

XXIV CONGRESSO NAZIONALE

AIRO 2014

Padova, 8-11 novembre

*The future of radiation oncology and
how ESTRO and national societies
can play a positive role in this.*

Philip Poortmans, ESTRO-President

ESTRO Strategy Meeting

Estoril, 23-25 February 2012

Radiotherapy and Oncology 103 (2012) 99–102



ELSEVIER

Contents lists available at SciVerse ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com



ESTRO Vision 2012

ESTRO 2012 Strategy Meeting: Vision for Radiation Oncology

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European Society for Radiotherapy and Oncology (ESTRO), Brussels, Belgium

ARTICLE INFO

Article history:

Received 23 March 2012

Accepted 23 March 2012

Available online 3 April 2012

ABSTRACT

Access to modern radiation oncology treatment programmes is now recognised as an essential component of high-quality cancer treatment and central to optimal patient care. Looking to the future, ESTRO strongly believes that further development of the discipline will be critically important to the future strategic development of multidisciplinary cancer care. On behalf of the Board and membership of ESTRO, this document outlines the Society's Vision for the development of the discipline of Radiation and Clinical Oncology together with the associated priority action areas that will collectively and strategically direct the Society's activities in the forthcoming years.

© 2012 Published by Elsevier Ireland Ltd. Radiotherapy and Oncology 103 (2012) 99–102

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.

Vision translated into...a plan

ESTRO's channels

SCIENCE



Involved actors

- ✓ European and International Research Organisations and European Associations and Consortia
- ✓ EU bodies → EU projects, H2020

PROFESSION



Involved actors

- ✓ All ESTRO members
- ✓ National Societies and Institutes
- ✓ Industry
- ✓ Patients

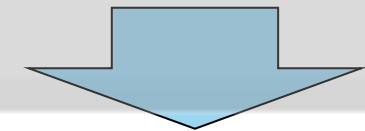
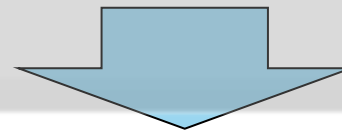
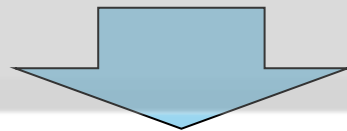
EDUCATION



Involved actors

- ✓ All ESTRO members
- ✓ National Societies and Institutes
- ✓ European and International Associations and Consortia (NB: UEMS)
- ✓ Patients

CHANNELS

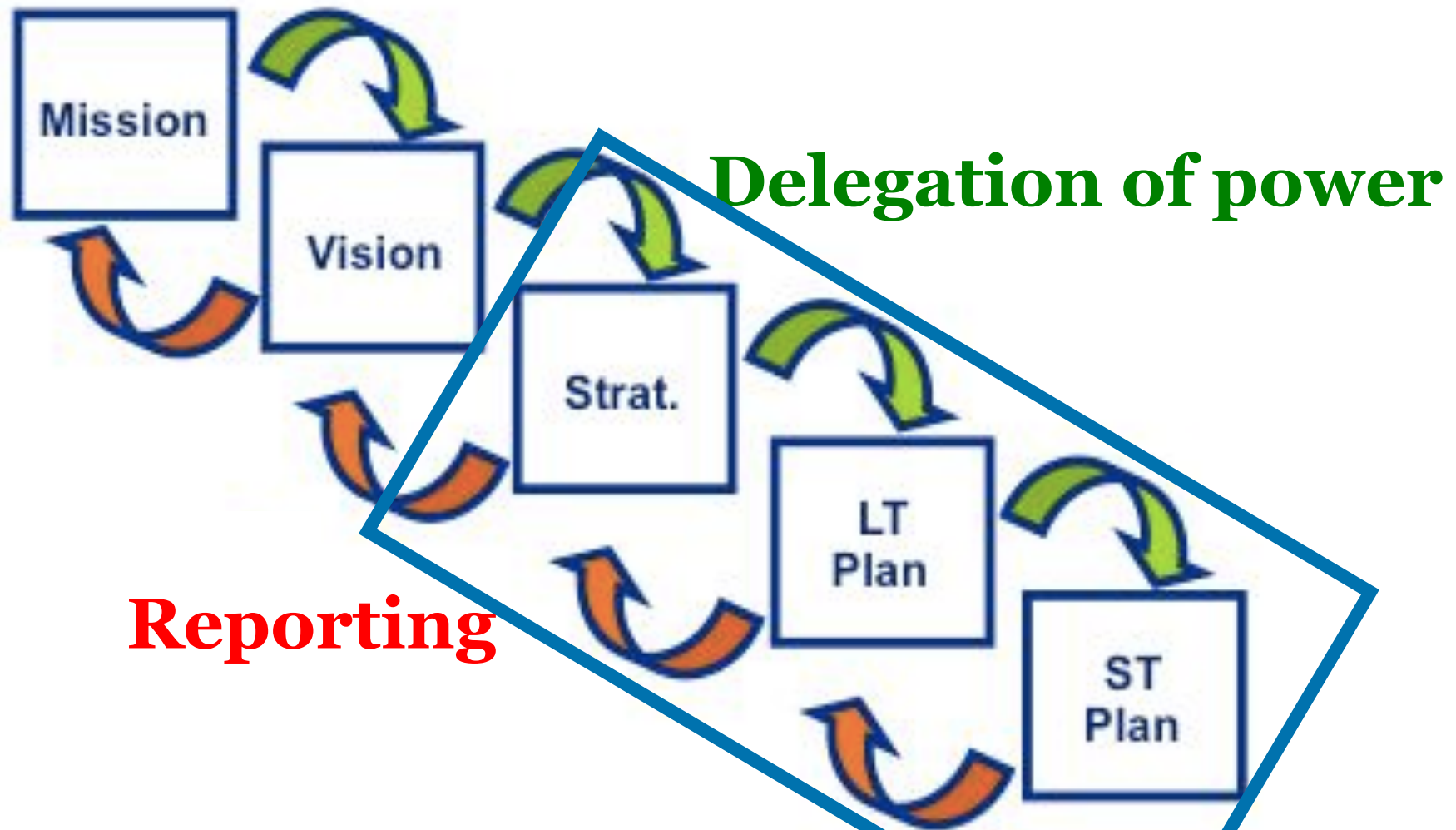


ESTRO is... a **MULTIDISCIPLINARY SOCIETY**

ESTRO is... a **MULTIPROFESSIONAL (interdisciplinary) SOCIETY**

ESTRO can provide → **coordination, management models, professional support**

ESTRO Strategy Review meeting



Group : *Scientific Platform and dissemination*

Chair: *Vincenzo Valentini*

Topics to be discussed	Questions to be answered	Output
Scientific platform and dissemination	<p>Q1: Role of ESTRO in optimising scientific dissemination and research?</p> <p>Q2: How to promote excellence and quality in scientific dissemination – what does it mean?</p> <p>Q3: Strategy to ensure dissemination of excellence and quality in publications/congresses/collaborative research</p>	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Publications	<p>Q1: Primary ESTRO targets for publishing scientific data ?</p> <p>Q2: What channels, what tools: access via subscription, open access, via DOVE</p> <p>Q3: Highest scientific quality vs EB guidelines?</p>	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Congresses	<p>Q1: Role of ESTRO in multidisciplinary meetings: general and/or site specific?</p> <p>Q2: Role of ESTRO in congresses focused on RO: interdisciplinary, discipline focused, state of the art?</p> <p>Q3: Should ESTRO become a global player?</p>	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Scientific collaboration	<p>Q1: Role of ESTRO in scientific projects</p> <p>Q2: Role of ESTRO in supporting scientific networking?</p> <p>Q3: Role of ESTRO in supporting scientific training and exchange?</p>	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles

Group : *Education*

Chair: *Philip Poortmans*

Topics to be discussed	Questions to be answered	Output
Live educational activities	Q1. Role of ESTRO in providing live courses and/or (further) develop TTT programmes? Q2. Should ESTRO translate the CC into detailed course templates to increase School scalability? Q3. Role of ESTRO in multidisciplinary cancer education? Q4. Should the School partner with corporate members through the Foundation to increase its resources & output?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Online Education	Q1. Online education to complement live courses or as alternative of live courses to increase scalability of the School? Q2. Level of the online education (basic/advanced) – LO for the online education (knowledge/skills/management)? Q3. Partnerships to complement ESTRO's limited own resources with scientific societies, national societies, univ, corporate members Q4. Link to publications?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
ESTRO = Preeminent Society for education in Europe & the world	Q1: Means & resources to manage the quality of the ESTRO education & School: quality planning/control/assurance/improvement Q2: Role of the School in qualification and accreditation European exams – fellows Q3. Should ESTRO become a global player /continue to develop international education	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles

Group : *Oncopolicy*

Chair: *Yolande Lievens*

Topics to be discussed	Questions to be answered	Output
Profession & Science	Q1: What is the role of RO within “multidisciplinarity”? Q2: What defines a ‘patient centric’ approach? Q3: Should ESTRO define an organizational model? Q4: Should ESTRO define professional standards?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Health Economics	Q1: What can be done to increase the dissemination of the HERO findings? Q2: Does ESTRO need to be active at national level?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Awareness	Q1: What should ESTRO do to increase the awareness of RO? Q2: What is the purpose of a dialogue with patients?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles

Group : *International Development*

Chair: *Philip Poortmans*

Topics to be discussed	Questions to be answered	Output
Education	Q1: Should ESTRO increase its offer internationally? Q2: What can be done to increase scalability? Q3: What are the primary targets?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Scientific Platform	Q1: Can ESTRO increase the participation of international RO professional to its platform? Q2: What tools are today available? Q3: What new channels and tools?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles
Policy	Q1: Is ESTRO a E or an I society? Q2: Should it become a global player? Q3: In a stepped approach? With what focus areas?	<ul style="list-style-type: none">• Answer• Necessary means• Potential risks / obstacles

What?
Committees & TFs
Operational

HOW?
Councils
Translation strategy →
function

WHY?
BOARD
Strategy
Decisions

ESTRO educational activities

ESTRO educational activities: milestones

ESTRO education started slowly and has been growing exponentially:

1985-1989:	5 courses	in 5 years
1990-1999:	58 courses	in 10 years
2000-2004:	58 courses	in 5 years
Total:	121 courses	for ~ 11.000 participants

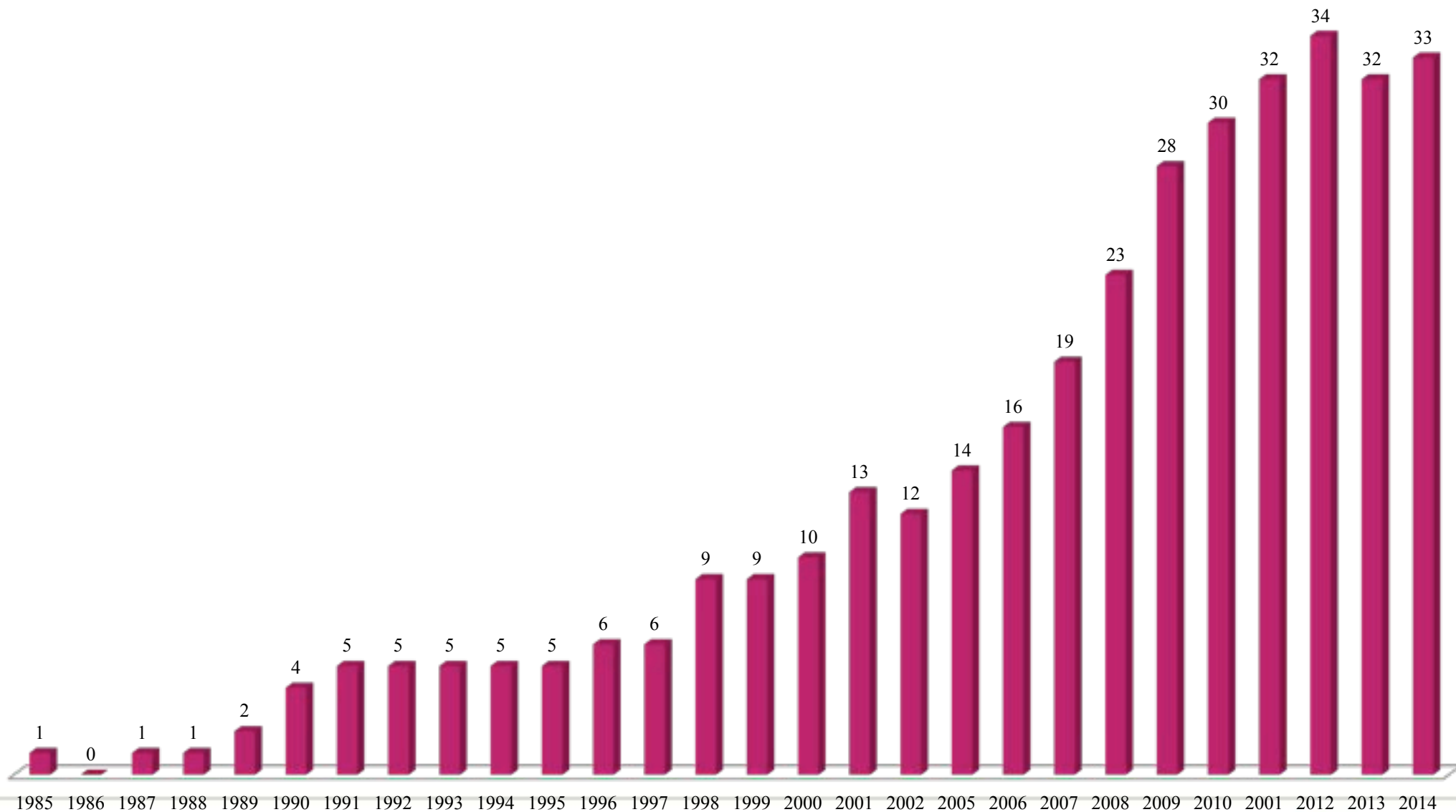
2005: Creation of the ESTRO School for Radiotherapy & Oncology

→ framework for ESTRO' s educational activities

→ increase profile & quality of education and training

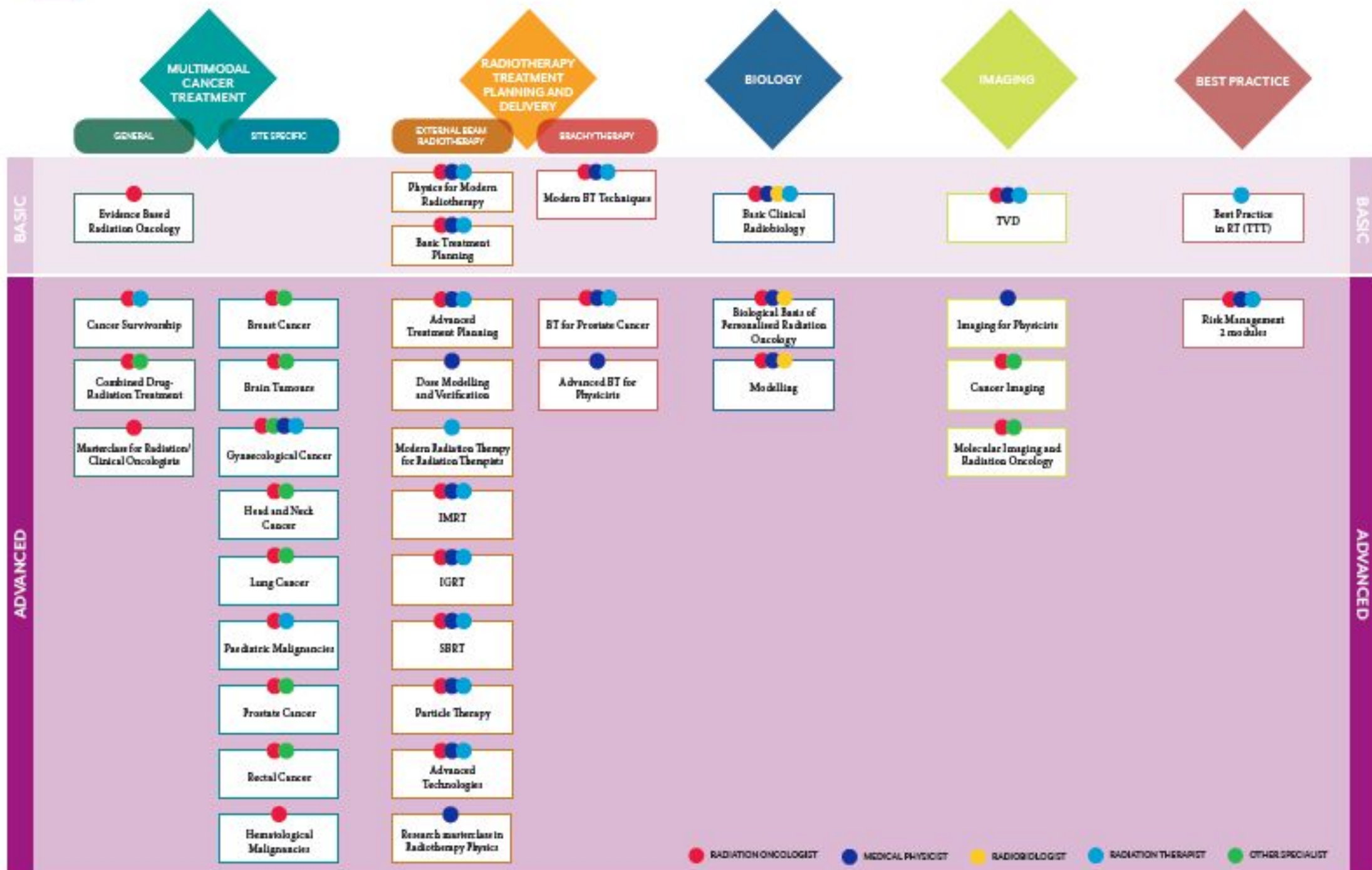
→ 2005-2014: 180 courses for ~ 24.500 participants

ESTRO COURSES 1985-2014



WHICH COURSE TO ATTEND?

2015 Roadmap to Teaching Courses



Biennial planning 2015-2016

**ESTRO SCHOOL
OF RADIOTHERAPY
AND ONCOLOGY**
WWW.ESTRO.ORG

2015



- COMPREHENSIVE QUALITY MANAGEMENT IN RADIOTHERAPY, QUALITY ASSESSMENT AND IMPROVEMENT**
1 - 4 February 2015 | Turin, Italy
- ESTRO/EANM COURSE ON MOLECULAR IMAGING AND RADIATION ONCOLOGY**
22 - 25 February 2015 | Madrid, Spain
- BASIC CLINICAL RADIOBIOLOGY**
7 - 11 March 2015 | Brussels, Belgium
- PARTICLE THERAPY**
8 - 13 March 2015 | Paris, France
- TARGET VOLUME DETERMINATION, FROM IMAGING TO MARGINS**
15 - 16 March 2015 | Amsterdam, The Netherlands
- MODERN BRACHYTHERAPY TECHNIQUES**
15 - 18 March 2015 | Limassol, Cyprus
- DOSE MODELLING AND VERIFICATION FOR EXTERNAL BEAM RADIOTHERAPY**
15 - 19 March 2015 | Barcelona, Spain
- 3-J ESTRO FORUM PRE-MEETING COURSES**
26 April 2015 | Barcelona, Spain
- IMAGE-GUIDED RADIOTHERAPY IN CLINICAL PRACTICE**
10 - 14 May 2015 | Prague, Czech Republic
- BIOLOGICAL BASIS OF PERSONALIZED RADIATION ONCOLOGY**
22 - 24 May 2015 | Seoul, South Korea
- CANCER SURVIVORSHIP**
16 - 16 May 2015 | Brussels, Belgium
- ADVANCED TREATMENT PLANNING**
17 - 21 May 2015 | Manila, The Philippines
- MULTIDISCIPLINARY MANAGEMENT OF BREAST CANCER**
8 - 11 June 2015 | Turin, Italy
- MULTIDISCIPLINARY MANAGEMENT OF HEAD AND NECK ONCOLOGY**
14 - 17 June 2015 | Beijing, China
- PHYSICS FOR MODERN RADIOTHERAPY A JOINT COURSE FOR CLINICIANS AND PHYSICISTS**
14 - 18 June 2015 | Ljubljana, Slovenia
- EVIDENCE BASED RADIATION ONCOLOGY A CLINICAL EVIDENCE COURSE WITH A METHODOLOGICAL BASIS**
21 - 26 June 2015 | Moscow, Russia
- BRACHYTHERAPY FOR PROSTATE CANCER**
28 - 30 June 2015 | Vienna, Austria
- ADVANCED SKILLS IN MODERN RADIOTHERAPY**
28 June - 2 July 2015 | Copenhagen, Denmark
- CLINICAL PRACTICE AND IMPLEMENTATION OF IMAGE-GUIDED STEREOTACTIC BODY RADIOTHERAPY**
30 August - 3 September 2015 | Dublin, Ireland
- HEMATOLOGICAL MALIGNANCIES**
3 - 5 September 2015 | London, United Kingdom
- RESEARCH MASTERCLASS IN RADIOTHERAPY PHYSICS**
3 - 4 September 2015 | Prague, Czech Republic
- IMAGING FOR PHYSICISTS**
13 - 17 September 2015 | The Netherlands
- BASIC TREATMENT PLANNING**
13 - 17 September 2015 | Lisbon, Portugal
- ADVANCED TREATMENT PLANNING**
18 - 22 September 2015 | Lisbon, Portugal
- MULTIDISCIPLINARY MANAGEMENT OF BRAIN TUMOURS**
4 - 6 October 2015 | Turin, Italy
- IMRT AND OTHER CONFORMAL TECHNIQUES IN PRACTICE**
4 - 8 October 2015 | Brussels, Belgium
- TARGET VOLUME DETERMINATION - FROM IMAGING TO MARGINS**
4 - 8 October 2015 | Budapest, Hungary
- MULTIDISCIPLINARY MANAGEMENT OF LUNG CANCER**
15 - 17 October 2015 | Athens, Greece
- ESTRO/ESOR MULTI-DISCIPLINARY APPROACH OF CANCER IMAGING**
15 - 17 October 2015 | Brussels, Belgium
- BEST PRACTICE IN RADIATION ONCOLOGY A FOUR PHASE PROJECT TO TRAIN BETT TRAINERS IN COLLABORATION WITH THE IAEA**
19 - 21 October 2015 | Vienna, Austria
- IMAGE-GUIDED RADIOTHERAPY AND CHEMOTHERAPY IN GYNAECOLOGICAL CANCER, FOCUS ON ADAPTIVE BRACHYTHERAPY**
1 - 5 November 2015 | Utrecht, The Netherlands
- COMBINED DRUG-RADIATION TREATMENT, BIOLOGICAL BASIS, CURRENT APPLICATIONS AND PERSPECTIVES**
15 - 18 November 2015 | Vienna, Austria
- PAEDIATRIC RADIATION ONCOLOGY**
18 - 21 November 2015 | Izmir, Turkey
- BASIC CLINICAL RADIOBIOLOGY**
Endorsed by ESTRO
21 - 24 November 2015 | Brisbane, Australia
- QUANTITATIVE METHODS IN RADIATION ONCOLOGY: MODELS, TRIALS AND CLINICAL OUTCOMES**
4 - 6 December 2015 | Brussels, Belgium
- ADVANCED TECHNOLOGIES**
4 - 10 December 2015 | India

◆ MULTIMODAL MANAGEMENT ◆ RADIOTHERAPY TREATMENT PLANNING AND DELIVERY ◆ BIOLOGY ◆ IMAGING ◆ BEST PRACTICE



**A SNEAK PEAK OF
OUR LIVE COURSES
NEXT YEAR!**

2016

LIVE TEACHING COURSES IN EUROPE

- BASIC**
EVIDENCE-BASED RADIATION ONCOLOGY A CLINICAL EVIDENCE COURSE WITH A METHODOLOGICAL BASIS
MODERN BRACHYTHERAPY TECHNIQUES
BASIC CLINICAL RADIOBIOLOGY
PHYSICS FOR MODERN RADIOTHERAPY
BASIC TREATMENT PLANNING
TARGET VOLUME DETERMINATION, FROM IMAGING TO MARGINS
- TECHNOLOGY**
ADVANCED TREATMENT PLANNING
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
- BRACHYTHERAPY**
BRACHYTHERAPY FOR PROSTATE CANCER
BRACHYTHERAPY PHYSICS
- IMAGING**
MOLECULAR IMAGING AND RADIATION ONCOLOGY (ESTRO/EANM)
MULTIDISCIPLINARY APPROACH OF CANCER IMAGING (ESTRO/ESOR)
- CLINICAL/MULTIDISCIPLINARY**
MULTIDISCIPLINARY MANAGEMENT OF HEAD AND NECK ONCOLOGY
MULTIDISCIPLINARY MANAGEMENT OF PROSTATE CANCER
MULTIDISCIPLINARY MANAGEMENT OF RECTAL AND UPPER GASTRO INTESTINAL CANCER
IMAGE-GUIDED RADIOTHERAPY AND CHEMOTHERAPY IN GYNAECOLOGICAL CANCER, FOCUS ON ADAPTIVE BRACHYTHERAPY
HEMATOLOGICAL MALIGNANCIES
- GENERAL CLINICAL**
CANCER SURVIVORSHIP
- PHYSICS**
DOSE MODELLING AND VERIFICATION FOR EXTERNAL BEAM RADIOTHERAPY
IMAGING FOR PHYSICISTS
- BIOLOGY**
BIOLOGICAL BASIS OF PERSONALIZED RADIATION ONCOLOGY
QUANTITATIVE METHODS IN RADIATION ONCOLOGY: MODELS, TRIALS AND CLINICAL OUTCOMES
- RTT**
ADVANCED SKILLS IN MODERN RADIOTHERAPY
BEST PRACTICE IN RADIATION ONCOLOGY TRAIN THE BETT TRAINERS
- RESEARCH**
MASTERCLASS FOR RADIATION/CLINICAL ONCOLOGISTS
- MANAGEMENT**
COMPREHENSIVE QUALITY MANAGEMENT IN RADIATION THERAPY - RISK MANAGEMENT AND PATIENT SAFETY

LIVE TEACHING COURSES OUTSIDE EUROPE (TBC) IN COLLABORATION WITH
AND (INDIA)
OSHO (CHINA)
JASTRO (JAPAN AND KOREA)
MIDDLE EAST
RUSSIA (RUSSIA)
SEANG (SOUTHEAST ASIA)

ESTRO premeeting courses & workshops

ESTRO 33	2 nd Forum	ESTRO 31	ESTRO Anniv	ESTRO 29
Congress total 2727	Congress total 2614	Congress total 3285	Congress total 2434	Congress total 3192
Total Teaching courses 615	Total Teaching courses 513	Total Teaching courses 513	Total Teaching courses 655	Total Teaching courses 516
Clinical 78	Focal Therapy 59	How Imag Innov... 133	Brachytherapy 169	Adaptive RT 229
	Molecular imaging 48	Brachytherapy 126	New quality mgmt 105	Functional imaging 155
Physics 214	Dose Verification 134	Proton Therapy 100	Photon beam 144	Tumour Microenv 51
Interdisciplinary 166	Statistics 88	Combining Rad 84	Research in RT 33	Patient Safety 81
Radiobiology 50	Applied RB 57	Delineation 70	Stereotact RT 204	Spanish Day 81
RTT 107	Complex Tissue 52	Spanish Day 78		Polish Day 103
8 FALCON WS 180	8 FALCON WS 126	4 FALCON WS 240	4 FALCON WS 240	3 FALCON WS 180

Premeeting educational activities 2014

NEW: MULTIDISCIPLINARY TUMOUR BOARD SESSIONS:

2014 @ ESTRO 33:

H&N

Breast

Rectal

2015 @ 3rd ESTRO forum:

Upper GI

Prostate

Lung

Participants courses 2007-2013

	7	8	9	10	11	12	13	POPUL		7	8	9	10	11	12	13	POPUL
AUS	28	48	38	79	110	99	222	23	IT	72	79	102	84	87	41	66	60
NL	123	149	164	135	194	209	177	17	GR	116	78	132	48	67	54	56	11
IND					123	160	159	1210	PT	50	44	46	58	67	70	55	11
CHINA	114	400	320	231	251	113	147	1347	AT	54	35	18	41	20	34	55	8
PL	138	135	163	206	122	169	141	38	NO	31	39	47	40	29	67	54	5
UK	72	129	113	101	128	101	130	62	DK	56	72	88	101	74	80	52	6
TR	165	95	90	100	200	112	126	74	CH	47	44	66	65	79	62	46	8
RU	69	82	135	140	106	153	125	143	NZ	13	13	18	21	22	11	46	4
BE	123	82	101	94	99	140	112	11	CZ	42	62	52	62	55	31	43	10
DE	117	113	112	92	104	126	104	80	SLOVEN	24	19	19	23	47	41	43	2
ES	50	77	103	93	60	106	98	46	CA	22	34	16	19	13	18	37	35
THAIL				26	50	168	96	65	MALAYS				77	31	44	35	29
SE	41	38	35	28	38	67	80	9	HU	39	32	13	50	33	42	29	10
FR	22	47	43	44	66	50	71	65	INDONES				15	23	33	21	237

ESTRO mobility grants (TTG) applications

Year	RO	Phy	RTT	RB	Total
2008(1X)	14	9	5	3	31
2009(2X)	1	22	8	0	43
2010(2X)	22	21	6	0	49
2011(2X)	17	11	3	2	33
2012(2X)	21	15	8	0	44
2013(2X)	33	22	6	0	61
TOTAL	118	100	36	5	259
%	45,5	38,5	14	2	100

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
TOTAL	223	149	66

Online educational

- **Delineation exercises in ESTRO live courses:**
 - 8 in 2012 → 11 in 2013 → 9 in 2014
 - **Live WS at ESTRO meetings:**
 - 4 in 2012 → 8 in 2013 → 8 in 2014
 - **Online delineation workshops:**
 - 1st edition in Oct 2012 (breast)
 - 3 in 2013 (2 breast and 1 H&N)
 - 4 planned in 2014 (H&N, breast, gyn, rectal)
 - **4 online cases free for all members: rectal, H&N, 2 gyn**
 - 2 about to be published on breast
 - more cases under preparation: lymphoma, CNS, Ewing's Sarcoma, ...
 - **Development of a database of expert delineations** necessitates good collaboration with the course directors or FALCON WS chairs
- **Young professionals** are welcome to support the conduction of FALCON courses and WS



Online educational: Dynamic Oncology Virtual ESTRO



DOVE creates new (online) education possibilities:

- Includes meeting webcasts/e-posters and abstracts, articles from the Green Journals, ESTRO publications, guidelines, FALCON exercises, course material, material from EU projects... (access regulated according to the member status and participation to specific events);
- Extra course material will soon be included from other (oncology) societies such as ESO, ECCO, probably AAPM and more agreements are under investigation;
- The DOVE TF works on the development of short educational online learning modules (EAGLE) on specific topics;
- The possibilities of DOVE for networking between members with similar (research) interests will be further exploited.

Setting up international collaboration

ESTRO acknowledges that whilst differences exist in the state of development of radiotherapy and clinical oncology in individual countries within Europe, the Society together with national societies will create and prioritise innovative strategic partnerships in order to strengthen the clinical and scientific specialty in the respective countries and in addition to support an increased level of patient care and quality of treatment throughout Europe.

Next steps for 2014-2015

Audit of the School

→ strategic analysis of the future educational needs; ongoing

Future structure of the School within ESTRO

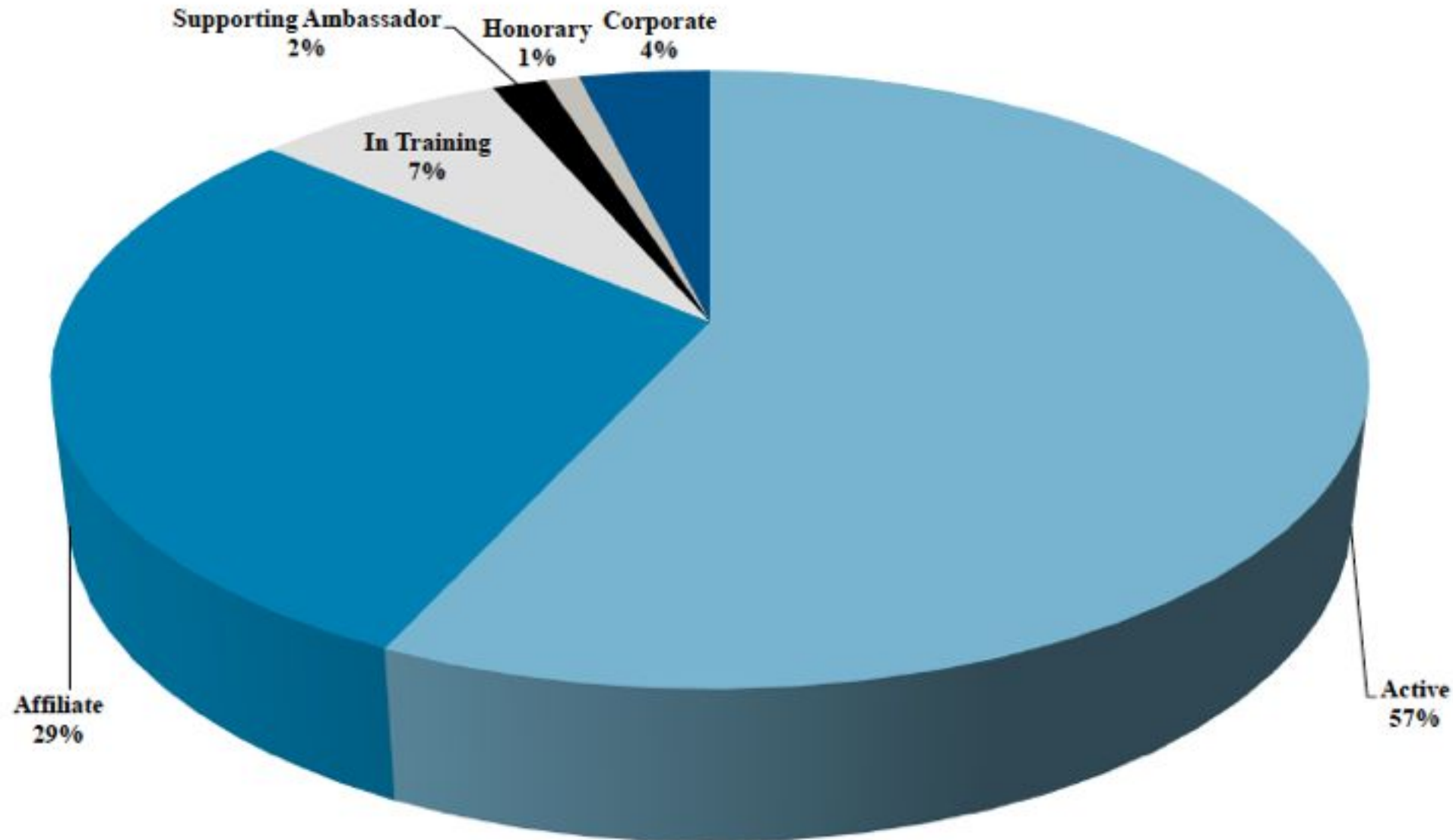
→ to be discussed at the JSR

Manual for the implementation of the competency based CC

→ link to UEMS (J Eriksen)

Membership 2014

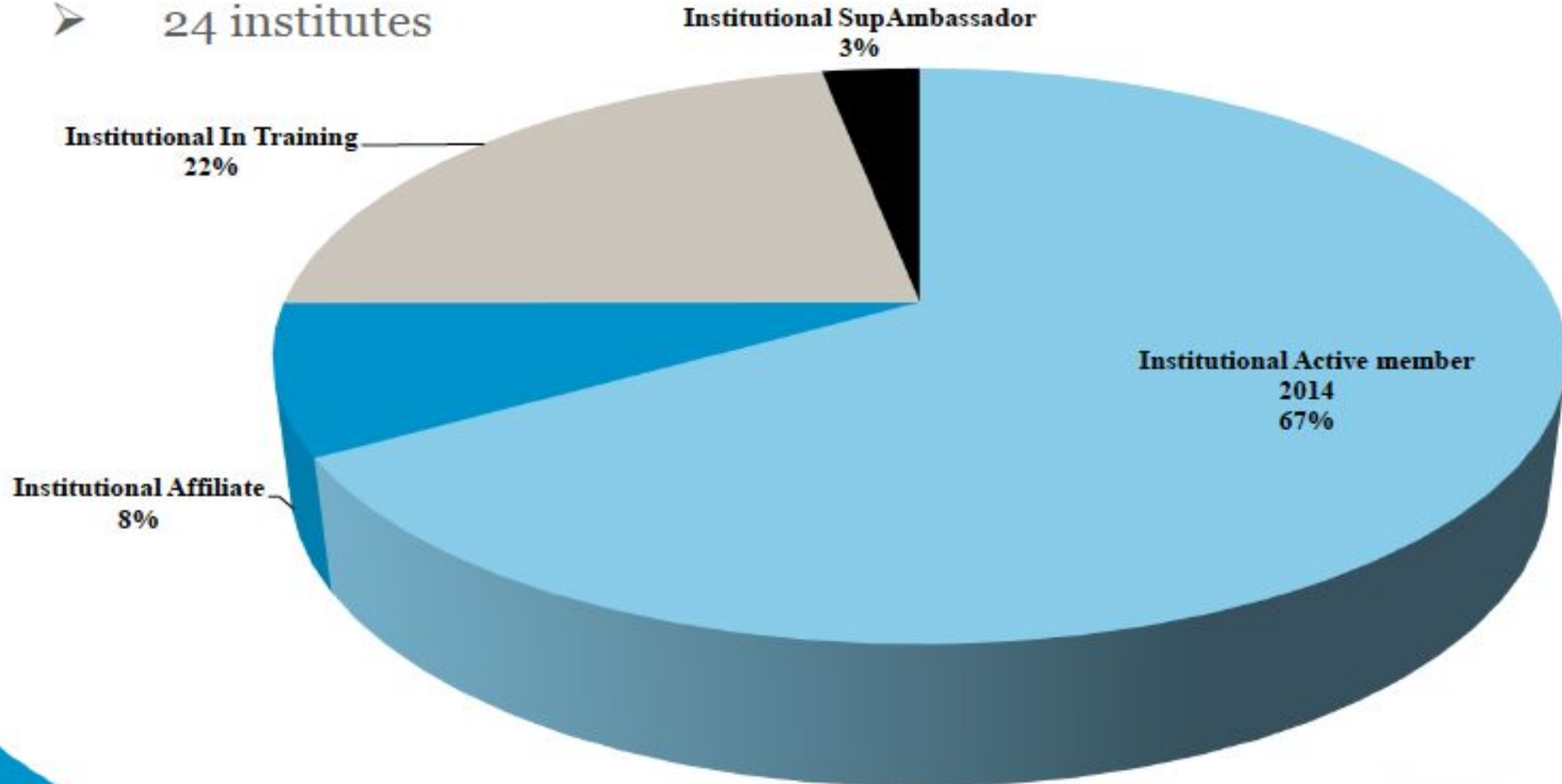
Individual members: 4443



Membership 2014

Institutional members:

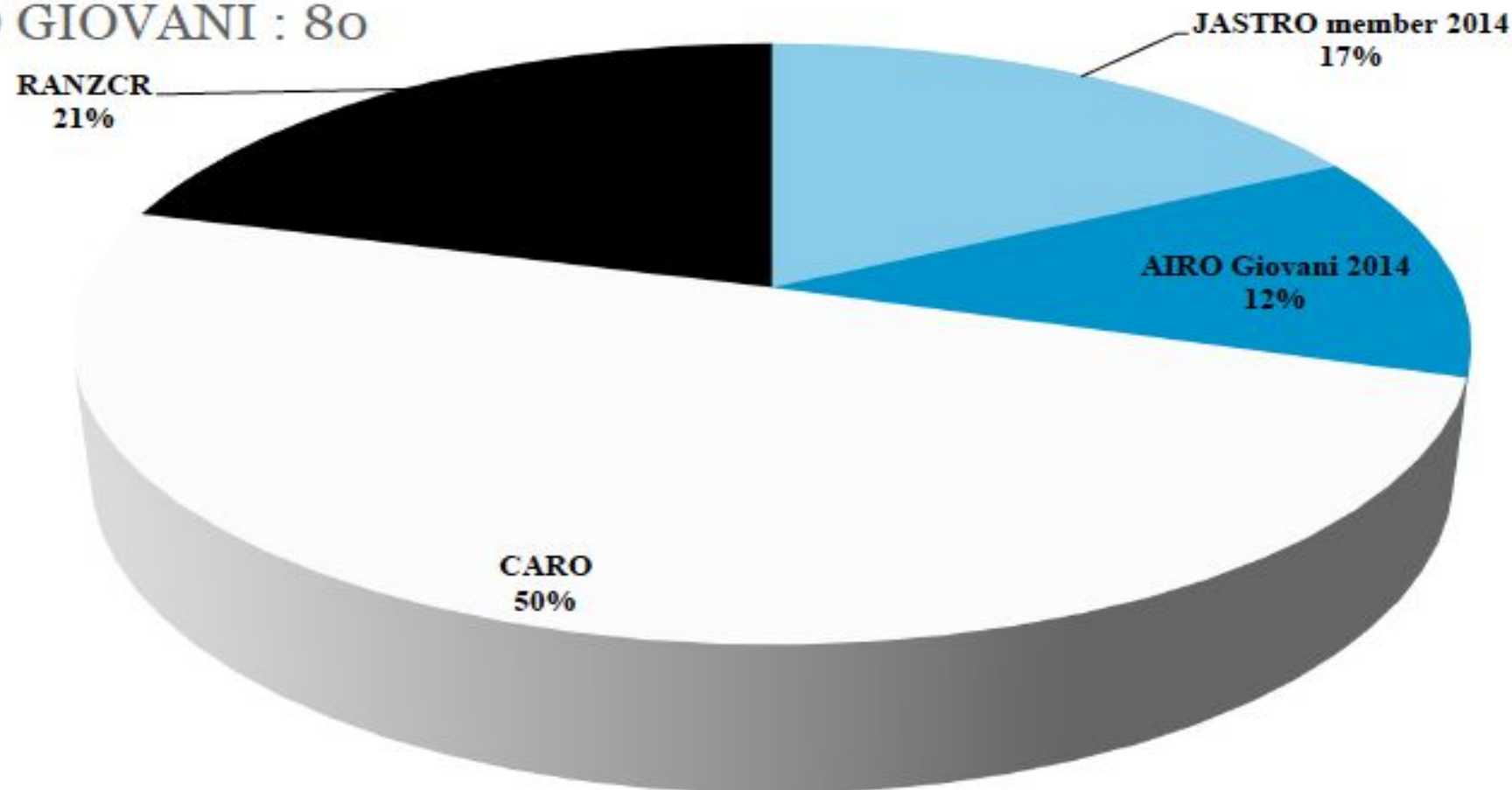
- 651 members
- 24 institutes



Membership 2014

Dual members: 652

- CARO: 323
- JASTRO: 114
- RANZCR: 135
- AIRO GIOVANI : 80



ESTRO HERO: Health Economics in Radiation Oncology

Radiotherapy and Oncology 103 (2012) 109–112



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ESTRO HERO project

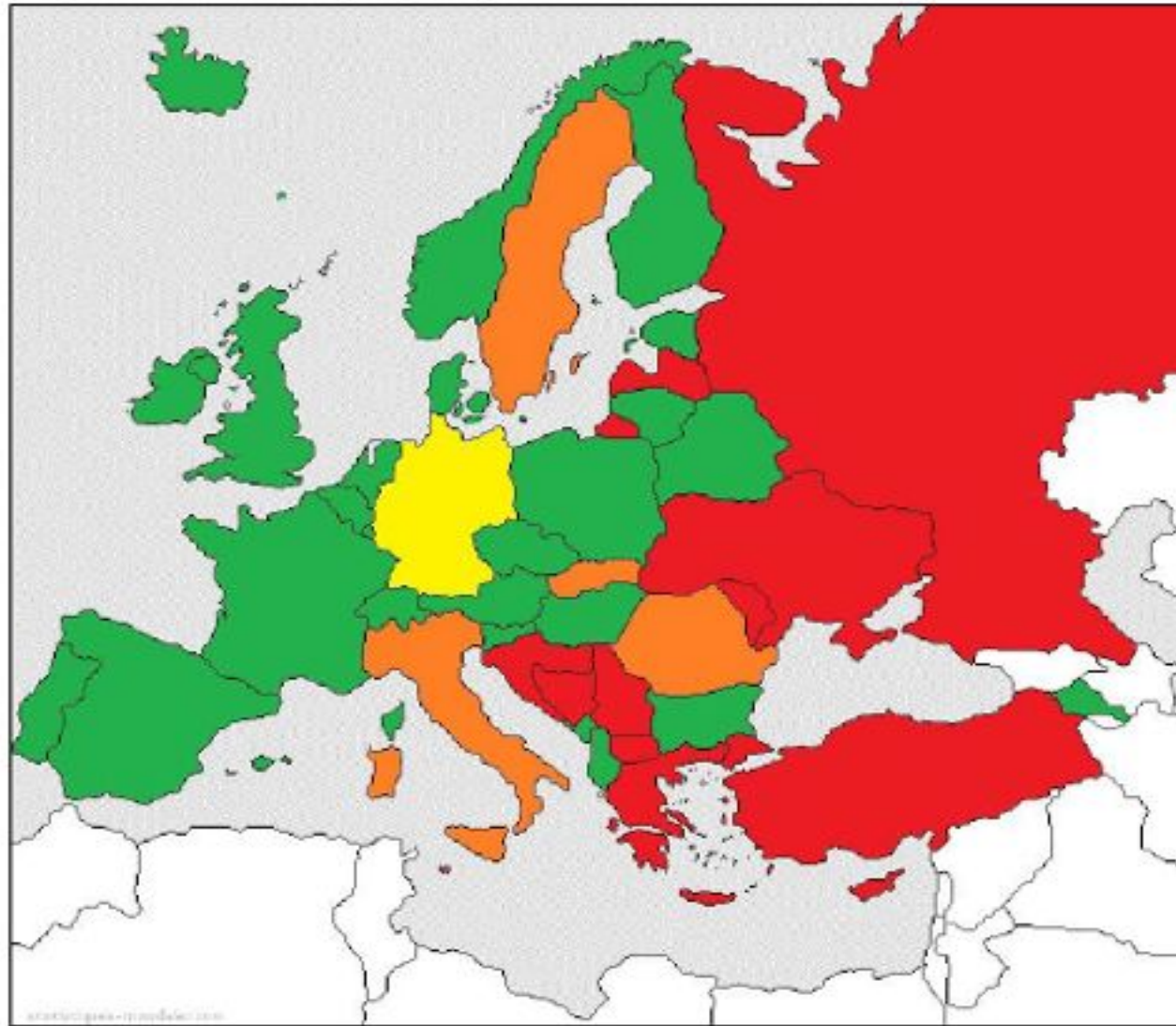
Health Economics in Radiation Oncology: Introducing the ESTRO HERO project

Yolande Lievens^{a,*}, Cai Grau^b

ESTRO HERO

Participating countries

-  All data
-  Most data
-  Some data
-  No data



Responses
were obtained
from:

Equipment
26 countries

Staffing
24 countries

Guidelines
28 countries

ESTRO HERO: staffing

1. STAFFING

Radiotherapy and Oncology xxx (2014) xxx–xxx



Contents lists available at [ScienceDirect](#)

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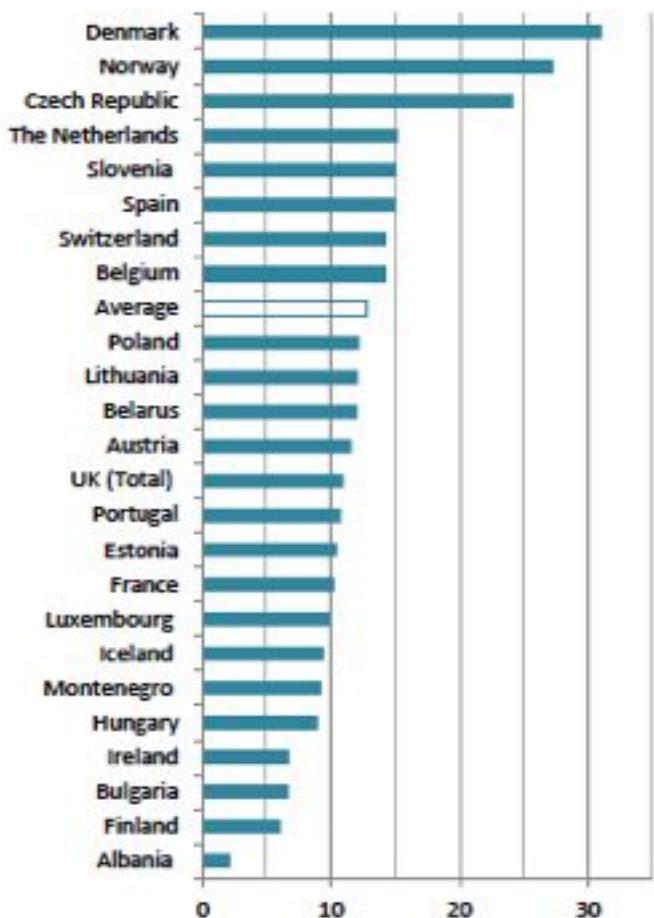
Original article

Radiotherapy staffing in the European countries: Final results from the ESTRO-HERO survey[☆]

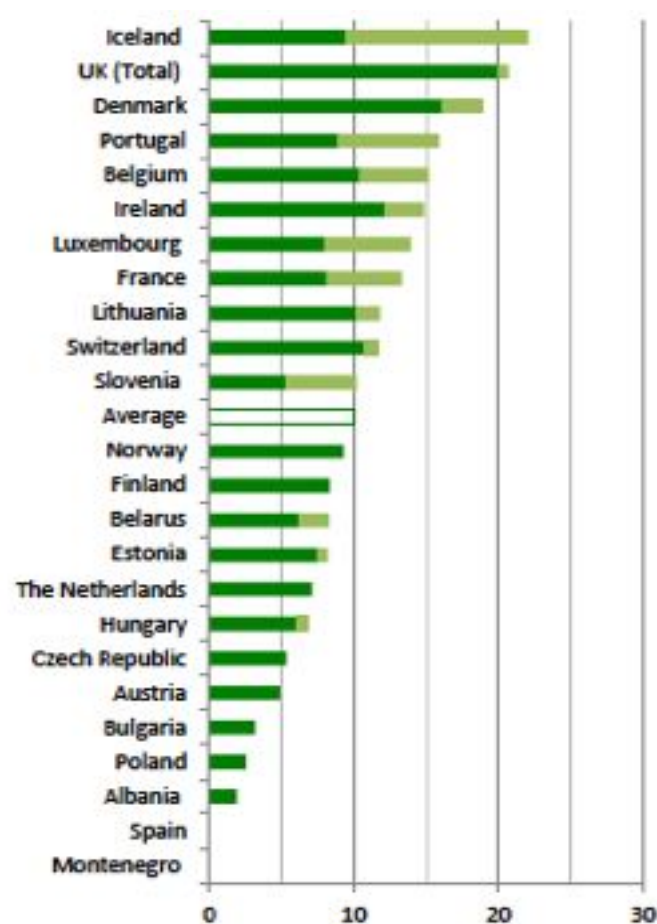
Yolande Lievens^{a,*}, Noémie Defourny^b, Mary Coffey^c, Josep M. Borrás^d, Peter Dunscombe^e, Ben Slotman^f, Julian Malicki^g, Marta Bogusz^h, Chiara Gasparotto^b, Cai Grauⁱ

ESTRO HERO: staffing

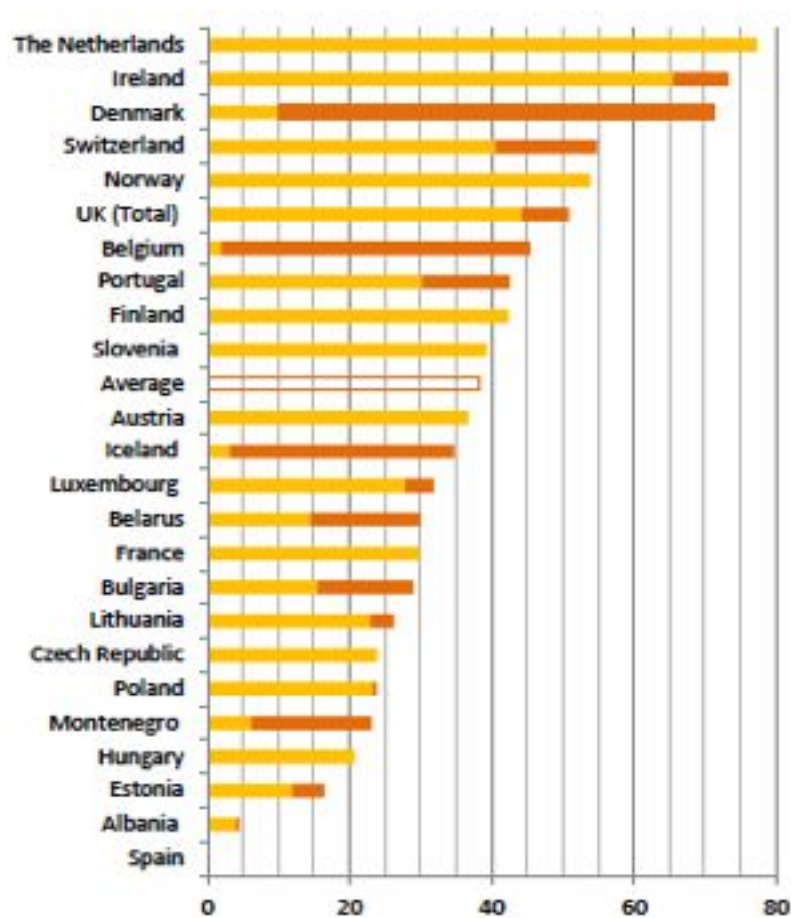
Personnel per million inhabitants



Radiation Oncologists
12,8/MI (2,2 – 31,1)



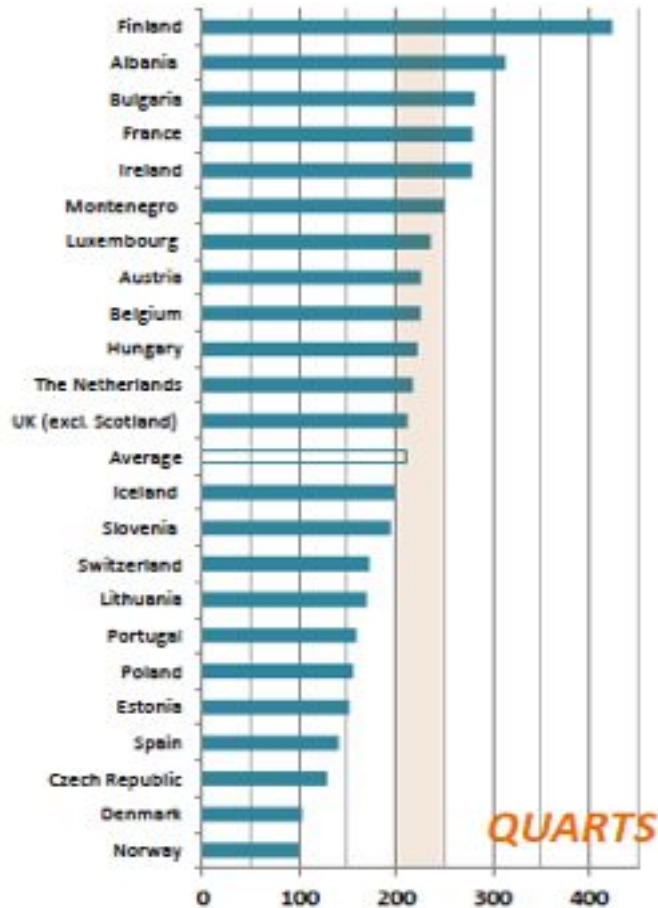
MP & Dosimetrists
10,1/MI (1,9 – 22)



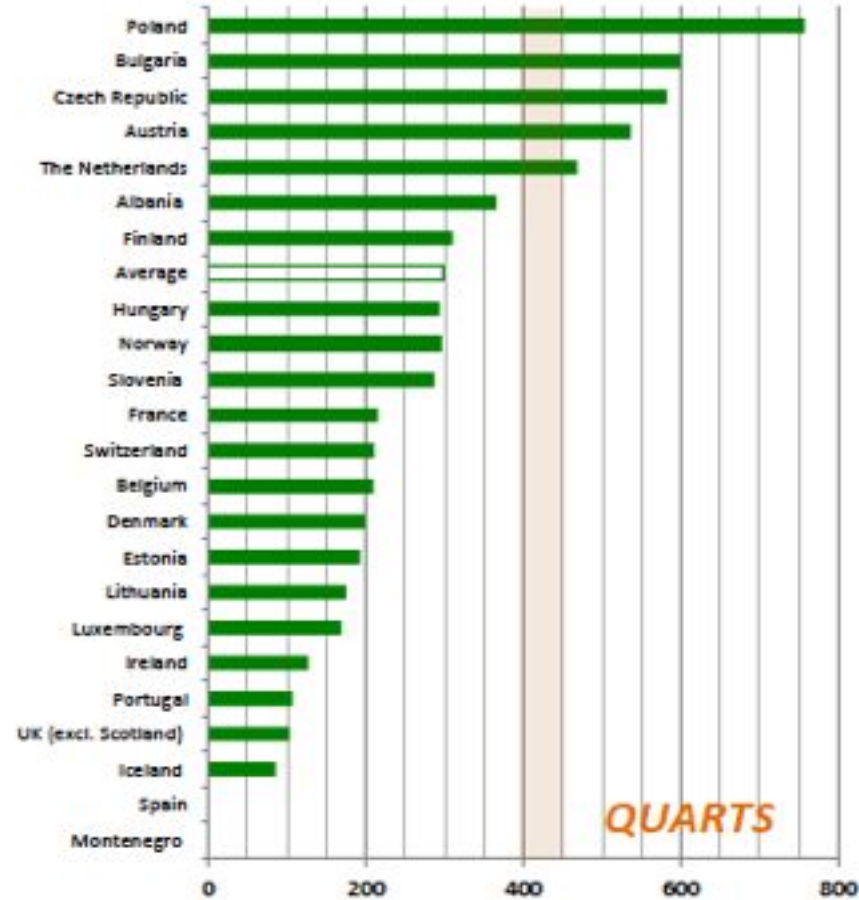
RTT & RT nurses
38,3/MI (4,4 – 77,3)

ESTRO HERO: staffing

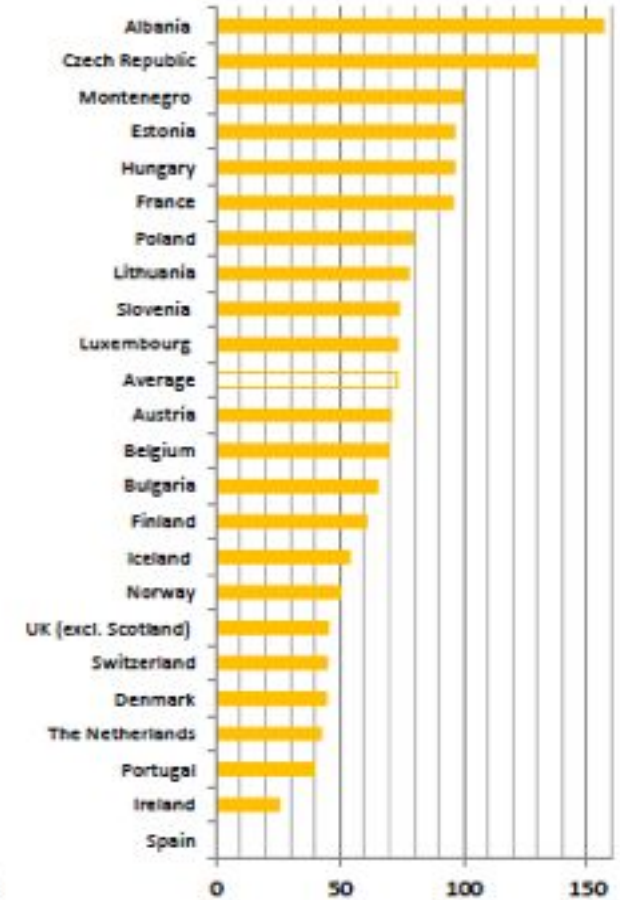
Radiotherapy courses per personnel



Radiation Oncologists
210,4 (99,9 – 424,1)



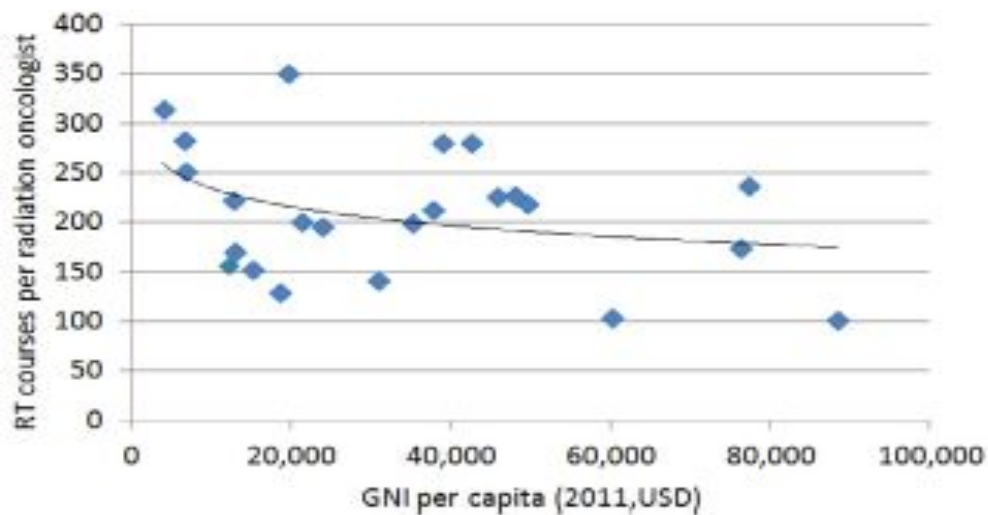
MP + Dosimetrists
299,4 (85 – 757,7)



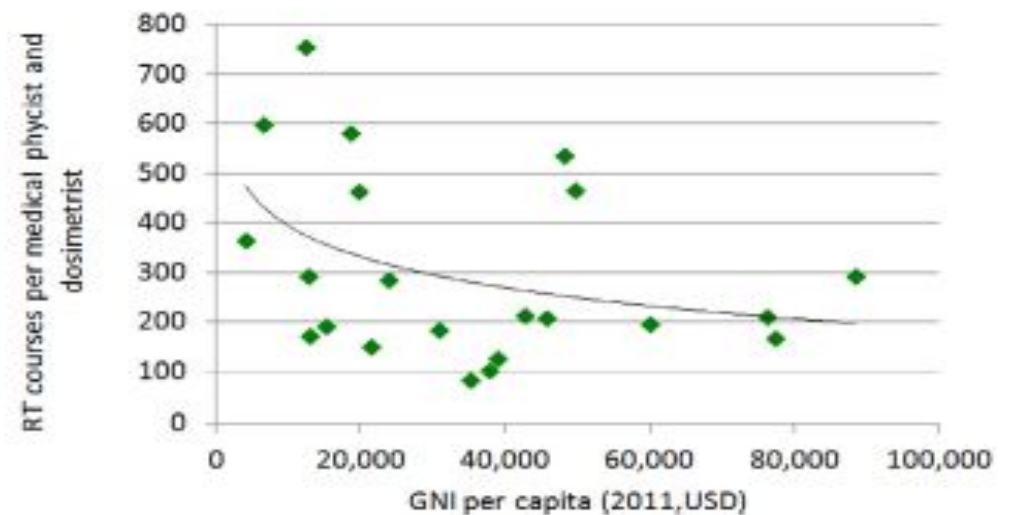
RTT + RT nurses
72,7 (25,7 – 77,3)

ESTRO HERO: staffing

a. GNI/n vs. radiotherapy courses per radiation oncologist



b. GNI/n vs. radiotherapy courses per medical physicist and dosimetrist



c. GNI/n vs. radiotherapy courses per RTTs and radiotherapy nurse

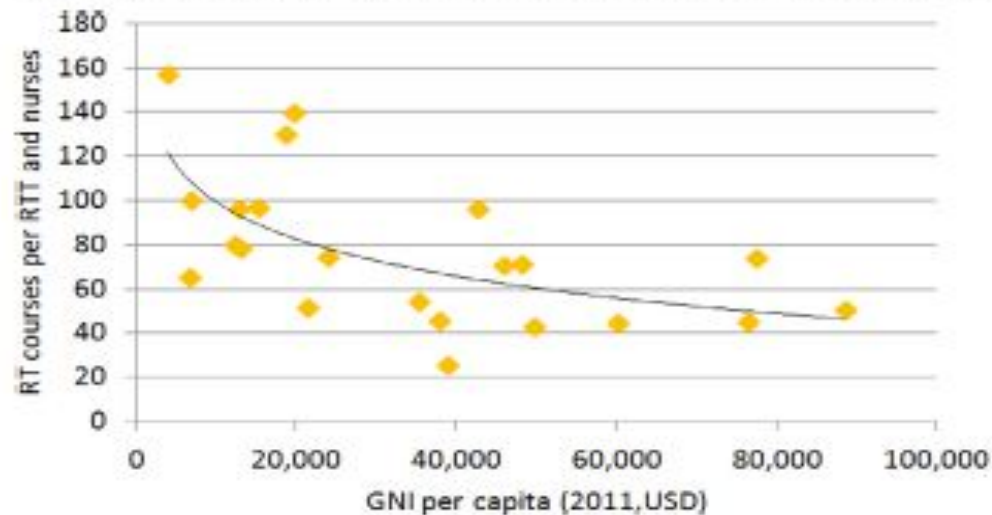


Fig. 3. GNI per capita (GNI/n) in relation to radiotherapy courses per different personnel categories.

ESTRO HERO

2. EQUIPMENT



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Radiotherapy and Oncology

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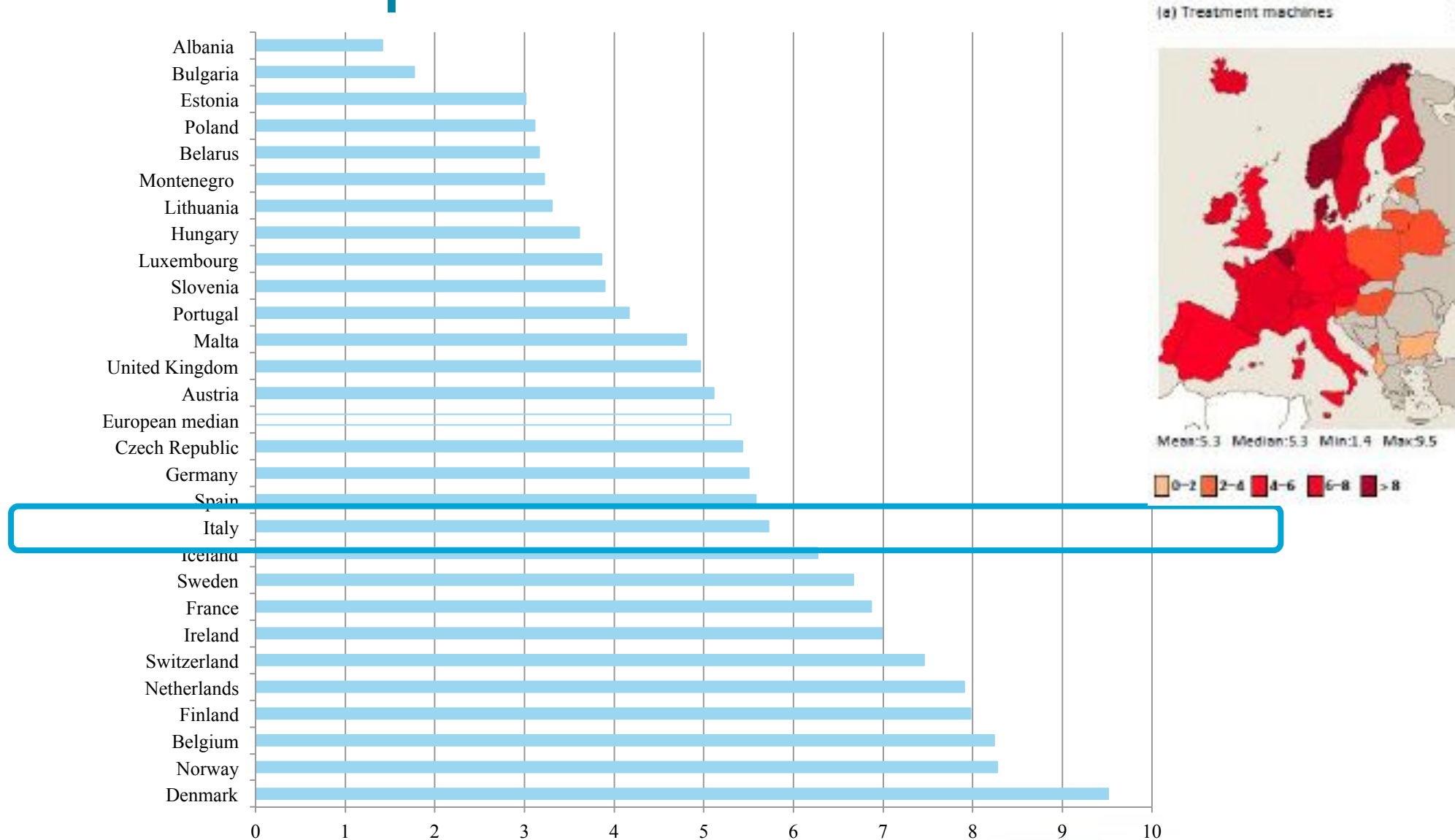


Radiotherapy equipment and departments in the European countries: Final results from the ESTRO-HERO survey

Cai Grau¹, Noémie Defourney², Julian Malicki³, Peter Dunscombe⁴,
Josep M Borrás⁵, Mary Coffey⁶, Ben Slotman⁷,
Marta Bogusz⁸, Chiara Gasparotto², Yolande Lievens⁹,
on behalf of the HERO consortium*

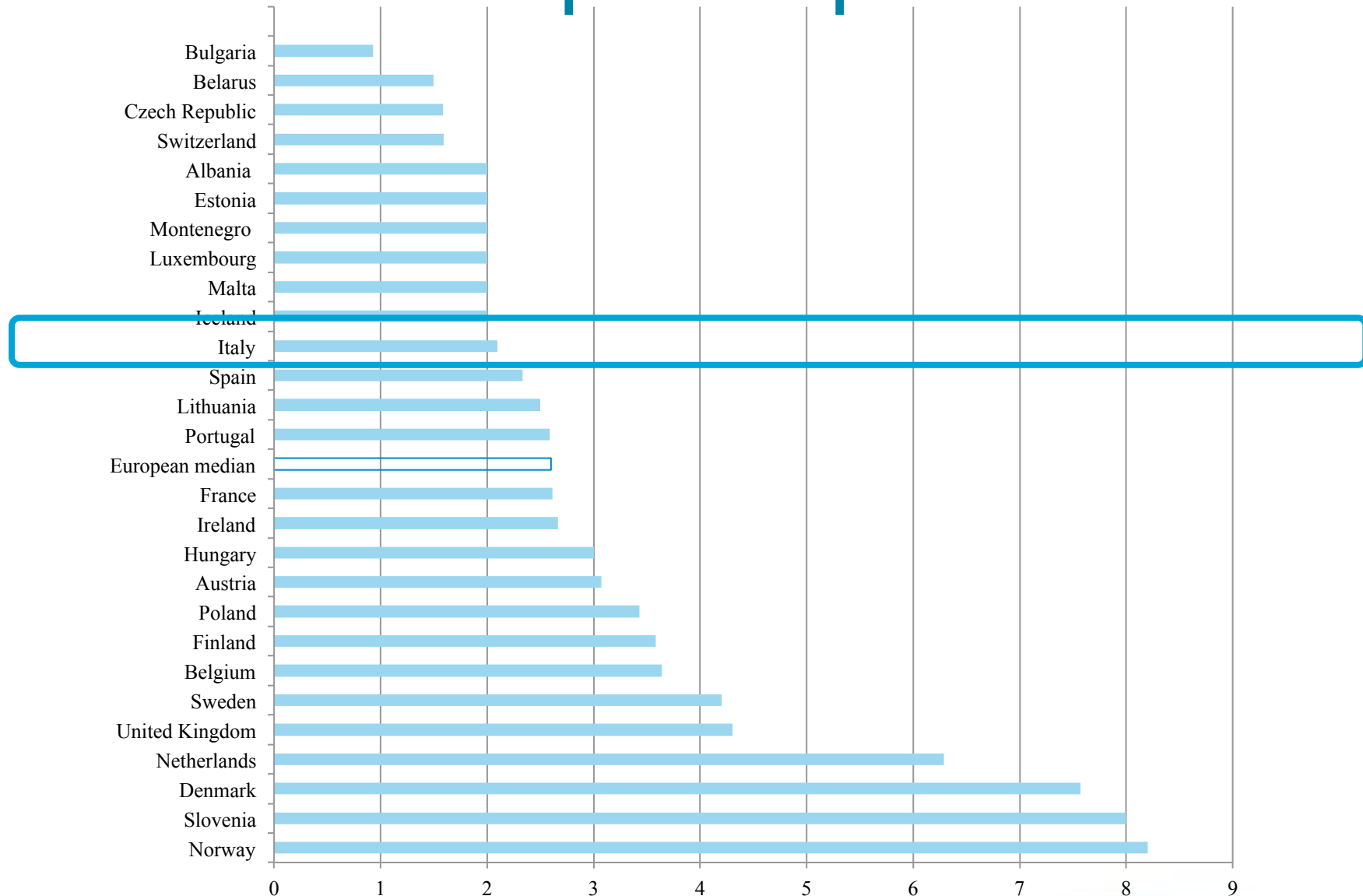
ESTRO HERO: equipment

MV units per million inhabitants

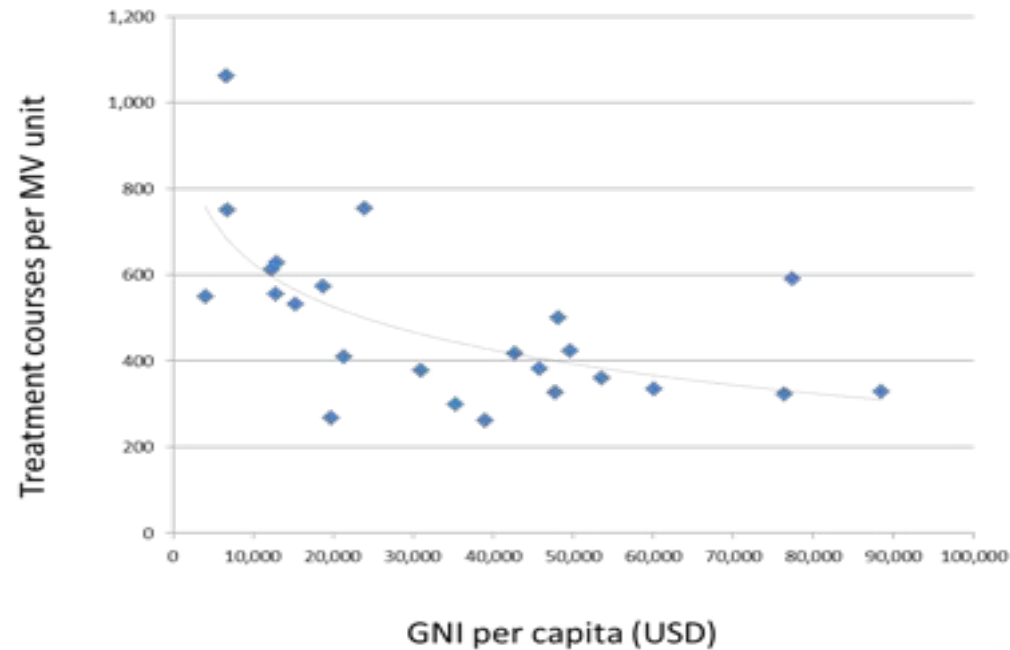
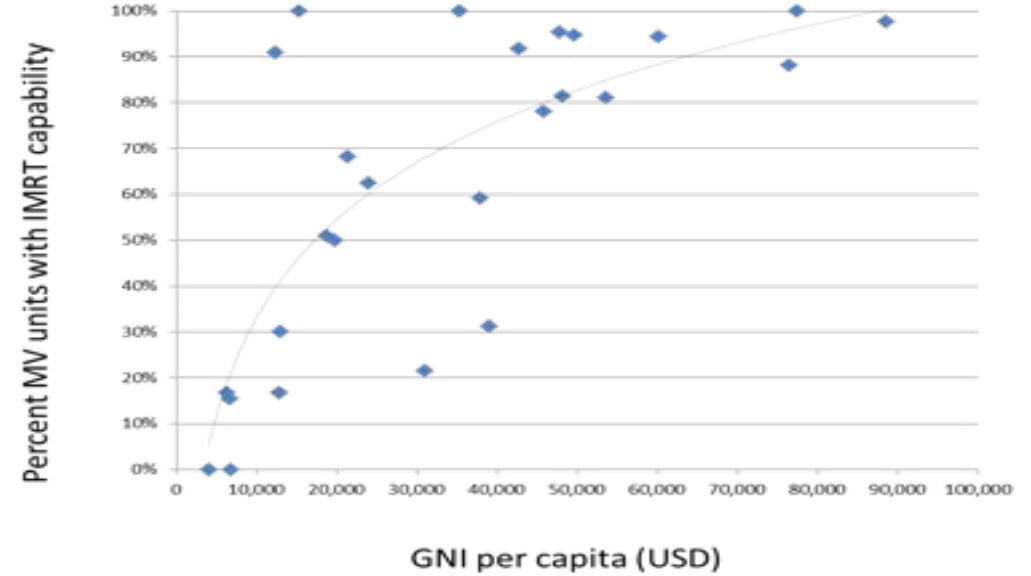
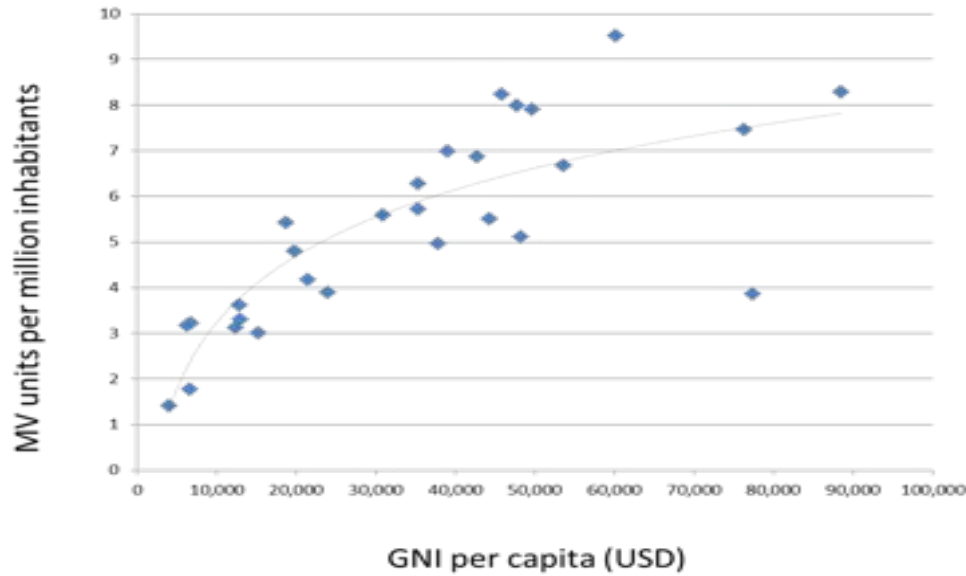


ESTRO HERO: equipment

MV units per department

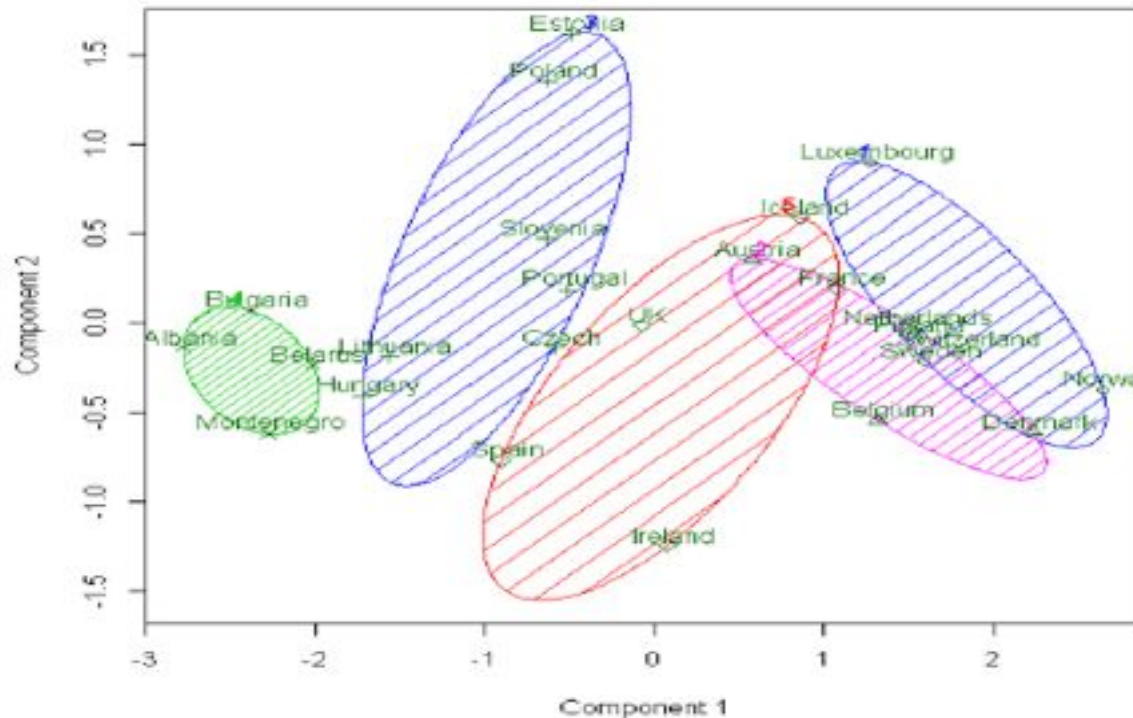


ESTRO HERO: equipment



ESTRO HERO: equipment

Cluster analysis



	IMRT (%)	GNI /n	MV units /mil inh
IMRT (%)	1	0.68	0.63
GNI/n	0.68	1	0.73
MV units / mil inh	0.62	0.73	1

k-means clustering via principal components analysis

Cluster	IMRT (%)	GNI /n	MV units /mil inh
1 Luxembourg, Norway, Switzerland, Sweden	91%	56.5	6.4
2 Austria, Belgium, Denmark, Finland, Netherlands	88%	35.8	7.8
3 France, Iceland, Ireland, Spain, UK	60%	26.4	6.1
4 Czech Republic, Estonia, Hungary, Lithuania, Poland, Portugal, Slovenia	58%	11.9	3.9
5 Belarus, Bulgaria, Montenegro, Albania	8%	4.5	2.3

ESTRO HERO

3. GUIDELINES

Radiotherapy and Oncology xxx (2014) xxx–xxx



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Radiotherapy and Oncology

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Original article

Guidelines for equipment and staffing of radiotherapy facilities
in the European countries: Final results of the ESTRO-HERO survey[☆]

Peter Dunscombe^a, Cai Grau^b, Noémie Defourny^c, Julian Malicki^d, Josep M. Borrás^e, Mary Coffey^f,
Marta Bogusz^g, Chiara Gasparotto^c, Ben Slotman^h, Yolande Lievens^{i,*}

ESTRO HERO: GL *(equipment)*

Table 1
European guidelines for equipment.

Country	Cancer plans for RT needs	Guidelines for equipment	Satellites	Machines at country level	Machines at department level (Minimum Number)	Machine complexity		Simulators	CT Scanners
						MLC	EPID		
Albania	No	n.r.	n.r.	n.r.	n.r.	No	No	Gifts or donation from IAEA	No
Austria	Regional	National	n.r.	1 MV / 130,000 inhabitants	Inhabitants in the region, 1 MV / 400 courses (2 MV / dept.)	No	No	≥ 1 Sim. / center	≥ 1 CT / center operation curative
Belarus	National	National	No	1 MV / 4,000,000 inhabitants	n.r.	No	No	IAEA, National	No
Belgium	No	National	500 pts / yr, ≥ 2 MV	n.r.	(≥ 2 MV / dept.)	No	No	≥ 1 Sim. / centre	No
Bulgaria	Society	Gradual development	No	<i>Level of skills of the personnel and academic approach but in the practice: national political decision depending on availability of financial resource</i>	(≥ 2 L / dept.)	1 / L	1 EPID / L because their numbers are not enough	≥ 1 Sim. / MV machine, every MV has to be equipped by kind of simulator	≥ 1 CT / center
Czech Republic	Society	Society	No	1 MV / 450 Npts	1 MV / 450 Npts (≥ 2 MV / dept)	No	No	≥ 1 Sim. / centre curative RT	≥ 1 Sim or CT / center curative RT
Denmark	Society	National, Cancer plan I, 2000	Political decision based on cancer incidence and regional geographical issues	1 MV / 200 Npts	1 MV / 5,000 fractions ¹ (2 MV / dept.)	Implied standard	Implied standard	Local needs, no. patients	Implied standard
Estonia	National	National, Cancer Care Quality Requirements in Estonia, 2011	No	Inhabitants, Patients, 2015 target : ESTRO -QUARTS	(≥ 2 MV / dept.)	No	No	≥ 1 Sim. / center	≥ 1 CT
Finland	No	n.r.	No	No	No	No	No	Center needs	No
France	National	Society	No	<i>Inhabitants</i>	(≥ 2 MV / center (agreement criteria))	93% of accelerators with MLC	No	≥ 1 any type CT /centre	Every center must have access to a CT (dedicated or not)
Germany	No	n.r.	No	Patients	Patients, (1 – 2 MV / dept. ²)	No	No	Based on work flow	No
Hungary	National	National	No	Inhabitants	(≥ 2 MV / center)	No	No	≥ 1 Sim. / dept., > 2 Sim. when dept. > 3 L	No
Iceland*	National	National	No	Patients	Treatment courses	n.r.	Yes	1 Sim. for all country	
Ireland	National	National	No	<i>Inhabitants, patients</i>	Patients, treatment course, fraction [Regional recommendation]	No	No	Match with workload	No

(continued on next page)

ESTRO HERO: GL *(equipment)*

Table 1
European guidelines for equipment.

Country	Cancer plans for RT needs	Guidelines for equipment	Satellites	Machines at country level	Machines at department level (Minimum Number)	Machine complexity		Simulators	CT Scanners
						MLC	EPID		
Italy	Regional	National	No ³	<i>Health planning on a regional basis</i>	Demographics, regional health authorities planning, hospital priorities, budget	No ⁴	≥ 1 EPID ¹	≥ 1 Sim. or CT-scan / dept.	≥ 1 Sim. or CT / dept.
European and international guidelines									
QUARTS (ref 6)	No	No	No.	1 MV / 450 patients / yr, Increasing complexity: 1 / 400 - 450 patients / yr	1 MV / 450 patients / yr, Increasing complexity: 1 / 400 - 450 patients / yr	No	No	No	No
IAEA (ref 6)	No	No	No	No	1 MV / 200 - 500 patients / yr depending on complexity	No	No	> 0.75	No

ESTRO HERO: GL *(staffing)*

Table 2
European guidelines for staffing.

Country	Cancer plans for RT needs	Guideline for personnel	Are working hrs for RT personnel limited by radiation protection regulations	Radiation Oncologists	Medical Physicists	Dosimetrists	RTT
				Criterion	Criterion	Criterion	Criterion
Albania	No	Yes, not specified	Only in public sector all the RT personnel are working 6 hrs a day: 30 hrs / week; 48 weeks / yr	n.r.	n.r.	n.a.	2 / L & 2 / CT sim (private sector)
Austria	Regional	National	Technicians/radiographers: 40 hrs / week, No. weeks / yr is not regulated, usually 46	6 / 800 patients ¹	Per number of L + 1 ¹	n.a.	≥ 13 / 800 patients, nurses (in addition to RTT) : 3.5 / 800 patients ¹
Belarus	National	National	RO, MP, engineers, RTT, dosimetrists: 30 for RO; 35 for MP / engineers	1 / 10 patients or 1 / 1 RT unit	2 / L	1 / RT unit	4 / RT unit
Belgium	No	National	No	1 / 200 - 250 patients (if complexity)	1 / 750 patients (more if complex treatment)	No	3 / MV, 2 / sim, 0,3 FTE / 100 brachytherapies
Bulgaria	Society	National	For all staff working with IR: 36 hrs / week	Based on the center technological level /RT modalities/ and staff skills	Based on the center technological level /RT modalities/ and staff skills	n.a.	Based on the center technological level /RT modalities/ and staff skills
Czech Republic	Society	Society ²	No	1 / 200 Npts	EFOMP 07/1997	n.a.	Based on treatment machine
Denmark	Society	National	No	2.5 / L	1.8 / accelerators	Local needs	6 / L + 1.8 secretaries
Estonia	National	National	No	Based on the centre's practice	IAEA TECDOC	Local needs	3 - 4 / treatment unit
Finland	No	National	No	1 / 250 patients	1 / 400 patients	n.a.	2 / L during treatment
France	National	Society ³	No	Enough to be present during all treatments	≥ 2 / center	n.r.	2 / RT machine
Germany	No	National ⁴	It is forbidden to continuing work if a borderline exposure to ionizing	1 / device + 1 RO ⁵ , if more than 1 method: + 1 RO, If – on annual average - > 350	> 1 / L + 1 MP, thus > 2 MP when one shift, ⁶ if more than 1 method: + 1	n.r.	> 2 / machine ⁴

ESTRO HERO: GL *(staffing)*

Table 2
European guidelines for staffing.

Country	Cancer plans for RT needs	Guideline for personnel	Are working hrs for RT personnel limited by radiation protection regulations	Radiation Oncologists	Medical Physicists	Dosimetrists	RTT
				Criterion	Criterion	Criterion	Criterion
Italy	Regional	National	European directives and national regulations	1 / 200 patients	1 / 400 patients	n.a.	1 / 150 patients / yr

European and International guidelines

QUARTS [6]	No	No	No	250 patients / yr , Increasing complexity: 1 / 200 - 250 patients / yr	450 - 500 patients / yr	No	Great diversity makes comparison between countries impossible
IAEA [11]	No	No	No	250 - 300 patients / yr / RO	300 - 400 patients / yr / MP	No	100 - 150 patients / yr / RTTs
EORTC [13]	No	No	No	≤ 300 patients / FTE	≤ 500 patients / FTE	No	≥ 2 / treatment unit
IPEM [14]	No	No	No	No	Complex algorithm	No	No
EFOMP [12]	No	No	No	No	0.37 WTE / L+ 0.11 WTE / 100 patients / yr	No	No

ESTRO HERO: GL (staffing & tasks)

Table 3
Tasks performed by different radiotherapy professionals.

Country	% ROs administering chemotherapy	Most treatment planning performed by	Most QA procedures performed by
Albania	0%	Medical physicists	Medical physicists, technicians/engineers
Austria	25–75%	Technologists, radiographers	Medical physicists
Belarus	25–75%	Medical physicists, but sometimes it's performed trained radiation oncologists	Medical physicists, technicians/engineers
Belgium	<25%	Dosimetrists	Medical physicists
Bulgaria	25–75%	Medical physicists	Medical physicists, technicians/engineers
Czech Republic	>75%	Medical physicists	Medical physicists
Denmark	>75%	Medical physicists	Medical physicists
Estonia	>75%	Medical physicists	Medical physicists
Finland	>75%	Medical physicists	Medical physicists
France	25–75%	Medical physicists, dosimetrists, technologists, radiographers	Medical physicists, technicians/engineers
Germany	25–75%	Medical physicists	Medical physicists, RTT
Hungary	25–75%	Medical physicists	Medical physicists
Iceland	>75%	Technologists, radiographers	Medical physicists
Ireland	0%	Technologists, radiographers	Medical physicists
Italy	>75%	Medical physicists	Medical physicists
Lithuania	0%	Medical physicists, radiation oncologists	Medical physicists
Luxembourg	>75%	Medical physicists, dosimetrist	Medical physicists, technicians/engineers
Malta	>75%	Medical physicists	Medical physicists
Montenegro	0%	Medical physicists	Medical physicists
The Netherlands	0%	Technologists, radiographers	Physics assistants
Norway	>75%	Technologists, radiographers	Medical physicists
Poland	<25%	Medical physicists	Medical physicists
Portugal	0%	Dosimetrists	Medical physicists, technologist/radiographers
Romania	25–75%	Medical physicists	Medical physicists
Slovak Republic	25–75%	Medical physicists	Medical physicists
Slovenia	>75%	Medical physicists, dosimetrists	Medical physicist with the help of technicians/engineers
Spain	<25%	Medical physicists, dosimetrist	Medical physicists, technicians
Switzerland	<25%	Medical physicists, dosimetrists, technologists, radiographers	Medical physicists, technicians/engineers, technologist/radiographers, dosimetrist
United Kingdom	>75%	Medical physicists, dosimetrists, technologists, RTT	Medical physicists, technicians/engineers
England	>75%, About 50% time of radiation oncologist devotes their time to supervising chemotherapy	Dosimetrists, technologists, radiographers	Medical physicists, technicians/engineers
Scotland	>75%	Medical physicists, dosimetrists, RTTs, it varies between departments depending on skill mix	Medical physicists, technicians/engineers
Wales	>75%	Medical physicist, technologists	Medical physicists, technicians
Northern Ireland	>75%	Medical physicists, dosimetrists	Daily machine checks are carried out by radiographers, medical physicists, technicians/engineers, technologists/radiographers

National Societies Committee

Newsletter: NSC corner

NSC corner: September October 2014

Space to the National Societies: Interview on questions on training, harmonisation and mobility.

NS involved: Irish Association of Physicists in Medicine (IAPM), the Italian Association for Radiation Oncology (AIRO), and the Portuguese Association of Radiotherapy Technologists (ART)

 NATIONAL SOCIETIES

“The National Society committee is naturally keen to assist in mapping out the current state of radiation oncology in Europe and to offer a platform for the exchange of experiences and opinions between the National Societies”

National Societies Committee

Activities – Discussion on Expert

- Proposed **hub / database** where to provide contacts, promote exchanges, facilitate networking for various purposes (ranging from education, mobility, to finding partners for research projects, info on institutes and staffing...).

National Societies Committee

Activities – Liaison with NS about ESTRO reply to the ESMO position paper

- Liaison with NS regarding ESTRO letter “Still a long way to go to achieve multidisciplinary for the benefit of the patients: commentary on the ESMO position paper”

January 2014 **ESMO** published a **position paper** on the role of medical oncology. **ESTRO reply**, together with other 21 oncology societies, to the ESMO position paper. Letter published in August 2014

special article

Annals of Oncology 25: 9–15, 2014

doi: 10.1093/annonc/mdt522

Published online 13 December 2013

The current and future role of the medical oncologist in the professional care for cancer patients: a position paper by the European Society for Medical Oncology (ESMO)

R. A. Popescu^{1*}, R. Schäfer², R. Califano^{3,4}, R. Eckert⁵, R. Coleman⁶, J.-Y. Douillard⁷, A. Cervantes⁸, P. G. Casali⁹, C. Sessa¹⁰, E. Van Cutsem¹¹, E. de Vries¹², N. Pavlidis¹³, K. Fumasoni¹⁴, B. Wörmann¹⁵, H. Samonigg¹⁶, S. Cascinu¹⁷, J. J. Cruz Hernández¹⁸, A. J. Howard¹⁹, F. Ciardiello²⁰, R. A. Stahel²¹ & M. Piccart²²

Still a long way to go to achieve multidisciplinary for the benefit of patients: commentary on the ESMO position paper (Annals of Oncology 25(1): 9–15, 2014)

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A. Astier^{7,8}, R. A. Audisio^{9,10}, M. Boniol^{11,12}, L. Bonomo^{13,14},
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L. Grassi^{27,28}, J. Kelly²⁹, R. D. Kortmann^{30,31}, T. Kutluk^{6,32},
A. Plate³³, G. Poston^{10,34}, T. Saarto^{35,36}, R. Soffietti^{37,38},
A. Torresin^{39,40}, W. H. van Harten^{41,42}, J. F. Verzijlbergen^{20,43},
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National Societies Committee

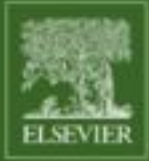
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January 2014 **ESMO** published a **position paper** on the role of medical oncology. **ESTRO reply**, together with other 21 oncology societies, to the ESMO position paper. Letter published in August 2014

The Board decided NOT to write an own position paper mirroring the letter. Instead the Board would like to **distribute the letter with some guidance / comments from ESTRO to the national societies (NS) through the NSC.**

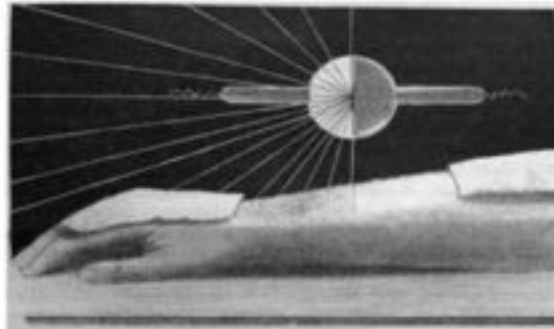
→ The NSs will be asked to publish the letter in their own journals. They will also be requested to collaborate with the national societies of the other societies who signed the letter to enhance the multidisciplinary position in individual countries.



Radiotherapy & Oncology

Journal of the European Society for
Radiotherapy and Oncology

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Review: Cardiac dosesparing
Review: Demand for radiotherapy
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