIRECTOR
Hans Langendijk, *Radiation Oncologist, University Medical Centre Groningen, Groningen (NL)*

TEACHERS
- Nicolaus Andratschke, *Radiation Oncologist, University Hospital Rostock, Rostock (DE)*
- Jervoise Andreyev, *Gastroenterologist, The Royal Marsden Hospital, London (UK)*
- Karin Dieckmann, *Radiation Oncologist, University Hospital Vienna, Vienna (AT)*
- Sjoukje Oosting, *Medical Oncologist, University Medical Center Groningen, Groningen (NL)*
- John Ramage, *Lead clinician, Kings Health Partners Neuroendocrine Centre, Kings College London; Professor of Healthcare Research University of Winchester, Winchester (UK)*


Hans Langendijk


Wolfgang Dörr

Multidisciplinary Management of Prostate Cancer

21-25 May 2017
Porto, Portugal

TARGET GROUP

The course is aimed at radiation oncologists, urologists, medical oncologists and other specialists and trainees who have a special interest in prostate cancer and are willing to update their knowledge.

COURSE AIM

This 5-day teaching course aims at focusing on the management of localised, locally advanced and metastatic prostate cancer. It emphasises the importance of a multidisciplinary approach and teamwork, where full information exchange is vital to provide the best up-to-date scientific evidence on which the management of the disease will be based. This will be illustrated during state-of-the-art lectures presented by experts in the field, covering important issues such as biology, imaging, pathology, therapy and future developments. Interactive case studies and journal clubs will be integrated on a daily basis and there will be ample time for open discussions amongst participants and experts. A special session on target delineation for radiation oncologists will also be organised during the course.

LEARNING OUTCOMES

- To provide an in-depth overview of the epidemiology, pathology, imaging and treatment options for low, intermediate and high risk prostate cancer
- To discuss patient selection/indications and contra-indications for the various treatment options
- To provide a critical overview of the surgical and radiotherapy techniques available for the management of prostate cancer
- To discuss the new drugs currently available for the management of the advanced and metastatic stages of the disease
- To debate on the most recent developments relevant to prostate cancer management.

COURSE CONTENT

Sunday 21 May 2017

- Normal prostate: anatomy – embryology, histology
- Prostate cancer: epidemiology and prevention, clinical diagnosis, imaging modalities pathology, staging
- Case discussions.

Monday 22 May 2017

- Low risk prostate cancer: active surveillance, surgery and the post-op pathology
- Radiotherapy and brachytherapy, the pathology after irradiation
- External beam radiotherapy: on-line control, target delineation
- Case discussions.

Tuesday 23 May 2017

- High risk prostate cancer: radiotherapy and hormones, alternative radiotherapy regimens
- Toxicity of radiotherapy: acute and late morbidity – erectile dysfunction
- Role of surgery and its morbidity
- Alternative treatments
- Case discussions and Journal Club.

Wednesday 24 May 2017

- Adjuvant and salvage radiotherapy after radical surgery
- Rising PSA after surgery and after radiotherapy
- Imaging for recurrent detection
- Node positive prostate cancer
- Case discussions and Journal Club.

Thursday 25 May 2017

- Metastatic prostate cancer: hormones and their complications
- Castration resistant prostate cancer: new drugs
- Palliative radiotherapy and surgery
- Non systemic treatment in the metastatic setting.

PREREQUISITES

Before commencing this course participants should:

- Revise the general principles of prostate cancer epidemiology, pathology, diagnosis and staging
- Read the published ESTRO and ASTRO guidelines on prostate contouring and the EAU (European Association of Urology) guidelines on prostate cancer

- Complete the FALCON exercise which is distributed prior to the course.

TEACHING METHODS

- 21 hours lectures
- 3 hours contouring
- 4 hours practical workshops
- 5 hours interactive discussions.

The course consists of didactic lectures, interactive sessions (clinical case discussions and Journal Clubs) and practical demonstrations.

METHODS OF ASSESSMENT

- MCQ
- Delineation exercise
- Evaluation form.

KEY WORDS

Prostate cancer management, surgery, radiotherapy.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

Supported by EAU

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTOR
Alberto Bossi, *Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)*

CO-CHAIR
Alberto Briganti, *Urologist, Università Vita-Salute San Raffaele, Milan, Italy (IT)*

TEACHERS
- Ferran Algaba, *Pathologist, Autonomous University of Barcelona, Barcelona (ES)*
- Valerie Fonteyne, *Radiation Oncologist, Ghent University Hospital, Ghent (BE)*
- Nicolas Mottet, *Urologist, University Hospital, Hopital Nord, Saint-Etienne (FR)*
- Marco van Vulpen, *Radiation Oncologist, UMC Utrecht, Utrecht (NL)*
- Geert Villeirs, *Radiologist, Ghent University Hospital, Ghent (BE)*
- Jochen Walz, *Urologist, Institut Paoli-Calmettes, Marseille (FR)*

CONTOURING ADMINISTRATOR
Carl Salembier, *Radiation Oncologist, Europe Hospitals - Site St Elisabeth, Brussels (BE)*

LOCAL ORGANISER
Lurdes Trigo, *Radiation Oncologist, Portuguese Society for Radiotherapy Oncology, Porto*


Alberto Briganti


Alberto Bossi

ESTRO-KOSRO GI: Technical and Clinical Challenges for Radiation Oncologists

2-4 June 2017
Seoul, South Korea

TARGET GROUP

The target group consists of radiation oncologists, physicists and radiation therapists (RTTs) who are interested to learn and improve their knowledge on optimal radiation oncology treatment modalities in GI malignancies, following the main radiotherapy steps as: indication, prescription, delineation, planning, IGRT and outcome evaluation.

COURSE AIM

The improvement of technology opportunities in radiation oncology challenges the role of radiotherapy in many tumour sites. GI tumours share a very unfavourable prognosis and in the meantime they could, by large extent, benefit from technology innovation.

The aim of the course is to support an interactive educational environment by peer review of each step of radiation therapy practice (indication, prescription, delineation, planning, IGRT, outcome evaluation) according to the modern available technologies and knowledge and taking care of the clinician, physicist and RTT perspectives.

Specialists of different disciplines will support the radiation oncology audience in understanding the clinical needs, anatomic and pathologic details, and therapeutic achievements needed to optimise radiation oncology knowledge in an international environment, for the benefit of a large Asian participation.

LEARNING OUTCOMES

By the end of this course, for each GI tumour site, participants should be able to practice:

- Proper indication for radiation therapy in a multidisciplinary perspective
- Appropriate prescription
- Tailored delineation according to tumour location and stage
- Dose distribution optimisation and comparison
- Optimal use of available IGRT technologies
- Proper monitoring of tumour response and control.

COURSE CONTENT

Session 1: Prescription

Participants will be invited to make their prescription on cases, that will afterwards be delineated and planned in the following sessions by a Survey Monkey questionnaire. Lectures on imaging based staging and state of art of treatment will help the final discussion.

Session 2: Delineation (FALCON session)

The previously discussed cases will be available for a tutored small working group in a delineation exercise. A video on surgical procedure highlighting the key surgical steps to have a better understanding of local anatomy will be commented on by a surgeon.

Session 3: Delineation

Lectures on primary tumour extension and nodal subsite involvement based on pathology evaluation and modern imaging will support the final recommendation for subsite delineation by stage and tumour position for the delineated cases.

Session 4: Planning

The choice among competitive plans for the cases by interactive systems will be supported by lectures on dose issues for tumour control and constrains for organs at risk.

Session 5: In room imaging guided radiotherapy

Drill and practice exercises in small working groups on how to determine PTV margin, IGRT by portal imaging and CT cone beam will favour discussion on daily dose delivery issues.

Session 6: What we learn by failure analysis and future perspective

The challenge of tumour recurrence will be addressed by lectures on how to distinguish primary recurrence vs nodal recurrence by imaging, on incidence and location of local recurrences and on the new treatment perspectives.

PREREQUISITES

Before commencing this course, participants should have practiced GI cancer:

- Tumour board discussion
- Delineation
- Planning optimisation and comparison
- IGRT
- Outcome monitoring.

TEACHING METHODS

- Lectures
- Interactive sessions
- Small working groups
- Individual practice.

METHODS OF ASSESSMENT

- Small working groups with experts
- On site Survey Monkey
- Questionnaires.

KEY WORDS

GI malignancies, oesophageal cancer, gastric cancer, rectal cancer, anal canal cancer, multidisciplinary management, delineation, planning, IGRT, outcome evaluation.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Vincenzo Valentini, *Radiation Oncologist, Università Cattolica S.Cuore, Rome (IT)*

TEACHERS

- Do Hoon Lim, *Radiation Oncologist, Sungkyunkwan University, Seoul (KR)*
- Claudio Coco, *Surgeon, Università Cattolica del Sacro Cuore -Policlinico A. Gemelli , Rome (IT)*
- Jun Ho Lee, *Surgeon, Sungkyunkwan University, Seoul (KR)*
- Jeeyun Lee, *Medical Oncologist, Sungkyunkwan University, Seoul (KR)*

Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

CONTOURING ADMINISTRATOR

- Francesco Cellini, *Radiation Oncologist, Università Cattolica S.Cuore, Rome (IT)*

LOCAL ORGANISER

Hee Chul Park, *Radiation Oncologist, Samsung Proton Therapy Center, Seoul*

Vincenzo Valentini

Physics for Modern Radiotherapy

A joint course for clinicians and physicists

4-8 June 2017
Bucharest, Romania

TARGET GROUP

The course is primarily aimed at:
- Trainees in radiation oncology or radiation physics
- Radiation oncologists and medical physicists early in their career.

The course may also be useful for:
- Clinicians and physicists who are eager to update their knowledge on physics and technical aspects of radiotherapy after a period of relative shortage of access to education on modern technology and techniques
- Dosimetrists and radiation therapists (RTTs) having a strong interest in the application of physics and technology in radiotherapy
- PhD students in radiation therapy or physics, as this course can broaden their knowledge.

COURSE AIM

The lectures aim to:
- Provide knowledge and understanding of physics relevant to modern clinical radiotherapy
- Provide comprehensive overviews of imaging and volume concepts in radiotherapy
- Discuss modern dose delivery techniques, such as IMRT, rotational therapy (VMAT, helical tomotherapy), S(B)RT, IGRT, adaptive therapy (ART), particle therapy and brachytherapy
- Discuss safety issues in lectures on commissioning and QA/QC, radiation protection, in vivo dosimetry and induction of secondary tumours.

Complimentary to the lectures, this course has clinical case discussions as an important component. The case discussions aim at teaching physics by practical application in treatment planning.

LEARNING OUTCOMES

By the end of this course participants should be able to:
- Apply, together with the treatment team from their department, modern physics principles and techniques in clinical practice
- Discuss and select modern treatment techniques based on their pros and cons
- Select physics and technical measures that enhance accurate and safe application of radiation therapy.

COURSE CONTENT

1. Lectures on:
- IMRT/VMAT - physics and clinical aspects, clinical gains and limitations
- Stereotactic radiotherapy (cranial and extra-cranial)
- Rotational therapy (VMAT, helical tomotherapy)
- Particle therapy (electrons, protons, ions)
- Volumes in external beam radiotherapy
- Imaging for GTV definition
- Imaging for treatment preparation and planning
- PTV margin calculation
- IGRT (equipment for in-room imaging, set-up correction strategies, clinical examples)
- Adaptive radiotherapy
- Dose prescription and plan evaluation
- Field junctions
- Commissioning and quality assurance/control of equipment and software
- Brachytherapy
- Radiobiology in the clinic
- *In vivo* dosimetry
- Radiation protection
- Induction of secondary tumours.

Specific for clinicians:
- Basics of radiation physics
- Dose calculation: principles and application in the TPS
- Principles of radiotherapy equipment
- Physical principles of advanced radiotherapy.

Specific for physicists:
- Reference and non-reference dosimetry
- Modern dose calculation algorithms
- QA for advanced delivery techniques
- Oncologic concepts.

2. Clinical case discussions:

The participants are invited to prepare treatment plans for selected clinical cases (homework), based on case descriptions and CT scans as provided prior to the course. During the course, the plans are discussed in small groups, regarding selected treatment techniques, planning solutions, constraints and objective, choice of margins, protocols for image guidance, QA, etc, guided by clinician and physicists.

PREREQUISITES
See “2. Clinical case discussions” on left page.

TEACHING METHODS
- 21 plenary lectures
- 5 lectures targeted at clinicians
- 5 lectures targeted at physicists
- 3 clinical case discussion sessions in small groups
- 1 informal "meet the teacher" session for (individual) discussions between participants and faculty members, potentially covering all kinds of issues related to physics and technology in clinical radiotherapy as brought up by attendants.

METHODS OF ASSESSMENT
- Entry and exit exam
- Evaluation form.

KEY WORDS
Physics in radiotherapy, modern treatment techniques.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION
Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician’s Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

Application for CPD recognition is submitted to the European Board for Accreditation in Medical Physics (EBAMP), as a CPD event for medical physicists. Information on the status of the applications can be obtained from the ESTRO office.

IAEA International Atomic Energy Agency
Atoms For Peace

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

As the focus is on clinical application, the teachers’ team consists of both radiation oncologists (50%) and medical physicists (50%).

COURSE DIRECTOR
Ben Heijmen, *Medical Physicist, Erasmus MC - Cancer Institute, Rotterdam (NL)*

TEACHERS
- Vibeke Hansen, *Medical Physicist, Royal Marsden NHS Trust and The Institute of Cancer Research, Marsden (UK)*
- Ann Henry, *Radiation Oncologist, Cookridge Hospital, Leeds (UK)*
- Trine Juhler-Nøttrup, *Radiation Oncologist, University Hospital Herlev, Herlev (DK)*
- Silvia Molinelli, *Medical Physicist, Fondazione CNAO, Pavia (IT)*
- Stéphanie Peeters, *Radiation Oncologist, University Hospital Gasthuisberg, Leuven (BE)*
- Alfredo Polo, *Radiation Oncologist, Hospital Ramony Cajal, Madrid (ES)*
- Milan Tomsej, *Medical Physicist, CHU Charleroi, Hôpital André Vésale, Montigny-le-Tilleul (BE)*

LOCAL ORGANISER
Mihai Dumitrache, *Medical Physicist, Central Military Emergency University Hospital "Dr Carol Davila", Bucharest*

Ben Heijmen

Advanced Skills in Modern Radiotherapy

11-15 June 2017
Prague, Czech Republic

TARGET GROUP
Radiation therapy is rapidly evolving and this has great impact on the role of radiation therapists (RTTs). The target group for this course are radiation therapists who need to expand or refresh their understanding of modern radiation therapy treatment design and delivery and who want the tools to translate this theory into practice. We will provide a programme that will serve both the new and the more experienced radiation therapist. This course provides a complete package and comprehensive overview and will also help the participant in identifying the appropriate ESTRO courses for advanced education and personal development.

COURSE AIM
Although modern radiation therapy is a group effort of physicians, physicists and radiation therapists, this course aims at radiation therapists only. In this way we will be able to give an overview of the steps in modern radiation therapy with enough room and time for radiation therapist specific tools and skills. The theory taught in these sessions will be translated into practical sessions when possible.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Appreciate where modern radiation therapy is at with respect to pre-treatment imaging and target definition, treatment planning and image guidance
- Appreciate the importance of knowledge of the entire treatment chain of radiation therapy
- Comprehend and calculate geometrical uncertainties and margins
- Comprehend the physics of image registration and its influence on clinical image registration
- Appreciate the importance of quality assurance.

COURSE CONTENT
- Pre-treatment imaging modalities: what is available and how is it used in target definition?
- Patient preparation and immobilisation: what is (im) possible and is it still important in modern radiation therapy?
- Imaging modalities in the treatment room: what is available and how can it be used to find the target volume?
- Geometrical uncertainties and correction strategies: what are the uncertainties in modern radiation therapy and how do correction strategies affect PTV margins? How to calculate your own margins (workshop)
- Image registration and evaluation: how to make the best use of the images at hand
- Understanding algorithms, ROI's, correction reference points: how to create protocols for IGRT management (workshops and hands-on)
- Site specific advanced treatment and IGRT techniques
- Safety issues: the importance of incidence reporting and a feedback loop
- Implementing and managing advanced treatment techniques: how to implement new gained skills in your department in a multidisciplinary environment.

PREREQUISITES
Before commencing this course participants should have an interest in *all* steps of radiation therapy.

TEACHING METHODS
Approximately (4,5 days/36 h):
- 23 hours of lectures
- 3 hours of tutorials
- 10 hours of practical workshops.

METHODS OF ASSESSMENT
- MCQ
- Delineation exercises
- Evaluation form.

KEY WORDS
Radiation therapist (RTT), pre-treatment imaging, treatment planning, image guidance, geometrical uncertainties.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Rianne de Jong, *Radiation Therapist, Academic Medical Centre, Amsterdam (NL)*

TEACHERS

- Elizabeth Forde, *Radiation Therapist, Trinity College, Dublin (IE)*
- José Luis Lopez Guerra, *Radiation Oncologist, University Hospital Virgen del Rocio, Sevilla (ES)*
- Mirjana Josipovic, *Medical Physicist, The Finsen Centre – Rigshospitalet, Copenhagen (DK)*
- Martijn Kamphuis, *Radiation Therapist, Academic Medical Centre, Amsterdam (NL)*
- Peter Remeijer, *Medical Physicist, Netherlands Cancer Institute, Amsterdam (NL)*
- Sofia Rivera, *Radiation Oncologist, Institut de Cancérologie Gustave-Roussy, Villejuif (FR)*

LOCAL ORGANISER

Hana Stankusova, *Radiation Oncologist, University Hospital Motol, Prague*

Rianne de Jong

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

Evidence Based Radiation Oncology

How to evaluate the scientific evidence and apply it to daily practice

11-16 June 2017
Ljubljana, Slovenia

TARGET GROUP

This course is aimed primarily at trainee radiation oncologists. It may also be of interest to medical physicists and technologists who would like an overview of current clinical practice in the major treatment sites.

COURSE AIM

- The course focuses on the concept of evidence-based medicine and describes the methodology underlying clinical research. Areas of biomedical statistics necessary for participants to develop skills of critical reading and presentation of research evidence will be covered
- The course will explore the state-of-the-art of radiation therapy in the major tumour sites: breast, oesophagus and stomach, rectum, head and neck, lung, CNS and gynaecological malignancies. A separate session will deal with the major issues in palliative radiation therapy
- The clinical component of the course will comprise a combination of lectures and case discussions. Participants will have the opportunity to discuss clinical scenarios in small groups before the management options are then discussed in the light of the research evidence in plenary sessions.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Define the hierarchy of evidence and use this to evaluate the basis of radiotherapy treatment protocols
- Identify areas of uncertainty in daily radiotherapy practice
- Describe the statistical basis for the design of clinical trials and critically appraise the published literature
- Identify those aspects of current radiotherapy practice which are supported by the highest levels of evidence and those which are not
- Outline the evidence supporting the use of altered fractionation regimens and combined-modality treatment
- Critically evaluate an oral or written scientific presentation.

COURSE CONTENT

- General introduction to evidence-based medicine
- The terminology of radiation therapy, errors and uncertainties in daily practice
- Statistics for the radiation oncologist, how to describe and interpret data from clinical trials and meta-analyses
- Prostate cancer
- Lung cancer
- Rectal cancer
- Head and neck cancer
- CNS malignancies
- Gynaecological malignancies
- Breast cancer
- Gastric and oesophageal cancer
- Radiation therapy in palliative care.

PREREQUISITES

Before commencing this course participants should:

- Review their institution's radiotherapy treatment protocols in those areas covered by this course and be prepared to apply and discuss these in case discussions
- Try to distinguish those areas of their practice that can be justified by the available evidence from those where the evidence-basis is uncertain
- Be prepared to ask questions and contribute to discussions.

TEACHING METHODS

- 31 hours of lectures and case-based discussion
- 9 hours of case-based discussion in small groups.

The faculty will present a summary of the available evidence underlying current radiotherapy practice in the major treatment sites and will identify and discuss those areas of practice for which the evidence remains limited. The application of scientific evidence to clinical practice will be illustrated through the use of case-based discussions in which participants will be encouraged to discuss and present practical solutions to clinical scenarios.

METHODS OF ASSESSMENT

- MCQ
- Evaluation form.

KEY WORDS

Evidence-based medicine, quality of evidence, descriptive statistics, clinical trial, meta-analysis, statistical significance, clinical significance, error, bias, randomisation, stratification, endpoints, uncertainties in clinical practice, therapeutic ratio (gain), target volumes, GTV, CTV, PTV, external beam radiotherapy, brachytherapy, image-guided radiotherapy (IGRT), intensity-modulated radiotherapy (IMRT), prostate cancer, lung cancer, rectal cancer, head and neck cancer, breast cancer, gynaecological cancer, gastric cancer, oesophageal cancer, CNS malignancies, palliation in advanced and metastatic disease.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST

FACULTY

COURSE DIRECTOR

Christopher Cottrill, *Radiation Oncologist, St Bartholomew's Hospital, London (UK)*

TEACHERS

- Berardino De Bari, *Radiation Oncologist, Centre Hospitalier Universitaire Vaudois, Lausanne (CH)*
- Bernard Dubray, *Radiation Oncologist, Centre Henri Becquerel, Rouen (FR)*
- Johannes Kaanders, *Radiation Oncologist, Radboud University Nijmegen Medical Centre, Nijmegen (NL)*
- Li Tee Tan, *Radiation Oncologist, Addenbrookes Hospital – Oncology Centre, Cambridge (UK)*
- Matt Williams, *Consultant Clinical Oncologist, Charing Cross Hospital, London (UK)*

Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

LOCAL ORGANISER

Barbara Segedin, *Radiation Oncologist, Institute of Oncology, Ljubljana*

Christopher Cottrill

Combined Drug-Radiation Treatment: Biological Basis, Current Applications and Perspectives

15-18 June 2017
Brussels, Belgium

TARGET GROUP

The course is aimed at radiation oncologists and medical oncologists involved in the multidisciplinary treatment of cancer.

COURSE AIM

Course rationale

Effective cancer treatment necessitates both high efficacy of local treatment and combatting sub-clinical systemic disease. Consequently, cancer therapy today involves various combinations of local and systemic treatment modalities. Of those, combining drugs and radiation has been attracting particular attention both in terms of its biological rationale and its potential of increasing the therapeutic outcome. The course aims at updating participants about established and emerging knowledge in this field. It will provide the key-messages that biological and clinical research is currently bringing to the oncology community.

This course aims to:

- Update participants about biological effects of combining drugs and radiation in normal and tumour tissue
- Present evidence-based clinical applications of combined modality treatment using drugs and radiation in major human malignancies
- Stimulate case-based discussion on the interdisciplinary treatment of cancer
- Present future perspectives for combining drugs and radiation.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Describe the rationale and mechanisms of the action of combined drug radiation treatment in cancer
- Discuss the evidence for combined drug radiation treatment in different tumour sites
- Select patients for combined drug radiation treatment
- Decide on the optimum treatment strategy, sequencing and duration, for different patients
- Decide on the optimum strategy including new drugs (immunotherapy etc.).

COURSE CONTENT

General lectures

- Biologic basis for combining drugs with radiation
- Combining drugs with radiation: quantifying the therapeutic gain
- Combining new drugs with radiotherapy
- Radiation and non-cytotoxic drugs
- Hypoxic cell radiosensitisers
- Alteration of radiotherapy fractionation and concurrent chemotherapy
- Designing clinical trials for combined modality treatments.

Site specific lectures including practical case discussions

- Head and neck cancer
- Non small cell lung cancer
- Small cell lung cancer
- Breast cancer
- Prostate cancer
- Bladder cancer
- Cervical cancer
- Oesophageal cancer
- Gastric cancer
- Rectal cancer
- Anal canal
- Pancreas
- Brain tumours
- Lymphomas.

PREREQUISITES

Before commencing this course participants should:

- Be confident with the basic mechanisms of radiotherapy and systemic treatment in oncology
- Know the basic principles of management of solid tumours
- Know different ways of delivering chemotherapy/systemic therapy in combination with radiotherapy.

TEACHING METHODS

- 20 hours of lectures
- 5 hours of case discussions
- Presentation and critical discussion of the available evidence, discussion of clinical cases.

METHODS OF ASSESSMENT

- MCQ
- Evaluation form.

KEY WORDS

Radiotherapy, chemotherapy, combined modality, multidisciplinary approach, organ preservation, radiosensitisation, immunotherapy.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTOR

Barbara Jereczek-Fossa, *Radiation Oncologist and Clinical Oncologist, European Institute of Oncology and University of Milan, Milan (IT)*

TEACHERS

- Giuseppe Curigliano, *Medical Oncologist, European Institute of Oncology, Milan (IT)*
- Jesper Grau Eriksen, *Clinical Oncologist, Odense University Hospital, Odense (DK)*
- Robert Glynne-Jones, *Clinical Oncologist, Mount Vernon Cancer Centre, Northwood (UK)*
- Christophe Hennequin, *Radiation Oncologist, Hospital Saint-Louis, Paris (FR)*
- Martin Pruschy, *Biologist, University Hospital Zurich, Zurich (CH)*
- Li Tee Tan, *Consultant Oncologist, Cambridge University Hospital, NHS Trust, Cambridge (UK)*

LOCAL ORGANISER

Marianna Gerardi, *Radiation Oncologist, European Institute of Oncology and University of Milan, Milan*

Barbara Jereczek-Fossa

Target Volume determination - From Imaging to Margins

25-28 June 2017
Lisbon, Portugal

TARGET GROUP

The course is aimed at trainees in radiation oncology and radiotherapy physics with at least one year's experience, diagnostic radiologists with an interest in cancer imaging and radiation technologists with special interest in planning. However, any senior who would like to refresh part of her/his knowledge would benefit from this course.

COURSE AIM

- To understand the principles of different imaging modalities utilised for target volume definition (TVD) such as ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET)
- To understand the need for TVD and planning nomenclatures for primary tumour, nodal regions and organs-at-risk in treatment planning and for treatment strategies such as IMRT and image guidance (IGRT)
- To appreciate the limitations of current imaging modalities for TVD and review "state-of-the-art" imaging modalities for TVD
- To explore the use of functional and molecular imaging in TVD for biological targets
- To review the diagnostic imaging and therapy interface for image registration and verification as well as margin determination.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the optimal imaging requirements for treatment planning of a large variety of tumours
- Have sufficient knowledge to determine adequate "margins"
- Have sufficient expertise to initiate an IGRT protocol
- Apply anatomical knowledge in daily clinical practice.

COURSE CONTENT

- Imaging techniques for GTV/CTV including ultrasound, CT, MRI and PET
- Functional and molecular imaging in oncology
- Optimal imaging guidelines in selected tumour sites
- Target volume and margin definitions and determination including inter-observer variations
- Acquisition of imaging data for treatment planning
- Image handling, image fusion and networking
- Target volumes for CNS tumours
- GTV to PTV for head and neck tumours
- Target volumes for breast nodal regions
- Planning volumes for lung cancer including planning with PET/CT
- GTV to PTV for pelvic tumours and pelvic nodes including urological, gynaecological and gastro-intestinal tumours
- Geometric uncertainties in conformal radiotherapy and IMRT
- Image registration for conformal therapy, IMRT and IGRT
- Practical collaborative group exercises
- Interactive plenary sessions for case solutions.

PREREQUISITES

Before commencing this course participants should have:

- Basic knowledge on ICRU
- Access to CT-guided planning.

TEACHING METHODS

- 20 hours of lectures
- 4 hours of practical workshops
- 4 hours of case discussions.

METHODS OF ASSESSMENT

- Delineation exercise
- Evaluation form.

KEY WORDS
Anatomy, modal spread, margins, imaging, IGRT.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION
Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

WHICH IMAGING COURSE TO CHOOSE?
ESTRO also organises a course on Multidisciplinary Approach of Cancer Imaging (see page 92).
The Multidisciplinary Approach of Cancer Imaging clinical course is aimed at radiologists and radiation oncologists at a more advanced level.
The Multidisciplinary Approach of Cancer Imaging course provides detailed understanding for the use of imaging for radical therapies such as surgery, radiation, focal therapies as applied to specific and difficult clinical cases examples etc.
The Multidisciplinary Approach of Cancer Imaging course focuses on chest and abdominal cancer.

ROADMAP
IMAGING

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST, OTHER SPECIALIST

FACULTY
COURSE DIRECTOR
Vincent Khoo, *Clinical Oncologist, The Royal Marsden NHS Foundation Trust, London (UK)*

TEACHERS
Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

LOCAL ORGANISER
Gonçalo Fernandez, *Instituto Português de Oncologia de Lisboa Francisco Gentil, Lisbon*


Vincent Khoo

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

Brachytherapy for Prostate Cancer

29 June - 1 July 2017
Brussels, Belgium

TARGET GROUP

The course is aimed at all those who may be part of a prostate brachytherapy team and for those wishing to set up a prostate brachytherapy unit i.e.: urologists, radiation oncologists, radiation therapists (RTTs) radiologists, physicists and specialist nurses.

COURSE AIM

The course aims to:

- Provide an overview of the epidemiology and treatment options for localised prostate cancer
- Discuss patient selection/indications and contra-indications for brachytherapy
- Provide an overview of the techniques, equipment and staffing for a prostate brachytherapy unit, including the physics background and regulatory requirements
- Give an overview of the results, side effects and their management
- Discuss new developments relevant to brachytherapy in imaging, focal therapy and salvage.

LEARNING OUTCOMES

By the end of this course participants should be able to know the:

- Requirements for a successful brachytherapy programme
- Relevant patient groups for prostate brachytherapy and the literature reporting their outcome
- Current areas of development in focal and salvage prostate brachytherapy.

COURSE CONTENT

This course covers an overview on epidemiology and treatment options for localised prostate cancer and gives an adequate introduction to brachytherapy. Patient selection for both HDR and LDR seed implants will be discussed with treatment indications and contra-indications. A review of the equipment and staffing for a brachytherapy unit is included in the programme for those yet to embark on this area of activity. Practical examples of gland evaluation types of treatment planning, different implant techniques and post implant planning are presented in the context of videos and interactive discussions between participants and the teaching staff. New approaches are discussed including salvage and focal therapy. Comparisons are presented between permanent (seed) and temporary (HDR) brachytherapy implants and between brachytherapy and other treatments available for prostate cancer.

PREREQUISITES

Before commencing this course, participants should:

- Revise the general principles of prostate cancer pathology, diagnosis and staging
- Read the published GEC-ESTRO guidelines in LDR and HDR prostate brachytherapy
- Complete the FALCON exercise which is distributed prior to the course.

TEACHING METHODS

- 11 hours of lectures
- 1 hour of contouring
- 2 hours of practical workshops
- 3 hours of interactive discussions.

METHODS OF ASSESSMENT

- MCQ
- Delineation exercises
- Evaluation form.

KEY WORDS

Prostate brachytherapy, high dose rate, low dose rate, radioiodine, afterloading.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTOR

Peter Hoskin, *Radiation Oncologist, Mount Vernon Hospital, London (UK)*

TEACHERS

- Bashar Al Qaisieh, *Medical Physicist, Cookridge Hospital, Leeds (UK)*
- Stefan Machtens, *Urologist, Marien-Krankenhaus, Bergisch Gladbach (DE)*
- Carl Salembier, *Radiation Oncologist, Cliniques de l'Europe, Brussels (BE)*
- Frank-André Siebert, *Medical Physicist, Universitätsklinikum Schleswig-Holstein, Kiel (DE)*

Peter Hoskin

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

Comprehensive Quality Management in Radiotherapy

Quality assessment and improvement

5-9 July 2017
Chengdu, China

TARGET GROUP

Good quality is impossible to attain if quality standards are not embedded in the culture of the department/institution. Therefore, all staff contributing to the treatment chain are encouraged to attend. Obviously without a heavy involvement of team leaders a quality system will be difficult to set up and to maintain, consequently, all heads of departments and future leaders - should ideally be familiar with what this course will cover.
For the above reasons, the course is aimed at radiation oncologists, medical physicists, radiation therapists (RTTs) and hospital/department administrators. It is also of interest to any team member who might have embarked on a teaching programme with the aim of becoming head of department.

COURSE AIM

This course aims to:

- Deliver a comprehensive overview of how to set up a quality system in a department, define useful quality indicators and learn different methods to monitor and improve quality
- Provide awareness of what clinical audits and clinical trials can contribute to a quality system
- Introduce techniques for technology assessment and algorithms to calculate staffing levels in a department, topics of outmost importance in this time of financial crisis
- Identify accident precursors and improve them in the radiotherapy process.
- Discuss preventive analysis that can be done on any radiotherapy process

LEARNING OUTCOMES

By the end of this course participants should be able to set up or review the quality system in their department. In particular they should be able to:

- Explain how risk management, quality monitoring and quality improvement are linked
- Construct a process chart from the different steps in the treatment
- Define quality indicators and quality standards
- Compare tools and methods to monitor quality, application to radiotherapy
- Apply LEAN method for quality improvement
- Explain how clinical audits are set up and how they contribute to quality assessment and improvement
- List different methods for technology assessment
- Perform staffing levels calculations.
- Understand the cause and frequency of incidents-accidents in a radiotherapy department
- Understand the principles of reactive management to incidents (registration, analysis and feed back to the Quality Management System) and of pro-active management of safety (incident prevention)
- Know how to communicate radiotherapy incidents, with the patient and his/her relatives, within the department itself and with the media.

COURSE CONTENT

Lectures will be held in the morning followed by practical cases and discussion in the afternoon. We aim to allow the participants to put to practice what will have been discussed during the morning lectures and to learn how to work in a multidisciplinary and international group.

- From risk management to quality improvement: how can we use the information that we get from FMEA, fault tree analysis, etc. to feed our QI system?
- Quality assessment:
  - metrics for quality measurement: quality indicators
  - quality standards
  - monitoring quality indicators (general)
  - how to interpret quality measures
  - monitoring quality indicators through SPC
  - how should tolerance and action levels be set?
- Methods for quality improvement:
  - introduction to different methods
  - a focus on LEAN.
- Quality improvement strategies: Clinical audits and feedback
- Technology assessment methods:
  - cost-effectiveness studies: HERO project
  - QA in Clinical trials.
- Staffing levels in RT
- Ethics for radiation medicine professionals. A just reporting culture
- Example of the genesis of an accident (take a recent

example, relevant to radiotherapy of today)
- Taxonomy and classification, distinction between incident and accident
- Analysis and return on experience (root cause analysis)
- Failure mode and effect analysis
- PRISMA as example (The Netherlands)
- Benchmarking
- Health failure mode and effect analysis (HFMEA), a prospective risk management method
- Communication to patient
- Communication to the media
- Communication to the organisation (departmental, hospital level)
- Specific training of staff, internal and external (team management)
- Comprehensive quality management in radiotherapy
- Performance indicators.

TEACHING METHODS
- 12 hours of lectures
- 5 hours of practical workshops
- 3 hours of case discussions.

METHODS OF ASSESSMENT
- MCQ
- Evaluation form.

KEY WORDS
Quality management, quality improvement, health economics, technology assessment, quality indicators.

ACCREDITATION
Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

BEST PRACTICE

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTORS
- Núria Jornet, *Medical Physicist, Hospital de la Santa Creu i Sant Pau, Barcelona (ES)*
- Philippe Maingon, *Radiation Oncologist, Hôpitaux Universitaires Pitié Salpêtrière – Charles Foix, Paris (FR)*
- Pierre Scalliet, *Radiation Oncologist, UCL Cliniques Universitaires St.Luc, Brussels (BE)*

TEACHERS
- Pietro Gabriele, *Radiation Oncologist, IRCC of Candiolo, Candiolo (IT)*
- Karine Herlevin, *Medical Physicist, Centre Alexis Vautrin, Nancy (FR)*
- Coen Hurkmans, *Medical Physicist, Catharina Ziekenhuis, Eindhoven (NL)*
- Nicolas Pourel, *Radiation Oncologist, Institut Sainte Catherine, Avignon (FR)*

Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

LOCAL ORGANISER
Jinyi Lang, *Radiation Oncologist, Sichuan Cancer Hospital & Institute, Chengdu*


Pierre Scalliet


Philippe Maingon


Núria Jornet

Advanced Treatment Planning

3-7 September 2017
Barcelona, Spain

TARGET GROUP
The course is aimed primarily at staff involved in advanced treatment planning in daily routine, preferably with at least two years of experience. This is designed not only for radiation therapists (RTTs) but also for physicists and radiation oncologists with clinical experience and a basic understanding of the fundamental components of treatment planning, who wish to deepen their knowledge on various planning techniques.

COURSE AIM
This five day course intends to:
- Enhance the knowledge of comprehensive treatment planning and the understanding of strategies to obtain optimal treatment plans for patients. This implies a complex integration of clinical, imaging, biological and physical/technological knowledge, skills and competencies.
- Focus on challenging scenarios related to the interaction of these issues with a specific focus on advanced adaptations of close distribution, with and without computer aided optimisation and modelling, in particular in more complex cases.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Have a comprehensive understanding of all parts of the planning process and also plan evaluation for intensity modulated radiotherapy (both step-and-shoot IMRT and VMAT)
- Increase accuracy as well as effectiveness in the planning process
- Understand the basis for comparing different plans for the same case
- Understand the problem of competing priorities in planning
- Appreciate the concept of plan optimisation.

COURSE CONTENT
- Broadening the therapeutic band width
- Dose calculation algorithms and their differences in clinical impact
- Applying ICRU in treatment planning
- Non-IMRT planning – from simple to complex
- Relationships between 3D dose distributions and clinical toxicities, chest, head and neck, pelvis
- Rationale behind IMRT
- Practical guidelines for both step-and-shoot IMRT and VMAT planning
- Physical and biological optimisation
- Pareto fronts in clinical practice
- Geometric uncertainties and how to deal with them
- Molecular imaging in treatment planning
- Adaptive planning strategies
- Library planning, dose painting planning, robust and probabilistic planning.

TP SYSTEMS
iPlan, Monaco, Oncentra External Beam, Pinnacle^3, RayStation, Eclipse and TomoTherapy.

PREREQUISITES
Before commencing this course participants should:
- Have at least two years experience of radiotherapy planning
- Understand the ICRU definitions of GTV, CTV and PTV
- Understand the relationship between target dose and organs at risk.

TEACHING METHODS
- 19 hours of lectures
- 9 hours of practical workshops
- 4 hours of case discussions.

METHODS OF ASSESSMENT
- MCQ
- Evaluation form.

KEY WORDS

Radiotherapy planning, intensity modulated radiotherapy, IMRT, VMAT.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR
Gert Meijer, *Medical Physicist, UMC Utrecht, Utrecht (NL)*

CO-CHAIR
Neil Burnet, *Radiation Oncologist, Cambridge University and Addenbrooke's Hospital, Cambridge (UK)*

TEACHERS

- Desirée van den Bongard, *Radiation Oncologist, UMC Utrecht, Utrecht (NL)*
- Nicola Dinapoli, *Radiation Oncologist, University Clinics A Gemelli, Rome (IT)*
- Ursula Nestle, *Radiation Oncologist, Universitätsklinikum Freiburg, Freiburg (DE)*
- Marcus Stock, *Medical Physicist, Medical University of Vienna, Vienna (AT)*

LOCAL ORGANISER
Pablo Carrasco de Fez, *Medical Physicist, Hospital San Creu i Sant Pau, Barcelona*

Neil Burnet

Gert Meijer

Clinical Practice and Implementation of Image-Guided Stereotactic Body Radiotherapy

3-7 September 2017
Budapest, Hungary

TARGET GROUP

The course is aimed at all professionals in the field of radiation oncology, who are involved in the clinical practice of SBRT and cranial SRS at any point in the treatment chain: radiation oncologists, physicists and radiation therapists (RTTs) with a dedicated focus on SBRT and SRS. The course targets individuals who are currently at the planning stage of establishing a clinical stereotactic programme, and also those who already have a current stereotactic practice. The importance of integrating all professionals into a team will be highlighted.

COURSE AIM

This course aims to:

- Inform about the historical background and development of cranial radiosurgery (SRS) and stereotactic body radiotherapy (SBRT)
- Instil the radiobiological consequences of hypo-fractionated, inhomogeneous dose distributions
- Discuss the practice of frame-less image-guided versus frame-based stereotactic cranial radiosurgery
- Identify potential sources of uncertainties in the workflow of SBRT: imaging, target delineation, treatment planning, treatment delivery and treatment evaluation
- Offer an overview of available treatment planning and delivery technologies and how to integrate these in clinical practice of SBRT
- Compare available technologies and help define applicability for particular use
- Give an evidence-based review on potential indications for SBRT: early stage NSCLC, primary and secondary liver metastases, prostate cancer, vertebral metastases, oligometastases, re-irradiation
- Give an overview of normal-tissue toxicity, tolerability and radiological changes in SBRT
- Teach how to establish and implement a safe and clinical programme for SBRT.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Build a team to implement and practice SRS, SRT and SBRT
- Understand the technical and physical requirements for SRS, SRT and SBRT
- Know the clinical rationale of SRS, SRT and SBRT and their limitations
- Understand the radiobiological basis of very high fraction doses
- Know the details of indication, practice and outcome of SBRT for early stage NSCLC
- Know the current clinical evidence for SRS, SRT and SBRT in the various clinical indications.

COURSE CONTENT

This ESTRO teaching course will support the establishment and further development of a clinical stereotactic programme The following items will be covered with special focus on specific requirements for SBRT:

- Radiobiology of hypo-fractionated, inhomogeneous dose distributions for normal tissue and cancer cells
- Uncertainties in clinical practice of SBRT and SRS
- Technological means for compensation of uncertainties at all stages of radiotherapy treatment
- Evidence-based clinical practice of SBRT and potential indications for SBRT
- Requirements for building and further development of a clinical stereotactic programme.

The five day teaching course will be organised as follows:

- On Sunday, a historical background of stereotactic radiotherapy will be given followed by the radiobiological and technological background; different technological platforms will be demonstrated followed by a debate discussing the position and the fast spread of stereotactic radiotherapy in our community.
- The teaching lectures on Monday will review and discuss the technology and physical practice of SBRT and SRS.
- On Tuesday, various clinical aspects will be discussed and SBRT for early stage NSCLC will be reviewed in detail.
- All teaching lectures will focus on the multi-disciplinary character of SBRT. Interaction and discussion between the professional groups is highly encouraged.
- Workshops will be organised on Tuesday and Wednes-

day, which will focus on different tumours sites: a practical approach to these indications will be demonstrated by case presentations and discussions.
- The last day will focus on the establishment of a clinical stereotactic programme and close with a panel discussion.

PREREQUISITES

Before commencing this course participants should:
- Know the basics of image-guided radiotherapy
- Have experience and knowledge of advanced radiotherapy treatment planning
- Have a basic understanding of radiobiological modelling.

TEACHING METHODS

- 19 hours of lectures
- 8 hours of practical workshops
- 1 hour of case discussions.

METHODS OF ASSESSMENT

- MCQ
- Evaluation form.

KEY WORDS

Stereotactic body radiotherapy, radiosurgery, stereotactic radiotherapy, image guided radiotherapy.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTORS
- Matthias Guckenberger, *Radiation Oncologist, University Hospital Zurich, Zurich (CH)*
- Dirk Verellen, *Medical Physicist, Iridium Kankernetwerk, Antwerp; Vrije Universiteit Brussel, Brussels (BE)*

TEACHERS
- Lineke Berkelaar, *Radiation Therapist, VU University Medical Center, Amsterdam (NL)*
- Karin Dieckmann, *Radiation Oncologist, Medical University of Vienna, Vienna (AT)*
- Mischa S. Hoogeman, *Medical Physicist, Erasmus Medical Centre-Daniel den Hoed Cancer Centre, Rotterdam (NL)*
- Morten Hoyer, *Radiation Oncologist, Aarhus University Hospital, Aarhus (DK)*
- Coen Hurkmans, *Medical Physicist, Catharina Hospital, Eindhoven (NL)*
- Stephanie Lang, *Radiation Oncologist, University Hospital Zurich, Switzerland (CH)*
- Alejandra Méndez Romero, *Radiation Oncologist, Erasmus Medical Centre-Daniel den Hoed Cancer Centre, Rotterdam (NL)*
- Suresh Senan, *Radiation Oncologist, VU University Medical Center, Amsterdam (NL)*

LOCAL ORGANISER

Tibor Major, *Medical Physicist, National Institute of Oncology, Budapest*

Matthias Guckenberger

Dirk Verellen

Palliative Care and Radiotherapy

A course on prognosis, symptom control, re-irradiation, oligometastases

7-9 September 2017
Brussels, Belgium

TARGET GROUP
This basic course is aimed primarily at trainee radiation and medical oncologists and experienced radiation and medical oncologists who want to update their clinical knowledge. Clinical physicists, palliative care physicians and specialist nurses are welcome to participate.

COURSE AIM
In this course, a comprehensive overview of the applicability and effectiveness of palliative radiotherapy schedules from an evidence based perspective will be provided in a multidisciplinary framework. Focus will be on both clinical-ethical aspects and more technical-physics related issues.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Have knowledge of the principles of palliation, pain management, and indications for and effectiveness of palliative radiotherapy schedules
- Be able to discuss clinical cases on management, expected survival, clinical outcome in terms of quality of life and side effects using evidence based outcome tools.

COURSE CONTENT
- Principles of palliation, oligometastasis
- Nature of cancer pain, physiology of pain
- Principles of pharmacological management
- Radiotherapy for pain: bone pain, soft tissue pain
- Holistic pain therapy: integration of RT/CT/pharmacology and non-pharmacological approaches
- Neurological complications: brain metastases - introduction and pharmacological management
- Management of solitary brain metastases
- Management of multiple brain metastases
- Malignant spinal metastasis, pathophysiology, diagnosis and initial management
- Management of malignant spinal canal compression
- Other neurological complications: spinal nerve root compression and neuropathic pain management
- Care of the dying: different models of care
- Lung - NSCLC: palliative management
- Oligometastases and ablative therapy
- Liver: role of radiotherapy in palliation
- Palliative brachytherapy
- Practical application of research data in palliation.

PREREQUISITES
Before commencing this course participants should have a basic understanding of radiotherapy and pharmacology and experience of caring for patients with advanced cancer.

TEACHING METHODS
- Didactic lectures
- Case discussions
- Interactive sessions based on MCQ Turning Point exercises
- E-learning module

METHODS OF ASSESSMENT
Evaluation form.

KEY WORDS
Palliation, quality of life, evidence based radiation oncology, pain, metastases.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTORS

- Peter Hoskin, *Clinical Oncologist, Mount Vernon Hospital, London (UK)*
- Yvette van der Linden, *Radiation Oncologist / Head, Expert Centre Palliative Care, Leiden University Medical Center, Leiden (NL)*

TEACHERS

- Morten Hoyer, *Radiation Oncologist, Aarhus University Hospital, Aahrus (DK)*
- Johan Menten, *Radiation Oncologist / Palliative Care Physician, KU Leuven, Leuven (BE)*
- Dirk Rades, *Radiation Oncologist, University Hospital of Lübeck, Lübeck (DE)*

Peter Hoskin

Yvette van der Linden

Multidisciplinary Management of Breast Cancer

10-13 September 2017
Dublin, Ireland

TARGET GROUP

The course is primarily intended for specialists and trainees in the field of radiation and clinical oncology who are interested in extending their knowledge of the management of breast cancer. Other specialists active in the field of breast cancer and interested in an updated view of the possibilities of modern radiation oncology are very much invited to participate as well.

BACKGROUND

Breast cancer is a very common cancer and its treatment involves several different health care professionals. Over the last decades, we witnessed first a change in the attitude towards loco-regional and systemic treatments as data on the effectiveness of systemic treatment became available. This was followed by a new shift towards optimising the use of loco-regional treatments after the presentation of the long-term follow-up data of the EBCTCG meta-analyses that clearly demonstrated a positive interaction between both systemic and loco-regional treatments. The challenge to integrate all treatments for every single patient appeals for an optimal cooperation between all specialities involved in the care of breast cancer. Against this background, radiation and clinical oncologists continue further fine-tuning of the technical aspects of the delivery of radiation therapy, starting from optimal target volume definition. This underlines the importance of an optimal collaboration with imaging specialists, surgeons and pathologists.

COURSE AIM

This multidisciplinary course aims at promoting an integrated approach to the management of breast cancer. The goal is to individualise the treatment based on the clinical presentation, the prognostic (tumour) factors and patient-related issues.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the clinical and biological aspects of the natural behaviour of breast cancer
- Have a firm knowledge of the different prognostic factors and tumour types
- Interpret the literature on the results of multimodality treatments for breast cancer
- Discuss with (multidisciplinary) colleagues the balance between possible benefits and side effects of the various treatment options for breast cancer, depending on prognostic factors and patient-related characteristics
- Apply the guidelines for volume delineation of all target volumes for breast cancer
- Know how to select and use the possible technical solutions for optimal radiation therapy for breast cancer
- Recognise the fields of uncertainty and where further research is required.

COURSE CONTENT

- Epidemiology: lessons from the past
- The clinically relevant aspects of the biology of breast cancer
- Primary surgery: choices and techniques (including oncoplastic)
- Axillary surgery including limitations of the SN concept
- Modern radiation therapy techniques from treatment planning to image guidance
- Fractionation schedules
- Systemic treatment: interactions with radiotherapy, primary versus adjuvant
- Treatment of DCIS
- Treatment possibilities for locally advanced disease
- Summary on accelerated partial breast irradiation
- Role of advanced treatment techniques including IMRT and breathing control
- Lessons from meta-analyses of clinical trials
- Cosmetic outcome after BCT
- Long-term side-effects
- Reconstructive surgery
- How to use nomograms including adjuvantonline, IBTR and IBR
- Current clinical trials
- Target volume delineation including homework and workshops
- Patient management workshops.

PREREQUISITES

Before commencing this course participants should:

- Have at least basic experience with all aspects of radiation therapy for breast cancer patients. If you are not a radiation/clinical oncologist (in training) you should be involved in the interdisciplinary and/or multidisciplinary case discussions and perform work related to treating breast cancer patients

- Read through the short selection of the literature ("essential reading") that will be sent mid 2017, after your registration
- Have completed an exercise beforehand on target volume delineation in breast cancer.

TEACHING METHODS

- Lectures
- Debates
- Practical workshops
- Clinical case discussions.

The course will be very interactive through the integration of lectures, target volume delineation, guidance in treatment planning and patient management workshops. Focused on multidisciplinarity, the programme will outline the different treatments for breast cancer from evidence based medicine to ongoing research.

METHODS OF ASSESSMENT

- MCQ
- Contouring exercise
- Evaluation form.

KEY WORDS

Breast cancer, radiation therapy, multidisciplinarity, breast conserving therapy, APBI, clinical trials, volume delineation, side effects, quality of life.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

(ESO recommended event)

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTOR
Philip Poortmans, *Radiation Oncologist, Radboud University Medical Center, Nijmegen (NL)*

TEACHERS

- Marianne Aznar, *Medical Physicist, The Finsen Centre – Rigshospitalet, Copenhagen (DK)*
- Liesbeth Boersma, *Radiation Oncologist, MAASTRO Clinic, Maastricht (NL)*
- Sarah Darby, *Epidemiologist, CTSU, Oxford (UK)*
- Youlia Kirova, *Radiation Oncologist, Institut Curie, Paris (FR)*
- Thorsten Kühn, *Gynaecologist, Breast Cancer Klinikum Esslingen, Esslingen (DE)*
- Birgitte Offersen, *Radiation Oncologist, Aarhus University Hospital, Aarhus (DK)*
- Birgit Vriens, *Medical Oncologist, Catharina Hospital, Eindhoven (NL)*
- Lynda Wyld, *Surgeon, Sheffield University, Sheffield (UK)*

CONTOURING ADMINISTRATOR
Sandra Hol, *Radiation Therapist (RTT), Institute Verbeeten, Tilburg (NL)*

LOCAL ORGANISER
Elisabeth Forde, *Radiation Therapist, Trinity College, Dublin*

Philip Poortmans

Research Masterclass in Radiotherapy Physics

10-13 September 2017
Florence, Italy

TARGET GROUP

Attendants should be:

- Interested in research in radiotherapy physics or a related field, e.g. imaging science, computer science, mathematics, biophysics…
- Early starters in research who want to develop research skills
- Possibly, but not necessarily, they have relevant experience outside research, e.g. in a radiotherapy clinic.

COURSE AIM

Attendants to the Masterclass should submit a proposal or idea for a research project, or a scientific paper to be further improved under supervision of a team of internationally renowned scientists. By discussing the submitted proposals and ideas in small groups in a safe and friendly atmosphere, attendants will learn by example from their peers and the attending faculty how to turn an initial idea into a successful project with scientific output. Leading the discussions are questions such as: "What are the interesting research hypotheses and messages and how can they be improved?", and "Why would others be interested in reading my paper?".

In addition, for a broad range of radiotherapy research fields, expert faculty members will highlight current trends and discuss important unresolved issues with future research opportunities. Some general aspects of scientific research (e.g. paper and grant writing) will also be covered by lectures.

Ample time will be allotted for discussions with faculty members and fellow attendants, allowing development of new, potentially long lasting, scientific/mentorship relationships.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Critically validate and enhance the quality of research projects concerning novelty, potential impact, urgency, and feasibility and risk
- Effectively discuss research ideas/projects with colleagues to maximise scientific value
- Discuss current trends and research opportunities in radiotherapy physics and related technical fields.

COURSE CONTENT

1. Discussions on research projects submitted by participants, aiming at improving the projects, and to learn, by example from peers and the expert faculty, how to turn research ideas into a successful project.

2. Lectures

- Trends, unresolved issues and research opportunities in:
  - MR imaging in radiotherapy (including dose painting)
  - PET imaging in radiotherapy (including dose painting)
  - IGRT and adaptive therapy to compensate for anatomical variations
  - physics and technology in personalised medicine
  - dose response modelling
  - biophysics in radiotherapy
  - brachytherapy physics
  - treatment planning
  - respiratory motion management
  - radiotherapy dosimetry
  - microbeam radiotherapy
  - ion beam therapy (guest lecture)
- Tips and tricks for writing a successful grant proposal
- Tips and tricks for writing a scientific paper and getting it accepted
- Grant opportunities in Europe.

TEACHING METHODS

- 2 days for presentation of submitted research projects, discussions and working on the improvement of projects
- 1,5 days of lectures.

METHODS OF ASSESSMENT

Evaluation form.

KEY WORDS

Research, physics, imaging science, computer science, mathematics, biophysics.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CPD recognition is submitted to the European Board for Accreditation in Medical Physics (EBAMP), as a CPD event for medical physicists. Information on the status of the applications can be obtained from the ESTRO office.

HOW TO APPLY

Anyone interested can submit a proposal or idea for a research project, or a scientific paper, etc. Proposals/ideas for research must be submitted **by 15 May 2017** in pdf format with a maximum 750 words.
The content should strictly adhere to the following format:
1. Title
2. Name and affiliation of investigator
3. Background of research
4. Proposed research and research hypotheses
5. Expected results and conclusions/messages.

The submission must be accompanied by a brief CV (pdf, max 500 words). Please send the research proposal and CV to the course manager, Laura La Porta (llaporta@estro.org). Attendance will be limited to 36 participants. Selection will be based on the submitted proposals and on a first come, first served basis. If selected, the participant should prepare a 10 minute Powerpoint presentation with the format given above. The pptx will be presented at the Masterclass, and will be the basis for further improvement of the research proposal.

ROADMAP

RESEARCH

MEDICAL PHYSICIST

FACULTY

COURSE DIRECTOR
Ben Heijmen, *Medical Physicist, Erasmus Medical Centre, Rotterdam (NL)*

TEACHERS
- Claudio Fiorino, *Medical Physicist, San Raffaele Scientific Institute, Milan (IT)*
- Mischa Hoogeman, *Medical Physicist, Erasmus Medical Centre, Rotterdam (NL)*
- Oliver Jäkel, *Medical Physicist, German Cancer Research Centre, Heidelberg University, Heidelberg (DE)*
- Stine Korreman, *Medical Physicist, Roskilde University, Roskilde (DK)*
- Eirik Malinen, *Medical Physicist, DNR - Norwegian Radium Hospital, Oslo (NO)*
- *Uwe Oelfke, Medical Physicist, The Royal Marsden NHS Foundation Trust, London (UK)*
- Hugo Palmans, *Medical Physicist, National Physical Laboratory, Teddington (UK)*
- Dirk de Ruysscher, *Radiation Oncologist, MAASTRO, Maastricht, (NL)*
- Kari Tanderup, *Medical Physicist, Aarhus University, Aarhus (DK)*
- Uulke van der Heide, *Medical Physicist, UMC Utrecht, Utrecht (NL)*
- Peter van Luijk, *Medical Physicist, University Medical Centre Groningen, Groningen (NL)*

LOCAL ORGANISER
Michele Stasi, *Medical Physicist, A.O Ordine Mauriziano di Torino, Turin*

Ben Heijmen

Basic Clinical Radiobiology

16-20 September 2017
Paris, France

TARGET GROUP
The course is aimed at:
- Trainees in radiotherapy
- Radiation oncologists who lack basic radiobiological science or want to update their knowledge (i.e. for CME)
- Medical physicists who wish to familiarise themselves with this field
- Physicians from other disciplines administering ionising radiation
- Radiation therapists (RTTs).

COURSE AIM
The aim is to provide an introduction to radiation biology as applied to radiotherapy. The course will cover the basic mechanisms of cell death/survival and the radiation response of tumours and normal tissues. Formulas of tissue tolerance will be explained. The biological basis for current approaches to the improvement of radiotherapy will be described including novel fractionation schemes, retreatment, IMRT, modification of hypoxia, hadron therapy, combined radiotherapy/chemotherapy and biological modifiers of tumour and normal tissue effects.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Understand the biology of how ionising radiation is able to effectively treat cancer
- Distinguish radiotherapy and its advantages from other cancer therapies
- Have the essential knowledge of radiobiology necessary for qualifying examinations.

COURSE CONTENT
- A series of basic lectures introducing molecular and clinical radiobiology
- Mechanisms and models or radiation cell killing
- The linear-quadratic approach to fractionation
- Molecular basis of radiation response
- Radiobiology and tolerance of normal tissues to (re) treatment
- Alternative fractionation schedules in radiotherapy
- Tumour hypoxia and the microenvironment
- Combined radiotherapy and chemotherapy
- The volume and dose-rate effect in radiotherapy
- Biological response modifiers (tumours, normal tissues) and molecular approaches to therapy
- Protons and other particles in radiotherapy
- Radiation-induced malignancies.

PREREQUISITES
Before commencing this course participants should:
- Ensure their knowledge of basic biology and physics is at least high-school level
- Familiarise themselves with access to the journals covering radiobiology related to radiotherapy.

TEACHING METHODS
- 27 hours of lectures
- 3 hours of tutorials
- 4 hours of discussions.

METHODS OF ASSESSMENT
- MCQ
- Evaluation form.

KEY WORDS
Radiobiology, radiation biology, radiation oncology, radiotherapy.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

BIOLOGY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIOBIOLOGIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Michael Joiner, *Radiation Biologist, Wayne State University, Detroit (USA)*

TEACHERS

- Rob Coppes, *Radiation Biologist, UMC Groningen, Groningen (NL)*
- Wolfgang Dörr, *Radiation Biologist, Medical University of Vienna, Vienna (AT)*
- Vincent Grégoire, *Radiation Oncologist, UCL Clinique Universitaire St Luc, Brussels (BE)*
- Karin Haustermans, *Radiation Oncologist, University Hospital Gasthuisberg, Leuven (BE)*
- Marianne Koritzinsky, *Radiation Biologist, Princess Margaret Cancer Centre, Toronto (CA)*

LOCAL ORGANISER

Eric Deutsch, *Radiation Oncologist, Institut Gustave Roussy, Villejuif*

Michael Joiner

Comprehensive Quality Management in Radiotherapy

Quality assessment and improvement

2-5 October 2017
Brussels, Belgium

TARGET GROUP

Good quality is impossible to attain if quality standards are not embedded in the culture of the department/institution. Therefore, all staff contributing to the treatment chain are encouraged to attend. Obviously without a heavy involvement of team leaders a quality system will be difficult to set up and to maintain, consequently, all heads of departments and future leaders - should ideally be familiar with what this course will cover.
For the above reasons, the course is aimed at radiation oncologists, medical physicists, radiation therapists (RTTs) and hospital/department administrators. It is also of interest to any team member who might have embarked on a teaching programme with the aim of becoming head of department.

COURSE AIM

This course aims to:

- Deliver a comprehensive overview of how to set up a quality system in a department, define useful quality indicators and learn different methods to monitor and improve quality
- Provide awareness of what clinical audits and clinical trials can contribute to a quality system
- Introduce techniques for technology assessment and algorithms to calculate staffing levels in a department, topics of outmost importance in this time of financial crisis.

LEARNING OUTCOMES

By the end of this course participants should be able to set up or review the quality system in their department.

In particular they should be able to:

- Explain how risk management, quality monitoring and quality improvement are linked
- Construct a process chart from the different steps in the treatment
- Define quality indicators and quality standards
- Compare tools and methods to monitor quality, application to radiotherapy
- Apply LEAN method for quality improvement
- Explain how clinical audits are set up and how they contribute to quality assessment and improvement
- List different methods for technology assessment
- Perform staffing levels calculations.

COURSE CONTENT

Lectures will be held in the morning followed by practical cases and discussion in the afternoon. We aim to allow the participants to put to practice what will have been discussed during the morning lectures and to learn how to work in a multidisciplinary and international group.

- From risk management to quality improvement: how can we use the information that we get from FMEA, fault tree analysis, etc. to feed our QI system?
- Quality assessment:
  - metrics for quality measurement: quality indicators
  - quality standards
  - monitoring quality indicators (general)
  - how to interpret quality measures
  - monitoring quality indicators through SPC
  - how should tolerance and action levels be set?
- Methods for quality improvement:
  - introduction to different methods
  - a focus on LEAN
- Quality improvement strategies: clinical audits and feedback
- Technology assessment methods:
  - cost-effectiveness studies: HERO project
  - QA in clinical trials
- Staffing levels in RT
- European directives on quality and safety in radiotherapy.

PREREQUISITES

The two courses on Quality Management, Risk Management and Quality Assessment, have been designed to be complementary and it is recommended to attend both to get a complete picture of quality management.

However, the order in which they are taken does not matter. To fully profit from the course it is recommended that participants have at least three years' experience in a radiation oncology or medical physics department to have a complete picture of the radiotherapy process.

TEACHING METHODS

- 12 hours of lectures
- 5 hours of practical workshops
- 3 hours of case discussions

METHODS OF ASSESSMENT

- Evaluation form
- MCQ.

KEY WORDS

Quality management, quality improvement, health economics, technology assessment, quality indicators.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

IAEA International Atomic Energy Agency
Atoms For Peace

ROADMAP

BEST PRACTICE

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTORS

- Núria Jornet, *Medical Physicist, Hospital de la Santa Creu i Sant Pau, Barcelona (ES)*
- Philippe Maingon, *Radiation Oncologist, Hôpitaux Universitaires Pitié Salpêtrière – Charles Foix, Paris (FR)*

TEACHERS

- Pietro Gabriele, *Radiation Oncologist, IRCC of Candiolo, Candiolo (IT)*
- Karine Herlevin, *Medical Physicist, Centre Alexis Vautrin, Nancy (FR)*
- Coen Hurkmans, *Medical Physicist, Catharina Ziekenhuis, Eindhoven (NL)*
- Yolande Lievens, *Radiation Oncologist, Universitair Ziekenhuis Ghent, Ghent (BE)*
- Nicolas Pourel, *Radiation Oncologist, Institut Sainte Catherine, Avignon (FR)*
- Marjolein van Os, *Radiation Therapist (RTT), Erasmus Medical Centre, Rotterdam (NL)*

Núria Jornet

Philippe Maingon

Quantitative Methods in Radiation Oncology: Models, Trials and Clinical Outcomes

8-11 October 2017
Maastricht, The Netherlands

TARGET GROUP

The course is aimed at physicians, medical physicists, biologists and radiation therapists (RTTs).

COURSE AIM

The aim of this course is to make the attendees better at making model-supported decisions. Radiation oncology probably has the most solid quantitative foundation among medical specialties. As in other specialties, results of randomised controlled trials form evidence-based treatment guidelines; but in addition, prognostic and predictive models provide clinical decision support for individualised management of cases. Radiation bioeffect models of Normal Tissue Complication Probability (NTCP) and Tumour Control Probability (TCP) have become much more refined and are increasingly being validated in independent datasets. While integration of quantitative estimates of various treatment outcomes is likely to improve patient care, it is also important to understand the limitations of model estimates and to be able to assess the validity or quality of a statistical data analysis or a mathematical model. Uncritical reliance on model results may compromise patient safety or treatment outcome.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Broadly describe the most commonly used quantitative methods in radiation oncology and radiation biology and the assumptions behind these
- Identify appropriate quantitative methods of analysis for a given data set
- Critically evaluate modelling results especially with respect to proper validation and estimates of uncertainties.

COURSE CONTENT

- Models and modelling, hypothesis testing and parameter estimation, type I and II uncertainties
- Clinical trials and evidence-based medicine, phase 0, I, II, III, and IV trial designs, meta-analysis, clinical endpoints, survival statistics and the Cox Proportional Hazards Model
- Statistical modelling and exploratory data analysis, simple mechanistic models, external and internal validity of models, bootstrap and Monte Carlo methods, goodness of fit
- Dose-response models, normal tissue complication probability (NTCP) and tumour control probability (TCP) models, modelling combined modality therapy, patient-to-patient variability in response, the linear-quadratic model and beyond, generalised equivalent uniform dose, use of models in treatment planning
- Predictive assays, ROC curves and AUC, sensitivity, specificity, positive and negative predictive value
- High dimensionality data sets, machine learning, data mining, over-fitting, training and validation sets, sample splitting, K-fold validation.

PREREQUISITES

No specific requirements are needed for attending this course although a broad familiarity with the principles of cancer medicine and radiation oncology is expected.

TEACHING METHODS

The four-day course consists of:

- 27 didactic 45-minute lectures
- 4 half-hour interactive discussion sessions
- A practical exercise (1.25 h)
- An interactive data analysis session (1.25 h)
- A Meet-the-professor session where you can bring-your-own data analysis project and discuss one-on-one with faculty members (10-minute time slots, 1.25 h total time).

METHODS OF ASSESSMENT

- Course evaluation form
- Self-assessment tools are integrated in some of the discussion sessions.

KEY WORDS

Data analysis, quantitative methods, bioeffect models, critical appraisal, evidence-based medicine, predictive oncology, clinical trials methodology, outcomes research.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RESEARCH

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIOBIOLOGIST

FACULTY

COURSE DIRECTOR

Søren M. Bentzen, *Biologist, University of Maryland School of Medicine, Baltimore, MD (USA)*

TEACHERS

- Francesca Buffa, *Medical Physicist, University of Oxford, Oxford (UK)*
- Philippe Lambin, *Radiation Oncologist, MAASTRO Clinic, Maastricht (NL)*
- Hans Langendijk, *Radiation Oncologist, University Medical Centre Groningen, Groningen (NL)*
- Peter van Luijk, *Medical Physicist, University Medical Centre Groningen, Groningen (NL)*
- Ivan R. Vogelius, *Medical Physicist, The Finsen Centre-Rigshospitalet, Copenhagen (DK)*

LOCAL ORGANISER

Philippe Lambin, *Radiation Oncologist, MAASTRO, Maastricht*

Søren M. Bentzen

Best Practice in Radiation Oncology

A Four Phase Project to Train RTT Trainers - In Collaboration with the IAEA

Part II – Train the RTT (Radiation Therapists) Trainers: Consolidation Phase

16-18 October 2017
Vienna, Austria

TARGET GROUP

The participants from the countries represented in the first workshop in 2016.

COURSE AIM

- To equip radiation therapists (RTTs) with the skills necessary to design, organise, deliver and evaluate a course, based on the core curriculum competencies, in their own language, to radiation therapists in their own country
- To promote, increase and support the further development of the standard of education programmes for radiation therapists
- To provide a focused course for radiation therapists and support professional development and the national profile of radiation therapists
- To raise the profile of ESTRO with radiation therapists and increase radiation therapist membership and participation within ESTRO.

LEARNING OUTCOMES

- To be able to prepare and give feedback on the courses delivered in 2016-2017
- To evaluate the academic content of the course and how the second course will reflect the findings
- To evaluate issues arising from the practicality of organising the course, how difficulties can be managed effectively
- To apply the findings of the evaluation in discussing the design of the second / third courses (future courses) in the individual countries and how these will be organised
- To relate the progress that has been made with respect to influencing the national education programme and how this can be achieved going forward
- To discuss how participants and faculty can maintain contact for the remainder of the project.

COURSE CONTENT

The programme consists of different phases:

1. Train the RTT (radiation therapists) trainers
(five days: 24- 28 October 2016)

In this first phase of the course, participants had introductory lectures supported by practical sessions on how to design, organise, deliver and evaluate a short course, supported by practical sessions. Preparatory research was required. At the end of the preparatory course, the participants had:

- Prepared and outlined a programme for a (two/three day) short course or modules consistent with the development of their education programme based on the core curriculum competencies
- Commenced preparation of one topic that they will teach, started to define the content, appropriate teaching methodology and assessment
- Acquired sufficient skills to understand how to prepare good lectures (collection and evaluation of information and preparing powerpoint presentations)
- Prepared a first draft of a checklist and timetable of what they need to do
- Started to identifiy potential faculty members
- Started to define a network of contacts for support
- Defined the means to evaluate their course.

2. First local course
(between November 2016 and August 2017).

The local faculty will deliver and evaluate their first short local course or complete the preparation of a module/s for their programme and evaluate this course.

3. The consolidation course
(three days: 16 - 18 October 2017)

The initial group will meet to discuss their courses, their successes and their failures, and how they will approach the development and delivery of the next two courses. They will evaluate the entire programme. Some lectures may be given if there are specific areas that need to be reinforced.

4. Interim support for participants.

Interim support to the participants will be provided by email.

The second and third local courses will take place between January and December 2017.

PREREQUISITES

Before commencing this course you should:

- Be familiar with the education programme and involved personnel in your country
- Read the ESTRO core curriculum (CC) for radiation therapists and critique the content with respect to your own education programme
- Based on the evaluation of the CC and the national/local education programme, define possible topics for their short courses.

TEACHING METHODS

- 12 hours of lectures
- 12 hours of assisted preparation
- 5 hours of feedback sessions
- 4 hours of discussion

METHODS OF ASSESSMENT

Evaluation form.

KEY WORDS

Education, learning outcomes, curriculum development.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

IAEA
International Atomic Energy Agency
Atoms For Peace

ROADMAP

BEST PRACTICE

RADIATION THERAPIST

FACULTY

COURSE DIRECTOR

Mary Coffey, *Associate Professor, Discipline of Radiation Therapy, School of Medicine, Trinity College Dublin (IE)*

TEACHERS

- Elena Fidarova, *Radiation Oncologist, International Atomic Energy Agency, Vienna (AT)*
- Michelle Leech, *Associate Professor, Division of Radiation Therapy, School of Medicine, Trinity College Dublin (IE)*
- Eduardo Rosenblatt, *Radiation Oncologist, Vienna (AT)*
- Philipp Scherer, *Radiation Therapist, Landesklinikum, Salzburg (AT)*

Mary Coffey

Multidisciplinary Management of Brain Tumours

22-24 October 2017
Vienna, Austria

TARGET GROUP

The course is primarily aimed at specialists and trainees in the field of clinical/radiation oncology interested in extending their knowledge of the multidisciplinary management of central nervous system tumours. Other specialists with interest in brain tumours who wish to have an update on brain tumour treatment approaches with a particular focus on modern radiotherapy will also be most welcome.

COURSE AIM

The course will aim to review the present state-of-the-art of neuro-oncology from its biological understanding to the implementation of high-tech radiotherapy approaches, modern biologically driven therapy and care. It will not only cover the commonest of brain tumours, but will also review the latest developments in the less common tumours in adults and children.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the evolving concepts of brain tumour biology
- Interpret more complex brain imaging for the purpose of therapy
- Make judgements regarding multidisciplinary management of tumours including the role of systemic and targeted therapies in both common and rare brain tumours particularly in adults
- Understand the principles and practice of modern radiotherapy
- Understand the design and challenges of brain tumour clinical trials.

COURSE CONTENT

Neuro-oncology is generally equated with the management of malignant gliomas, yet it is the speciality with perhaps the largest range of tumour types from curable to barely treatable. It has been at the forefront of technical developments in radiotherapy with early implementation of the latest imaging and high precision localised radiotherapy, including stereotactic radiotherapy and proton therapy. Neurosurgery has also developed in leaps and bounds so that previously inaccessible locations can now be safely reached. Local treatment relies on accurate imaging and this is the cornerstone of neuro-oncology practice.

Alongside local treatment approaches, systemic treatment has become mainstay of management of many tumours and targeted personalised therapy approaches are becoming a reality. The need for developing and testing new therapies in this challenging clinical setting requires the involvement of neuro-oncology specialists in clinical trials and the issues specific to brain tumour trial design are of importance to the future of the speciality.

Anyone involved in neuro-oncology is aware of the challenges in treating the brain and the short and long term consequences for the patient and their carers, and that attention to care is an integral part of neuro-oncology.

PREREQUISITES

Before commencing this course you should have some:

- Experience of brain tumour management
- Understanding of conventional brain radiotherapy issues.

TEACHING METHODS

- 12-15 hours of lectures
- 3-5 hours of discussions

Interactive and didactic lectures will be complemented by practical radiotherapy planning practice.

METHODS OF ASSESSMENT

- MCQ
- Q&A
- Evaluation form.

KEY WORDS

Malignant and benign brain tumours, management strategies, stereotactic radiotherapy, technical innovation, care of brain tumour patients.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTOR

Michael Brada, *Professor of Radiation Oncology, University of Liverpool, Clatterbridge Cancer Centre, Wirral (UK)*

TEACHERS

- Ranj Bhangoo, *Neurosurgeon, Kings College Hospital, London (UK)*
- Anthony Chalmers, *Clinical Oncologist, Institute of Cancer Sciences, University of Glasgow, The Beatson West of Scotland Cancer Centre, Glasgow (UK)*

Teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

LOCAL ORGANISER

Karin Dieckmann, *Radiation Oncologist, Medizinische Universität Wien, Vienna*

Michael Brada

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

Image-Guided Radiotherapy and Chemotherapy in Gynaecological Cancer: Focus on MRI Based Adaptive Brachytherapy

22-26 October 2017
Prague, Czech Republic

TARGET GROUP

The course is aimed at radiation and gynaecology oncologists, medical physicists and radiation therapist (RTTs) involved in gynaecological tumour treatments, interested in the implementation of EBRT and brachytherapy image guidance. Course participants should have specific interest in and/or initial experience with implementation of advanced MRI based brachytherapy and advanced EBRT techniques (IMRT/IGRT).

COURSE AIM

The course aims to:

- Provide a comprehensive overview on the whole field of gynaecological radiation therapy focussing on brachytherapy and external irradiation in cervix cancer, endometrial cancer and vaginal cancer
- Provide an overview on evidence-based medicine (including concomitant chemoradiation)
- Introduce image-based target concepts of GTV, CTV and PTV in gynaecological radiation oncology including EBRT and brachytherapy
- Provide an understanding of advanced image-based EBRT and brachytherapy including techniques and treatment planning
- Enable practical implementation of advanced concepts and techniques in EBRT and brachytherapy.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand a comprehensive multi-modality approach to gynaecological cancers with special emphasis on radiation oncology
- Understand the rationale and apply concepts of advanced brachytherapy techniques in clinical practice
- Perform contouring, treatment planning and image guidance for EBRT and brachytherapy in clinical practice
- Adopt, refine and implement advanced radiation techniques including image guidance in gynaecological cancers.

COURSE CONTENT

- Normal and pathologic anatomy of female pelvis
- Image based anatomy including US, CT and MRI
- CTV, ITV, PTV for external irradiation
- GTV, CTV, PTV at diagnosis and at time of brachytherapy
- Combination of external irradiation and brachytherapy
- Different application techniques in brachytherapy
- Image requirements for irradiation
- Different techniques of treatment planning for brachytherapy
- Image based dose volume assessment applying DVH parameters
- Dose volume constraints for GTV, CTVs and organs at risk
- Dose, dose-rate and fractionation and overall treatment time
- Radiobiological effects from combined external irradiation and brachytherapy, linear quadratic model
- Prescribing, recording and reporting including ICRU 89 and GEC-ESTRO recommendations
- Nodal dose evaluation, including external irradiation and brachytherapy
- Nodal and parametrial boosts
- Therapeutic outcome: radiochemotherapy, image based EBRT and brachytherapy
- EMBRACE studies.

PREREQUISITES

Before commencing this course participants should have:

- Basic knowledge of principles and experience with multi-modality management of gynaecological cancers
- Basic knowledge of and experience with radiological patho-anatomy relevant to gynaecological cancers
- Experience with existing external beam and brachytherapy workflows and processes in gynaecological cancers

TEACHING METHODS

- Lectures: 14 hours
- Tutorials: 6 hours
- Practical workshop: 8 hours

- Case discussion: 2 hours
- Videos: 5 hours.

Description: The tutorials include discussions about contouring guidelines, various processes involved in advanced brachytherapy techniques and quality assurance. The case discussions and practical hands on demonstration cover a direct learning process involved in approach, contouring exercises, evaluation and discussions in different clinical situations.

METHODS OF ASSESSMENT

- Contouring (FALCON tool) and dose planning exercises (pre- and post-course homework)
- Interactive feedback through audience voting on specific questions during lectures
- MCQ (interactive session at the end of the course)
- ESTRO teaching course evaluation form.

KEY WORDS

Evidence based multi-modality management guidelines, Image Guided Adaptive Brachytherapy (IGABT) in gynaecological cancers, contouring guidelines for external beam and brachytherapy in gynaecological cancers, IMRT and IGRT for gynaecological cancers.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

FALCON

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTORS

- Richard Pötter, *Radiation Oncologist, Medical University Hospital, Vienna (AT)*
- Kari Tanderup, *Medical Physicist, University Hospital, Aarhus (DK)*

TEACHERS

- Daniel Berger, *Medical Physicist, Medical University Hospital, Vienna (AT)*
- Johannes Dimopoulos, *Radiation Oncologist, Metropolitan Hospital, Athens (GR)*
- Christine Haie-Meder, *Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)*
- Ina Jürgenliemk-Schulz, *Radiation Oncologist, University Medical Centre, Utrecht (NL)*
- Umesh Mahantshetty, *Radiation Oncologist, Tata Memorial Hospital, Mumbai (IN)*
- Taran Paulsen-Hellebust, *Medical Physicist, DNR Norwegian Radium Hospital, Oslo (NO)*
- Primoz Petric, *Radiation Oncologist, National Center for Cancer Care & Research, Doha (QA)*
- Peter Petrow, *Radiologist, Institut Curie, Paris (FR)*

GUEST FACULTY

- Remi Nout, *Radiation Oncologist, University Medical Center, Leiden (NL)*
- Nicole Nesvacil, *Medical Physicist, Medical University Hospital, Vienna (AT)*

LOCAL ORGANISER

Hana Stankusova, *Radiation Oncologist, University Hospital Motol, Prague*

Richard Pötter

Kari Tanderup

Image Guided Radiotherapy in Clinical Practice

29 October - 2 November 2017
Athens, Greece

TARGET GROUP

The course is aimed at all professionals in the field of radiation oncology who are involved in target localisation at any point in the treatment chain. This includes radiation oncologists, medical physicists, and radiation therapists (RTTs). A good understanding of issues related to target delineation, target localisation and patient set-up is a prerequisite as well as some experience in the field. As the emphasis will be on the integration of image guidance and adaptive techniques as well as their practical implementation, the "team effort" is important. Simultaneous participation of physicists, radiation oncologists and radiation therapists is strongly encouraged.

COURSE AIM

The course aims to:

- Cover both theoretical and practical aspects related to the clinical implementation of in-room imaging and plan adaptation in radiotherapy
- Review imaging techniques that can be applied in the workflow of conformal radiotherapy and understand how individual links in the chain of events will influence clinical outcome (from treatment prescription to preparation and planning, to patient set-up and verification)
- Identify potential sources of errors in target delineation/ localisation and how IGRT can be of help, with special emphasis on conformal radiotherapy, intensity modulated radiotherapy, adaptive radiotherapy and management of organ motion
- Discuss the concept "target delineation – target localisation" at each particular step in the treatment chain and identify appropriate techniques to increase both efficiency as well as efficacy
- Discuss the concept of treatment adaptation and its implementation in the context of the present technological capabilities
- Offer an overview of available technologies and how to integrate these in clinical practice
- Compare available strategies and help define applicability for particular use
- Present the functionality of the equipment and technology, and identify limitations of a particular method
- Present practical recommendations for establishing an efficient image-guided workflow through optimal integration of available technologies and to emphasise the importance of teamwork and training
- Present the components of a QA strategy of IGRT systems.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the principles of image guided and adaptive radiotherapy
- Be able to implement image guidance for major patient groups in their home clinic
- Understand the relevant choices for the selection of the best image guidance protocol for their home situation
- Know the potential benefits of various image guidance and ART protocols.

COURSE CONTENT

This is a 5-day course organised to identify the influence of image guidance at important steps in the workflow of radiation therapy. The following items will be covered in view of in-room imaging for therapy guidance:

- Image guidance required for treatment prescription
- Image guidance in treatment preparation and treatment planning
- Image guidance in patient set-up and target localisation during treatment
- Strategies and software tools for adaptive radiotherapy
- Image guidance in treatment follow-up.

TEACHING METHODS

- Lectures and workshops
- Regular breakout sessions for MDs, physicists and radiation therapists.

Time will be allocated as follows:

- 23 hours of lectures
- 3 hours of tutorials
- 4 hours of case discussions / exercise.

METHODS OF ASSESSMENT
- MCQ
- Evaluation form.

KEY WORDS
Image guidance, adaptive radiotherapy.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION
Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTORS
- Coen Rasch, *Radiation Oncologist, Academic Medical Centre, Amsterdam (NL)*
- Marianne Aznar, *Medical Physicist, Rigshospitalet, Copenhagen (DK)*

TEACHERS
- Gilles Crehange, *Radiation Oncologist, Centre Georges-François Leclerc, Dijon (FR)*
- Rianne de Jong, *Radiation Therapist (RTT), Academic Medical Centre, Amsterdam (NL)*
- Matthias Guckenberger, *Radiation Oncologist, University Hospital Zurich, Zurich, Switzerland (CH)*
- Helen McNair, *Radiation Therapist, The Royal Marsden NHS Foundation Trust, London (UK)*
- Uwe Oelfke, *Medical Physicist, The Royal Marsden NHS Foundation Trust, London (UK)*
- Jan-Jakob Sonke, *Medical Physicist, Netherlands Cancer Institute, Amsterdam (NL)*
- Marcel van Herk, *Medical Physicist, University of Manchester, Manchester (UK)*

LOCAL ORGANISERS
- Efi Koutsouveli, *Medical Physicist, Hygeia Hospital, Athens*
- Christos Antypas, *Medical Physicist, Aretaieion Hospital, University of Athens, Athens*


Coen Rasch


Marianne Aznar

ESTRO/ESOR Multidisciplinary Approach of Cancer Imaging

2-3 November 2017
Rome, Italy

TARGET GROUP

The course targets senior residents, junior radiologists and radiation oncologists who are interested to learn and improve their knowledge on an optimal approach to multidisciplinary treatment management, exploiting the use of imaging.

COURSE AIM

This course, jointly organised by ESOR (European School of Radiology) and ESTRO, aims at promoting an integrated approach between specialists involved in multidisciplinary tumour boards to tailor the best treatment for each individual patient by exploiting the use of imaging.

New advanced imaging technology not only provides morphological information on tumour extension, but also information on tumour function and biology. It not only allows a good evaluation of tumour response during and after treatment, but also an early detection of tumour recurrence. Radiation oncologists need to update their understanding of the possibility of modern imaging to optimise the multidisciplinary based clinical choices, to allow individualised radiation treatment prescription according to the tumour extension, response and movement. Radiologists involved in multidisciplinary management teams increasingly recognise the impact of their diagnostic information and description on clinical decision-making and treatment planning.

LEARNING OUTCOMES

By the end of this course participants should be able to:

- Understand the role of imaging in tailoring an individualised risk based multimodality treatment by a multidisciplinary team
- Identify the main relevant imaging features to optimise treatment modalities in:
  - upper abdomen
  - prostate cancer
  - rectal cancer
- Exploit imaging in tailoring and monitoring safe dose delivery.

COURSE CONTENT

Imaging technology in radiology and radiotherapy: basic concepts

- PET, MRI, radiation therapy technology.

Liver tumours

- Primary liver tumour and colorectal metastases imaging evidences: anatomical, functional, monitoring, follow-up
- What are the treatment options (surgery, RFA, TACE versus SIRT, stereotactic radiotherapy)?
- What are the relevant imaging features that we need to know before, during and after the treatments? Imaging of liver tumours with modern CT and MRI
- New MRI technology for imaging moving organs.

Pancreatic tumours

- Pancreas tumour imaging evidences: anatomical, functional, monitoring, follow-up
- What are the treatment options?
- What is the relevant imaging features that we need to know before, during and after the treatments: state-of-the-art and future imaging
- How can we adapt the treatment at the beginning and along the therapies by imaging?
- Workshops liver and pancreas cancer.

Prostate cancer

- Prostate tumour imaging evidences: anatomical, functional, monitoring, follow-up
- What is the pathway of tumour spread and what are the treatment options?
- How accurate can imaging identify local tumour and nodal spread before, during and after the treatments?
- How can we adapt the treatment at the beginning and along the therapies by imaging?
- Workshops on prostate cancer.

Rectal cancer, tumour extension at primary staging and at response evaluation

- What are the pathways of tumour (nodal) spread and treatment options?
- How accurate can imaging identify local tumour and nodal spread before, during and after the treatments (CT, MRI, Diffusion MRI, PET)?

- How can we adapt the treatment at the beginning and along the therapies by imaging?
- Workshops rectal cancer.

PREREQUISITES

Before commencing this course participants should:

- Review main international guidelines on the course topics
- Participate in tumour boards on the course topics at their institution.

TEACHING METHODS

- 7 hours of lectures
- 2 hours of practical workshops
- 6 hours of case discussions.

The course consists of didactic lectures, case discussions in small working groups and plenary debates.

METHODS OF ASSESSMENT

- MCQ
- Interactive workshops
- Evaluation form.

KEY WORDS

Imaging, multidisciplinary, combined modality treatments, personalised oncology, upper abdomen, prostate cancer, rectal cancer.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

WHICH IMAGING COURSE TO CHOOSE?

ESTRO also organises a course on target volume determination (TVD): from imaging to margins (see page 62)
The TVD course is aimed at trainees in radiation oncology, radiation physicists and RTT or at seniors as a refresher course
The TVD course provides the fundamental understanding for the use of imaging for the TVD of tumours seen in general and routine clinical radiation oncology practice.
The TVD course covers the following sites: CNS, H&N, breast, lung and pelvic tumours.

ESOR European School of Radiology

ROADMAP

IMAGING

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTORS

- Regina Beets-Tan, *Radiologist, Netherlands Cancer Institute, Amsterdam (NL)*
- Vincenzo Valentini, *Radiation Oncologist, Università Cattolica S. Cuore, Rome (IT)*

TEACHERS

The teaching faculty is being updated, please visit www.estro-education.org/courses for the latest information.

Regina Beets-Tan

Vincenzo Valentini

Imaging for Physicists

5-9 November 2017
Malaga, Spain

TARGET GROUP
The course is aimed at trainees in radiotherapy physics, researchers and also more experienced radiotherapy physicists with an interest in the application of advanced imaging techniques in their radiotherapy practice.

COURSE AIM
The course aims to:
- Improve the understanding of the physics principles of MRI, PET and CT
- Explore potential applications of these imaging modalities in clinical practice.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Understand the basic concepts of MRI and PET physics
- Understand the key technical challenges and solutions unique to the application of MRI, PET and advanced CT in radiotherapy
- Understand the potential and challenges of biological imaging methods in radiotherapy treatment planning and follow-up.

COURSE CONTENT
- Basic principles of MRI physics
- Fast scanning techniques and volume sequences on MRI
- MRI equipment
- Geometrical integrity of MR images
- Physics aspects of MRI-guided interventions
- Physics of 4D CT
- Physics of cone-beam CT
- PET image reconstruction, SUV threshold
- The use of PET tracers other than FDG
- Physics principles of advanced functional MRI techniques
- Clinical application in radiotherapy for cancers in brain, head and neck, pelvis (cervix, prostate).

PREREQUISITES
Before commencing this course participants should have a basic knowledge of radiotherapy physics.

TEACHING METHODS
- 25 lectures (50 minutes each)
- 6 hours of discussions including case assignment presentations.

The course consists of didactic lectures, interactive sessions and case assignments. Participants will receive a list of case assignments for selection to be completed during the course and are requested to prepare the corresponding study material.

METHODS OF ASSESSMENT
- MCQ
- Evaluation form
- Case assignments.

KEY WORDS
MRI, PET, CT.

FURTHER READING
Please consult the ESTRO website page of this course for further information.

ACCREDITATION
Application for CPD recognition is submitted to the European Board for Accreditation in Medical Physics (EBAMP), as a CPD event for medical physicists. Information on the status of the applications can be obtained from the ESTRO office.

ROADMAP

IMAGING

MEDICAL PHYSICIST

FACULTY

COURSE DIRECTOR
Uulke van der Heide, *Medical Physicist, Netherlands Cancer Institute, Amsterdam (NL)*

TEACHERS
- Piet Dirix, *Radiation Oncologist, Iridium Cancer Network, Antwerp (BE)*
- Gary Liney, *Medical Physicist, Ingham Institute for Applied Medical Research, Liverpool, NSW (AU)*
- Eirik Malinen, *Medical Physicist, University of Oslo, Oslo (NO)*
- Cynthia Ménard, *Radiation Oncologist, Princess Margaret Hospital, Toronto (CA)*
- Tufve Nyholm, *Medical Physicist, Umeå University, Umeå (SE)*
- Francesco Pisana, *Medical Physicist DKFZ, Heidelberg (DE)*
- Daniela Thorwarth, *Medical Physicist, Uniklinik für Radioonkologie, Tübingen (DE)*

LOCAL ORGANISER
Salvador Garcia-Pareja, *Physicist, Regional University Hospital Malaga*

Uulke van der Heide

Paediatric Radiotherapy

30 November - 2 December 2017
Brussels, Belgium

TARGET GROUP
The course is meant for trainees and specialists in radiation oncology interested in the field of paediatric radiation oncology.

COURSE AIM
Paediatric radiation oncology covers many different and complex fields in paediatric oncology. The distribution of knowledge on a worldwide level is an important component of the teaching course on paediatric radiation oncology co-organised by PROS (Paediatric Radiation Oncology Society) and ESTRO . The rarity of childhood neoplasms and the complexity of their management due to several factors are putting high demands on the application of radiation therapy.

The course not only addresses radiation oncology treatment technologies but aims at providing a comprehensive knowledge of the management of paediatric malignancies, which is mandatory for an optimal management of childhood cancer.

LEARNING OUTCOMES
By the end of this course participants should be familiar with:
- Pathological and biological aspects of the different paediatric malignancies
- Multidisciplinary management concepts in paediatric oncology
- Specific radiation oncology issues, including planning strategies and delivery techniques adjusted to paediatric malignancies
- Cure rates
- Toxicity profiles and risk for side effects
- Radiological anatomy and diagnostic imaging for precise treatment planning.

COURSE CONTENT
- Basic aspects in paediatric oncology
- Epidemiology, general disease management in paediatric oncology
- Imaging and staging
- Paediatric radiation oncology in clinical studies, requirements and shortcomings
- Networks for clinical studies
- Modern technologies in radiation therapy - an overview
- Proton beam therapy in childhood tumours
- Specific cancers:
  - Hodgkin's Lymhoma
  - CNS-tumours (Medulloblastoma, Ependymoma)
  - Soft tissue sarcoma
  - Wilms' tumour
  - Ewing sarcoma
- Plenary lectures and seminars with practical examples (individual case management) and final plenary case discussions.

PREREQUISITES
Before commencing this course participants should be one of the below:
- An in training radiation oncologist or a qualified radiation oncologist
- A paediatric oncologist (in training or qualified)
- A radiation therapist (RTT) or medical physicist in training or qualified.

TEACHING METHODS
- 16.5 hours of lectures
- 5.5 hours of case discussions.

This is a 3-day course, jointly organised by ESTRO and PROS. All teachers are oncologists specialised in different fields and treatment techniques of paediatric oncology. The structure of the course includes plenary theoretical lessons, case discussions in small groups with development of oncological plans including detailed radiotherapy approaches (target contouring), and discussion of clinical cases in plenary sessions.

The didactic concept is a crucial component of the teaching course.

Theoretical knowledge will be communicated by using presentations and providing the participants with basic information material at home. The participants are strongly encouraged to actively use the acquired theoretical knowledge by using web-based cases. Immersion of knowledge will then be exercised in collaborative

discussions including new case scenarios. The learning process enables the participants to identify the correct active way for case management and to identify possible flaws and mistakes. The individualised case-based learning process will provide an adapted feedback between teaching staff and participants.

Case exercises including clinical information and technical aspects (contouring and application of technologies) permit a comprehensive acquisition of knowledge that can be transferred to different clinical scenarios (enhanced emersion of clinical cases in clinical practice).

METHODS OF ASSESSMENT

- MCQ
- Delineation exercise
- Evaluation form.

KEY WORDS

Brachytherapy, basic course, clinical aspects, modern implantation techniques, physics.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

FACULTY

COURSE DIRECTORS

- Rolf Dieter Kortmann, *Radiation Oncologist, University of Leipzig, Leipzig (DE)*
- Umberto Ricardi, *Radiation Oncologist, University of Turin, Turin (IT)*

TEACHERS

- Christian Carrie, *Radiation Oncologist, Centre Leon Berard, Lyon (FR)*
- Karin Dieckmann, *Radiation Oncologist, University Hospital Vienna, Vienna (AT)*
- Tim Jaspan, *Radiologist, University of Nottingham, Nottingham (UK)*
- Arnold Paulino, *Radiation Oncologist, MD Anderson Centre, Houston (USA)*
- Roger Taylor, *Clinical Oncologist, South Wales Cancer Institute, Swansea (UK)*
- Beate Timmermann, *Radiation Oncologist, West-German Proton Therapy Centre Essen, WPE, Essen (DE)*
- David Walker, *Paediatric Oncologist, University of Nottingham, Nottingham (UK)*

CONTOURING ADMINISTRATOR

Silvia Scoccianti, *Radiation Oncologist, Azienda Ospedaliero Universitaria Careggi, Florence*

Rolf Dieter Kortmann

Umberto Ricardi

Multidisciplinary Management of Head and Neck Oncology

9-13 December 2017
Singapore, Republic of Singapore

TARGET GROUP
This multidisciplinary course, organised as a collaboration between ESTRO and EHNS (European Head and neck Society), is aimed at specialists and trainees with an interest and expertise in head and neck surgery (head and neck surgeons, oto-rhino-laryngologists, maxillo-facial surgeons, reconstructive surgeons, etc.), radiation oncologists, medical oncologists and other medical specialists involved in the treatment of patients with head and neck cancer.

BACKGROUND
Over the last decade tremendous progress has been made in the biological understanding and management of patients with head and neck cancer. Significant progress has been made in tumour profiling and in the identification of relevant clinical characteristics, which has rapidly led to the elaboration of tailored treatments. Functional imaging has emerged as a complementary modality to anatomic imaging methods for better staging, treatment response evaluation and optimal treatment targeting. Surgery has significantly improved, in particular with better reconstruction techniques reducing the limits of operability. Randomised studies have demonstrated the increasing role of combined modality approaches with chemotherapy and biological targeted therapies. New radiation techniques, expected to impact on survival and quality of life of head and neck patients, have taken off and are being validated.

COURSE AIM
The course aims to be interactive through integration of multidisciplinary lectures and more focused workshops. The faculty includes renowned European experts involved in the multidisciplinary treatment of head and neck cancer.

LEARNING OUTCOMES
By the end of this course participants should be able to:
- Understand the evolving concepts of head and neck epidemiology and tumour biology, with special focus on squamous cell histotype. Rare histotypes will also be included.
- Interpret complex head and neck imaging for the purpose of treatment decision making and therapy
- Make judgements regarding multidisciplinary reasoning and management of tumours in the light of alternative and sometime competing treatment options including surgery and the role of systemic and targeted therapies
- Make judgments on the availability of evidence for treatment recommendations
- Understand the challenges of supportive care
- Understand the principles and practice of modern radiotherapy.

COURSE CONTENT
- Anatomy (clinical and radiologic aspects) incidence, pathology, risk factors (including HPV) of head and neck tumours
- Clinical work-up for oral cavity and pharyngolaryngeal tumours, staging and follow up
- "Organ preservation" approach
- Rationale for unconventional radiotherapy fractionation, hypoxic sensitisers, concomitant chemo, EGFR inhibitors and new targeted agents
- Management of oral cavity tumours: medical oncology, surgery and radiotherapy (including brachytherapy)
- Management of nasopharyngeal carcinoma
- Management of oropharyngeal tumours: medical oncology, surgery and radiotherapy (including brachytherapy)
- Management of hypopharyngeal and laryngeal tumours: surgery, radiotherapy and medical oncology chemotherapy approach
- Management of nasal cavity and para-nasal sinus tumours: surgery, radiotherapy and medical oncology chemotherapy approach
- Management of the neck nodes
- Concepts behind selection and delineation of target volumes in radiotherapy
- Morbidity (acute and late) of treatment
- Supportive care during and after treatment
- Metastatic disease
- Management of recurrent tumours
- Second primary tumours.

PREREQUISITES

Before commencing this course, participants should have a medical degree with strong interest in head and neck tumour management from the radiation oncology, medical oncology or head and neck surgery point of view.

TEACHING METHODS

- 20 lecture hours
- 5 case discussion hours
- Delineation exercises.

METHODS OF ASSESSMENT

- MCQ
- Delineation exercise/s
- Evaluation form.

KEY WORDS

Multidisciplinary head and neck oncology, evidence based medicine.

FURTHER READING

Please consult the ESTRO website page of this course for further information.

ACCREDITATION

Application for CME recognition will be submitted to the European Accreditation Council for Continuing Medical Education (EACCME), an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised by the American Medical Association towards the Physician's Recognition Award (PRA). Information on the status of the applications can be obtained from the ESTRO office.

Application for ESMO-MORA points is submitted to ESMO the European Society for Medical Oncology representing medical oncologists. Information on the status of the applications can be obtained from the ESTRO office.

This course is using the FALCON platform (Fellowship in Anatomic deLineation and CONtouring) for the contouring exercises

ROADMAP

MULTIMODAL CANCER TREATMENT

RADIATION ONCOLOGIST, OTHER SPECIALIST

FACULTY

COURSE DIRECTORS

- Vincent Grégoire, *Radiation Oncologist, Cliniques Universitaires St-Luc, Brussels (BE)*
- René Leemans, *Head and Neck Surgeon, VU University Medical Centre, Amsterdam (NL)*
- Lisa Licitra, *Medical Oncologist, Istituto Tumori, Milan (IT)*

TEACHERS

- Cai Grau, *Radiation Oncologist, Aarhus University Hospital, Aarhus (DK)*
- Jesper Grau Eriksen, *Clinical Oncologist, Odense University Hospital, Odense (DK)*
- Jean-Pascal Machiels, *Medical Oncologist, Cliniques Universitaires St-Luc, Brussels (BE)*
- Piero Nicolai, *Oto-Rhino-Laryngologist and Head and Neck Surgeon, University of Brescia, Brescia (IT)*
- Frank A. Pameijer, *Radiologist, University Medical Center Utrecht, Utrecht (NL)*

LOCAL ORGANISERS

- Kiattisa Sommat, *Radiation Oncologist, National Cancer Centre Singapore*
- Yoke-Lim Soong, *Radiation Oncologist, National Cancer Centre Singapore*

Vincent Grégoire

René Leemans

Lisa Licitra

Live Teaching Courses 2017

UNDERGRADUATE TRAINING FOR MEDICAL STUDENTS

Medical Science Summer School Oncology for Medical Students (Groningen/Vienna) 102
10-21 July 2017 | Vienna, Austria

ESO-ESSO-ESTRO Multidisciplinary Course in Oncology for Medical Students 104
28 August - 8 September 2017 | Antwerp, Belgium

Medical Science Summer School Oncology for Medical Students (Vienna/Groningen)

Under the umbrella of ESO, ESSO and ESTRO

10-21 July 2017
Vienna, Austria

The Medical University of Vienna and the University of Groningen collaborate in the organisation of a Medical Sciences Oncology Summer School for Medical Students: in even years the Summer School on Oncology takes place at the University Medical Centre Groningen, in uneven years it is held at the Medical University of Vienna.

From 2016 both Summer Schools are supported by ESTRO, ESSO and ESO, collaborate under the auspice of UICC and are supported by the WHO Collaborating Centre for Cancer Education.

The goal of the Groningen/Vienna Summer Schools is to teach a multidisciplinary approach to oncology to medical students before they enter the clinic. The first Summer School in Groningen was held in 1996 and in Vienna in 1999. So far, students from both Summer schools reported a high level of satisfaction with the organisation, scientific content and topic range.

COURSE AIM

The course aims to:

- Teach a multidisciplinary approach to oncology to medical students in the final phase of their studies.
- Help students become familiar with cancer care in general health practice, to reduce fear in patients with a malignant disease and to learn more about cancer related problems in other countries.
- Introduce cancer related research and development, new technologies in diagnostic procedures (invasive and non-invasive) and modern multidisciplinary treatment approaches.
- Familiarise participants with preparing abstracts and posters and presenting at an international meeting.

FORMAT

- The educational programme consists of different modules. Besides interactive lectures, the Schools offer workshops to provide an insight into specific clinical practice, ward rounds and skills training. The e-learning module of the Vienna Summer School on Oncology (VSSO) consists of a problem based and virtual tumour board session which encourages the students to gain and share their oncological knowledge under the supervision of experienced tutors.
- Classical lectures in the morning will focus on general aspects of cancer. The topics will include an overview on biological background, diagnostic approaches (mainly clinical pathology and modern image modalities), clinical issues and psycho-oncology. Lectures are given by medical, radiation and surgical oncologists, radiologists, physicists, psycho-oncologists. Workshops in the afternoon offering more practical training, such as case presentations, poster presentation, laboratory and ward rounds
- The afternoon will offer two different tracks:
  - a clinically orientated track (T1) to get familiar with oncology care in practice and learn about oncology-related problems. The students will have the possibility of ward and clinic rounds, further lectures in end of life communication, skills training etc.
  - a research oriented track (T2) is to introduce various exciting aspects of translational oncology research
- An informal exam is organised before and after the summer school covering the main course contents to evaluate and document the learning experience.
- Most of the evenings will have a broad and lively social programme.

PRACTICALITIES

- Max 35 participants
- Fee: € 630 registration, including food and accommodation
- All students are requested to send an abstract beforehand on a topic related to cancer and cancer care in their home country / institution (T1) or related to a clinical, preclinical or translational research subject (T2). The preparation of the abstracts should be supervised by a faculty member at the home medical school of the student.
- T1 students are asked to present a poster on the topic

of their abstract and the T2 students to give a short presentation on the research topic. All abstracts, posters and presentations will be reviewed and rated by the faculty members from the organising centre. The best abstract, poster and presentation will be awarded with a prize, a certificate and selected benefits for the students' further development.

VIENNA SUMMER SCHOOL ON ONCOLOGY (VSSO)

- www.meduniwien.ac.at/vsso
- Contact: vsso@meduniwien.ac.at

REFERENCES

Vienna international summer school on experimental and clinical oncology for medical students: an Austrian cancer education project. Fromm-Haidenberger S, Pohl G, Widder J, Kren G, Fitzal F, Bartsch R, de Vries J, Zielinski C, Pötter R.; *J Cancer Educ.* 2010;25:51-4.

GRONINGEN MEDICAL SCIENCE SUMMER SCHOOL ONCOLOGY

- www.isoms.nl (ISOMS = International Summer school Oncology for Medical Students)
- Contact: summerschool@isoms.nl

REFERENCES

- Essentials in Cancer Education. de Vries J. *J Cancer Educ.* 1999;14:198-202
- The educational yield of the international summer school "Oncology for Medical Students". de Vries J, Szabó BG, Sleijfer DT. *J Cancer Educ.* 2002;17:115-20.

Under the umbrella of:

APPLICATION DEADLINE

31 May 2017

COURSE COORDINATORS

- Carola Lütgendorf-Caucig MPH, *Medical University of Vienna*
- Richard Pötter MD, *Medical University of Vienna*

FACULTY

- Faculty members of the Medical University of Vienna and the Comprehensive Cancer Center (coordination Prof. R. Pötter, Prof. C. Zielinski, Prof. M. Gnant)
- Elke Dörr, *Secretary*

SAVE THE DATE

Medical Science Summer School Oncology
Groningen, The Netherlands
July 2018

ESO-ESSO-ESTRO Multidisciplinary Course in Oncology for Medical Students

28 August - 8 September 2017
Antwerp, Belgium

ESO (European School of Oncology), ESSO (European Society of Surgical Oncology) and ESTRO (European Society for Radiotherapy and Oncology) are very keen to jointly organise a multidisciplinary course in oncology for medical students.

COURSE AIM

The key goal of this course is to encourage medical students to specialise in an oncology related discipline. Previous editions organised since 2005 received very positive and enthusiastic feedback from the students who had time with experienced teachers engaging in theoretical and practical training in cancer care.

The multidisciplinary course in oncology will provide an insight into all aspects of oncology with both theoretical and practical sessions. The programme incorporates plenary sessions, case study presentations, daily special visits to various oncology departments and group course projects that must be finalised and presented at the end of the course.

The course has been designated for European Credit Transfer and Accumulation System Credits (ECTS).

TARGET GROUP

- The course is offered to medical students who have completed their fourth year of studies at the time of the course
- Participation will be limited to 24 students who will be selected through a competitive application process.

LEARNING OUTCOMES

By the end of the course participants should:

- Have a comprehensive understanding of all aspects of oncology
- Have an understanding of the complexity and importance of the multidisciplinary approach to cancer treatment
- Prepare a specific topic related to the theoretical and/or practical sessions for presentation during the course.

COURSE FORMAT

- Ten working days
- The programme covers all aspects of oncology
- Theoretical plenary sessions of maximum 2 hours
- Case presentations
- Daily two-hour practical sessions in small groups (labs, ward visits, etc)
- Preparation in small working groups of a presentation on a specific topic under the supervision of a teacher
- The last day will be devoted to the project presentations delivered by the students (compulsory)
- Students are requested to bring their laptops to the course
- The official language is English - students must be fluent in English.

PRACTICALITIES

- Selected participants will benefit from free registration, lunches and accommodation.
- Arriving late for the start of the course or leaving early at the end are not acceptable. To receive course credit, attendance throughout the entire session is required.
- The course will start on Monday 28 August 2017 at 09.00 and end on Friday 8 September 2017 at 17.00 hrs.
- Participants should arrive on Sunday 27 August 2017 in the afternoon; a welcome reception will be organised by the host institute in the evening.
- A visit to the city of Antwerp is scheduled during the course and the course closes with a farewell party.

COURSE COORDINATION

ESSO - European Society of Surgical Oncology
Tel.: +32 2 775 02 43
E-mail: ana.galan@essoweb.org

HOW TO APPLY

The application deadline is 31 May 2017.

The application procedure consists of 4 steps:

- Complete the application form, scan it and mail it back to the ESSO office, attention ana.galan@essoweb.org.) before the deadline of 31 May 2017,
- Attach a short CV (max 1 page) describing your education and indicating level of spoken English
- Include a motivation letter explaining why you wish to attend the course

You will be notified of the outcome of the selection process by approximately 15 June 2017.

The organisers are grateful to the following organisation for their co-operation in the promotion of the course:
EMSA - European Medical Students' Association

APPLICATION DEADLINE

31/05/2017

EDUCATIONAL COMMITTEE

- Jesper Grau Eriksen, *ESTRO representative, Odense University Hospital, Odense (DK)*
- Pavlidis Nicholas, *ESO representative, School of Medicine University of Ioannina, Ioannina (GR)*
- Sergio Sandrucci, *ESSO representative, Università degli Studi di Torino, Turin (IT)*
- Jan Vermorken, *Medical Oncologist, Antwerp University Hospital, Antwerp (BE)*

FACULTY

The faculty will consist of a number of international experts complemented by local staff from UZA Antwerp.

LOCAL ORGANISER
Marc Peeters, *Local Organiser, UZA Antwerp*

ESTRO School of Radiotherapy and Oncology

2017

ESTRO School

POSTGRADUATE COURSES IN EUROPE

Comprehensive and Practical Brachytherapy
5-8 March 2017 | Budapest, Hungary

Particle Therapy
6-10 March 2017 | Essen, Germany

Lower GI: Technical and Clinical Challenges for Radiation Oncologists
22-24 March 2017 | Rome, Italy

Upper GI: Technical and Clinical Challenges for Radiation Oncologists
25-28 March 2017 | Rome, Italy

Dose Modelling and Verification for External Beam Radiotherapy
2-6 April 2017 | Warsaw, Poland

IMRT and Other Conformal Techniques in Practice
9-13 April 2017 | Madrid, Spain

ESTRO/ESMIT Course on Molecular Imaging and Radiation Oncology
10-13 April 2017 | Bordeaux, France

Cancer Survivorship
21-23 May 2017 | Brussels, Belgium

Multidisciplinary Management of Prostate Cancer
21-25 May 2017 | Porto, Portugal

Physics for Modern Radiotherapy
4-8 June 2017 | Bucharest, Romania

Advanced Skills in Modern Radiotherapy
11-15 June 2017 | Prague, Czech Republic

Evidence Based Radiation Oncology
11-16 June 2017 | Ljubljana, Slovenia

Combined Drug-Radiation Treatment: Biological Basis, Current Applications and Perspectives
15-18 June 2017 | Brussels, Belgium

Target Volume determination - From Imaging to Margins
25-28 June 2017 | Lisbon, Portugal

Brachytherapy for Prostate Cancer
29 June - 1 July 2017 | Brussels, Belgium

Advanced Treatment Planning
3-7 September 2017 | Barcelona, Spain

Clinical Practice and Implementation of Image-Guided Stereotactic Body Radiotherapy
3-7 September 2017 | Budapest, Hungary

Palliative Care and Radiotherapy
7-9 September 2017 | Brussels, Belgium

Multidisciplinary Management of Breast Cancer
10-13 September 2017 | Dublin, Ireland

Research Masterclass in Radiotherapy Physics
10-13 September 2017 | Florence, Italy

Basic Clinical Radiobiology
16-20 September 2017 | Paris, France

Comprehensive Quality Management in Radiotherapy
2-5 October 2017 | Brussels, Belgium

Quantitative Methods in Radiation Oncology: Models, Trials and Clinical Outcomes
8-11 October 2017 | Maastricht, The Netherlands

Best Practice in Radiation Oncology - Train the RTT Trainers
16-18 October 2017 | Vienna, Austria

Multidisciplinary Management of Brain Tumours
22-24 October 2017 | Vienna, Austria

Image-Guided Radiotherapy and Chemotherapy in Gynaecological Cancer: Focus on MRI Based Adaptive Brachytherapy
22-26 October 2017 | Prague, Czech Republic

Image Guided Radiotherapy in Clinical Practice
29 October - 2 November 2017 | Athens, Greece

ESTRO/ESOR Multidisciplinary Approach of Cancer Imaging
2-3 November 2017 | Rome, Italy

Imaging for Physicists
5-9 November 2017 | Malaga, Spain

Paediatric Radiotherapy
30 November - 2 December 2017 | Brussels, Belgium

POSTGRADUATE COURSES OUTSIDE EUROPE

Transition from Conventional 2D to 3D Radiotherapy with a special emphasis on Brachytherapy in Cervical Cancers
8-11 March 2017 | Bengaluru, India

ESTRO-KOSRO GI: Technical and Clinical Challenges for Radiation Oncologists
2-4 June 2017 | Seoul, South Korea

Comprehensive Quality Management in Radiotherapy
5-9 July 2017 | Chengdu, China

Multidisciplinary Management of Head and Neck Oncology
9-13 December 2017 | Singapore, Republic of Singapore

PRE-MEETING COURSES

Five Pre-Meeting Courses at ESTRO 36
5 May 2017 | Vienna, Austria

UNDERGRADUATE COURSES

Medical Science Summer School Oncology for Medical Students (Vienna/Groningen)
10-21 July 2017 | Vienna, Austria

ESO-ESSO-ESTRO Multidisciplinary Course in Oncology for Medical Students
28 August - 8 September 2017 | Antwerp, Belgium

- MULTIMODAL CANCER TREATMENT
- RADIOTHERAPY TREATMENT PLANNING AND DELIVERY
- BIOLOGY
- IMAGING
- RESEARCH
- BEST PRACTICE

A Sneak Peak of our Live Courses Next Year!

LIVE TEACHING COURSES IN EUROPE

MULTIMODAL CANCER TREATMENT - GENERAL

EVIDENCE BASED RADIATION ONCOLOGY

MULTIMODAL CANCER TREATMENT - SITE SPECIFIC

ACCELERATED PARTIAL BREAST IRRADIATION

MULTIDISCIPLINARY MANAGEMENT OF HEAD AND NECK ONCOLOGY

MULTIDISCIPLINARY MANAGEMENT OF LUNG CANCER

HAEMATOLOGICAL MALIGNANCIES

MULTIDISCIPLINARY MANAGEMENT OF PROSTATE CANCER

RT TREATMENT, PLANNING AND DELIVERY: EXTERNAL BEAM

PHYSICS FOR MODERN RADIOTHERAPY (JOINT COURSE FOR CLINICIANS AND PHYSICISTS)

DOSE MODELLING VERIFICATION FOR EXTERNAL BEAM RADIOTHERAPY

ADVANCED TREATMENT PLANNING

NEW! POSITIONING AND IMMOBILISATION FOR RADIATION THERAPY

ADVANCED SKILLS IN MODERN RADIOTHERAPY

IMRT AND OTHER CONFORMAL TECHNIQUES IN PRACTICE

IMAGE GUIDED RADIOTHERAPY IN CLINICAL PRACTICE

CLINICAL PRACTICE AND IMPLEMENTATION OF IMAGE-GUIDED STEREOTACTIC BODY RADIOTHERAPY

PARTICLE THERAPY

RT TREATMENT, PLANNING AND DELIVERY: BRACHYTHERAPY

COMPREHENSIVE AND PRACTICAL BRACHYTHERAPY

BRACHYTHERAPY FOR PROSTATE CANCER

ADVANCED BRACHYTHERAPY FOR PHYSICISTS

IMAGE-GUIDED RADIOTHERAPY AND CHEMOTHERAPY IN GYNAECOLOGICAL CANCER: FOCUS ON ADAPTIVE BRACHYTHERAPY

BIOLOGY

BASIC CLINICAL RADIOBIOLOGY

BIOLOGICAL BASIS OF PERSONALISED RADIATION ONCOLOGY

IMAGING

TARGET VOLUME DETERMINATION - FROM IMAGING TO MARGINS

IMAGING FOR PHYSICISTS

ESTRO/ESOR MULTIDISCIPLINARY APPROACH OF CANCER IMAGING

ESTRO/ESMIT COURSE ON MOLECULAR IMAGING AND RADIATION ONCOLOGY

BEST PRACTICE

BEST PRACTICE IN RADIATION ONCOLOGY - TRAIN THE RTT (RADIATION THERAPISTS) TRAINERS - PART I

COMPREHENSIVE QUALITY MANAGEMENT IN RADIOTHERAPY - RISK MANAGEMENT AND PATIENT SAFETY

NEW! MANAGEMENT AND LEADERSHIP SKILLS FOR RADIATION ONCOLOGY

RESEARCH

QUANTITATIVE METHODS IN RADIATION ONCOLOGY: MODELS, TRIALS AND CLINICAL OUTCOMES

ESO/ESTRO MASTERCLASS IN RADIATION ONCOLOGY

LIVE TEACHING COURSES OUTSIDE EUROPE

CHINA: PHYSICS FOR MODERN RADIOTHERAPY (JOINT COURSE FOR CLINICIANS AND PHYSICISTS)

INDIA: IMAGE-GUIDED RADIOTHERAPY AND CHEMOTHERAPY IN GYNAECOLOGICAL CANCER: FOCUS ON ADAPTIVE BRACHYTHERAPY

SINGAPORE: ADVANCED TECHNOLOGIES

JAPAN: MULTIDISCIPLINARY MANAGEMENT OF HEAD AND NECK ONCOLOGY

UNDERGRADUATE MEDICAL COURSES IN ONCOLOGY

ESO-ESSO-ESTRO MULTIDISCIPLINARY COURSE IN ONCOLOGY FOR MEDICAL STUDENTS

MEDICAL SCIENCE SUMMER SCHOOL ONCOLOGY FOR MEDICAL STUDENTS

Online Contouring Workshops

Online delineation workshops are ESTRO's newest educational product. On these workshops radiotherapy professionals can now experience the ESTRO expertise from the comfort of their own homes. Workshops consist of three live online sessions where experts share their knowledge on the specific tumour sites. Participants learn tips and tricks for improved contouring, and are involved in stimulating discussions during the live sessions which result in increased understanding of the tumour site at hand.

WORKSHOP TOPIC	DATES	CHAIR	PANELIST
CNS CANCER	11 January	Sarah Jefferies	Pinelopxi Gkogkou
	18 January		
	25 January		
OAR - ADOMINAL	1 February	Thomas Brunner	Alejandra Mendez Romero
	8 February		
	15 February		
LYMPHOMA	20 February	Berardino De Bari	Lena Specht
	27 February		
	6 March		
LUNG CANCER	7 March	Esther Troost	Jan Bussink
	14 March		
	21 March		
HEAD AND NECK CANCER	30 May	Jesper Eriksen	Vincent Grégoire
	6 June		
	13 June		
RECTAL CANCER	6 September	Netta Gambacorta	Maria Hawkins
	13 September		
	20 September		
BREAST CANCER	19 September	Birgitte Offersen	Philip Poortmans
	26 September		
	3 October		
OESOPHAGEAL CANCER	17 October	Berardino De Bari	Oscar Matzinger
	24 October		
	31 October		
PROSTATE CANCER	7 November	Evert Van Limbergen	Bradley Pieters
	14 November		
	21 November		
PAEDIATRIC ONCOLOGY	5 December	Umberto Ricardi	Rolf Kortmann
	12 December		
	19 December		

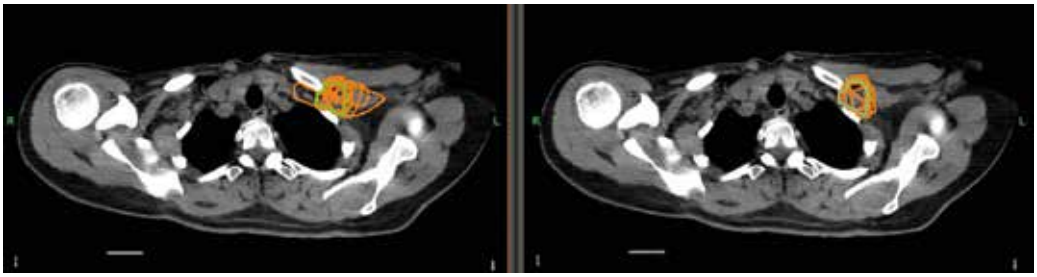
ESTRO Online Educational Resources and Tools

FALCON

Fellowship in Anatomic deLineation and CONtouring

FALCON is the ESTRO's comprehensive contouring training programme aimed at improving the delineation skills of radiation oncology professionals, and at contributing to better treatment planning for cancer patients receiving radiotherapy.

FALCON provides interactive teaching in tumour target, OAR contouring and uses for this purpose Educase, a web based treatment simulation software.



Group contour results at week 1 (left) and week 2 (right) of a FALCON online workshop in breast cancer. Note the improvement of the group contours (orange) with respect to the author contours (green) in week 2.

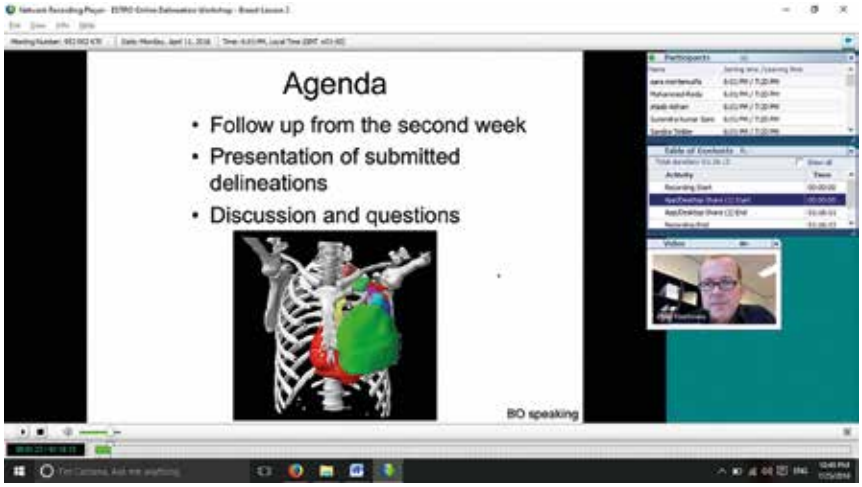
LIVE COURSES AND WORKSHOPS

ESTRO started implementing Educase, FALCON's contouring tool, in its live teaching programmes in 2010. Since then the software has been used in 50 clinically orientated and/or image focused live courses and 35 hands-on delineation workshops at annual ESTRO conferences. More than 4,000 radiation oncology professionals have benefited from such interactive training.

ONLINE WORKSHOPS

In 2012, ESTRO organised the first online FALCON workshop. Online workshops can include 20-30 participants and are conducted through web-conferences over a time span of three weeks. The sessions are very interactive and offer the opportunity to set side by side delineations from participants and experts and discuss the interobserver variability and the available guidelines.

The number of online workshops has gradually increased and in 2016, a full annual programme of ten workshops on different tumour sites (breast, prostate, gynaecology, head and neck, organs at risk, lymphoma, oesophagus, CNS, lung and paediatric oncology) was available for radiation oncology professionals worldwide to participate in.



Live session of a FALCON online workshop. The workshop chair is addressing several intriguing questions during the question and answer discussion.

FALCON IN 2017

- Fifteen live courses now include delineation workshops. The appearance of the FALCON logo in this Guide indicates the relevant courses
- Eight live FALCON workshops planned prior and during ESTRO 36 in Vienna
- Ten online FALCON workshops (see page 108)
- Blended learning with FALCON: integration of online contouring learning in live courses with pre- and post-contouring exercises
- Planned third party FALCON workshops
- Collaboration with clinical trials by using Educase to increase homogeneity in tumour delineation.

Check the 2017 FALCON workshops on page 108 on this guide and check online the updates during the year on www.estro.org.

DOVE

Online library of peer-reviewed, up-to-date information for radiation oncology professionals

DOVE
DYNAMIC ONCOLOGY VIRTUAL ESTRO

The ESTRO DOVE e-library currently contains about 14,000 scientific and/or educational publications.

Through a single logon, you can access ESTRO resources such as:

- +/- 1,350 congress webcasts
- +/- 2,500 congress posters
- +/- 7,000 conference abstracts
- All *Radiotherapy & Oncology* articles
- More than 70 (ESTRO) guidelines
- The ESTRO and Public Affairs newsletters
- Information on around 20 EU projects involving ESTRO
- **NEW SINCE 2016**: ESTRO live course material

A POWERFUL SEARCH ENGINE

For easy retrieval of required educational material, the e-library offers a powerful search engine based on the MeSH thesaurus. You can refine your search by including subject, time and format filters. DOVE allows you to save, print and email the selected material.

ACCESS TO DOVE

Anyone can access the service library and view the content; full access depends on ESTRO membership status or participation in ESTRO activities.

The DOVE search engine is accessible directly from the homepage of www.estro.org

Information and Registration

REGISTRATION FEES FOR TEACHING COURSES

	EARLY RATE	LATE RATE
In training members*	€ 450	€ 625
Members	€ 600	€ 725
Non Members	€ 750	€ 850

*Members with specialty radiation therapist (RTT) may register at the In training fee.

MEMBERSHIP

If you become a member of ESTRO, you will benefit from preferential rates when registering for teaching courses. Please note that in order to benefit from the members rate, you must renew your membership for 2017 before registering for a 2017 teaching course. The membership renewal should be done at least three days before the deadline. The membership internal processing and approval might take up to maximum three working days.

More information about membership is on our website: www.estro.org/members.

REDUCED FEES

ESTRO members working in countries with a less competitive economic background can obtain a reduced registration fee of €350 to participate in live teaching courses organised in Europe.
If they are selected, these ESTRO members will only pay €350 to register for the course. This reduced fee will be granted to maximum 500 participants per year.

See on page 120 the selection criteria and the eligible countries and courses.

HOW TO REGISTER TO AN ESTRO COURSE

You have an ESTRO user name and password

- Go to www.estro.org
- Under 'School' then 'Live Course', select the course of your choice from the list of courses
- Click on the 'Registration and fees' button. You must click in the box to agree that you have read and understood the paragraph regarding renewal of membership / becoming a member.
- Enter your user name and password again and click on 'Login'.
- Provide the correct invoicing address where you would like to receive your invoice and click on 'Submit invoice address'. If you need a VAT invoice, choose your professional address (VAT registered) and fill in the VAT number.
- Check that your participant details and invoice address are correct. If they are incorrect or you wish to change them, click on the edit button and follow the steps. Please make sure your invoice details are correct as modifications will not be available once the invoice has been issued and sent.
- If your addresses are correct, click on 'Next step' to continue.
- For individual payments, only payments by credit card are accepted.
- For group registration and third party registration, please contact ESTRO Office.
- On the overview page, check your details and the products that you have chosen to register for. If they are incorrect, use the 'Previous step' button to go backwards.
- Tick the box accepting the ESTRO terms and conditions and click on the submit button.
- You will be directed to a secure credit card payment site where you have to fill in your credit card details (www.ogone.be).
- The last page is the registration acknowledgment page. Additionally, you will receive:
  - an email confirming that ESTRO has received your registration
  - a confirmation letter upon reception of payment for the course fees.

You don't have an ESTRO user name and password

- On the homepage of the ESTRO website (www.estro.org) go to the blue box in the bottom right hand corner and click on 'Create an account'.
- Follow the steps and a login and password will be sent to your e-mail address.

You have lost your password but still know your ESTRO user name

On the homepage of the ESTRO website (www.estro.org) go to the blue box in the bottom right hand corner and click on 'Lost password'. Fill in your user name. A new password will be sent to your e-mail address within a few minutes.

CANCELLATION POLICY

In case of cancellation, a full refund of the registration fee minus 15% for administrative costs can be obtained up to three months before the course and 50% of the fee up to one month preceding the course. No refund will be made if the cancellation request is postmarked less than one month before the start of the course.

HOW TO REGISTER SOMEBODY ELSE FOR AN ESTRO COURSE?

Follow the steps in "How to register for an ESTRO course" and change the participant details to the person who will actually attend the event.

If you have more than one person to register, contact the ESTRO office.

If you encounter any problems, please contact ESTRO School at education@estro.org.

CERTIFICATES OF ATTENDANCE

The certificates are available onsite upon completion of the course. A PDF version can be obtained by contacting the ESTRO office at education@estro.org up to three years later.

EXHIBITION

A commercial exhibition is organised during live ESTRO courses and includes companies manufacturing radiation therapy equipment, pharmaceutical industry as well as medical publishers. For them, various sponsoring and advertising opportunities are available. Interested companies and publishers may obtain more detailed information from:

Valérie Cremades
Corporate Relations Manager
Tel: +32 2 775 93 41
Fax: +32 2 779 54 94
E-mail: vcremades@estro.org

3.2 PUBLICATIONS

Educational Publications

ESTRO (PHYSICS) BOOKLETS

With the support of Europe Against Cancer and the International Atomic Energy Agency
Available through DOVE

- Booklet No 1, 2nd edition
  Methods for *in vivo* Dosimetry in External Radiotherapy
  By J. Van Dam and G. Marinello

- Booklet No 2
  Recommendations for a Quality Assurance Programme in External Radiotherapy
  By P. Aletti and P. Bey

- Booklet No 3
  Monitor Unit Calculation for High Energy Photon Beams
  By A. Dutreix, B.E. Bjärngard, A. Bridier, B. Mijnheer, J.E. Shaw, H. Svensson

- Booklet No 4
  Practical Guidelines for the Implementation of Quality System in Radiotherapy
  By J.W.H. Leer, A.L. McKenzie, P. Scaillet, D.I. Thwaites

- Booklet No 5
  Practical Guidelines for the Implementation of *in vivo* Dosimetry with Diodes in External Radiotherapy with Photon Beams (Entrance Dose)
  By D. Huyskens, R. Bogaerts, S. Broggi, C. Fiorino, N. Jornet, M. Lööf, H. Nyström, M. Ribas, D.I. Thwaites, J. Verstraete

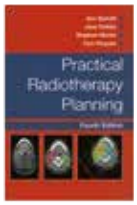
- Booklet No 6
  Monitor Unit Calculation - For High Energy Photon Beams - Practical Examples
  By B. Mijnheer, A. Bridier, C. Garibaldi, K. Torzsok, J. Venselaar

- Booklet No 7
  Quality Assurance of Treatment Planning Systems - Practical Examples for non-IMRT Photon Beams
  By B. Mijnheer, A. Olszewska, C. Fiorino, G. Hartmann, T. Knöös, J.C. Rosenwald, H. Welleweerd

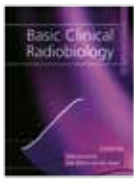
- Booklet No 8
  A Practical Guide to Quality Control of Brachytherapy Equipment
  By J. Venselaar and J. Pérez-Calatayud

- Booklet No 9
  Guidelines for the Verification of IMRT
  By B. Mijnheer and D. Georg

- Booklet No 10
  Individual Dose Calculations Concept and Models
  By M. Karlsson, A. Ahnesjö, D. Georg, T. Nyholm, J. Olofsson



Practical Radiotherapy Planning 4th Edition
By A. Barrett, J. Dobbs, S. Morris, T. Roques



Basic Clinical Radiobiology
4th Edition
By M. Joiner and A. Van der Kogel

The GEC-ESTRO Handbook of Brachytherapy
By A. Gerbaulet, R. Pötter, J-J. Mazeron, H. Meertens, E. Van Limbergen

Supported by Nucletron, Oncura and Varian

NEW EDITION ONGOING
Some chapters are available on DOVE:
- Brachytherapy Physics and Dosimetry
- Radiation Protection
- Radiobiology of LDR, HDR, PDR and VLDR Brachytherapy
- Endometrial Cancer
- Prostate Cancer
- Urinary Bladder Cancer
- Rectal Cancer

Multidisciplinary Management of Rectal Cancer
By V. Valentini, H.J. Schmoll, C.J.H. Velde

Hand-outs published for teaching courses
The presentations of the teachers are available for all teaching courses participants in DOVE from www.estro.org.

3.3
ESTRO GRANTS

ESTRO Mobility Grants

Also called ESTRO Technology Transfer Grants (TTG)

ESTRO Mobility Grants (ESTRO Technology Transfer Grants, TTG) are for you if you want to visit another institute to learn about or gain experience with a technique, equipment or its application that is not easily available in your own institute and which would be useful to you and your department in future studies or clinical treatments.

TARGET GROUP

ESTRO members who are specialists or trainee radiation oncologists, medical physicists, radiation therapists (RTTs) or biologists are all eligible for TTGs.
In addition to individual applications, ESTRO encourages teams of physicists or oncologists together with radiation therapists to apply together, where appropriate.
Although TTGs are primarily aimed at people in a relatively early stage of their career, many exceptions are made for more senior professionals who wish to learn a specific technique or application.

SCOPE

- ESTRO will cover travel and accommodation for a visit to another institute with the expertise or technique to be learned
- Salaries will not be covered
- Visits of one to three weeks
- Total budget of € 1,500 - € 2,000 per project (max € 2,500)
- The term "Technology Transfer" can be broadly interpreted but the main idea is to facilitate exchange of expertise or technical know how between institutes.

ESTRO BUDGET

A yearly budget of € 50,000 is available for these grants.

APPLICATION FOR TTG

- Two application deadlines occur per year (spring and autumn) and are announced on the website of ESTRO (under the top tab "Careers"), as well as by ESTRO Flash reminders.
- Application forms are available on the website and the following information is required:
  - a short, clear description of the project aim and methodology
  - indication of the likely benefit of the visit to the applicant and his/her institute
  - letters of support from the applicant's department head and from the host institute

- a short CV of the applicant(s) and cost estimates
- after the visit, a 2-page report should be sent to the ESTRO office within one month of completion (These reports will be posted on the ESTRO website. Every two months one will be selected for publication in the newsletter).

Marie-Catherine Vozenin
TTG Chair

EVALUATION METHODOLOGY

Applications are submitted twice per year and evaluated by a panel of four-five members of the Education Council including at least one clinician, physicist, radiation therapist and biologist.

All applications are scored according to:
- Suitability and likely benefit to the applicants and their home institute.
- Clarity and feasibility of the aims of the visit and methodology described.

These ranking scores are used to assign priority for funding within the available budget.

Applications judged to have potential merit but lacking in focus or methodological details are returned with advice on how to modify and resubmit the application.

EVALUATION PANEL

Marie-Catherine Vozenin, *Biologist*
Martijn Kamphuis, *Radiation Therapist*
Håkan Nyström, *Physicist*
Sofia Rivera, *Radiation Oncologist*
Pedro Carlos Lara Jimenez, *Radiation Oncologist*

Applicants according to discipline (may include more than one applicant per proposal)

YEAR	RADIATION ONCOLOGIST	PHYSICIST	RTT	BIOLOGIST	TOTAL
2008	14	9	5	3	31
2009	21	22	8	0	51
2010	22	21	6	0	49
2011	17	11	3	2	33
2012	21	15	8	0	44
2013	33	22	6	0	61
2014	37	28	6	1	72
2015	34	16	6	2	58
2016 (1st semester)	15	9	1	1	26
Total	**214**	**153**	**49**	**9**	**425**

Funding rates

YEAR	# PROPOSALS	# FUNDED	% FUNDED
2008	27	19	70
2009	42	22	52
2010	46	25	54
2011	28	21	75
2012	40	33	82
2013	40	29	73
2014	58	30	52
2015	56	25	45
2016 (1st semester)	26	11	42

Main reasons for rejection:

- Aims too broad and unfocused
- Poor methodology
- Topic or host institute not appropriate
- Too commercial
- Priority score too low for funding.

DEADLINES: 31 MAY AND 31 OCTOBER 2017

All applications should be addressed to grants@estro.org

ESTRO Educational Grants

ESTRO In training members can benefit from educational grants to participate in teaching courses.
These grants are commercially supported.

SELECTION CRITERIA

- These grants are specifically meant for young ESTRO members who are still in training or have not yet achieved a permanent staff position and are unable to register to a course without financial support
- To be eligible for a travel grant, membership dues for the current year should be paid in advance
- Candidates should submit a curriculum vitae and a recommendation letter from their department head stating that financial support is essential for the candidate to enable her/him to attend the course
- The amount of each grant is of € 750 from which the early in-training registration fee is deducted.

SUPPORTING COMPANY

10 grants are supported by Varian Medical Systems.

VARIAN
medical systems

3.4
REDUCED FEES FOR 2017 COURSES

ESTRO members working in countries with a less competitive economic background can obtain a reduced registration fee of € 350 to participate in live teaching courses organised in Europe.
If they are selected, these ESTRO members will only pay € 350 to register for the course. This reduced fee will be granted to maximum 500 participants per year.

SELECTION CRITERIA

- Only ESTRO members for 2017 are eligible (on the right page is the list of eligible countries)
- Only one course per person per year can be granted
- Max 250 participants can register at the reduced fee in the first semester of 2017 and another 250 in the second semester of 2017
- In case the number of applications exceeds the number of places available at reduced fees, priority will be given to:
  - younger members
  - members applying for a course held in their region
- Non-European members need to contact ESTRO office to check eligibility.

Important note: sponsored candidates are not entitled to reduced fees.

HOW TO APPLY

In order to receive the reduced fees, several conditions apply:

- Candidates must be a 2017 ESTRO member
- Only one course per person per year can be subsidised
- Sponsored candidates are not entitled to reduced fees (the invoicing address MUST be your own address and not that of a third party or institute).

If the criteria are met, the system will recognise the candidates eligibility during the registration process and allocate the correct fees. This year no application forms are needed thereof.

LIST OF ELIGIBLE COUNTRIES

- All specialties: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Portugal, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Ukraine, Turkey
- RTTs and physicists only: Cyprus
- RTTs only: Italy.

COURSES ELIGIBLE FOR REDUCED FEES

Comprehensive and Practical Brachytherapy	5-8 March	Budapest, Hungary
Particle Therapy	6-10 March	Essen, Germany
Lower GI: Technical and Clinical Challenges for Radiation Oncologists	22-24 March	Rome, Italy
Upper GI: Technical and Clinical Challenges for Radiation Oncologists	25-28 March	Rome, Italy
Dose Modelling and Verification for External Beam Radiotherapy	2-6 April	Warsaw, Poland
ESTRO/ESMIT Course on Molecular Imaging and Radiation Oncology	10-13 April	Bordeaux, France
IMRT and Other Conformal Techniques in Practice	9-13 April	Madrid, Spain
Cancer Survivorship	21-23 May	Brussels, Belgium
Multidisciplinary Management of Prostate Cancer	21-25 May	Porto, Portugal
Physics for Modern Radiotherapy	4-8 June	Bucharest, Romania
Advanced Skills in Modern Radiotherapy	11-15 June	Prague, Czech Rep
Evidence Based Radiation Oncology	11-16 June	Ljubljana, Slovenia
Combined Drug-Radiation Treatment: Biological Basis, Current Applications and Perspectives	15-18 June	Brussels, Belgium
Target Volume determination - From Imaging to Margins	25-28 June	Lisbon, Portugal
Brachytherapy for Prostate Cancer	29 June - 1 July	Brussels, Belgium
Advanced Treatment Planning	3-7 September	Barcelona, Spain
Clinical Practice and Implementation of Image-Guided Stereotactic Body Radiotherapy	3-7 September	Budapest, Hungary
Palliative Care and Radiotherapy	7-9 September	Brussels, Belgium
Multidisciplinary Management of Breast Cancer	10-13 September	Dublin, Ireland
Basic Clinical Radiobiology	16-20 September	Paris, France
Comprehensive Quality Management in Radiotherapy	2-5 October	Brussels, Belgium
Quantitative Methods in Radiation Oncology: Models, Trials and Clinical Outcomes	8-11 October	Maastricht, The Netherlands
Multidisciplinary Management of Brain Tumours	22-24 October	Vienna, Austria
Image-Guided Radiotherapy and Chemotherapy in Gynaecological Cancer: Focus on MRI Based Adaptive Brachytherapy	22-26 October	Prague, Czech Rep
Image Guided Radiotherapy in Clinical Practice	29 October - 2 November	Athens, Greece
Imaging for Physicists	5-9 November	Malaga, Spain
Paediatric Radiotherapy	30 November - 2 December	Brussels, Belgium

4 CONFERENCES

4.1 ESTRO CONFERENCES 125
ESTRO 36 127
5th GEC-ESTRO Workshop 151
Information and Registration 152

4.2 SCIENTIFIC COLLABORATION 155
ECCO 2017 156
6th ICHNO 159
ELCC 2017 162

4.1
ESTRO CONFERENCES

ESTRO 36
5 - 9 May 2017 | Vienna, Austria 127

5TH GEC-ESTRO WORKSHOP
Autumn of 2017 151

ESTRO 36

5 - 9 May 2017

Vienna, Austria

ESTRO 36

5 - 9 May 2017
Vienna, Austria

DEADLINES

ESTRO and company awards: **18 October 2016**
Abstract submission: **24 October 2016**
Early registration: **18 January 2017**
Late registration: **4 April 2017**
Desk registration **as of 5 April 2017**

CONFERENCE SECRETARIAT

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1200 Brussels
Belgium

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Fax: +32 2 779 54 94
events@estro.org

WWW.FACEBOOK.COM/ESTRO.ORG
#ESTRO36

WWW.ESTRO.ORG

WELCOME LETTER

It is my privilege and great pleasure to invite you to ESTRO 36 that will take place 5-9 May 2017 in Vienna, Austria.

ESTRO is an interdisciplinary society where radiation oncologists, medical physicists, radiobiologists, brachytherapists and radiation therapists aspire to join forces with other organisations in the oncology field that share ESTRO's vision of excellence in cancer treatment. At ESTRO 36, we draw attention to the multidisciplinarity and interdisciplinary components of our practice, with emphasis on the new opportunities that they represent for all professionals of oncology, not only in research but also in the daily care of patients.

The interdisciplinary component of the scientific programme will include sessions on the following topics:

- MR guided radiotherapy: the new standard of care in 10 years time
- Radiomics and imaging databases for precision radiation oncology
- From big data to better radiotherapy
- Costs and value of radiotherapy innovations: how to assess
- Challenges in proton radiotherapy
- Is there any ground for boost brachytherapy in the time of high precision IGRT/IMRT?
- Selection of patients and radiotherapy technique for APBI in the light of new phase III trial data
- Clinical evidence for hypofractionation in prostate cancer: what is the optimum?
- Oligometastatic disease
- Radiotherapy plus immunotherapy combination: rationale and results so far
- Immunotherapy
- Targeting tumour heterogeneity
- Response adapted treatment
- Patient Reported Outcomes (PROs) in radiotherapy
- Safety and clinical and cost effectiveness of multi-modality IGRT and ART
- Clinical impact of waiting times
- Strategies to increase safety in radiation oncology: how to make accidents less likely to occur.

Meanwhile, the Scientific Programme Committee and Scientific Advisory Groups of ESTRO 36 work hard to develop an excellent multidisciplinary component for the scientific programme, a multidisciplinarity which will also be highlighted in several joint sessions with other European and international oncology societies.

The educational aspects of ESTRO 36 will include pre-meeting courses, contouring workshops, teaching lectures and multidisciplinary tumour board sessions.

As in previous conferences, ESTRO 36 will offer a Young Scientists track. This track is fully organised by our young members and it enables them to meet young colleagues, share common interests, network and start to build their own collaborative projects at an international level.

The ESTRO annual meetings can only become a successful scientific event due to the multitude of contributions coming via abstract submissions. The Scientific Programme Committee is committed to offering large visibility to promising abstracts by including them in the scientific symposia or via dedicated poster viewing sessions.

We therefore, strongly encourage you to take note of the abstract submission deadline and to send your abstracts in due time.

Last but not least, all of the leading exhibitors will contribute to ESTRO 36, Europe's largest industrial exhibition in radiation oncology, offering the opportunity to view the latest radiotherapy technology and cancer treatment products.

Stay tuned for more information coming soon. We look forward to be welcoming you in Vienna.

With warm regards

Yolande Lievens
ESTRO 36 Chair

Yolande Lievens
ESTRO 36 Chair

PRE-MEETING COURSES

CLINICAL PRE-MEETING COURSE

Patient Reported Outcome Measures (PROMs) in radiotherapy research and clinical practice

FRIDAY 5 MAY 2017

Course directors: T. Holch (UK) and C. Grau (DK)

COURSE AIM

To provide an overview of the current and potential future roles of PROMs in radiotherapy research and routine care settings.

LEARNING OBJECTIVES

- To assess the role of PROMs in clinical practice and within clinical trials.
- To evaluate the use of PROM-based models to predict patient risk of toxicity after radiotherapy and ion beam therapy.
- To examine radiotherapy dose-volume relationships involved in normal tissue complication probability (NTCP).

WHO SHOULD ATTEND?

Clinicians, allied health care professionals and researchers interested in:

- Improving their knowledge of the current and future role of PROMs
- Improving patient outcomes in radiotherapy
- Developing models predicting risk of radiotherapy toxicity.

CONTENT

Session 1: The PROMs value in cancer care:

- Improved doctor-patient communication
- Improved outcomes.

Session 2: What are the methodological and practical challenges associated with the collection and use of PROMs?

- Selection of measures, time points; electronic vs paper
- Translation into different languages
- Patient understanding
- Non-compliance.

Session 3: Implementation in radiotherapy research and clinical practice in different cancers:

- REQUITE study (radiogenomics)
- Prostate lung cancer groups
- Head and neck
- Gynaecological.

Session 4: Correlating dose distribution and PROMs

Modelling NTCP relationship to CTCAE and why PROs might be better validated evidence of change from baseline

Session 5: Collection of electronic patient reported outcomes (ePROMs)

- Feasibility of completion during and after treatment
- Early evaluation indicators
- Patient and staff acceptance
- Longitudinal follow up.

Session 6: Standard of PROM reporting in trials

PRO Consort guidelines applied to clinical trial reporting

Session 7: Future directions and research priorities in the development of PROM measures and the applications of PROM data.

- Economics, relating PROMs to dose distribution
- Scalability of ePROM systems
- Cat vs traditional questionnaires.

Session 8: Discussion: How to integrate PROMs into clinical practice

Practical ideas towards implementation.

INTERDISCIPLINARY PRE-MEETING COURSE

Integration of multimodality imaging in radiation oncology to improve target definition and modified dose prescription

FRIDAY 5 MAY 2017

Course directors: U. van der Heide (NL) and D. Zips (DE)

LEARNING OBJECTIVES

- To learn how modern imaging technology such as functional MRI and PET influences today's radiotherapy.
- To better understand the concept how functional imaging can be used for better target definition and individual dose-prescriptions.
- To discuss with experts the current state-of-the-art in main disease sites including cancers of the prostate, lung, rectum, head and neck, brain and cervix.
- To understand limitations and potential pitfalls when using advanced imaging.
- To gain knowledge in how to implement advanced imaging in routine radiation oncology.

WHO SHOULD ATTEND?

Radiation oncologists, medical physicists, biologists and radiation therapists (RTTs) with interest in functional imaging for better radiation oncology. The course will provide "teaching level" lectures with basics for attendees who want to refresh their knowlegde and in addition it will provide "in-depth" discussions with experts in specific indications.

CONTENT

Introduction, biology, imaging technology and transfer in radiation oncology

- Clinical background
- Imaging biology for radiation oncology
- Update advanced imaging technology including hybrid imaging
- Specific requirements and workflows to integrate multimodality imaging for target definition and modified dose-prescritions
- Lessons learned: the example of DCE-MRI in radiation oncology

Disease-specific application of multimodality imaging in radiation oncology

- Prostate cancer
- Lung cancer
- Head and neck
- Rectal cancer
- Glioma
- Cervical cancer.

PHYSICS PRE-MEETING COURSE

Medical physics aspects of particle therapy

FRIDAY 5 MAY 2017

Course directors: M. Schwarz (IT) and J. Farr (USA)

COURSE AIM

The use of "heavy" charged particles (mostly protons and carbon ions) is an expanding modality in radiation oncology and such expansion is in advance of the number of trained medical physicists in the field. In addition, patients who may benefit from particle therapy are often referred from X-ray treatment facilities. To assist in external referrals, all therapeutic medical physicists should have some knowledge of particle therapy, and this course seeks to provide this introductory education. Due to the evolutionary nature of particle therapy, a balance of fundamental and current topics will be covered.

LEARNING OBJECTIVES

Upon completion of the course, successful learners will be able to:

- Comprehend basic particle interactions with matter and radiobiology
- Compare aspects of particle therapy systems
- Know methods of particle beam dosimetry
- Discover insight into particle therapy specific imaging
- Know about acceptance testing and clinical commissioning
- Comprehend machine and patient specific quality assurance methods
- Critique particle therapy specific treatment planning techniques
- Compare particle therapy with photon therapy treatment plans
- Interpret particle therapy uncertainties, detections, and their mitigations
- Appraise how to select the most appropriate patient indications for particle therapy.

WHO SHOULD ATTEND?

The target group consists of medical physicists, medical physics assistants, dosimetrists and researchers who are interested in improving their knowledge of clinical particle therapy.

CONTENT

- Clinical perspective of particle beam therapy
- Particle beam interactions
- Radiobiology of particle beam
- Particle therapy systems
- Particle specific imaging
- Particle therapy detectors and sensors
- Acceptance testing of particle therapy systems
- Clinical commissioning of particle therapy systems
- Uncertainties and their dosimetric impact
- Treatment planning
- Motion management
- In-vivo dosimetry for patient dose verification
- Outlook and future directions of particle therapy.

GEC-ESTRO WORKSHOP

Innovations in brachytherapy

FRIDAY 5 MAY 2017

Course directors: C. Kirisits (AT) and P. Petric (QA)

WORKSHOP AIM

Brachytherapy is a treatment modality with long tradition, based on standardised techniques and extensive experience of different schools for several decades. In the last years we have witnessed an increasing amount of exciting developments in terms of brachytherapy technology, imaging, intervention methods and dose delivery devices. In some cases, these developments have not yet reached the level of state of the art in general, but are discussed between different traditional "schools". The aim of this workshop is to give an overview of some of the most promising new tools and techniques available. It will allow a moderated debate about pro's and con's and interactive discussion with the participants. The optimal use of each technique for each patient group will be discussed. Instead of comparing the technologies in a competitive manner, the workshop will aim to emphasise their complementarity.

LEARNING OBJECTIVES

- Discover the clinical benefits and limitations of different kinds of applicators for intracavitary and superficial brachytherapy techniques (including customised and 3D printed applicators)
- Distinguish dosimetric properties of shielded, rotational and electronic brachytherapy dose delivery devices
- Compare state of the art balloon and interstitial techniques for partial breast brachytherapy
- Interpret the evidence and experience with modern techniques for anorectal brachytherapy
- Justify the use of current state of the art prostate brachytherapy by comparison with modern external beam treatments
- Modify current practice by using MRI and different ultrasound approaches for prostate, gynaecological and anorectal interventions and treatment planning.

WHO SHOULD ATTEND?

- Radiation and clinical oncologists
- Physicists
- Radiologists
- Urologists
- Gynaecologists
- Surgeons
- Brachytherapy technologists
- Specialist nurses.

CONTENT

Session 1: Applicators
- New "standard" applicators
- Individualised 3D printed applicators
- Shielding techniques
- Electronic brachytherapy and superficial.

Session 2: Breast
- Balloon techniques
- Interstitial techniques.

Session 3: Anorectal
- Superficial
- Interstitial.

Session 4: Prostate
- Technological innovations for dose delivery
- Clinical innovations for targeted therapy
- Do we need brachytherapy when using modern external beam methods?

Session 5: Brachytherapy imaging
- Ultrasound versus MRI
- Transabdominal Ultrasound
- TRUS, TVUS, TRACE, TAUS & combinations.

RTT PRE-MEETING COURSE

Quality and risk management in practice

FRIDAY 5 MAY 2017

Course directors: M. Coffey (IE) and S. Johansen (NO)

COURSE AIM

The course aims are to give some practical approaches to risk management in the clinical setting and to explore some of the issues surrounding reporting.

LEARNING OBJECTIVES

On completion of this course, participants will be able to:

- Evaluate the issues surrounding reporting and how to address them in the clinical setting
- Consider how quality indicators, benchmarking and reporting and learning can be introduced into a department to improve overall quality of the service
- Participate in a lean exercise and evaluate its applicability in practice.

WHO SHOULD ATTEND?

The course is primarily for radiation therapists (RTTs) but is applicable to all professionals and trainees.

CONTENT

- A theoretical component on the background to risk management
- Legislation relating to risk management and how it is applied
- Benchmarking and how it is applied
- To report "or not" and the pressures influencing decisions.

RADIOBIOLOGY PRE-MEETING COURSE

Clinical application of biomarkers: How to discover, explore, and validate biomarkers for normal tissue toxicity and tumour response

FRIDAY 5 MAY 2017

Course directors: J. Alsner (DK) and M-C. Vozenin (CH)

COURSE AIM

Enable participants to understand the scientific and clinical aspects associated with discovery, exploration, and validation of biomarkers for personalised/precision radiation oncology (PRO) and raise awareness of key challenges in this important field.

LEARNING OBJECTIVES

- To comprehend the basic principles of prognostic and predictive biomarkers
- To assess the relevance of biomarkers for normal tissue toxicity
- To assess the relevance of biomarkers for tumour response
- To propose strategies for validation of biomarkers
- To propose strategies for implementing imaging and molecular biomarkers for PRO
- To analyse legal and patent aspects for the clinical use of biomarkers.

WHO SHOULD ATTEND?

- Radiation oncologists, particularly those in the early stage of their career, who are keen to understand how biomarkers are important for PRO
- Radiation biologists seeking information on how to maximise the clinical impact of their scientific discoveries
- Medical physicists and RTTs looking for an overview and update of recent and ongoing developments in the field of biomarkers.

CONTENT

Prognostic and predictive biomarkers

Tumour response

- Genetic biomarkers: mutations and mRNA / miRNA profiles
- Imaging biomarkers: PET / MR
- Imaging biomarkers: radiomics
- Circulating tumour cells and cell-free DNA / RNA.

Normal tissue

- Genetic biomarkers: genomic DNA
- Genetic biomarkers: mitochondrial DNA
- Proteomic / metabolomic biomarkers
- Functional biomarkers.

Validation

- Design methodology for biomarker based radiotherapy trials
- Clinical trial example (EORTC-1219): Randomised prospective multicenter study testing a radiosensitizer and a predictive biomarker.

CONTOURING WORKSHOPS

FALCON (Fellowship in Anatomic DeLineation and CONtouring) is the multifunctional ESTRO platform for contouring and delineation. Eight such workshops have been planned for ESTRO 36.

PROGRAMME

- Intraprostatic relapses: Friday 5 May 2017 from 08:00-10:00 (repeated Saturday 6 May from 14:45-16:45)
- Liver SBRT: Friday 5 May 2017 from 10:30-12:30 (repeated Sunday 7 May from 14:45-16:45)
- Anal canal: Friday 5 May 2017 from 13:30-15:30 (repeated Monday 8 May from 14:45-16:45)
- Spine SBRT: Friday 5 May 2017 from 16:00-18:00 (repeated Tuesday 9 May from 08:30-10:30)

TARGET AUDIENCE

The delineation workshops are aimed at all radiation oncology professionals who want to improve their contouring skills.

STRUCTURE OF THE WORKSHOPS

- Presentation of the clinical case and the delineation exercise
- Explanation of the contouring software
- 20 minutes for the first delineation on site
- Presentation of the delineation guidelines
- 20 minutes for the second delineation on site
- Discussion between experts and participants.

PRACTICAL ARRANGEMENTS

- Participants should bring their own laptops
- Wifi and wired connection will be available
- Participants will be limited to 60 per workshop to keep a strong interactivity in the group.

ABOUT FALCON

FALCON workshops have been organised at ESTRO congresses since 2010 and have been growing steadily in popularity. Attending a FALCON workshop offers the opportunity for individual professionals to:

- Validate their contouring practice during live workshops by comparing them with those from experts and other participants
- Learn the indications proposed by the experts that coordinate the workshops
- Discuss with other participants, experts and panellists
- Communicate and use the delineation guidelines in order to further integrate them into daily practice.

CONTOURING WORKSHOP FEES

	Initial Workshop	Additional Workshop
Student*/In Training Member**	€ 75	€ 25
Member	€ 100	€ 40
Non Member	€ 150	€ 50

*To register as a student you should be an ESTRO member and send a copy of your valid student card to events@estro.org before registering. Institute letters are not accepted.
**Members with specialty RTT may register at the In Training fee.

NOT TO BE MISSED...

2017 ESTRO COMMUNITIES PAVILION

The other place for networking...

All delegates will be invited to the Communities Pavilion located in the exhibition area at ESTRO 36. Created to foster exchanges about science, projects, collaborations, and why not, job opportunities, the Communities Pavilion provides a networking forum for the wide range of stakeholders in radiation oncology.

Based on the success of the Cancer Centres Pavilion introduced at ESTRO 35 in Turin, the concept of this activity has been extended under the new name of Communities Pavilion to include this year national societies, international professional, scientific and patients associations, in addition to institutions, each represented in its own booth.

Free access
No registration required

Dates: 5-8 May 2017
Exhibition opening hours

To book a booth on the Communities Pavilion, please contact atyszkiewicz@estro.org, ESTRO Public Affairs Co-ordinator.

SUPER RUN

Actioned by the ESTRO Cancer Foundation

Sunday 7 May 2017, 19.00 hrs

It has now become a not to be missed gathering at the ESTRO congress: the Super Run. Organised by the ESTRO Cancer Foundation, the Super Run raises awareness of radiotherapy.
With 500 runners, including patients who are demonstrating that being physically active during treatment is possible, the Super Run is the opportunity to meet altogether in a congenial atmosphere and share the same effort in the fight against cancer.

SCIENTIFIC PROGRAMME

SATURDAY 6 MAY 2017

08:00 - 08:40	TEACHING LECTURE **The role of radiotherapy in small cell lung cancer-current status and future developments**	TEACHING LECTURE **Immunotherapy**	TEACHING LECTURE **MRI for RO physicists: what is what? QA geometrical distortions**	TEACHING LECTURE **Cavity Theory: how can we separate the facts from the myths?**
08:45 - 10:00	SYMPOSIUM **How to move forward in NSCLC?**	SYMPOSIUM **Radiotherapy plus immunotherapy combination: rationale and results so far** The immune-modulatory effect of radiotherapy on the tumour micro-environment: friend or foe? - The impact of tumour infiltrating lymphocytes on clinical outcome after (chemo)radiotherapy - Radiotherapy and immunotherapy combination: paradigm changing or just hype?	SYMPOSIUM **Particle therapy I**	SYMPOSIUM **CT imaging, new developments** Current status and potential of dual energy and spectral CT - New CT reconstruction methods for artifact reduction and optimised image quality - The potential of new CT technologies for radiotherapy with photons and protons
10:00 - 10:30	COFFEE BREAK			
10:30 – 11:30	MULTIDISCIPLINARY TUMOUR BOARD **HNSCC**	SYMPOSIUM **Response adapted treatment** Mechanisms and biomarkers of tumour response heterogeneity - Response optimised treatment planning and guidance - Current status and future perspective of response adaptation	PROFFERED PAPERS	PROFFERED PAPERS
11:40 - 12:10	VAN DER SCHUEREN AWARD LECTURE			
12:10 - 12.40	IRIDIUM AWARD LECTURE			
12:40 - 13.00	HONORARY PHYSICIST AWARD LECTURE			
13:00 - 14:45	LUNCH, SATELLITE SYMPOSIA, POSTER VIEWING		13:30 - 14:30 PHYSICS MEMBERS ASSEMBLY	
14:45 - 16:00	SYMPOSIUM **The optimal approach to treat oligometastastic disease: different ways to handle an indication quickly gaining acceptance** Clinical approach to abscopal effects - What is the purpose of surgical metastasectomy and do we achieve it? - What is the indication and what is the aim of clinical treatment: radiotherapy - What is the indication and what is the aim of clinical treatment: systemic treatment	SYMPOSIUM **Targeting tumour heterogeneity** Using heterogeneous brachytherapy dose distribution to target tumour cell heterogeneity - The challenges of targeting tumour heterogeneity in the field of radiation oncology - The impact of tumour heterogeneity on radiation therapy outcomes	SYMPOSIUM **Particle therapy II**	SYMPOSIUM **Imaging for therapeutic response / toxicity evaluation** Functional imaging as biomarker for toxicity response - Imaging tumour response to neoadjuvant treatment in GI tumours - Imaging in animals
16:00 - 16:30	COFFEE BREAK			
16:30 - 17:30	PROFFERED PAPERS	SYMPOSIUM **Oligometastatic disease**	PROFFERED PAPERS	PROFFERED PAPERS
17:40 - 18:25	HONORARY MEMBERS AWARD LECTURES			
18:30 - 19:30	POSTER AWARDS CEREMONY			

CLINICAL SESSION | INTERDISCIPLINARY SESSION | PHYSICS SESSION | RTT SESSION

RADIOBIOLOGY SESSION | BRACHYTHERAPY SESSION | YOUNG SCIENTISTS' SESSIONS

TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE			
High tech or low tech for metastatic disease, how does one decide and what is the cost-benefit?	**Gene editing: how this technique can be used to study radiation responses?**	**Target delineation and target definition for PBI**			
SYMPOSIUM	SYMPOSIUM	SYMPOSIUM		POSTER VIEWING	
High tech or low tech for metastatic disease, how does one decide and what is the cost-benefit? Palliative workflow - Evaluation of time, attendance of medical staff, and resources during stereotactic radiotherapy / radiosurgery: QUIRO-DEGRO trial - High tech approaches for curative treatment, when is enough enough?	**Novel approaches in heart matters** State of the art in heart effects - Pharmacological modulation of cardiac radiation injury	**Expanding brachytherapy indications** How the interventional radiologist can support brachytherapy implantations - The technique for CT/MR guided hepatic implantations - Tracking technologies for navigation in brachytherapy implantations - Using multiparametric US to redefine target volumes in brachytherapy			
PROFFERED PAPERS	SYMPOSIUM	PROFFERED PAPERS	PROFFERED PAPERS	POSTER VIEWING	
	Novel approaches in gut matters State of the art in gut effects - Novel developments in mechanisms and prevention of gastrointestinal toxicities				
SYMPOSIUM	SYMPOSIUM	SYMPOSIUM		POSTER VIEWING	CONTOURING WORKSHOP
Immobilisation and motion management, including comfort for patients Immobilising the patient to be as comfortable as possible. A general overview - Motion control of the patient, using the exactrac system - Motion of liver tumours using Active Breathing Control: keeping the margins small and the patient comfortable	**Novel approaches in brain matters** Effect of radiation on CNS stem cells - Amelioration of CNS damage using stem cell approaches	**Brachytherapy pays** Introducing the GEC-HERO initiative - Current knowledge on QALY for brachytherapy - Optimal utilisation of brachytherapy in Europe - can it be measured? - Economic evaluation of radiotherapy including brachytherapy for cancer – pitfalls			
PROFFERED PAPERS	SYMPOSIUM	PROFFERED PAPERS	PROFFERED PAPERS	POSTER VIEWING	
	Novel approaches in particle biology The ESTRO initiative on biological effects of particle therapy - RBE of protons - A small animal tumour model for low-energy laser-accelerated particles - Novel models in particle biology research				

SUNDAY 7 MAY 2017

08:00 - 08:40	TEACHING LECTURE **Role of radiotherapy in extranodal lymphomas**	TEACHING LECTURE **Strategies to increase safety in radiation oncology: how to make accidents less likely to occur**	TEACHING LECTURE **Automated planning, knowledge-based planning and other novel developments in treatment planning - how do they work and perform?**	TEACHING LECTURE **Building of NTCP models that contain non-dosimetric parameters**
08:45 - 10:00	SYMPOSIUM **New developments in Personalised Radiation Oncology (PRO)** E-health and PRO: mobile technology and wearable sensors - Integration and analysis of complex data for PRO - Innovative clinical trial designs for PRO - Decision support systems and shared decision making	SYMPOSIUM **Safety and clinical and cost effectiveness of multi-modality IGRT and ART** What evidence is needed to assess cost-effectiveness of new technology and how can we get it (easily)? - Tips and tricks for safe and effective routine clinical application - Do we have the (software) tools for safe application? - Development of procedures for safe clinical application of plan-of-the-day adaptive radiotherapy	SYMPOSIUM **Robust optimisation in protons and photons** What is the actual robustness of the plans we deliver in clinical particle therapy practice, and what measures do we take to obtain it? - Minimax robust optimisation applied to IMPT for oropharyngeal tumours - Clinical implementation of coverage probability planning in cervix cancer	SYMPOSIUM **Ultra fast online therapy adaptation (replanning, dose accumulation QA)** Automatic image segmentation for on-line adaptive RT - Ultrafast treatment planning and dose reconstruction - Online tumour tracking – technology and quality assurance
10:00 - 10:30	COFFEE BREAK			
10:30 - 11:30	MULTIDISCIPLINARY TUMOUR BOARD **Lymphoma**	SYMPOSIUM **Clinical impact of waiting times**	PROFFERED PAPERS	PROFFERED PAPERS
11:40 - 12:10	PRESIDENTIAL SYMPOSIUM			
12:10 - 12:30	JENS OVERGAARD LEGACY AWARD			
12:30 - 13:00	REGAUD AWARD LECTURE			
13:00 - 14:45	LUNCH, SATELLITE SYMPOSIA, POSTER VIEWING			
14:45 - 16:00	SYMPOSIUM **New paradigm in HNSCC** Modern biomarkers for therapeutic strategy: radiation dose or volume modification - The changing role of the head and neck surgeon in HPV-positive oropharyngeal squamous cell carcinoma, or do we still need surgery? - Radiation de-escalation strategies in HPVpositive squamous cell carcinoma	SYMPOSIUM **Costs and value of radiotherapy innovations: how to assess** Health Technology Assessment: what's in a word? - Radiotherapy costs: the good, the bad and the ugly - Method of development of ESMO Magnitude of Clinical Benefit applicable for radiotherapy	DEBATE **This house believes that proton guided photons will be superior to photon guided protons**	PROFFERED PAPERS
16:00 - 16:30	COFFEE BREAK			
16:30 - 17:30	PROFFERED PAPERS	SYMPOSIUM **Global Task Force on Radiotherapy for Cancer Control**	PROFFERED PAPERS	PROFFERED PAPERS
17:40 - 17:50	ACADEMIC AWARD LECTURE: JACK FOWLER UNIVERSITY OF WISCONSIN AWARD			
17:50 - 18:10	COMPANY AWARD LECTURES: ESTRO-VARIAN AWARD AND ESTRO-ACCURAY AWARD			

CLINICAL SESSION | INTERDISCIPLINARY SESSION | PHYSICS SESSION | RTT SESSION

RADIOBIOLOGY SESSION | BRACHYTHERAPY SESSION | YOUNG SCIENTISTS' SESSIONS

TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE			
Particle therapy: how to start up and carry out daily clinical practice	**Three-dimensional organoid culture system**	**Commissioning of dose calculations in brachytherapy TPS**			
SYMPOSIUM	SYMPOSIUM	SYMPOSIUM		POSTER VIEWING	
Particle therapy: how to start up and carry out daily clinical practice RTTs skills for proton therapy – how and what to include in a learning programme - How to start up a proton therapy department – the point of view of a RTT - Workflow in a proton therapy department – real difference from photon therapy?	**Combining tumour and normal tissue models** Novel approaches in the study of bladder cancer - Combining tumour and lung tissue radiation	**Paediatric brachytherapy** The AMORE concept and late effects outcome for paediatric brachytherapy - Brachytherapy for bladder/ prostate rhabdomyosarcoma: clinical outcome and functional results - Intraoperative HDR in paediatric brachytherapy			
PROFFERED PAPERS	PROFFERED PAPERS	PROFFERED PAPERS	PROFFERED PAPERS	POSTER VIEWING	
		13:30 - 14:30 GEC-ESTRO ASSEMBLY			
SYMPOSIUM	PROFFERED PAPERS	SYMPOSIUM		POSTER VIEWING	CONTOURING WORKSHOP
Focus on ART: the clinical difficulties Multi-parametric functional PET/MR imaging for RT individualisation - Metabolic and functional MRI for glioblastoma dose-painting trial - RAIDER study on plan of the day and dose-escalation for bladder cancer		**Registration and fusion techniques** Rigid registration techniques for different imaging modalities - Deformable registration for dose summation - Imaging and fusion techniques for focal brachytherapy			
PROFFERED PAPERS	PROFFERED PAPERS	PROFFERED PAPERS	PROFFERED PAPERS	POSTER VIEWING	

MONDAY 8 MAY 2017

08:00 - 08:40	TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE
	State of the art multimodality treatment of rectal cancer	**SBRT for vertebral metastases: experimental or routine practice?**	**Challenges in proton radiotherapy** How to reduce range uncertainties - Adaptation to anatomical changes: needs and pitfalls	**HDAC inhibitors and chromatin**
08:45 - 10:00	SYMPOSIUM	SYMPOSIUM	SYMPOSIUM	SYMPOSIUM
	Rectal cancer – prediction and individualisation Sequence of radiotherapy, chemotherapy, and surgery: current concepts and trials - Organ preservation by optimised chemoradiotherapy: ready for prime time? - Imaging and molecular profiles to predict response to chemoradiotherapy: where do we stand?	**Radiotherapy of brain tumours** Radiotherapy for low grade glioma in adults: risk group stratification and clinical evidence - What is the role of combined chemo-radiotherapy for grade III glioma in adults? - "Paediatric" brain tumours in adults	**MR guided radiotherapy: the new standard of care in 10 years time** Clinical opportunities with MR guided external beam radiotherapy - MR guided brachytherapy - successes and potential future developments - Challenges associated with MR guided radiotherapy - Can we perform RCTs evaluating MR guided radiotherapy?	**Novel approaches in head and neck tumour control** State of the art in head and neck tumour radiobiology - Novel developments in the radiobiology of HPV-positive head and neck tumours
10:00 - 10:30	COFFEE BREAK			
10:30 - 11:30	PROFFERED PAPERS	MULTIDISCIPLINARY TUMOUR BOARD	SYMPOSIUM	SYMPOSIUM
		Brain metastases	**Radiomics and imaging databases for precision radiation oncology**	**Novel approaches in prostate tumour control** State of the art in prostate tumour radiobiology - Novel developments in molecular targeting of prostate cancer
11:40 - 11:50	DONAL HOLLYWOOD AWARD			
11:50 - 12:30	HIGHEST SCORING ABSTRACTS			
12:30 - 13:00	BREUR AWARD LECTURE			
13:00 - 14:45	LUNCH, SATELLITE SYMPOSIA, POSTER VIEWING			
14:45 - 16:15	SYMPOSIUM	SYMPOSIUM	SYMPOSIUM	SYMPOSIUM
	Non-rectal GI tumours: key open questions to be answered from (and for) the radiation oncologist! Radio(chemo)therapy in oesophageal cancer: can we do better? - Does radiotherapy still have a role in the management of pancreatic cancer? - Standard treatment in anal cancer: where do we stand and where should we go?	**Locally advanced breast cancer** Personalised local and locoregional radiotherapy in breast cancer - Where should we place radiotherapy in high risk cases: before or after surgery? - Radiotherapy after complete response after neoadjuvant CHT. Is it needed?	**From big data to better radiotherapy**	**Novel approaches in lung tumour control** State of the art in lung cancer radiobiology - Secretome as novel target for lung cancer
16:15 - 16:45	COFFEE BREAK			
16:45 - 17:45	PROFFERED PAPERS	PROFFERED PAPERS	SYMPOSIUM	SYMPOSIUM
			Patient Reported Outcomes (PROs) in radiotherapy Differences between PRO and clinician reported morbidity and associations to clinical outcome - Collecting PROs in routine clinical practice to assess radiotherapy toxicity and develop normal tissue complication probability models - PROs instruments used in clinical trials	**Novel approaches in colorectal tumour control** State of the art in colorectal cancer - Immunobiology of gastro-intestinal tumours
17:50	ESTRO GENERAL ASSEMBLY			

CLINICAL SESSION | INTERDISCIPLINARY SESSION | PHYSICS SESSION | RTT SESSION

RADIOBIOLOGY SESSION | BRACHYTHERAPY SESSION | YOUNG SCIENTISTS' SESSIONS

TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE		
State of the art and future improvements in in-room cone beam CT image quality	**Radiomics for physicists – understanding feature extraction, quality, selection, prediction modelling, statistics, performance validation and possible applications of radiomics in clinical routine**	**Focus on lung cancer: what a radiotherapy department should offer their patients**	**"Show me the money": tips and tricks on how to write successful grant proposals**		
SYMPOSIUM	SYMPOSIUM	SYMPOSIUM	CAREER SYMPOSIUM	POSTER VIEWING	
Experimental therapies Grid therapy - Strategies for radiosensitisation with gold nanoparticles - Potentials of Cerenkov imaging in radiotherapy	**Adaptive radiotherapy (both anatomical and "functional" changes)** Image registration and dose accumulation - Adaptive strategies to account for anatomical changes - Adaptive strategies to account for functional changes	**Focus on lung cancer: what a radiotherapy department should offer their patients** Optimal delineation - ART in lung cancer: when and for whom? - Improvements in physics, DIBH in lung	**Education and research grants** ERC grants - how to succeed - ESTRO educational grants and mobility grants		
PROFFERED PAPERS	PROFFERED PAPERS	PROFFERED PAPERS	KEYNOTE LECTURE	POSTER VIEWING	
DEBATE	PROFFERED PAPERS	SYMPOSIUM	SCIENTIFIC SYMPOSIUM	POSTER VIEWING	CONTOURING WORKSHOP
		Focus on prostate cancer: what is the best radiotherapy we need to treat our patients with What are the best ingredients to deliver the optimal radiotherapy for prostate cancer? - Spacer / hypofractionation - Using an MR Linac for prostate cancer patients	**Young ESTRO meets ESTRO School** Introduction and presentation of FALCON (Fellowship in Anatomic delineation and CONtouring) on-line contouring system as a tool for e-learning - Lung cancer - Cervical cancer - Rectal cancer		
PROFFERED PAPERS	PROFFERED PAPERS	PROFFERED PAPERS		POSTER VIEWING	
			16:45-17:00 Info from Young ESTRO Activities and short report from Agora - **17:00-17:15** Interactive quiz - **17:15-18:00** Young networking		

TUESDAY 9 MAY 2017

08:30 - 09:10	TEACHING LECTURE **New radiotherapeutic horizons in soft tissue sarcoma treatment**	TEACHING LECTURE **Clinical evidence for hypofractionation in prostate cancer: what is the optimum?**	TEACHING LECTURE **Microvesicles and circulating tumour/DNA in radiation oncology**
09:15 - 10:30	SYMPOSIUM **Radiotherapy in the elderly** Radiotherapy in elderly rectal cancer patients - Breast cancer - Glioblastoma - Lung	SYMPOSIUM **Selection of patients and radiotherapy technique for APBI in the light of new phase III trial data** Target coverage and dose to organs at risk using different techniques of APBI (EBI, IORT, BT) - External beam partial breast irradiation: changing patient selection based on current evidence - Partial breast irradiation with brachytherapy: changing patient selection based on current evidence	SYMPOSIUM **Novel approaches in poor tumour control sites** Use of radiopharmaceuticals in pancreatic cancer - Contribution of microenvironment of malignant gliomas to angiogenesis - mRNA-based vaccines and Lewis lung cancer
10:30 - 11:00	COFFEE BREAK		
11:00 - 12:00	SYMPOSIUM **Hypofractionation in prostate cancer** Moderate hypofractionation in prostate cancer: what have we learnt from phase III trials - Extreme hypofractionation – the future of prostate care or repeating past mistakes? - Hypofractionation in prostate cancer: a word of caution	SYMPOSIUM **Is there any ground for boost brachytherapy in the time of high precision IGRT/IMRT?** The efficacy of IGRT/IMRT simultaneous integrated boost (SIB) in gynaecology and breast - Dose gradients: the effect of high doses inside the CTV comparing boost brachytherapy with SIB - Why use invasive techniques for boost if IGRT is more comfortable for the patient?	SYMPOSIUM **Novel approaches in tumour control** Molecular mechanisms of radiation-induced in situ tumour vaccination - Novel developments in paediatric cancer
12:00 - 13:00	CLOSING DEBATE		
13:00	CONCLUSIVE REMARKS		

CLINICAL SESSION | INTERDISCIPLINARY SESSION | PHYSICS SESSION | RTT SESSION

RADIOBIOLOGY SESSION | BRACHYTHERAPY SESSION | YOUNG SCIENTISTS' SESSIONS

TEACHING LECTURE	TEACHING LECTURE	TEACHING LECTURE	CONTOURING WORKSHOP
Update in nuclear medicine for radiation oncology	**Basics, implementations, limitations… of Monte Carlo dose calculation algorithms**	**New roles in advanced practice for RTTs**	
SYMPOSIUM	**SYMPOSIUM**	**SYMPOSIUM**	
4D imaging and tracked delivery MLC tracking: from bench to bedside - Motions models and tracking using MR - Tracking using electromagnetic transponder	**Modelling and treatment customisation** Developments in head and neck toxicity data, models, and treatment optimisation - New NTCP data in the thoracic region - New NTCP data in the pelvic area	**Radiotherapy is technology driven. How to keep the patient involved?**	
SYMPOSIUM	**SYMPOSIUM**	**DEBATE**	
Applications and challenges in dosimetry for MR-linacs Pre-treatment phantom dosimetry: effects in different phantoms and detectors - Reference dosimetry: getting the basics and calibration right - Clinical commissioning of MR guided treatment systems	**Novel approaches for combining imaging and non-imaging data for radiotherapy response predicition** Modelling the relation among volume, vascularisation and radio-sensitivity in cervical cancer exploiting Doppler ultrasonography data - Machine learning and bioinformatics approaches to combine MP data for outcome prediction - Tissue classification models based on imaging and non-imaging data	**Lost in technology. More and more technology involved in patient treatment - are we still interacting with patients?**	

ESTRO FINANCIAL SUPPORT AND AWARDS

AMBASSADOR SOLIDARITY FUND

The Ambassador Solidarity Fund is generously financed by part of the membership fee paid by the Supporting Ambassador members and enables sponsorship of individual In Training membership and registrations to ESTRO 36 to help young radiation oncology professionals from European economically challenged countries. More information on our webpage: http://www.estro.org/members/individual-membership/supporting-ambassador

20 sponsored registrations and In Training memberships are available for ESTRO 36.

CRITERIA FOR ELIGIBILITY

Applicants should be:

- Below 40 years old
- Currently be in training
- From economically challenged European countries (eligible countries: Albania, Bosnia & Herzegovina, Belarus, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Moldova, Poland, Portugal, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Turkey) *Applicable only to those who are unable to meet the cost of membership and registration without financial support.*
- Active in the field of radiotherapy, radiobiology, radiation physics, or radiation technology
- Previous recipients of a grant are not eligible to apply.

HOW TO APPLY

Candidates should submit a curriculum vitae and a recommendation letter from their department head stating they are currently in training and that financial support is essential to register for membership and benefit from a sponsored registration to ESTRO 36.

Deadline for submission: 30 October 2016

Applications for the solidarity fund are to be addressed to:
Myriam Lybeer
mlybeer@estro.org

ESTRO MEMBERS FROM EMERGING COUNTRIES

ESTRO members from emerging countries can benefit from reduced registration fees to attend the conference. The list of eligible countries applies to individuals from low-income and lower-middle-income economies according to the World Bank listing available at: http://data.worldbank.org/about/country-and-lending-groups.

POSTER AWARDS

ESTRO sponsors four poster awards of € 1,000 each for a clinician, a physicist, radiation therapisT (RTT) and a radiobiologist (respectively).

CRITERIA FOR SELECTION

- Only abstracts accepted for poster presentation for ESTRO 36 will be considered for the award.
- Posters are evaluated on (in decreasing order of importance): the scientific value of the data, the clarity of the presentation, and the visual quality of the poster layout.

HOW TO APPLY

No application is needed. You are automatically considered if your abstract is accepted.

Prizes will be handed out at the ESTRO 36 poster reception on Saturday 6 May 2017.

YOUNG SCIENTISTS POSTER AWARDS

ESTRO sponsors four young scientists poster awards consisting of a complimentary registration to a future ESTRO course for a clinician, physicist, radiation therapisT (RTT) and radiobiologist (respectively).

CRITERIA FOR SELECTION

- Only abstracts accepted for poster presentation for ESTRO 36, by authors under 40 years of age, will be considered for the award.
- Posters are evaluated on (in decreasing order of importance): the scientific value of the data; the clarity of the presentation; and the visual quality of the poster layout.

HOW TO APPLY

No application is needed. You are automatically considered if your abstract is accepted.

Prizes will be handed out at the Young Scientists Reception on Monday 8 May 2017.

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

ESTRO - JACK FOWLER UNIVERSITY OF WISCONSIN AWARD 2017

A prize of € 1,000 will be given for the best abstract in the field of radiation physics or radiation technology, submitted for ESTRO 36.

CRITERIA FOR ELIGIBILITY

- Candidates should be ESTRO members.
- Candidates should be younger than 36. Exceptions will be made for female applicants who had to interrupt their research for pregnancy/maternity reasons; for them the maximum age is fixed at 40.

HOW TO APPLY

Candidates should submit:

- A curriculum vitae
- A letter from their department head stating that the work has been done by the applicant
- A copy of the abstract on radiation physics or radiation technology which should have been submitted for ESTRO 36 (indicate abstract title and submitting author with your application)

Deadline to apply: 18 October 2016

COMPANY FINANCIAL SUPPORT AND AWARDS

ESTRO - ACCURAY AWARD

A prize of € 7,500 will be given to a radiotherapy professional for research in the field of "High Precision Radiotherapy". Awardees should be qualified in the field of clinical radiotherapy, radiation physics, radiation technology or radiobiology.

CRITERIA FOR ELIGIBILITY

- Candidates should be ESTRO members, having completed the submitted work in the previous or current year
- Submissions should be brought forward by the candidates and may be work done as an individual piece of research or as a thesis completed in the field of biological, physical or clinical research
- Candidates should be younger than 36. Exceptions will be made for female applicants who had to interrupt their research for pregnancy/maternity reasons; for them the maximum age is fixed at 40.

HOW TO APPLY

Candidates should submit:

- A curriculum vitae and a list of publications
- A copy of the abstract on the project which should have been submitted for ESTRO 36 (indicate abstract title and submitting author with your application)
- A summary (in English) of their work (max 2 pages).

Candidates should also commit themselves to write an original paper in English on (part of) the scientific work carried out. This paper should be based on previously unpublished data and should be written according to the "Instructions to authors" of the Journal *Radiotherapy & Oncology* in which it will be published if accepted.

Deadline to apply: 18 October 2016

ESTRO - VARIAN AWARD

A prize of € 5,000 will be given to a radiotherapy professional for research in the field of radiobiology, radiation physics, clinical radiotherapy or radiation technology.

CRITERIA FOR ELIGIBILITY

- Candidates should be ESTRO members, having completed the submitted work in the previous year.
- Submissions should be brought forward by the candidates or their department heads and may be work done as an individual piece of research or as a thesis complete in the field of biological, physical and clinical research.
- Candidates should be younger than 36. Exceptions will be made for female applicants who had to interrupt their research for pregnancy/maternity reasons; for them the maximum age is fixed at 40.

HOW TO APPLY

Candidates should submit:

- A curriculum vitae and a list of publications
- A copy of the abstract on the project which should have been submitted for ESTRO 36 (indicate abstract title and submitting author with your application)
- A summary (in English) of their work (max 2 pages).

Candidates should commit themselves to write an original paper in English on (part of) the scientific work carried out. This paper should be based on previously unpublished data and should be written according to the "Instructions to authors" of the Journal *Radiotherapy & Oncology* in which it will be published if accepted.

Deadline to apply: 18 October 2016

ELEKTA

ESTRO-ELEKTA BRACHYTHERAPY AWARD

By submitting a brachytherapy abstract for ESTRO 36, you are automatically being considered for the "ESTRO-Elekta Brachytherapy Award". Abstracts accepted for oral presentation for the brachytherapy track of ESTRO 36 will be considered for the award. Since the selection of the winner will be based only on the data provided in the abstract (and not on the presentation) it is advisable that you draft your abstract with extreme care, providing sufficient data for the evaluation by the jury.

The award will be given to the most innovative paper submitted for presentation in the brachytherapy track of ESTRO 36. The winning abstract will be selected by the ESTRO 36 Scientific Advisory Group for brachytherapy. The winner will be notified by email and announced in the ESTRO 36 Programme Book and Exhibition Guide (electronic format). The award amounts to € 2,000.

GEC-ESTRO BEST JUNIOR PRESENTATION
Sponsored by Elekta Brachytherapy

This award amounts to € 1,500 and is sponsored by Elekta Brachytherapy. The winning abstract will be selected by the ESTRO 36 Scientific Advisory Group for brachytherapy. The winner will be notified by email and announced in the ESTRO 36 programme book and exhibition guide (electronic format).

HOW TO APPLY

Applicants should be ESTRO members currently in training. If you meet this criterion, please send a copy of the abstract submitted for the brachytherapy track of ESTRO 36 and, a covering letter from the Head of department stating that the work has been done by the member in training, to eralda.azizaj@estro.org.

Deadline to apply: 18 October 2016

JUNIOR BRACHYTHERAPY TRAVEL GRANTS
Sponsored by Elekta Brachytherapy

ESTRO members currently in training who need support to attend the meeting may apply for the Junior Brachytherapy Travel Grants sponsored by Elekta Brachytherapy. Five grants of € 1,000 are available.

HOW TO APPLY

Candidates should submit:

- A motivation letter indicating your interest in brachytherapy and the reasons why you should be considered for this grant
- A covering letter from the department head stating that the work has been done by the member in training.
- Applications should be sent to eralda.azizaj@estro.org. Please indicate your full name, age and ESTRO membership type with your letter.

Deadline to apply: 18 October 2016

Applications for the above listed awards are to be addressed to:
ESTRO Office
Attn: Eralda Azizaj
Rue Martin V 40
1200 Brussels, Belgium

Tel: +32 2 775 93 40
Fax: +32 2 779 54 94
E-mail: eralda.azizaj@estro.org

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5th GEC-ESTRO Workshop

Autumn of 2017

The annual GEC-ESTRO workshop in the autumn is now a household event of GEC-ESTRO built on the success of the earlier editions, the first having been in 2013. For the first time the last workshop, 4th, was held in Poznan, Poland, another city other than Brussels. It is hoped that this can be done in other cities as well to encourage local participation. The event attracts both young and seasoned brachytherapists with different specialties, largely from Europe and a few from beyond. It is usually centered around smaller meetings of the various GEC-ESTRO working groups (anorectal, braphyqs, breast, gynaecology, head & neck, urology and the newly launched brachy-HERO) on a specific theme that changes from one year to another.

Young professionals with an interest in brachytherapy are encouraged to attend. It is an ideal opportunity for learning about ongoing projects with likeminded brachytherapy enthusiasts. The working groups are keen to welcome new members and input.

More information on the programme and venue will be available in the spring of 2017: www.estro.org

Information and Registration

UPDATED INFORMATION

Please consult the ESTRO website (www.estro.org) on a regular basis for updated information. Updates are also announced on Twitter and Facebook.

ACCREDITATION

The conference organisers will apply for CME accreditation with the European Accreditation Council for Continuing Medical Education (EACCME).
Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside Canada, recognised by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Programme of The Royal College of Physicians and Surgeons of Canada.

EXHIBITION

During ESTRO events, a commercial exhibition is organised. It includes companies manufacturing radiation therapy equipment, pharmaceutical industry as well as medical publishers.

In order to increase the visibility of companies participating in the exhibition, diverse sponsoring and advertising opportunities are available.

Companies and publishers that would like to participate in the exhibition may obtain more detailed information from:
Valerie Cremades
Corporate Relations Manager
Tel: +32 2 775 93 41
Fax: +32 2 779 54 94
E-mail : vcremades@estro.org

MEMBERSHIP

If you become a member of ESTRO, you will be able to register for ESTRO conferences at a preferential rate. Please note that in order to benefit from the members' rate, you must renew your membership for 2017 before registering for 2017 meetings. Membership renewal should be done at least three days before the early rate deadline. The membership internal processing and approval might take up to maximum three working days. More information about membership on our website: http://www.estro.org/members.

HOW TO REGISTER FOR AN ESTRO EVENT?

Registration for the conference will be exclusively through our online registration form via the ESTRO website.

- **You don't have an ESTRO user name and password:**
  - On the homepage of the ESTRO website (www.estro.org) go to 'My ESTRO' in the upper right hand corner and click on 'Create a user account'. Follow the screens. A login and password will be sent to your e-mail address.
  - To register for an event with your details please jump to point 4.

- **You have lost your password but still know your ESTRO user name:**
  - On the homepage of the ESTRO website (www.estro.org) go to 'My ESTRO' in the upper right hand corner and click on 'Lost password'. Fill in your user name. A new password will be sent to your e-mail address within a few minutes.
  - To register for an event with your details please jump to point 4.

- **You have forgotten your ESTRO user name:**
  Send an e-mail to events@estro.org indicating your Name/Surname/Birthdate/Company or Institute.

- **Registration procedure with an ESTRO user name and password:**
  - Log in to 'My ESTRO' and update your profile before starting the registration process

- On the homepage of the ESTRO website (www.estro.org) go to 'Congresses and meetings' tab
- Choose the event from the list of 'Next Events' on the left side of the page.
- Click on the small icon 'Registration'
- Click on the orange 'Register' button.
- Enter your user name and password again and click on 'Login'.
- Check your Contact Person details. To manage them you have to go back to the profile in 'My ESTRO'.
- Check your Invoice details and address. If you need a VAT invoice, make sure to select the right option and fill in the VAT number before clicking 'Next'.
- Check that your Participant details are correct. If they are incorrect or you wish to change them, click on the change button under the addresses. Please make sure your invoice details are correct as replacements will not be available.
- If your addresses are correct, choose the fee you want to pay. Also check the box should you want your details to be used in promotional/ commercial activity. Click on 'Next' to continue.
- For ESTRO conferences there are some additional options that you can choose in the following pages before the payment page.
- On the overview page check your details and the products that you have chosen to register for. If they are incorrect, use the 'Previous step' button to go backwards.
- Tick the box accepting the ESTRO terms and conditions and click on the Submit button. You will be directed to a secure credit card payment site where you have to fill in your credit card details. (www.ogone.be)
- The last page should be the registration acknowledgment page. Additionally you will receive an email confirming that ESTRO has received your registration..Should you wish to make any changes to your registration please contact us at events@estro.org.
- A confirmation letter for ESTRO conferences will be sent to you about 2 weeks prior to the conference.

HOW TO REGISTER SOMEBODY ELSE TO AN ESTRO EVENT?

Follow the steps in 'How to register for an ESTRO event' and change the participant details to the person who will actually attend the event.

If you have more than one person to register, contact the ESTRO office.

For any assistance or to register for conferences, please send an email to events@estro.org

4.2 SCIENTIFIC COLLABORATION

ECCO 2017
27-30 January 2017 | Amsterdam, The Netherlands 156

6TH ICHNO
16-18 March 2017 | Barcelona, Spain 159

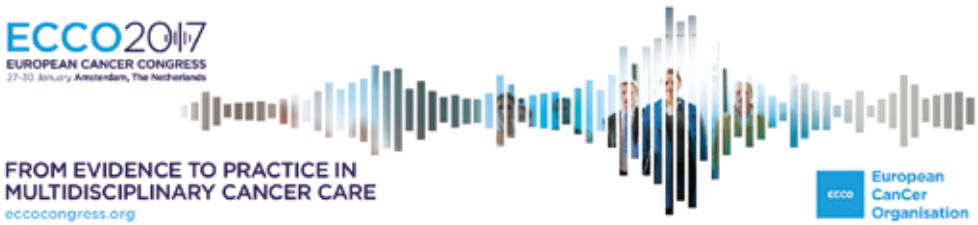
ELCC 2017
5-8 May 2017 | Geneva, Switzerland 162

EMUC 2017
9th European Meeting on Urological Cancers
At the time of print of this Guide, the dates and venue were not known. More information will be available later on the ESTRO website www.estro.org and www.emuc17.org.

ECCO 2017

European Cancer Congress: From Evidence to Practice in Multidisciplinary Cancer Care

27-30 January 2017
Amsterdam, The Netherlands



ECCO2017 is the multidisciplinary evidence based meeting for all tumour types, addressing all disciplines in oncology and related healthcare professionals. ECCO2017 will have direct impact on daily clinical practice.

Focusing on Phase III practice changing data, which will be critically reviewed by expert panels, the congress will thus creat a perspective for a multidisciplinary audience. Leading oncologists will address the value of these practice changing treatments by reviewing their clinical benefits and costs. Experts, patient advocates and the audience will determine whether the data is truly practice changing. The congress gives centre stage to real world data which impacts treatment and care. There are discrepancies between what happens in real life and in a clinical trial setting.

With focus on clinical practice, delegates will gain concrete, up-to-date knowledge through multidisciplinary tumour boards, encouraging delegates to participate in identifying practice-changing developments.

The Educational Committee have prepared a comprehensive educational programme from using evidence-based information to make informed decisions for our patients, to understanding health economics and outcome research. There will be a major focus on immunotherapy and personalised medicine.

www.eccocongress.org

ESTRO Workshops
at ECCO 2017

27 January 2017
Amsterdam, The Netherlands

TOWARDS STATE-OF-THE-ART RADIOTHERAPY FOR EVERY CANCER PATIENT
What is at stake?

Chairs:
- *Yolande Lievens, Ghent University Hospital, Belgium.*
- *Josep M. Borras, University of Barcelona, Spain*

According to evidence based recommendations, across Europe, around half of all patients diagnosed with cancer would benefit from radiation therapy at some point during the course of their disease. It has however been estimated that in most European countries radiation treatment is provided to only about 60–80% of all patients who should receive it.

Topics discussed by the panellists will include:

ACCESS
- The availability, needs and sustainability of radiotherapy resources; now and in the future
- Safeguarding innovation in radiotherapy, accounting for socioeconomic variables
- The organisation of radiotherapy services in the context of cancer control programmes in order to improve accessibility.

EFFICIENCY
- Optimising processes in radiotherapy
- Seeking the optimal balance between outcomes and cost.

QUALITY
- Safety through quality assurance programmes in radiation oncology
- Radiotherapy contribution to the multidisciplinary cancer care approach
- The importance of interaction between doctors and other stakeholders.

COMMUNICATION IN ONCOLOGY
What is at stake?

Lead facilitator:
Pål Gulbrandsen

Co-facilitators:
- *Søren Cold, Clinical Oncologist, University of Southern Denmark*
- *Robert Glynne-Jones, Clinical Oncologist, Mount Vernon Cancer Centre, UK*

AIMS
- Introduce basic communication concepts and competence to the European cancer community
- Help participants to deal efficiently with difficult communication tasks in a way that make them – and the patients – feel better afterwards.

METHODS
- Blend of interactive lectures, activities in groups of 2–20 and plenary take-homes
- Highly learner-centered, scheduled programme adjusted to participants' needs as we teach.

PROGRAMME THEMES
- Basics of efficient communication
- Disclosing uncertainty – breaking bad news
- Delivering complex information
- Shared decision-making and follow-up.

The workshop comprises four 90-minute modules.

AUDIENCE
Radiation oncologists, medical oncologists, clinical oncologists, surgical oncologists, GP's, nurses, patient organisations and decision makers.

6TH ICHNO

International Conference on innovative approaches in

HEAD & NECK ONCOLOGY

16-18 March 2017
Barcelona, Spain

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE
European Society for Medical Oncology

EHNS
www.ehns.org

ESTRO
European Society for RADIOTHERAPY & ONCOLOGY

6th ICHNO

16-18 March 2017
Barcelona, Spain

DEADLINES

Abstract submission deadline: **12 October 2016**
Early registration deadline: **26 October 2016**
Late registration deadline: **15 February 2017**
Desk registration **as of 16 February 2017**

A LETTER OF WELCOME FROM THE CONFERENCE CHAIRPERSONS

The 6th International Conference on Innovative Approaches in Head and Neck Oncology (ICHNO) will be held from 16 to 18 March 2017 in Barcelona, Spain.

The European SocieTy for Radiotherapy and Oncology (ESTRO), the European Head and Neck Society (EHNS) and the European Society of Medical Oncology (ESMO) have the pleasure to invite you to participate in this conference.

This biennial conference promises once again to provide a unique platform for the dissemination of the most relevant and cutting edge science and innovation in the field of head and neck oncology. This conference has been shaping up to be a major international event in promoting multidisciplinarity in head and neck oncology.

With major emphasis on head and neck, this meeting will specifically cover the main following topics:
- New insights in the epidemiology and prevention of cancer
- Oncogenesis, HPV related cancers, immunology and vaccination
- Updated results of practice changing randomised trials
- Multidisciplinary management of cancers
- Molecular targeted therapies and molecular imaging
- Novel radiation and surgical treatments
- Towards individualised management of cancer
- Robotic and minimally invasive surgery
- Reconstructive and salvage surgery
- Elderly patients, co-morbidities and their impact on management
- New insight in systemic treatments of cancers
- Thyroid, nasopharynx cancers and rare cancers
- Quality of life, supportive care and management of treatment side effects.

The format of the meeting will include prestigious invited 'state of the art lectures'; lectures on the latest innovative approaches; proffered papers and poster presentations of new data in the field of head and neck oncology. The programme will be enriched by pro and contra debates and interactive tumour board sessions where the audience will have the possibility to participate and share their input via an electronic voting system. There will be also a

special focus on presentations of new data from practice changing randomised trials. Ample time will be given for discussions to allow in-depth interaction among the various disciplines and the participants.

To stimulate multidisciplinary interactions among the various specialists, all the lectures, debates, tumour boards and proffered papers will be given in the same conference room.

It is hoped that the mix of a rich and challenging scientific programme coupled with the enticing atmosphere of the city of Barcelona will convince you to attend this 6th International Conference on Innovative Approaches in Head and Neck Oncology.

Hans Langendijk,
ESTRO

C. René Leemans,
EHNS

Jean-Pascal Machiels,
ESMO

Chairpersons of the 6th ICHNO conference

Hans Langendijk
ESTRO

C. René Leemans
EHNS

Jean-Pascal Machiels
ESMO

UPDATED INFORMATION

Please consult the ESTRO website (www.estro.org) on a regular basis for updated information. Updates are also announced on Twitter and Facebook.

EXHIBITION

Companies and publishers that would like to participate in the exhibition may obtain more detailed information from:
Valerie Cremades
Corporate Relations Manager
Tel: +32 2 775 93 41
Fax: +32 2 779 54 94
E-mail : vcremades@estro.org

TOGETHER, LETS SHAPE THE FUTURE OF CANCER CARE

Elekta creates solutions for treating cancer and brain disorders, helping clinicians deliver personalized care for every patient. Learn how Elekta can increase productivity and improve data quality.

VISIT ELEKTA.COM

ELEKTA

ELCC 2017

European Lung Cancer Conference

5-8 May 2017
Geneva, Switzerland

ESMO and IASLC invite you to save the date for the 7th annual European Lung Cancer Conference (ELCC), which will take place 5-8 May 2017, in Geneva, Switzerland.

ELCC is a collaborative effort of the most prominent societies representing thoracic oncology specialists worldwide: ESMO, IASLC, ESTRO, ESTS and ETOP. Conference delegates will benefit from the collective knowledge of this important group of multidisciplinary conference partners and renowned scientific committee representatives.

ELCC offers a platform for sharing the latest research and clinical developments in the field of thoracic oncology. The conference has been designed to meet the current educational needs of the multidisciplinary community of lung cancer specialists: medical and clinical oncologists, radiotherapists, thoracic surgeons, pulmonologists and all members of thoracic oncology treatment teams.

The main themes for 2017 are:
- New IASLC staging
- ESMO recommendations for thoracic malignancies
- Immunotherapy: first-line treatment, biomarkers and combination approaches
- SCLC and mesothelioma
- Management and diagnosis of persistence in molecularly defined NSCLC
- Management of brain metastases.

We encourage you to join us at ELCC 2017. Working together we can advance patient care through the dissemination of science education.

ELCC 2017 Scientific Committee Co-Chairs
Martin Reck, Grosshansdorf, Germany
Andrew Nicholson, London, UK

CONFIDENCE
IN THE OUTCOMES THAT MATTER MOST TO YOU

PATIENT EXPERIENCE

OPTIMIZED WORKFLOWS

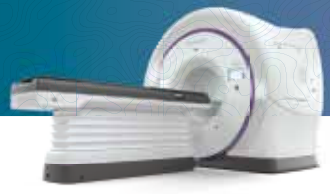
PRACTICE PROSPERITY

PRECISION MATTERS

CyberKnife®

CyberKnife® Robotic Radiosurgery System.

Automatically tracks and adjusts to target motion during treatment with sub-millimeter accuracy.



Radixact™

NEW! Radixact™ Treatment Delivery System.

A major step forward in the evolution of the TomoTherapy® System in treatment speed and ease of use.

Want to explore our radiation therapy platforms?

Connect with an Accuray expert by sending an inquiry to sales@accuray.com, or visit www.accuray.com.

ACCURAY®

Precise, innovative tumor treatments™

Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury, and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), and the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and to see if treatment with an Accuray product is right for you, ask your doctor. MKT-ARA-0716-0106


ESTRO
European Society for
RADIOTHERAPY
& ONCOLOGY