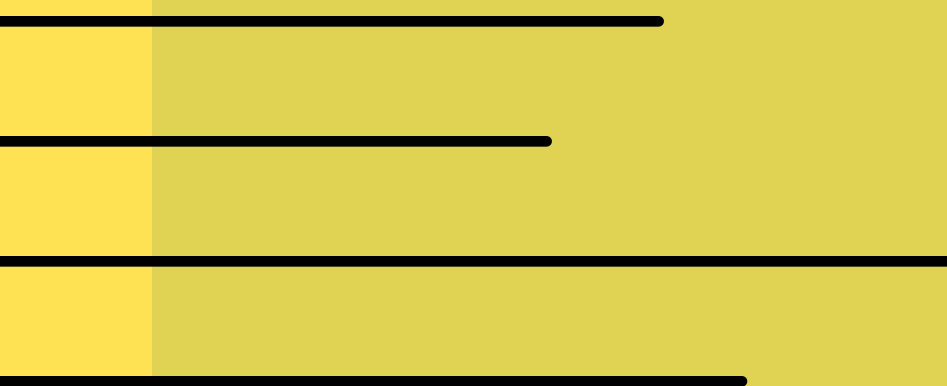


ESTRO



ANNUAL
REPORT
L 2021



Editorial	PAGE	3
Mission		6

4	ESTRO Cancer Foudation (ECF)	PAGE	53
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1	Science & dissemination	PAGE	7
	MEETINGS		8
	1. ESTRO 2021		8
	2. Joint & collaboration events		11
	3. ESTRO workshops		15
	PUBLICATIONS		17
	1. The Green Journal		17
	2. Open access journals		20
	RESEARCH		28
	GUIDELINES		35

5	Financial report	PAGE	56
	1. Treasurer's report for 2021		57
	2. ESTRO Audited Accounts 2021		59

2	ESTRO School	PAGE	36
	1. Teaching courses		38
	2. E-Learning		41
	3. Core curriculum		44

6	Annex	PAGE	61
	1. Governance & Constituent Bodies		62
	2. Staff		64
	3. Corporate members		64
	4. Joint members		65
	5. RTT alliance		65
	6. Institutional members		66
	7. Radiotherapy & Oncology and open access journals		67
	8. Awards		69
	9. Newsletter		69

3	Membership & partnerships	PAGE	45
	MEMBERSHIP		46
	1. Profile of ESTRO members		47
	2. Wide range of membership categories		49
	3. Membership categories under the spotlight		50
	MOUS		52
	RTT ALLIANCE		52

Editorial

Now more than ever, the publication of the annual report represents a key milestone in the journey of the European Society for Radiotherapy and Oncology (ESTRO). The year 2021 was crucial for us, as it presented us with the challenge of giving new momentum to our Society after the shock caused by the Covid-19 pandemic. The past two years have had a tremendous impact on the world's economy and the health sector. In this uncertain context, it was vital that we ensured that ESTRO kept a pulse on the needs and expectations of our community. By building on the lessons learned in 2020 and by leveraging the opportunities offered by the digital environment, we were able to offer our community a rich and diverse portfolio of activities.

First of all, the ESTRO 2021 congress was very successful. The event took place in person in Madrid, with more than 2,300 participants on site and a full technical exhibition. On-site participation was complemented by a feature-rich online platform, which enabled an additional 1,700 participants to follow all talks in real time and asynchronously.

The success of ESTRO 2021 provided an excellent showcase of how ESTRO was able to turn the difficult context of the pandemic into an opportunity to bring forth new ideas and create value for our community. The same approach was adopted in courses, meetings and workshops, with positive results both in the assortment of the offers and the size of the engaged audience.

The previous year, 2020, had been complicated, with several repercussions on ESTRO's financial outlook. While we are not out of the woods just yet, 2021 certainly marked a change of tide, which would not have been possible without the commitment of our staff and members. This sense of togetherness and community that came out at its strongest in this time of need is what gives meaning to our mission.

Without further ado, I would now like to bring to your attention some of the highlights of the year:

Membership

The membership base in 2021 experienced a decrease of roughly 5% from that of 2020, falling from 7,618 members to 7,229. Given the timeline for membership renewal, we expected 2021 to provide a more accurate indication of the impact of the pandemic than 2020. In this sense, the overall outlook in terms of membership figures remained stable and we can expect the trend to improve as of 2022. The institutional membership continued to be buoyant, as 50 centres across Europe used this scheme. At the same time, more national and international societies applied for joint membership agreements with ESTRO, and this trend is an important testimony of the trust we have managed to build with our members and international partners.

Science & dissemination

With over 4,000 registered participants, ESTRO 2021 was a good achievement for the Society. Despite the uncertainties

caused by Covid-19 restrictions, we were able to deliver a scientific event of the highest calibre both on site and online. ESTRO took a bold decision, and we were the first medical society that organised an on-site congress during the covid pandemic. For this achievement, I praise the efforts of our speakers on site and online and the scientific programme committee.

Our family of journals continues to grow steadily. *Radiotherapy & Oncology* obtained its highest impact factor in 2020, while *Clinical and Translational Radiation Oncology* and *Physics and Imaging in Radiation Oncology* are on track to receive impact factors shortly. *Technical Innovations and Patient Support in Radiation Oncology* performed exceptionally well in 2021 and is expected to meet the conditions to apply for an impact factor soon. Well done to the editorial boards. A detailed report on the performance of the journals is available in the science & dissemination section of the full report.

In 2021, the advisory committee on radiation oncology practice (ACROP) intensified its efforts to develop clinical and technical guidelines in the field of radiation oncology. We are currently restructuring ACROP to improve the streamlining of guideline development within ESTRO while also better positioning the Society and our discipline in joint multidisciplinary guideline efforts that involve other

professional oncology societies both within and outside Europe. The list of guidelines that were developed or endorsed under the ACROP umbrella in 2021 is provided in the science & dissemination section.

Lastly, in that same section you can read more about the research projects in which ESTRO is currently engaged.

Education

Much like 2020, the 2021 calendar of the ESTRO school mostly comprised online courses. However, building on the experience of the previous year, the School was able to face this second year of the pandemic more effectively than the first: 23 teaching courses were rolled out in 2021 (as opposed to 10 in 2020), with almost 2,000 delegates involved. The courses were complemented by 14 contouring workshops, which were attended by over 400 professionals (this marks the best result yet in terms of the number of attendees). This year, the School made full use of the benefits offered by the online environment, and was able to implement a wide-ranging educational offer. Many courses involved both synchronous and asynchronous teaching, and in some cases live broadcasts could be organised with the faculties. Course programmes were also adapted and made more flexible, with some courses spreading over several weeks and others offering more condensed teaching. This increased flexibility enabled

the School to expand its geographical scope to appeal to a large international audience.

There has been a strong focus this year on course formats, but the School as always has made it a priority to keep its content relevant and up to date. In this vein, the update of the core curriculum for medical-physics experts in radiotherapy is welcome. It came to fruition after two years of intense work.

Partnerships

During 2021, ESTRO kept strengthening its interactions with many oncology and radiotherapy societies worldwide, as it signed and renewed a large number of memoranda of understanding with national and international societies. The ESTRO Cancer Foundation continued its work to address challenges in the uptake of radiotherapy by implementing successfully the UpLung and value-based healthcare projects.

In conclusion, I thank the whole of the ESTRO community for its continuous commitment and support, which made the achievements of our Society possible. I also acknowledge the input provided by non-members and all radiation oncology professionals who participated in the community survey and thereby gave precious insight into the needs and expectations of the radiation oncology

community with respect to the activities organised by the Society.

I must congratulate the Board, the councils and the committees, for using this time of crisis as an opportunity to increase communication, alignment and transparency. The Open Board, which now provides an annual forum at which all the governance bodies can meet and discuss, is the most visible outcome of this spirit of cooperation. I also welcome the reignition of the governance review, which had come to a halt in 2020 and is now being carried out with the involvement of all our governance bodies.

I thank the faculties of the ESTRO school for their flexibility in adapting their courses to the online environment, thus enabling the Society to maintain a manifold educational offer. A warm thank-you should also go to our corporate partners, which supported a highly successful technical exhibition during ESTRO 2021, and for the commitment they have already shown to ESTRO 2022. Finally, I give a heartfelt thank-you to the ESTRO staff, who helped us to embrace this disruptive year with resilience and perseverance.

The year of 2021 marked the beginning of our recovery and opens new opportunities to strengthen our community and work together towards our Vision 2030 goal. We will achieve this goal together, just like we managed to come together to face the challenge of the pandemic. Thank you all for helping ESTRO to advance our profession.

Prof Ben Slotman
ESTRO President

Radiation Oncology.
Optimal Health
Together. **FOR ALL,**

- ESTRO VISION 2030 -

VISION 2030 STRATEGIC AREAS

From research to practice
Strengthening the profession
Strengthening the Society
Strengthening partnerships

Mission

The mission of ESTRO, a non-profit, scientific organisation, shall be to foster, in all its aspects, radiotherapy (also known as radiation oncology), clinical oncology and related subjects, including physics as applied to radiotherapy, radiation technology and radiobiology.

To fulfil its mission ESTRO will:

- └ Develop and promote standards of education in radiotherapy and clinical oncology
- └ Promote standards of practice in radiotherapy, clinical oncology and related subjects
- └ Stimulate the exchange of scientific knowledge in all related fields
- └ Strengthen the clinical specialty of radiotherapy and clinical oncology in relation to other specialties and professions involved in cancer management
- └ Encourage co-operation with international, regional and national societies and bodies representing radiotherapy, clinical oncology and related subjects
- └ Facilitate research and development in radiotherapy, clinical oncology and related subject.

1 SCIENCE & DISSE MINATION

ESTRO has a long track record of organising conferences, disseminating the latest findings and providing a platform for networking thus working towards an optimal treatment care for cancer patients.

MEETINGS

1. ESTRO 2021

The Annual Congress of the European Society for Radiotherapy and Oncology

27-31 August 2021 | Onsite in Madrid, Spain & Online

A new hybrid format

For the first time, the ESTRO annual congress could offer its delegates two formats: onsite in Madrid or online. With a global context still unsure due to the Covid-19 pandemic, the hybrid format was the most appropriate solution to enable maximum access to the great science presented and even to interact and network.

ESTRO 2021, a first mover

ESTRO has been the first medical society to organise a medical congress welcoming participants onsite right

after the major pandemic spikes, as soon the healthcare context allowed large scale gatherings.

A feature-rich online platform

Not only were delegates able to access all the congress' content onsite and online, but they were also provided with a tool to follow parallel sessions that they would have otherwise not been able to follow in a purely onsite context.

A top-level scientific programme

ESTRO 2021 showcased the latest advances in Radiation

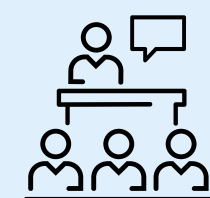
Oncology through plenary award lectures, symposia, debates, proffered papers highlighting results of clinical trials and late-breaking abstracts.

An opportunity to learn from experts

ESTRO 2021 offered a diversified educational programme of interest to all the disciplines of Radiation Oncology through pre-meeting courses, teaching lectures and contouring sessions. The educational programme of the congress is discussed in the school section of this report.



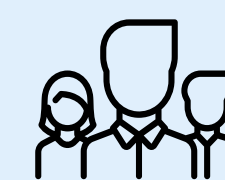
1,927
Abstracts



174
Sessions



280
Chairs
(176 onsite, 104 online)



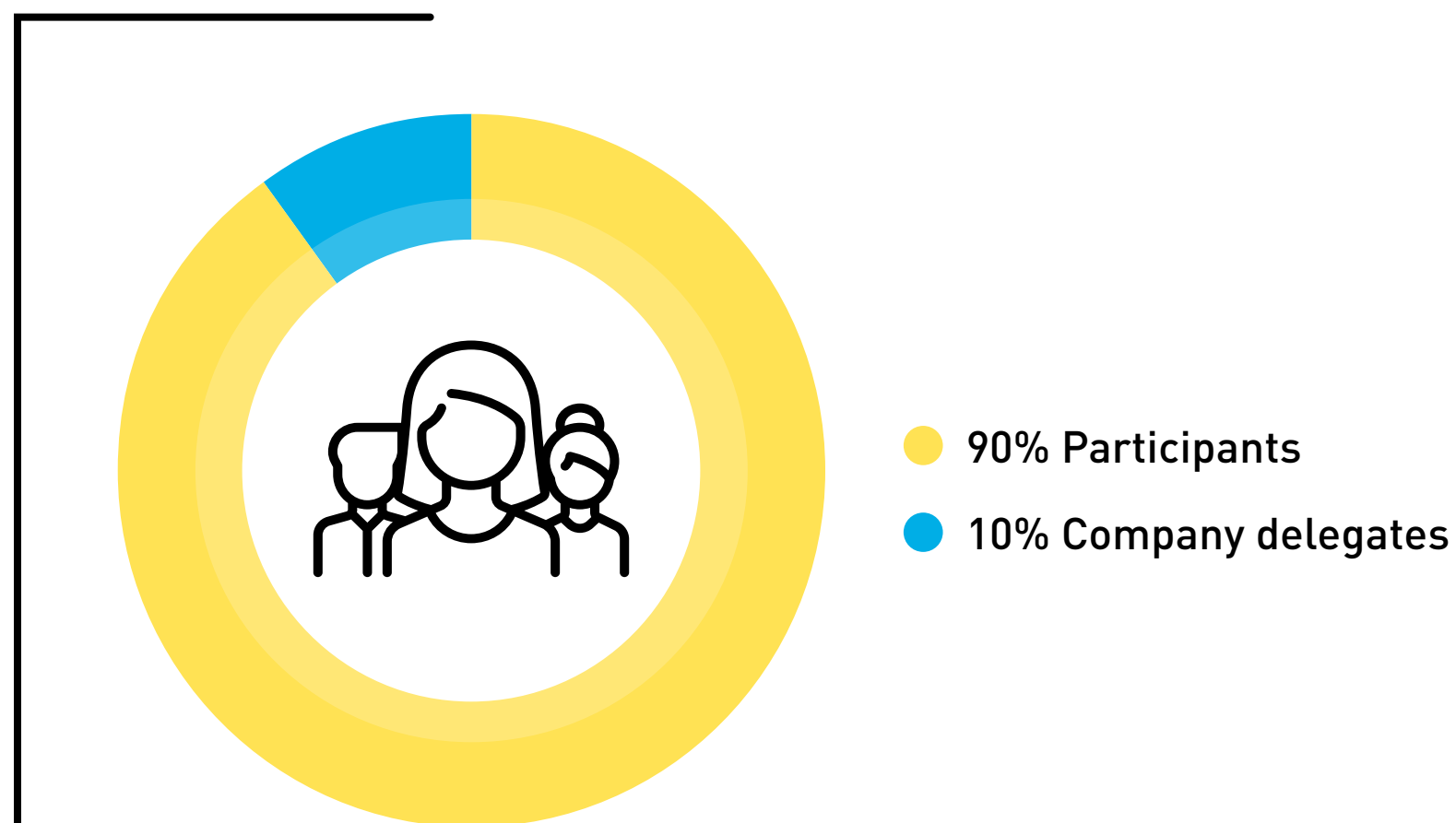
278
Invited Speakers
(140 onsite, 138 online)



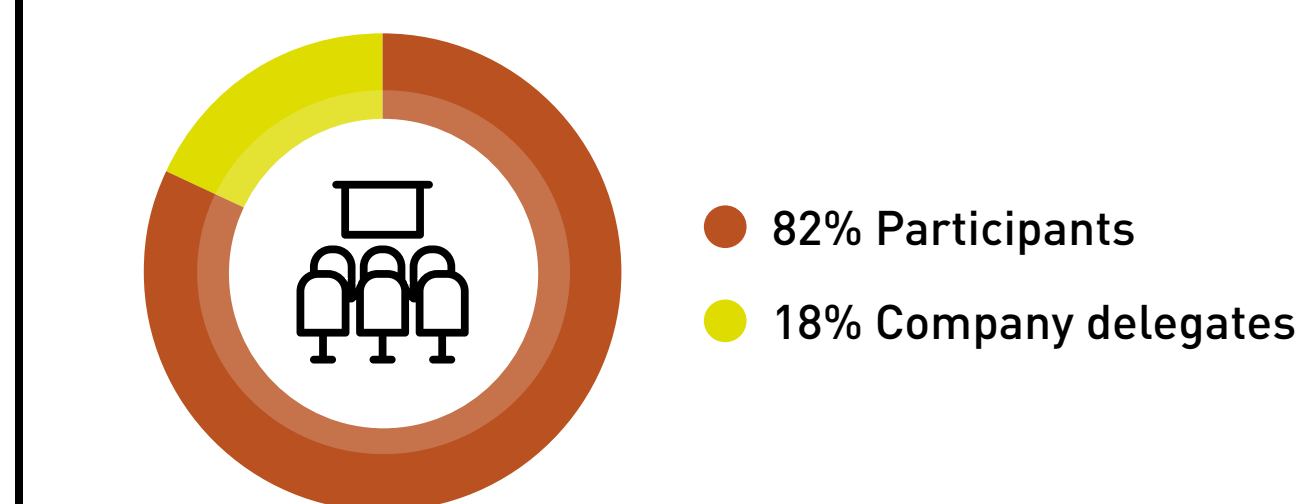
255
Oral presenters
(108 onsite, 147 online)

PARTICIPATION

4,120 Delegates

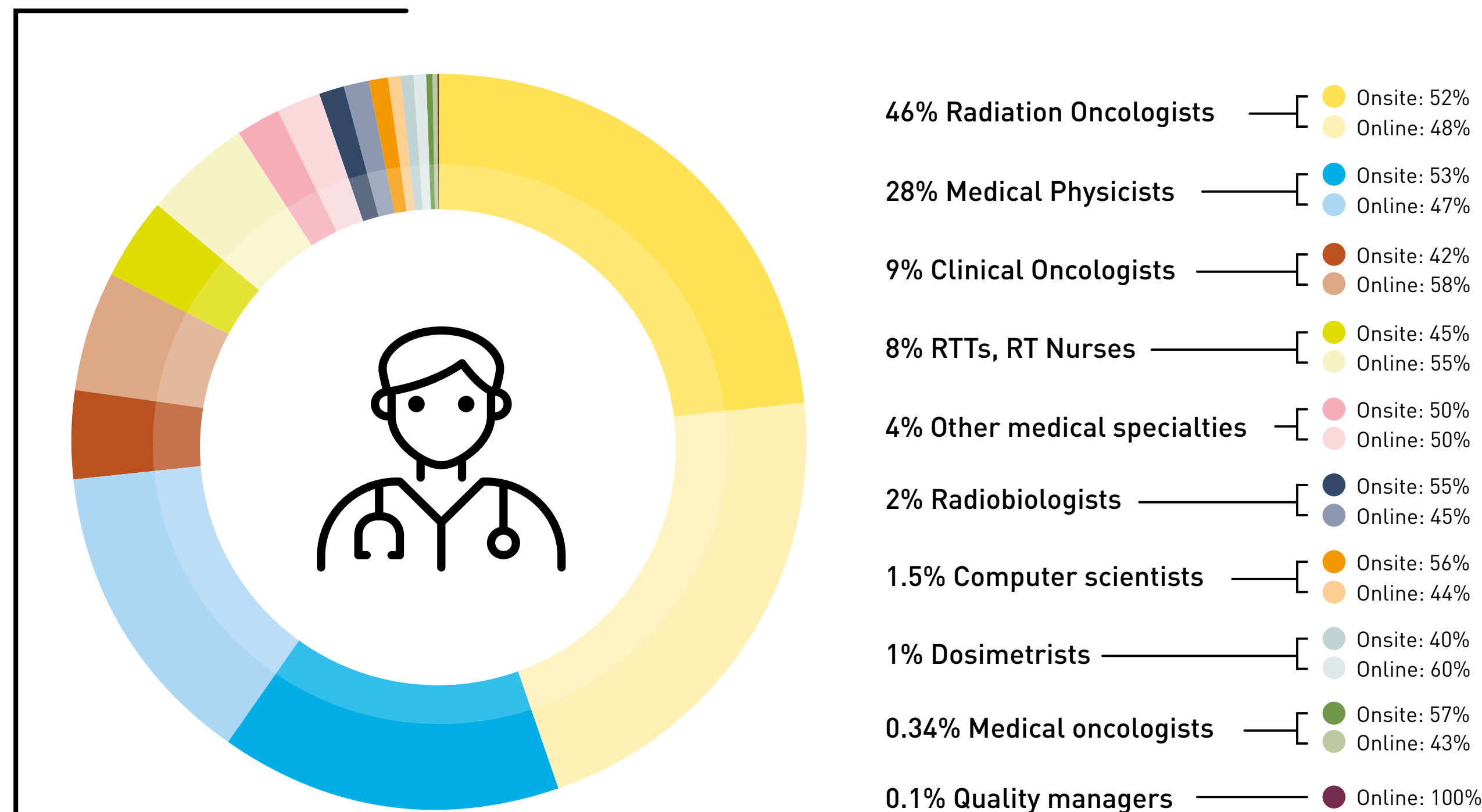


2,372 Onsite Delegates



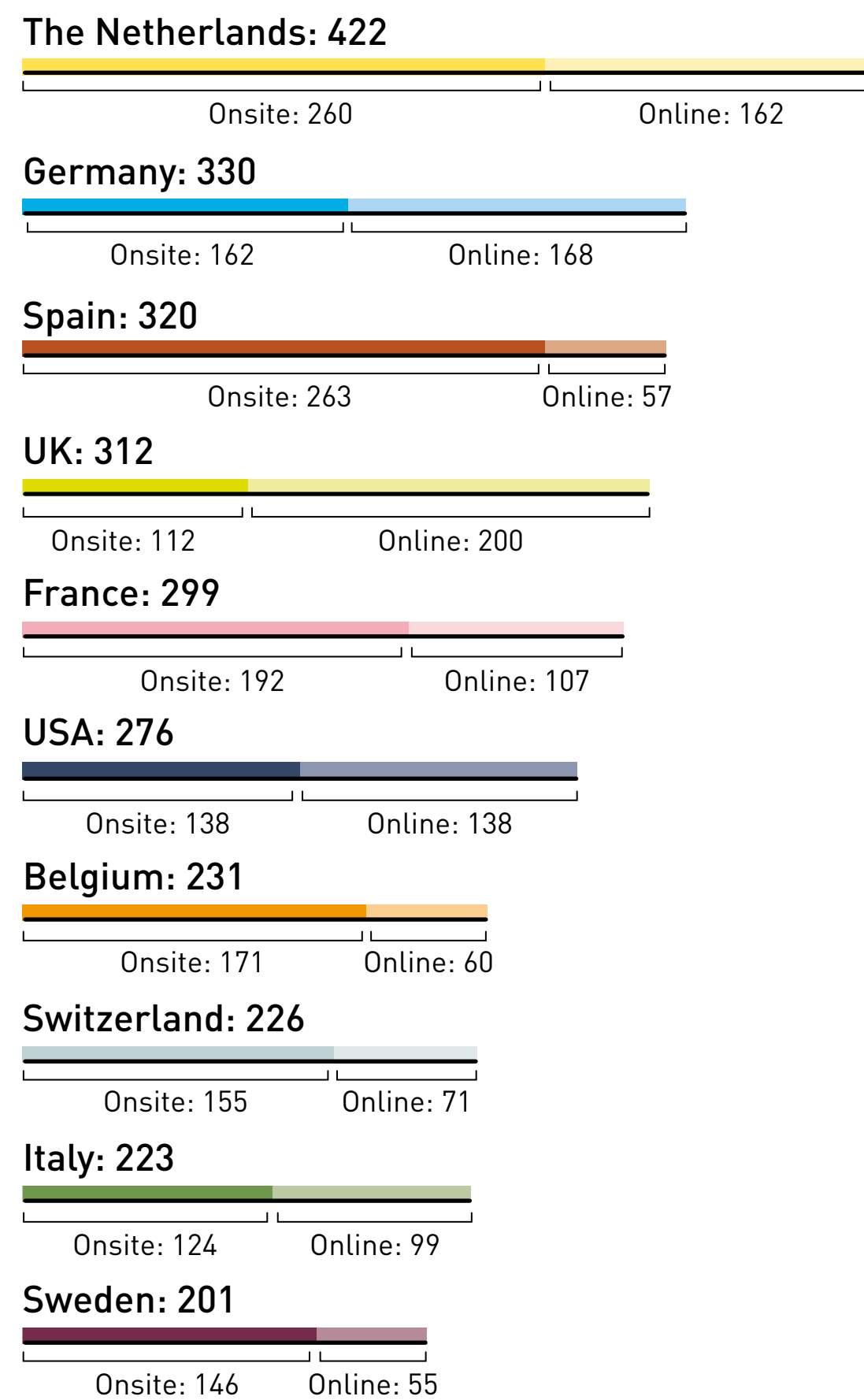
1,748 Online Delegates

Breakdown per Specialty

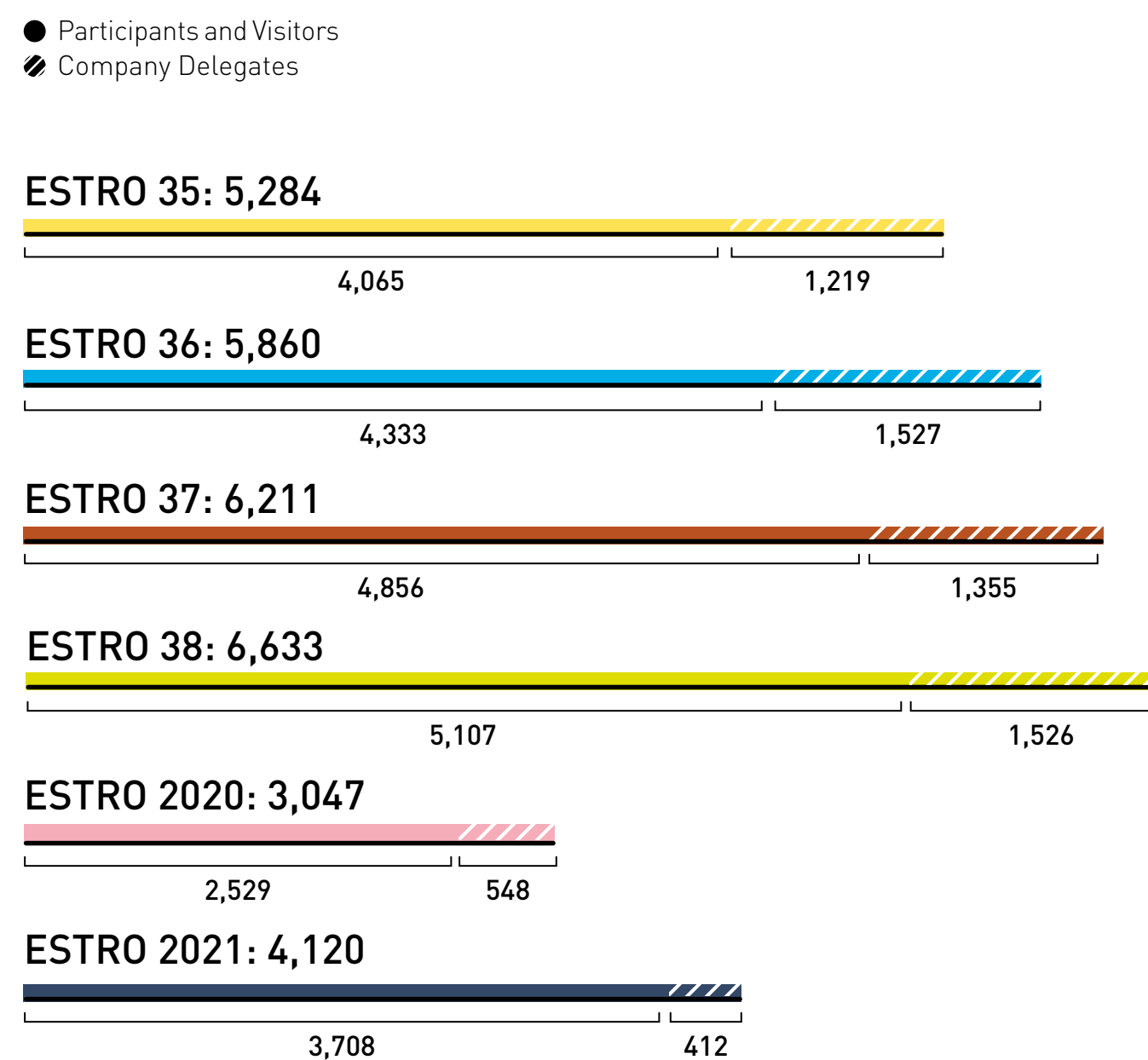


PARTICIPATION

Top 10 countries

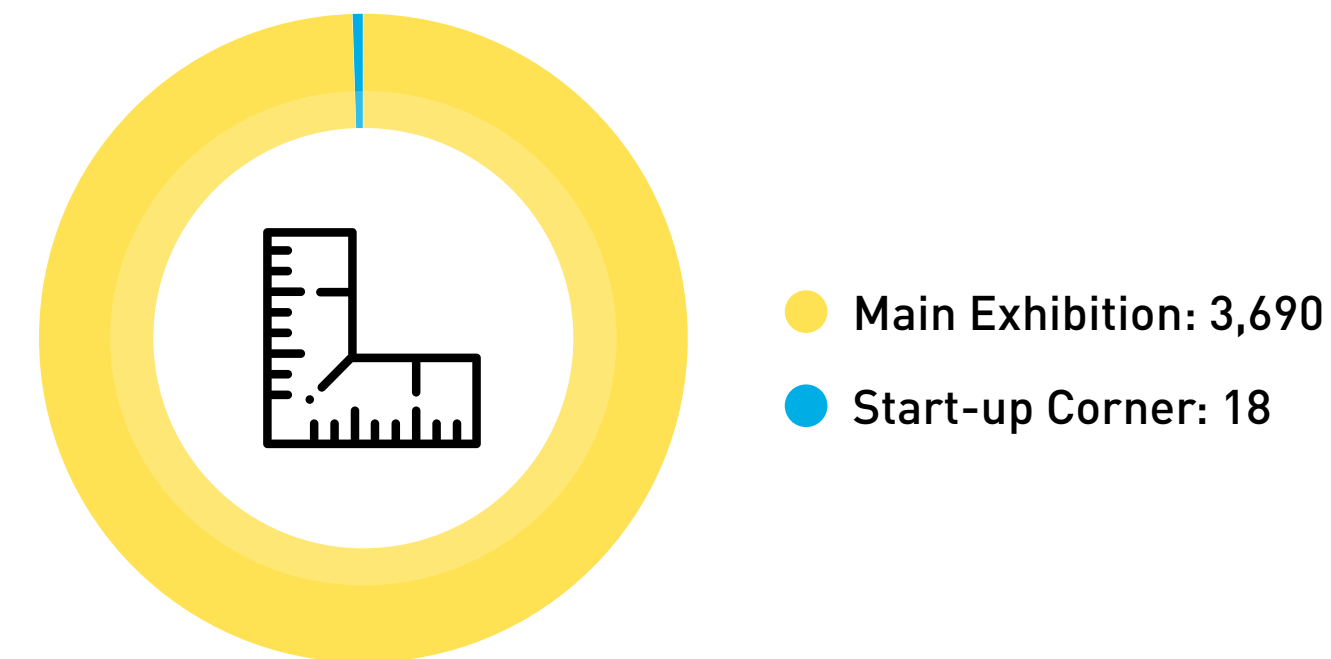


Evolution of participation to the ESTRO congress

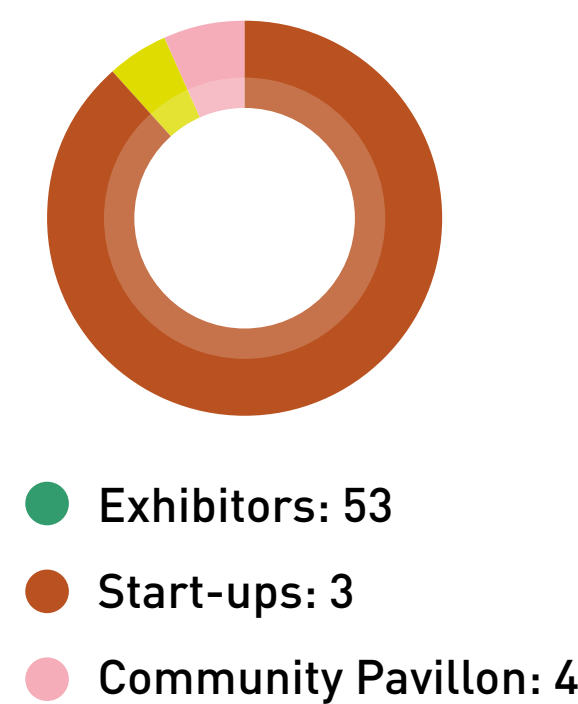


EXHIBITION

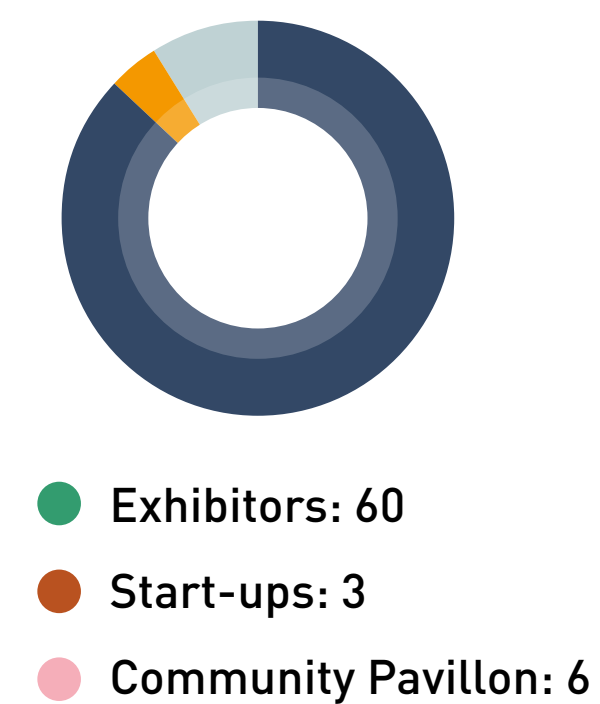
3,708 Sqm



60 Onsite Exhibitors



69 Online Exhibitors



2. Joint and collaboration events 2021

2.1 World Congress of Brachytherapy (WCB)

6-8 May 2021 | online

The Groupe Européen de Curiethérapie-European Society for Radiotherapy and Oncology (GEC-ESTRO) developed the WCB scientific programme in close collaboration with the American Brachytherapy Society (ABS) and supported by the Australasian Brachytherapy Group (ABG), the Asociación Ibero Latinoamericana de Terapia Radiante Oncológica (ALATRO), the Canadian Brachytherapy Group (CBG), the Federation of Asian Organizations for Radiation Oncology (FARO) and the Indian Brachytherapy Society (IBS).

The Congress offered state-of-the-art teaching lectures, symposia and debates around the topics of physics, prostate, gynaecology, breast, gastrointestinal, head and neck, eye/orbit, and skin, and health economics.



212
Abstracts



63
Proffered papers



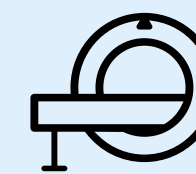
100
Posters



33
Poster presentations

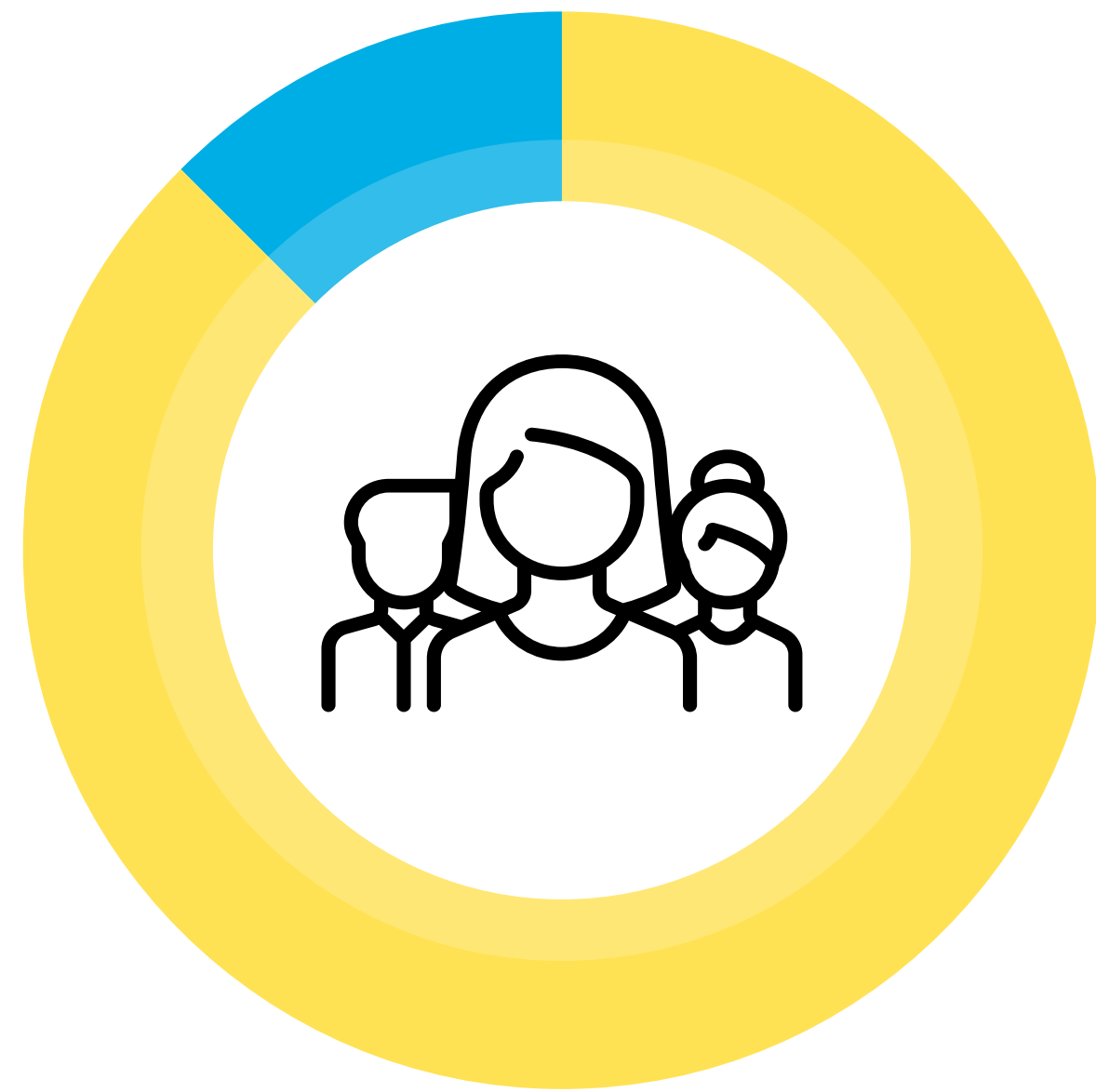


66
Speakers



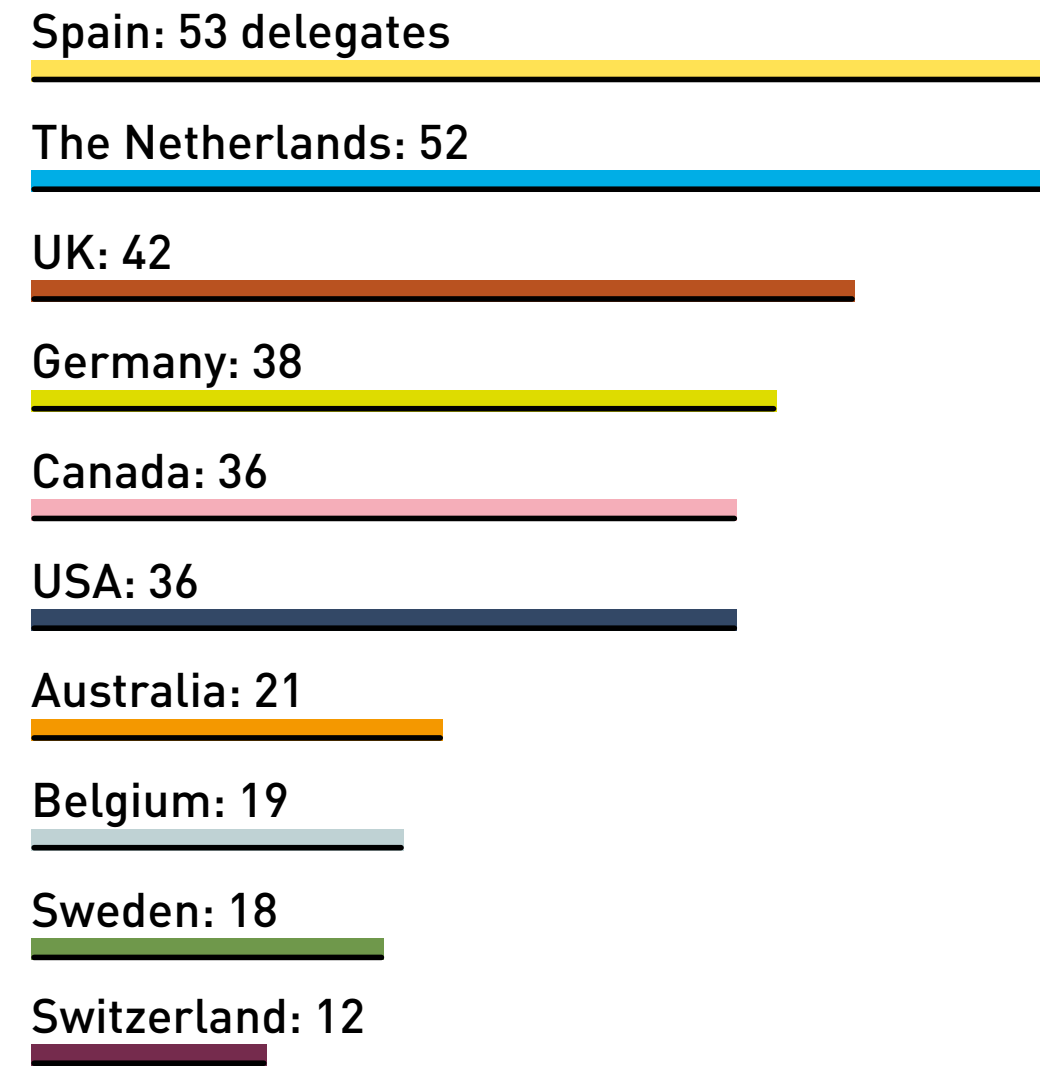
4
Exhibitors

509 Delegates

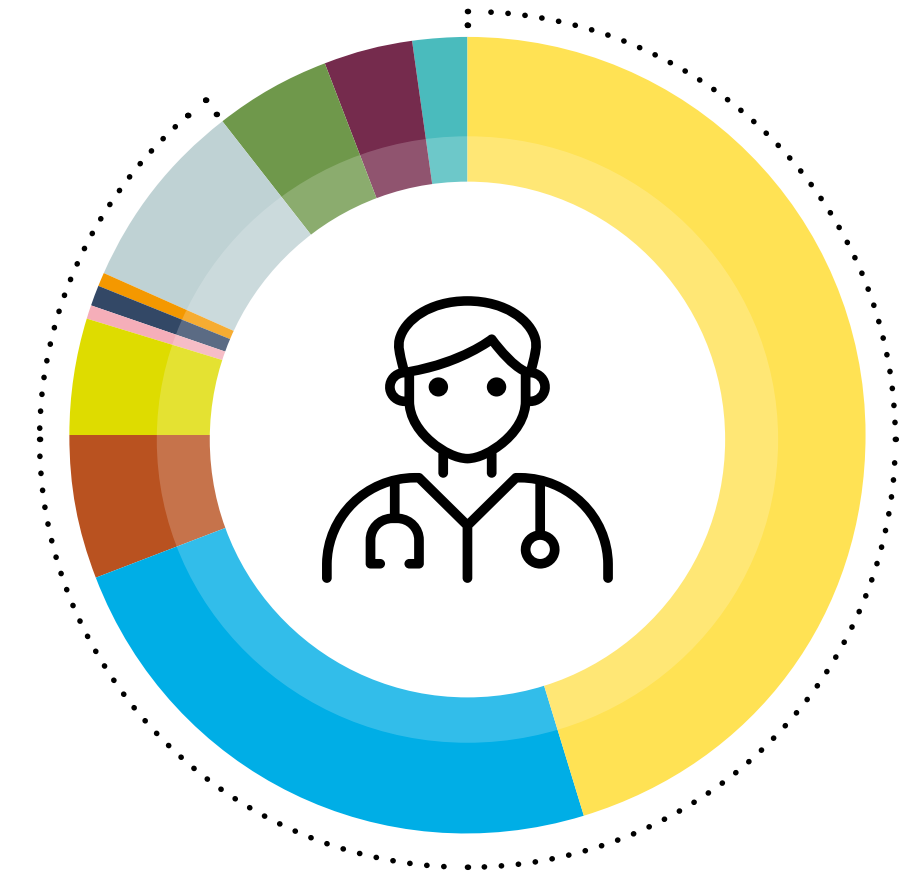


- 87,62% Participants
- 12,38% Company delegates

Top 10 countries



Breakdown per Specialty

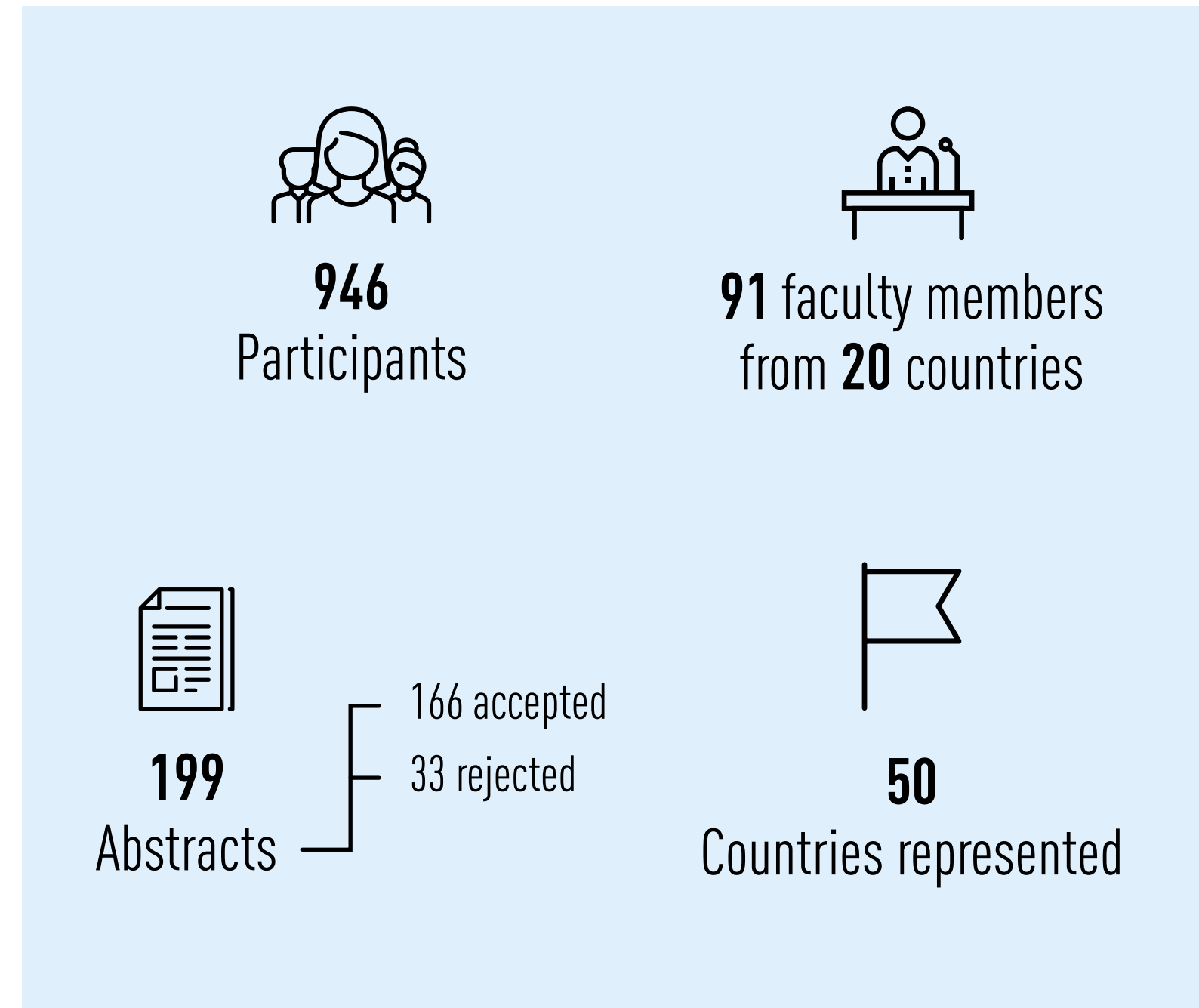


- ... 89,59% RO Specialty
- 45,38% Radiation Oncologists
- 23,97% Medical Physicists
- 5,89% Clinical Oncologists
- 4,52% RTTs, RT nurses
- 0,79% Computer Scientist
- 0,79% Medical Oncologist
- 0,59% Dosimetrist
- 7,66% Other
- 4,72% Other Medical Specialities
- 3,73% RO Industry - Corporate
- 1,96% Other Non-Medical Specialities

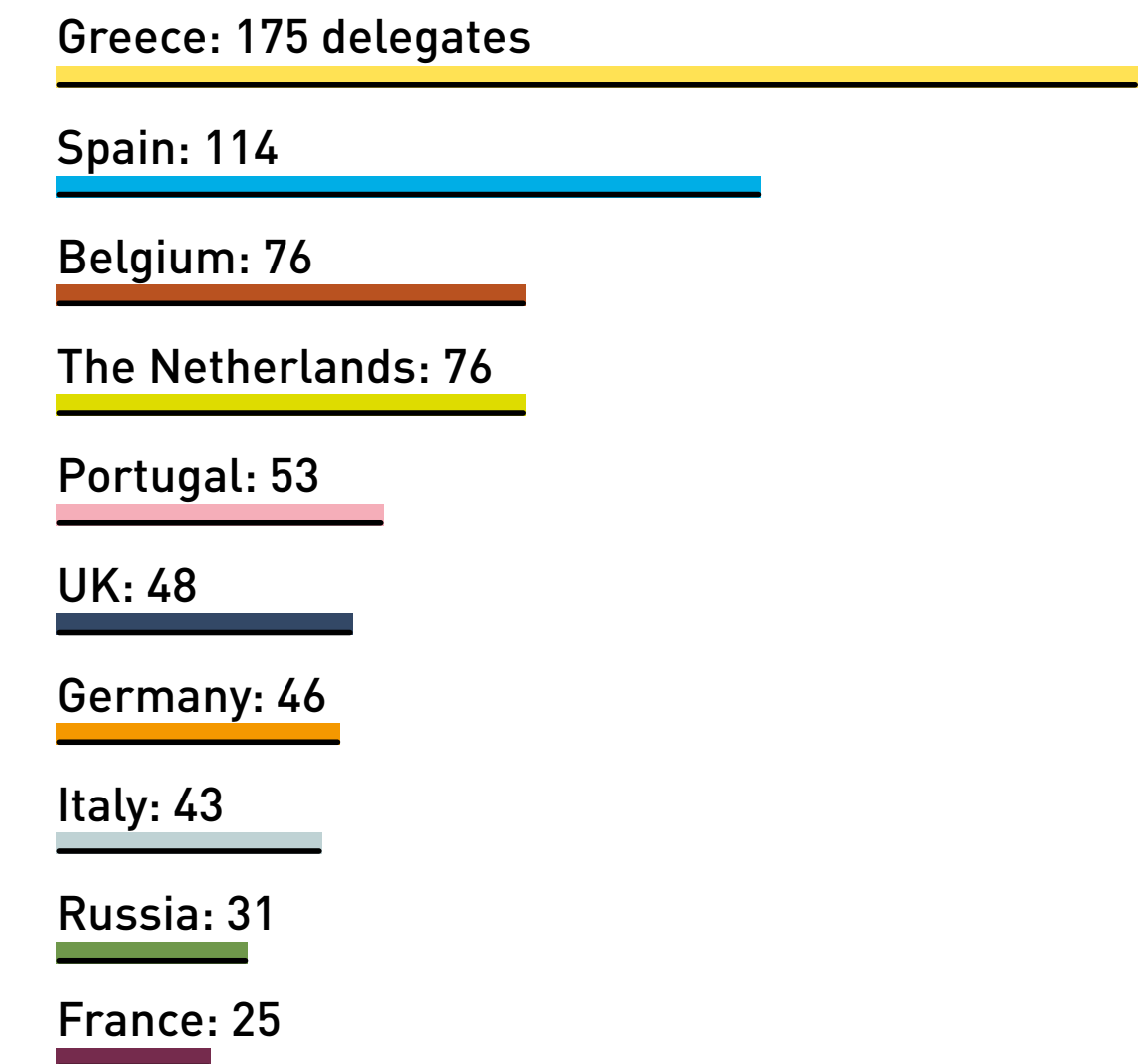
2.2 European Multidisciplinary Congress on Urological Cancers (EMUC)

25-28 November 2021 | Athens, Greece - *Jointly organised by EAU, ESMO and ESTRO*

The 13th European Multidisciplinary Congress on Urological Cancers (EMUC 21) placed a specific emphasis on the importance of multi-sectoral approach in the treatment of genitourinary (GU) malignancies. The EMUC 21 scientific programme highlighted the most recent developments in the prevention, diagnosis and best practices in the management of GU cancers.



Top 10 countries



2.3 European Lung Cancer Conference (ELCC 2021)

25-27 March 2021 | Online

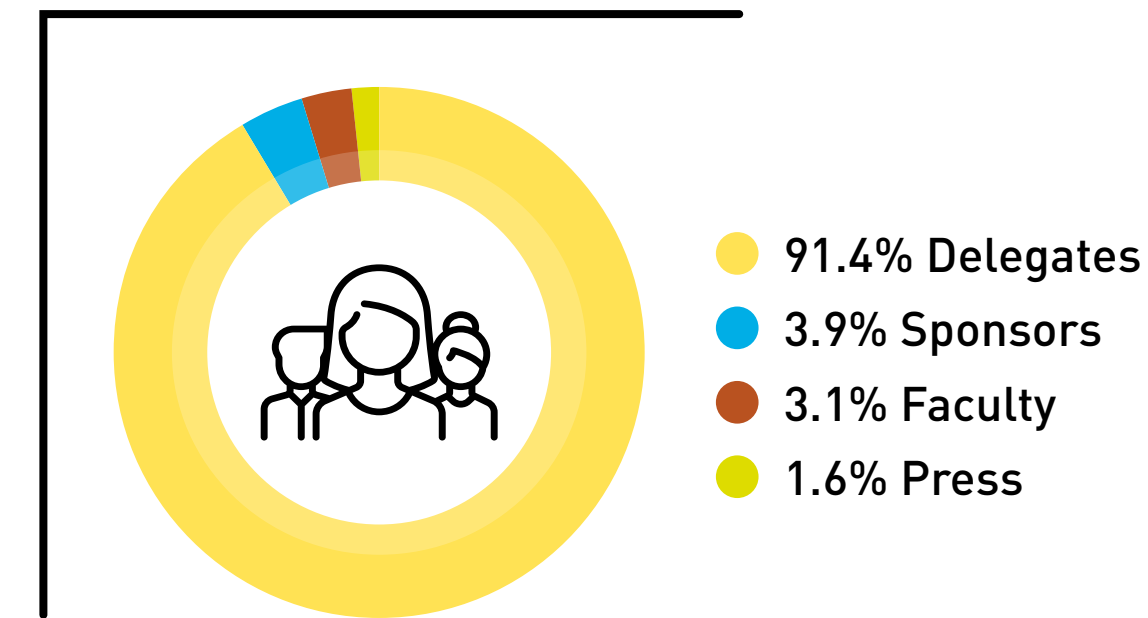
Organised by the ESMO and IASLC with ESTRO, European Society of Thoracic Surgeons (ESTS) and the European Thoracic Oncology Platform (ETOP) as partners.

The ELCC is a collaboration of the most important multidisciplinary societies that represent thoracic oncology specialists, working together to advance science, disseminate education and improve the practice of lung-cancer specialists worldwide.

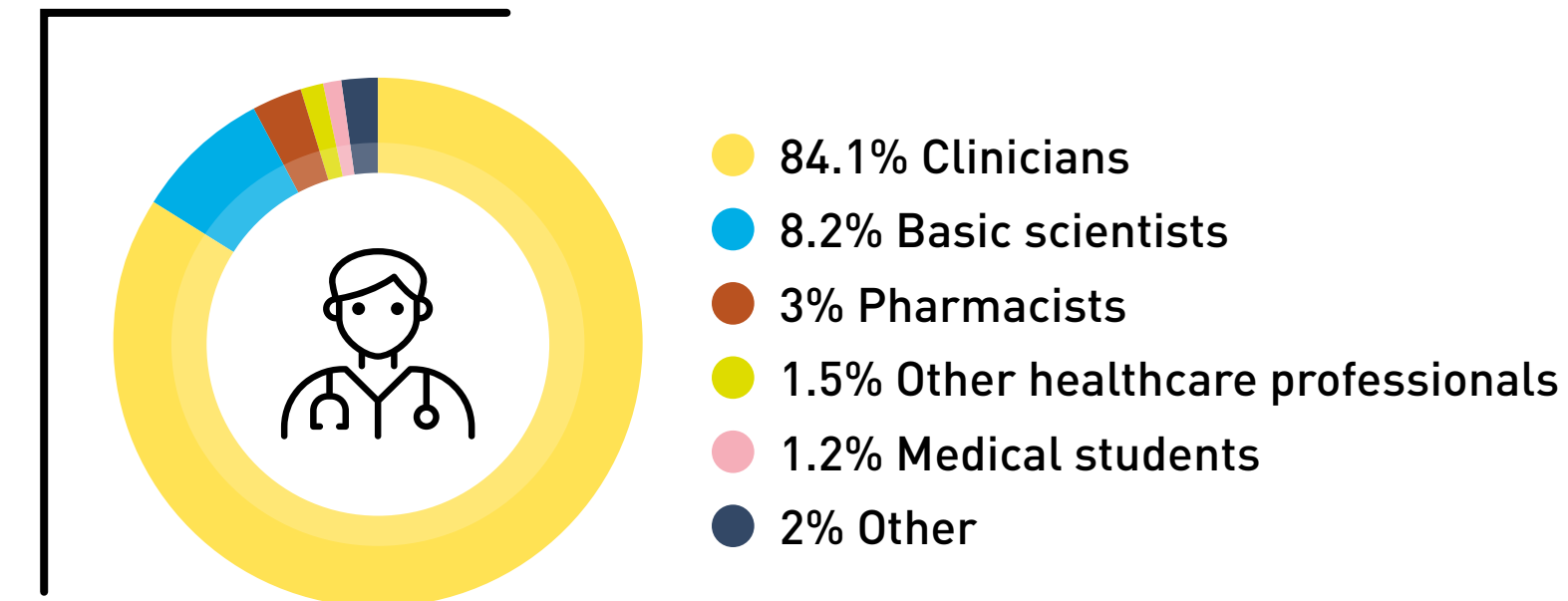
Medical oncologists, radiation oncologists, thoracic surgeons, respiratory physicians/ pneumologists, interventional radiologists and pathologists all benefit from its comprehensive and stimulating programme.



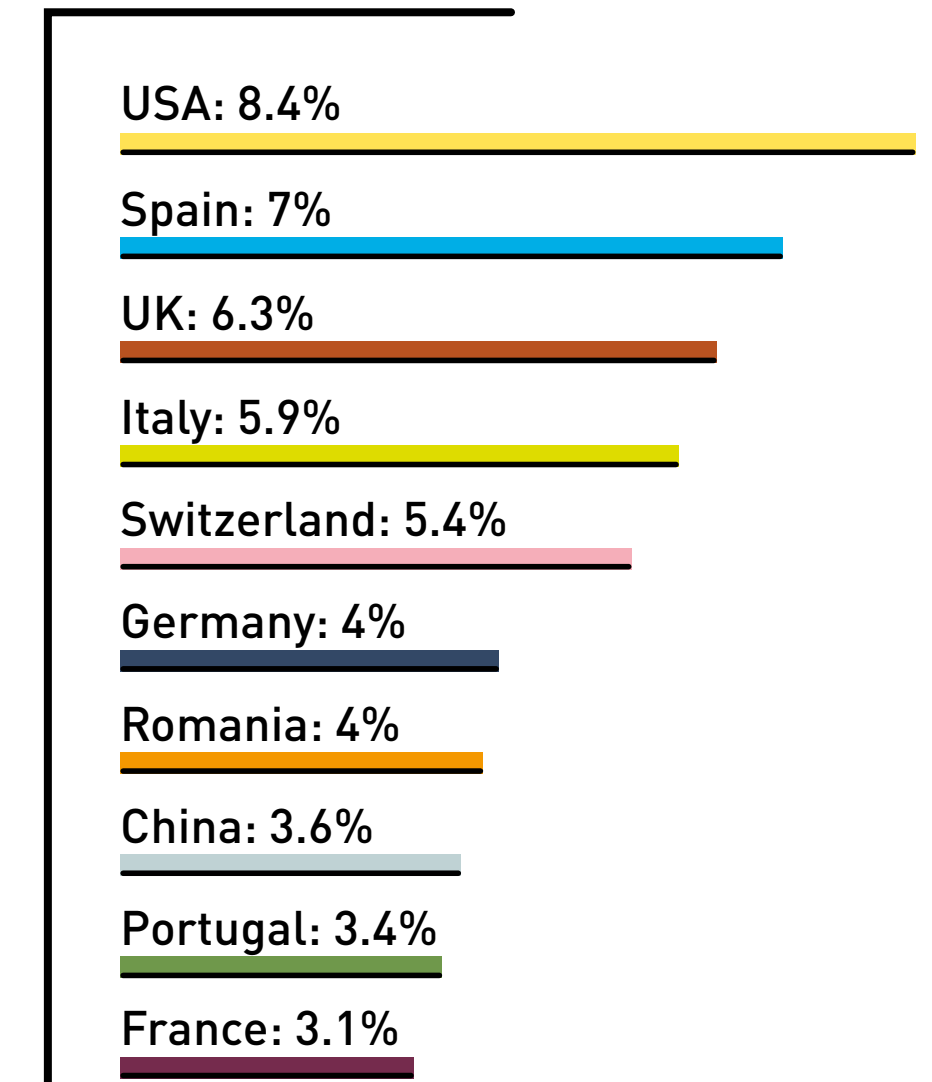
Breakdown of participants



Top 5 professions



Top 10 countries



3. ESTRO Workshops

3.1 5th Physics Workshop - Science in development

Hybrid workshop | ONLINE May and June 2021 | ONSITE 22-23 October 2021 in Budapest, Hungary

The Physics Workshop, organised by the ESTRO Physics Committee, aims to facilitate scientific and professional networking opportunities between the ESTRO physics membership, physicists working in other areas, and with developers in companies.

Five tracks ran in parallel at the 5th Physics Workshop:

- ↳ Clinical translation of CT innovations in Radiation Oncology: Opportunities, requirements and standardisation
- ↳ Commissioning and quality assurance for deformable image registration in radiotherapy
- ↳ Harmonisation and standardisation in SBRT planning
- ↳ Mining the radiotherapy dose: exploring dose-response patterns in radiation therapy
- ↳ Physics aspects of FLASH.

Top 5 countries

UK: 22 Participants

Germany: 16

Italy: 15

Belgium: 13

USA: 13

3.2 GEC-ESTRO Workshop 2021

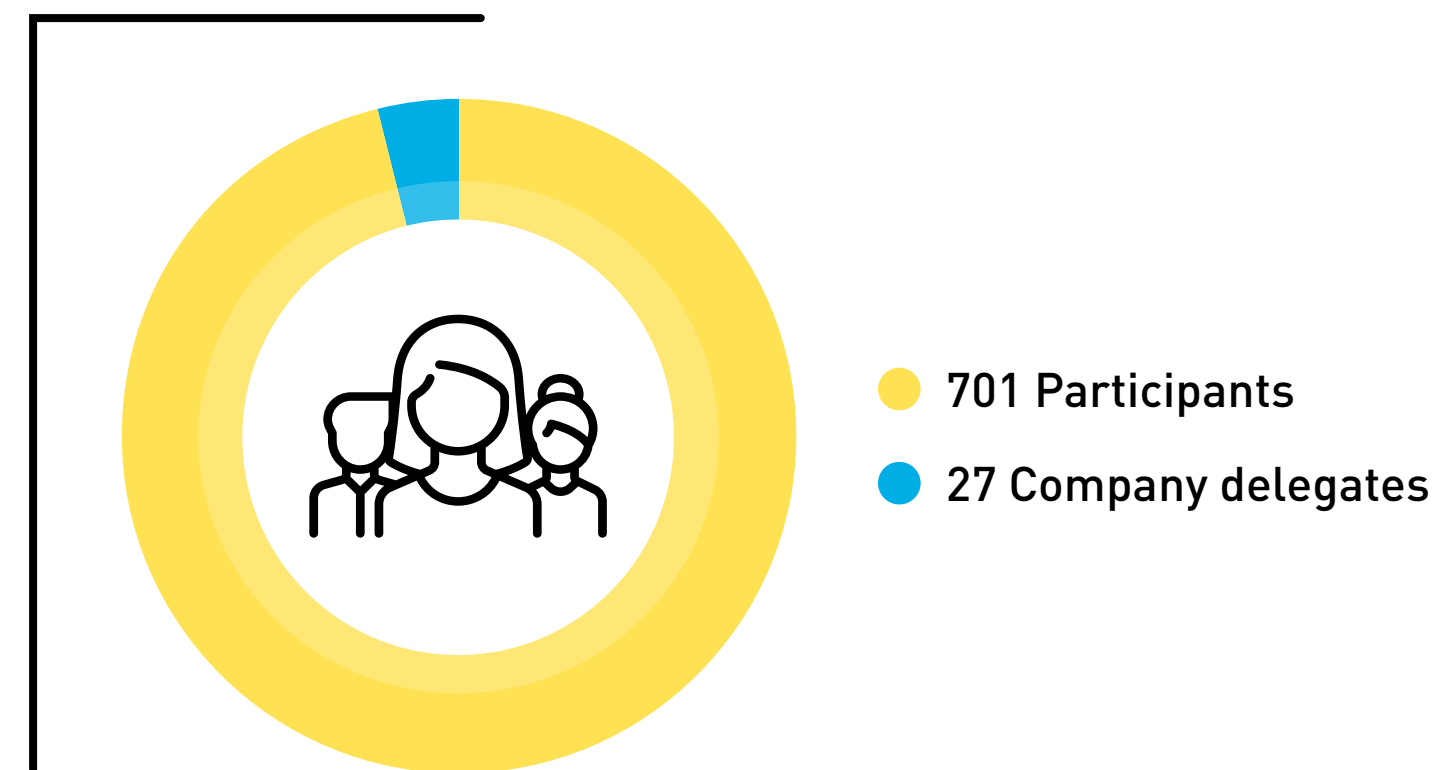
9-10 February 2022 | ONLINE

Initially planned to be held in Rotterdam in November 2021, the GEC-ESTRO Workshop had to be postponed due to the travel restrictions linked to the Covid-19 and was held online on 9-10 February 2022.

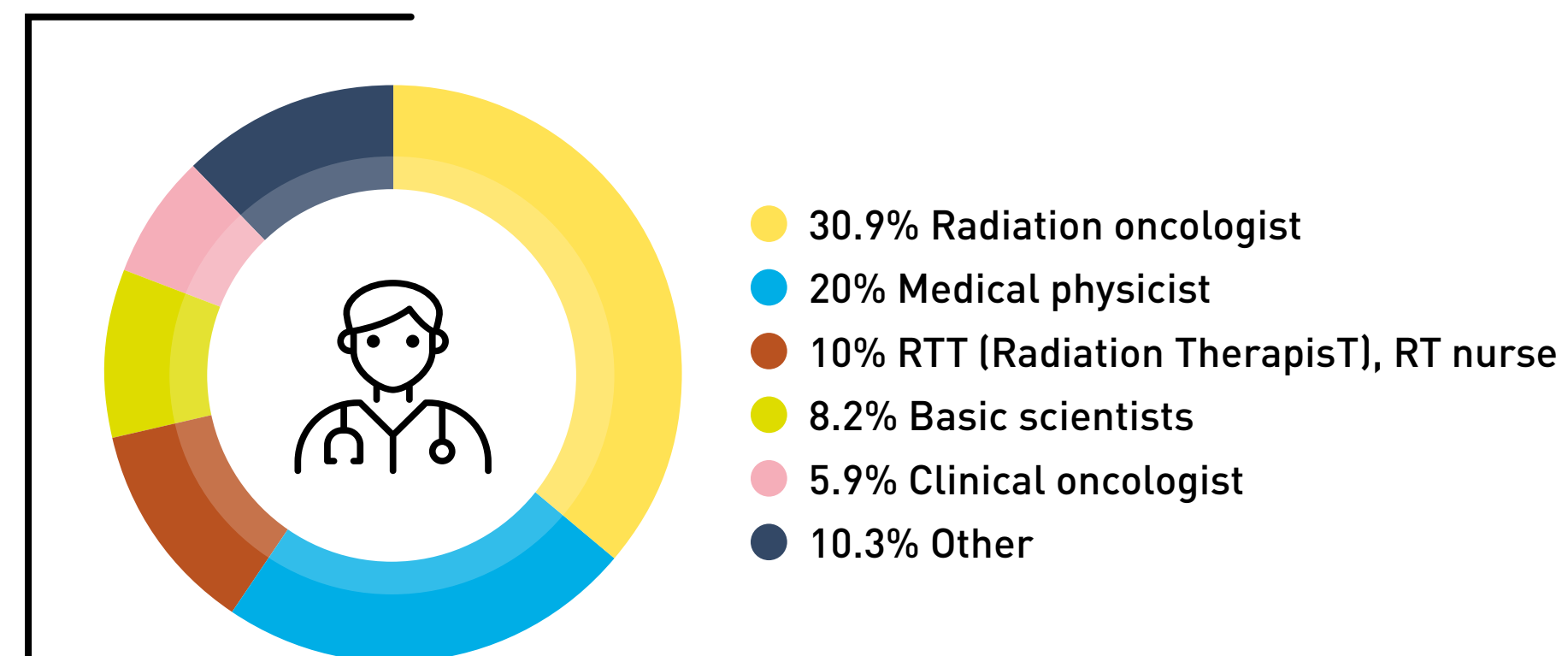
GEC-ESTRO annual workshop is now a hallmark platform for networking with the seven GEC-ESTRO working groups. The 7th edition covered multiple aspects of brachytherapy, with each working group covering a site-specific aspect of the speciality.

The programme involved plenary sessions. Additionally included was one company satellite symposium plus two sessions at which two companies were given the possibility to present some of their brachytherapy projects in development.

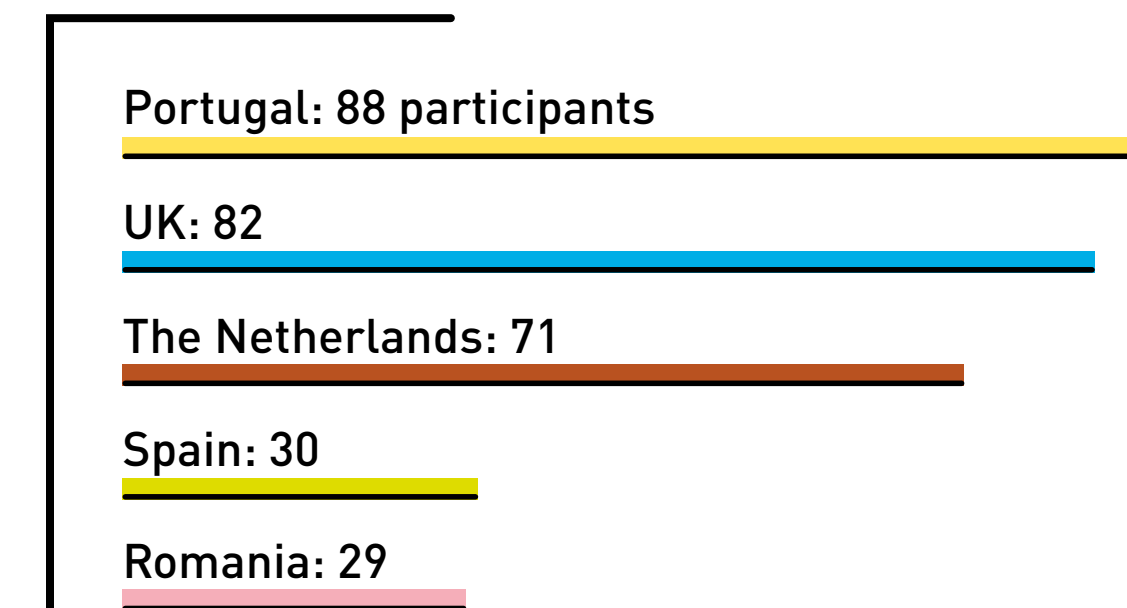
728 Delegates



Top 5 disciplines



Top 5 countries



PUBLICATIONS

1. The Green Journal

Editor-in-chief:
Michael Bauman (Heidelberg, Germany)

Radiotherapy & Oncology, known as the *Green Journal*, is the flagship publication in ESTRO's family of journals. It covers all aspects of Radiation Oncology, publishing themed issues, editorials and correspondence, as well as original research and review articles.

Article transfer service to *CtRO*, *PhiRO* and *TipsRO*

For manuscripts not selected for publication in *Radiotherapy & Oncology*, authors may be provided with the option of having their manuscript transferred to an ESTRO Open Access publication.

SUBMITTED PAPERS

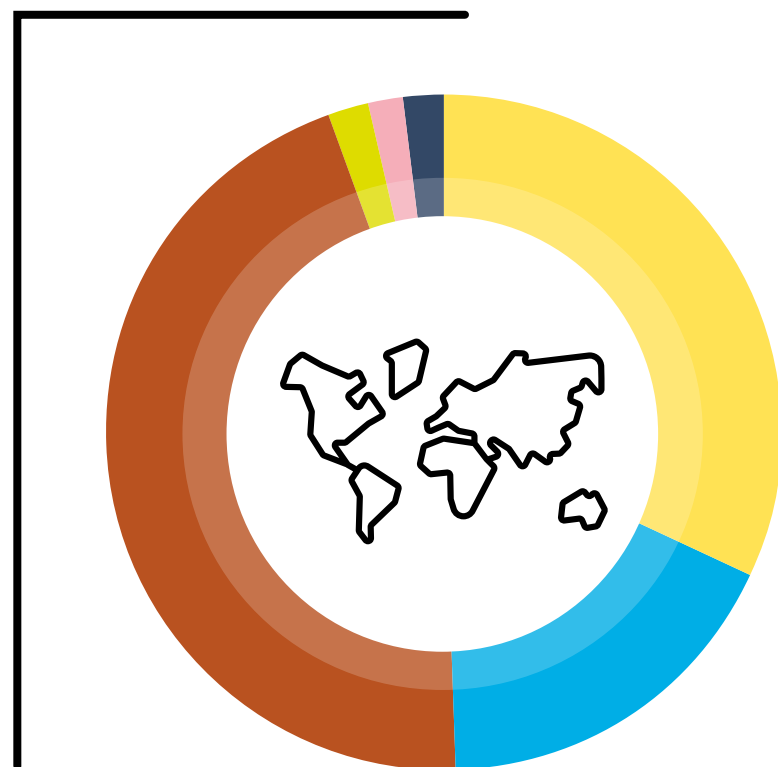
Manuscript submissions



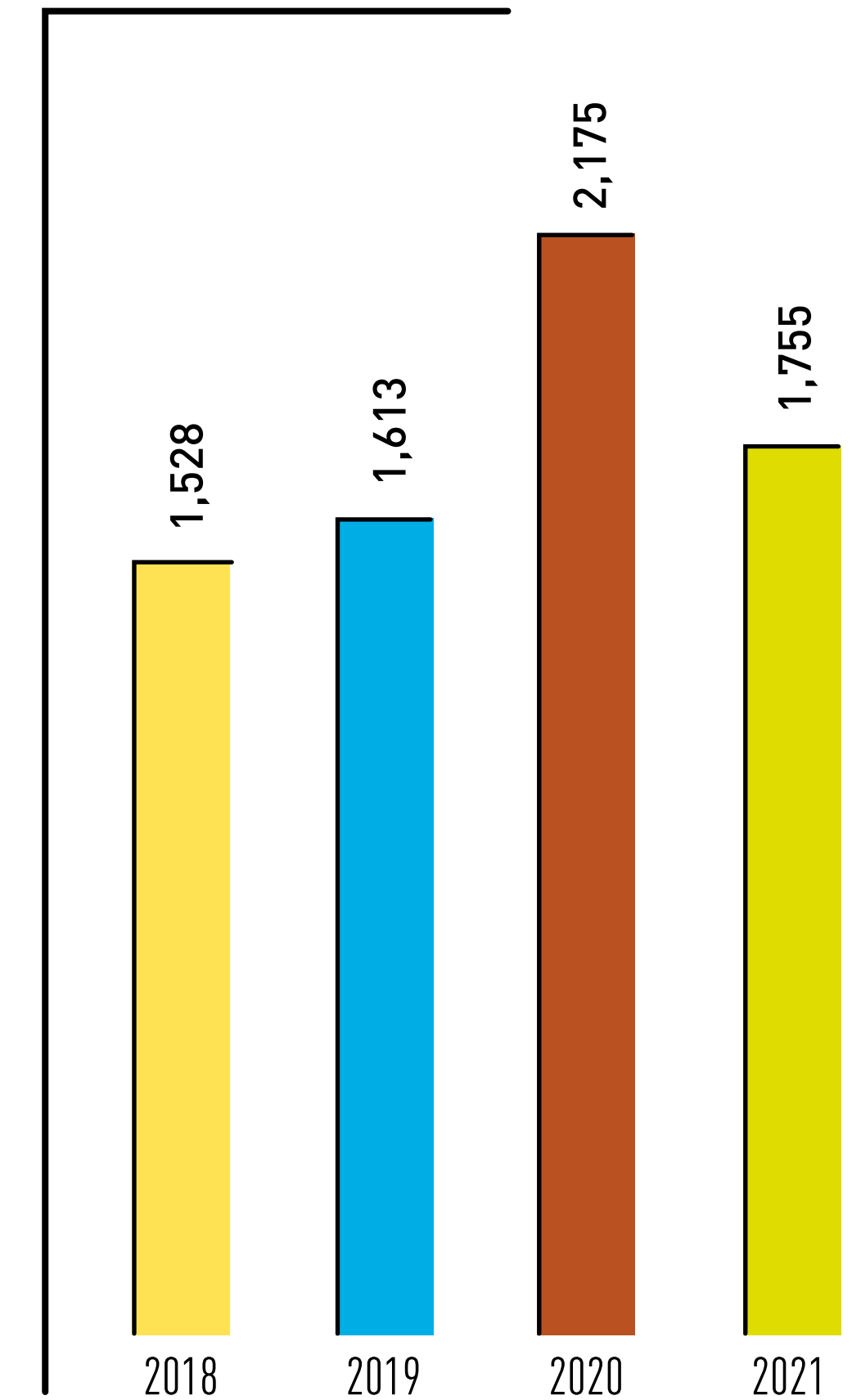
1,764 submitted abstracts:

- 408 Accepted papers
- 1,326 Rejected
- 30 Withdrawn or removed

Submitted articles by region

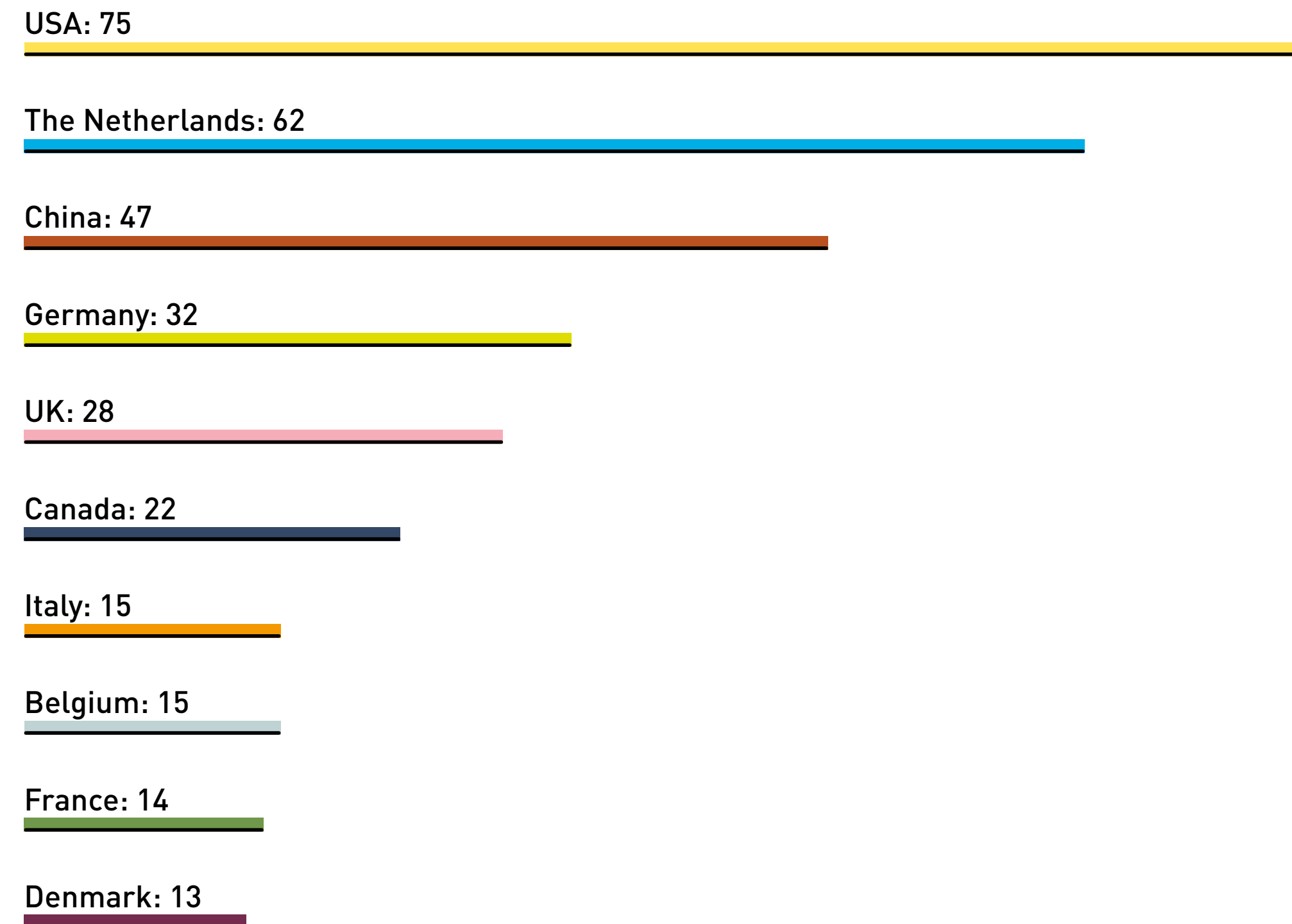


Evolution of the number of articles submitted



ACCEPTED PAPERS

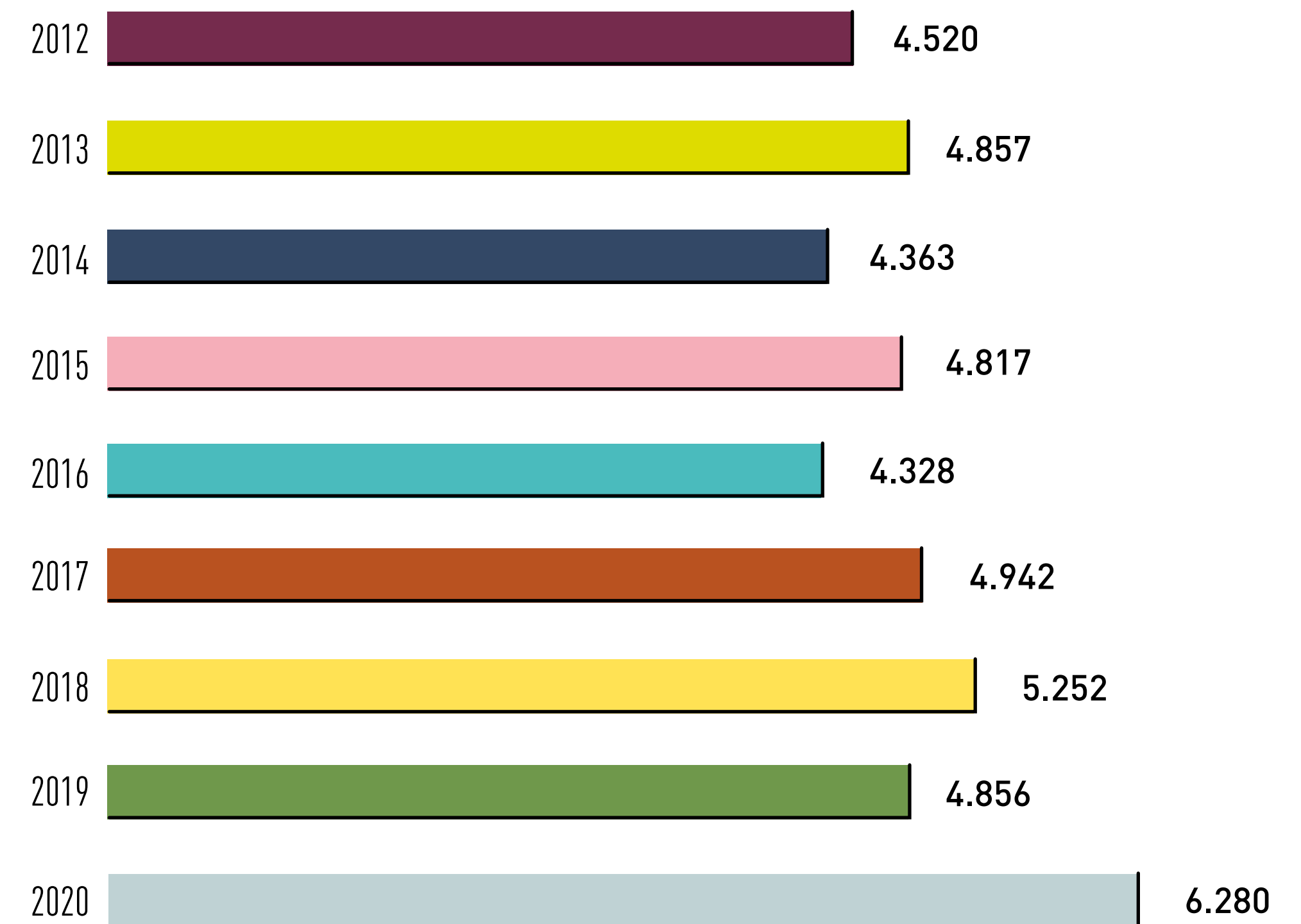
Top 10 countries of accepted papers



The region and country are derived by affiliation of the corresponding author

IMPACT FACTOR

Evolution impact factor trend



2021 impact factor not known yet.

MOST CITED ARTICLES IN 2021

Published between 2019 and 2021

92 citations in 2021

Treatment of a first patient with FLASH-radiotherapy

Bourhis J., Sozzi W.J., Jorge P.G., Gaide O., Bailat C., Duclos F., Patin D., Ozsahin M., Bochud F., Germond J.-F., Moeckli R., Vozenin M.-C.

└ 2019

71 citations in 2021

Defining oligometastatic disease from a radiation oncology perspective: An ESTRO-ASTRO consensus document

Lievens Y., Guckenberger M., Gomez D., Hoyer M., Iyengar P., Kindts I., Mendez Romero A., Nevens D., Palma D., Park C., Ricardi U., Scorsetti M., Yu J., Woodward W.A.

└ 2020

69 citations in 2021

Clinical translation of FLASH radiotherapy: Why and how?

Bourhis J., Montay-Gruel P., Goncalves Jorge P., Bailat C., Petit B., Ollivier J., Jeanneret-Sozzi W., Ozsahin M., Bochud F., Moeckli R., Germond J.-F., Vozenin M.-C. 1528

└ 2019

These papers contribute to the 2021 Impact Factor.

MOST DOWNLOADED ARTICLES IN 2021

Regardless of publication date

27,494 downloads in 2021

The tubarial salivary glands: A potential new organ at risk for radiotherapy

Valstar, M., de Bakker, B., Steenbakkers, R., de Jong, K., Smit, L., Klein Nulent, T., van Es, R., Hofland, I., de Keizer, B., Jasperse, B., Balm, A., van der Schaaf, A., Langendijk, J., Smeele, L., Vogel, W.

└ 2021

18,249 downloads in 2021

Delineation of the neck node levels for head and neck tumors: A 2013 update. DAHANCA, EORTC, HKNPCSG, NCIC CTG, NCRI, RTOG, TROG consensus guidelines

Grégoire, V., Ang, K., Budach, W., Grau, C., Hamoir, M., Langendijk, J., Lee, A., Le, Q., Maingon, P., Nutting, C., O'Sullivan, B., Porceddu, S., Lengele, B.

└ 2014

11,067 downloads in 2021

ESTRO consensus guideline on target volume delineation for elective radiation therapy of early-stage breast cancer

Offersen, B., Boersma, L., Kirkove, C., Hol, S., Aznar, M., Biete Sola, A., Kirova, Y., Pignol, J., Remouchamps, V., Verhoeven, K., Weltens, C., Arenas, M., Gabrys, D., Kopek, N., Krause, M., Lundstedt, D., Marinko, T., Montero, A., Yarnold, J., Poortmans P.

└ 2015

TOP ARTICLES BY SOCIAL MEDIA ATTENTION *

186,986 social media attention in 2021

The tubarial salivary glands: A potential new organ at risk for radiotherapy

Valstar M.H., de Bakker B.S., Steenbakkers R.J.H.M., de Jong K.H., Smit L.A., Klein Nulent T.J.W., van Es R.J.J., Hofland I., de Keizer B., Jasperse B., Balm A.J.M., van der Schaaf A., Langendijk J.A., Smeele L.E., Vogel W.V.

└ 2021

185,891 social media attention 2021

Quality assurance standards drive improvements in the profile of radiation therapy departments participating in trials of the EORTC Radiation Oncology Group

Grant W., Hurkmans C.W., Poortmans P.M., Maingon P., Monti A.F., Van Os M.J.H., Weber D.C.

└ 2014

185,786 social media attention 2021

Spacers in radiotherapy treatment of prostate cancer: Is reduction of toxicity cost-effective?

Vanneste B.G.L., Pijls-Johannesma M., Van De Voorde L., Van Lin E.N., Van De Beek K., Van Loon J., Ramaekers B.L., Lambin P.

└ 2015

*Social Media Attention is captured as a lifetime metric showing cumulative views, shares, likes comments etc. from publication up to YTD, regardless of publication date.

2. Open access journals

All members of ESTRO are eligible for a discounted fee to publish a paper in any of the three open access journals. The fees vary depending on whether the manuscript is a full-length original research article, a short-format case report, technical note or short communication. All correspondence commenting on previously published work is published free of charge.



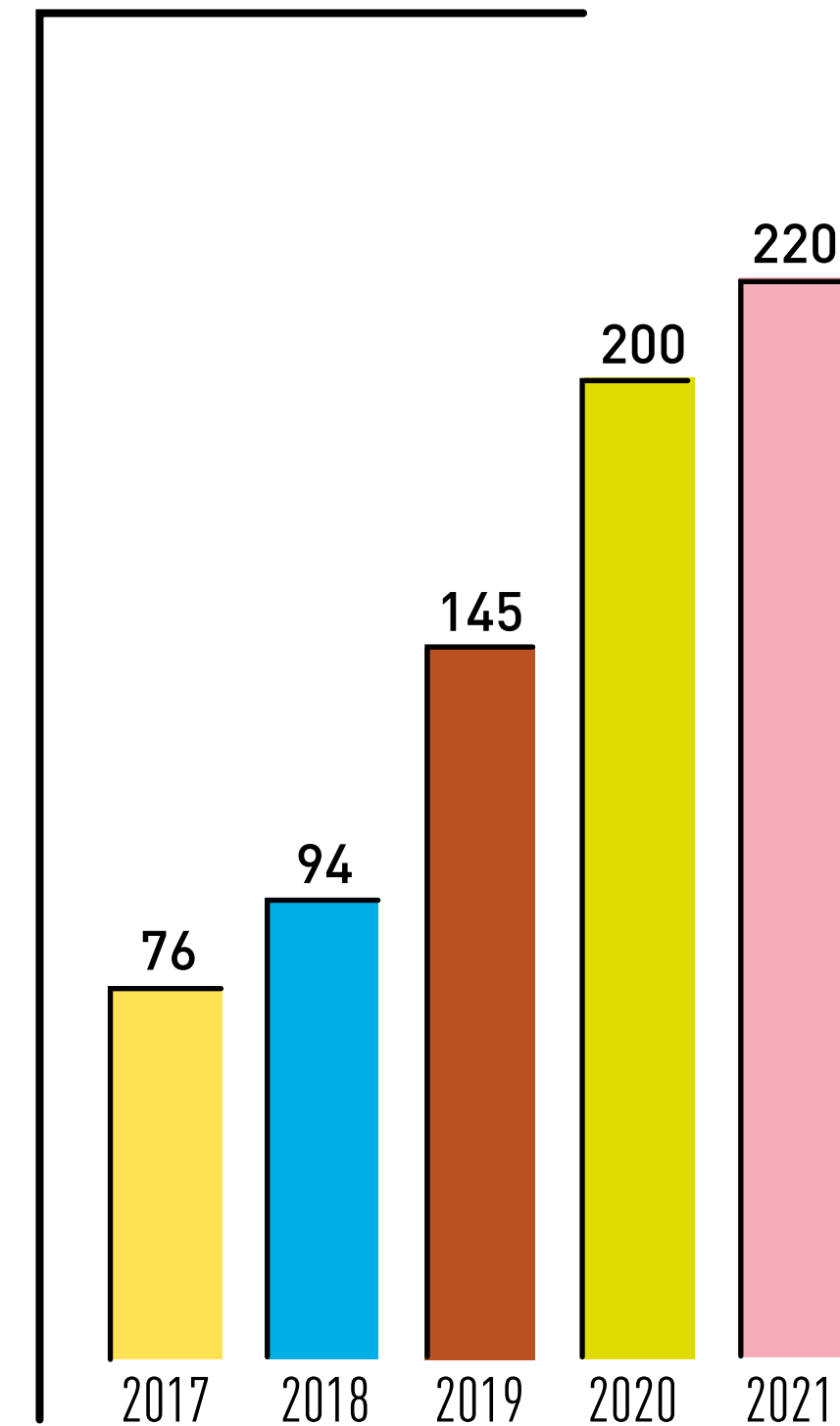
2.1 Clinical & Translational Radiation Oncology (ctRO)

Co-editors: Pierre Blanchard (Villejuif, France) and Daniel Zips (Berlin, Germany)

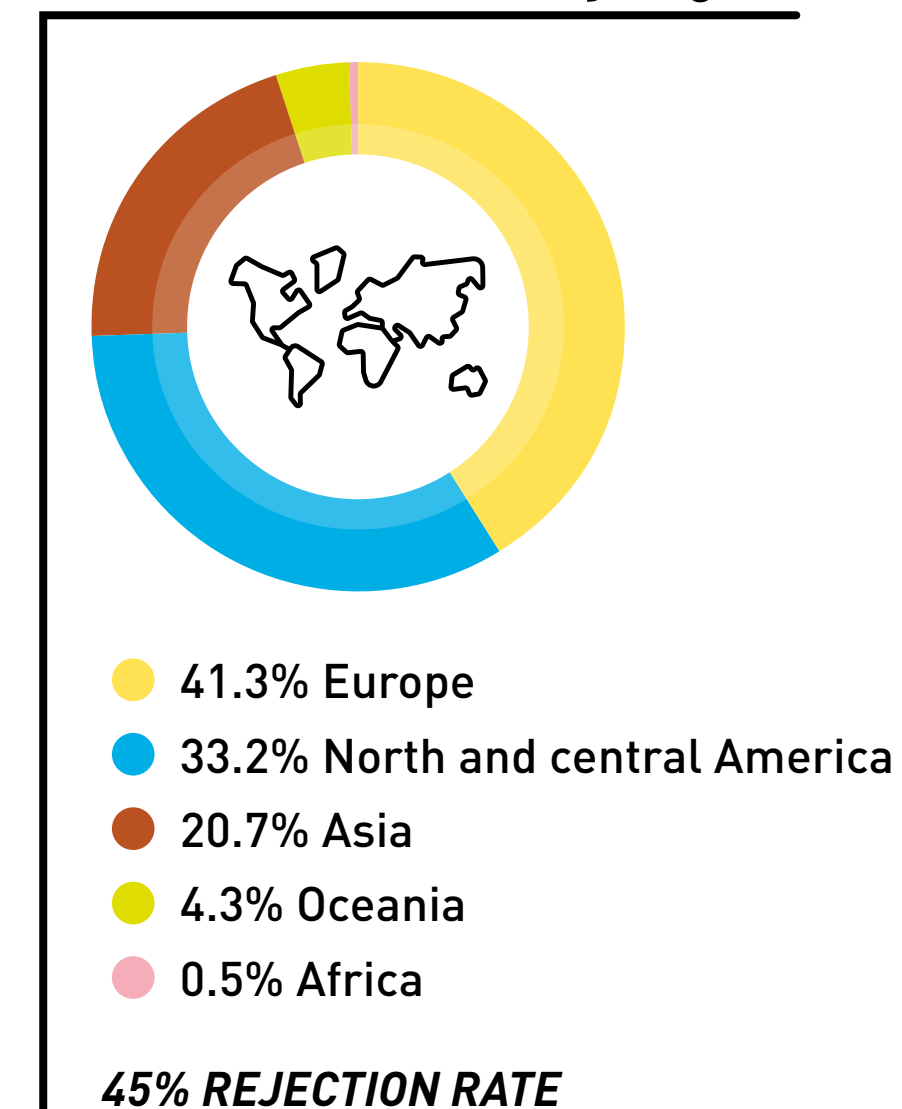
Clinical & Translational Radiation Oncology features research on all aspects of clinical and translational radiation oncology, particularly new developments in experimental radiobiology, clinical interventions and treatments. This includes imaging and biomarker studies with a clinical endpoint, as well as research results from data sciences, epidemiology and oncopolicy.

SUBMITTED PAPERS

Evolution of the number of articles submitted

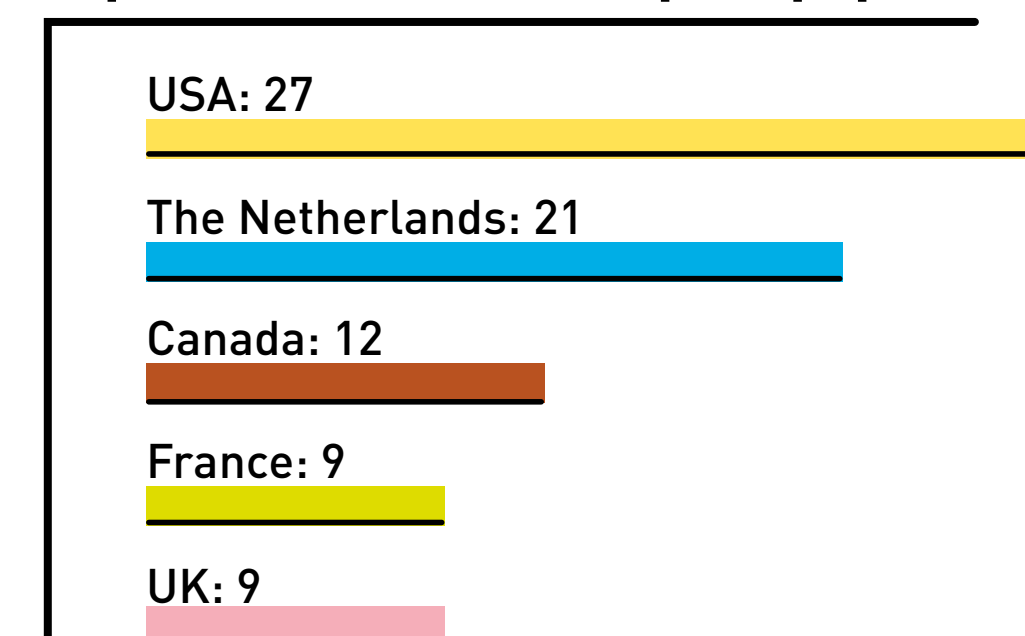


Submitted articles by region

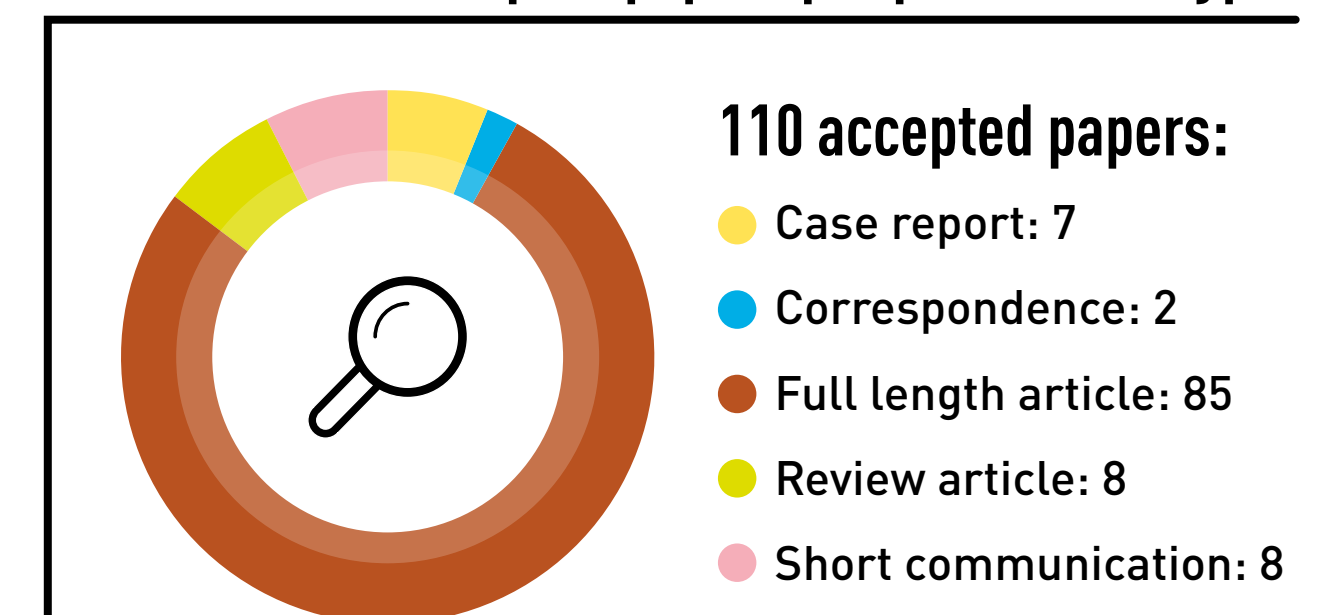


ACCEPTED PAPERS

Top 5 countries of accepted papers



Breakdown of accepted papers per publication type



MOST CITED ARTICLES IN 2021

Published between 2019 and 2021

96 citations in 2021

Adaptive radiotherapy: The Elekta Unity MR-Linac concept

Winkel D., Bol G.H., Kroon P.S., van Asselen B., Hackett S.S., Werensteijn-Honingh A.M., Intven M.P.W., Eppinga W.S.C., Tijssen R.H.N., Kerkmeijer L.G.W., de Boer H.C.J., Mook S., Meijer G.J., Hes J., Willemsen-Bosman M., de Groot-van Breugel E.N., Jurgenliemk-Schulz I.M., Raaymakers B.W.

└ 2019

52 citations in 2021

Technical design and concept of a 0.35 T MR-Linac

Kluter S.

└ 2019

41 citations in 2021

COVID-19: Global radiation oncology's targeted response for pandemic preparedness

Simcock R., Thomas T.V., Estes C., Filippi A.R., Katz M.A., Pereira I.J., Saeed H.

└ 2020

These papers contribute to the 2021 Impact Factor.

MOST DOWNLOADED ARTICLES IN 2021

Regardless of publication date

5,190 downloads in 2021

Adaptive radiotherapy: The Elekta Unity MR-Linac concept

Winkel D., Bol G.H., Kroon P.S., van Asselen B., Hackett S.S., Werensteijn-Honingh A.M., Intven M.P.W., Eppinga W.S.C., Tijssen R.H.N., Kerkmeijer L.G.W., de Boer H.C.J., Mook S., Meijer G.J., Hes J., Willemsen-Bosman M., de Groot-van Breugel E.N., Jurgenliemk-Schulz I.M., Raaymakers B.W.

└ 2019

3,979 downloads in 2021

Technical design and concept of a 0.35 T MR-Linac

Kluter S.

└ 2019

3,826 downloads in 2021

Dose constraints for whole breast radiation therapy based on the quality assessment of treatment plans in the randomised Danish breast cancer group (DBCG) HYPO trial

Thomsen M.S., Berg M., Zimmermann S., Lutz C.M., Makocki S., Jensen I., Hjelstuen M.H.B., Pensold S., Hasler M.P., Jensen M.-B., Offersen B.V.

└ 2021

TOP ARTICLES BY SOCIAL MEDIA ATTENTION *

525 social media attention in 2021

COVID-19: Global radiation oncology's targeted response for pandemic preparedness

Simcock R., Thomas T.V., Estes C., Filippi A.R., Katz M.A., Pereira I.J., Saeed H.

└ 2020

341 social media attention in 2021

Board-certified specialty training program in radiation oncology in a war-torn country: Challenges, solutions and outcomes

Mula-Hussain L., Shamsaldin A.N., Al-Ghazi M., Muhammad H.A., Wadi-Ramahi S., Hanna R.K., Alhasso A.

└ 2019

133 social media attention in 2021

Dose to penile bulb is not associated with erectile dysfunction 18 months post radiotherapy: A secondary analysis of a randomized trial

Tondel H., Lund J., Lydersen S., Wanderas A.D., Aksnessaether B.Y., Jensen C.A., Kaasa S., Solberg A.

└ 2018

*Social Media Attention is captured as a lifetime metric showing cumulative views, shares, likes comments etc. from publication up to YTD, regardless of publication date.

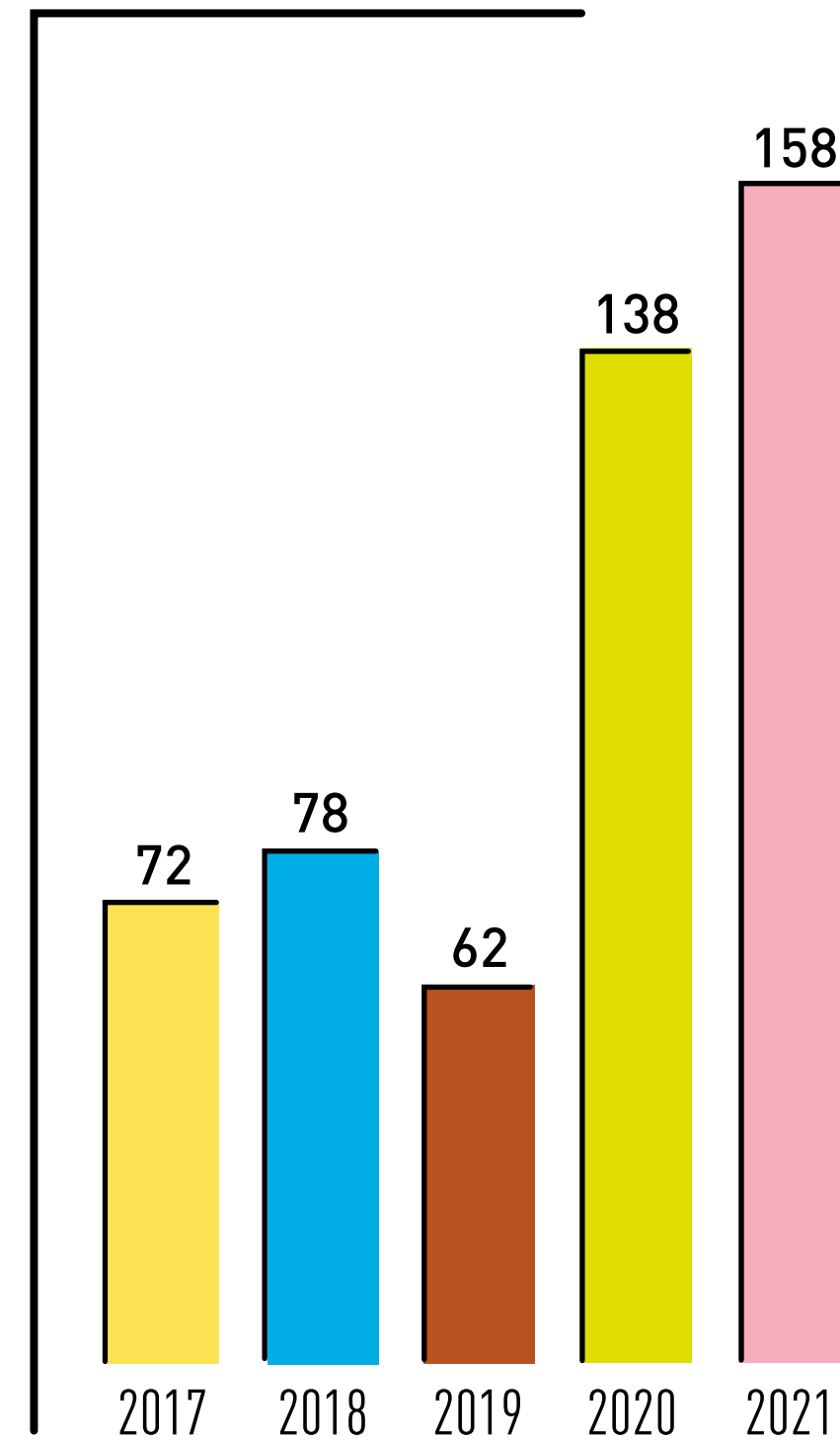
2.2 Physics & Imaging in Radiation Oncology (phiRO)

Co-editors: Ludvig Muren (Aarhus, Denmark) and Daniela Thorwarth (Tübingen, Germany)

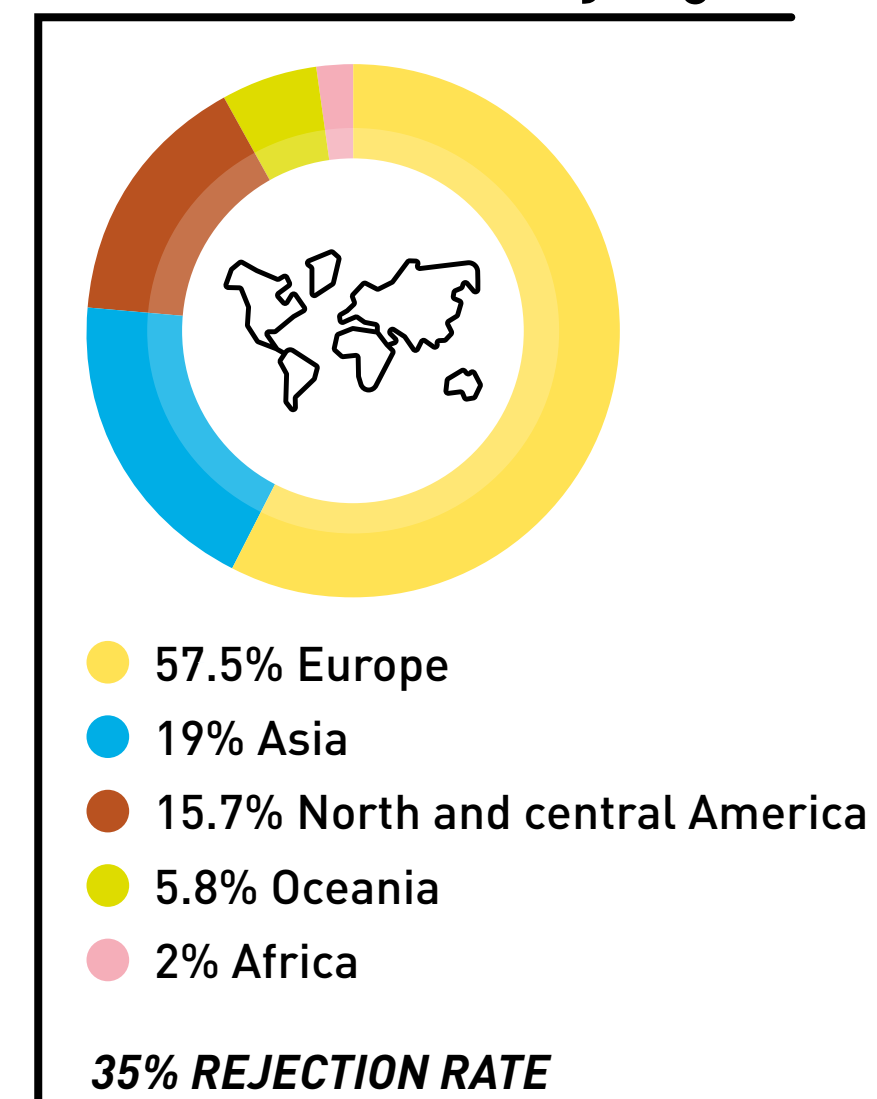
Physics & Imaging in Radiation Oncology focuses on medical physics and imaging in radiation oncology. The journal publishes original research articles, reviews, technical notes, short communications and correspondence.

SUBMITTED PAPERS

Evolution of the number of articles submitted

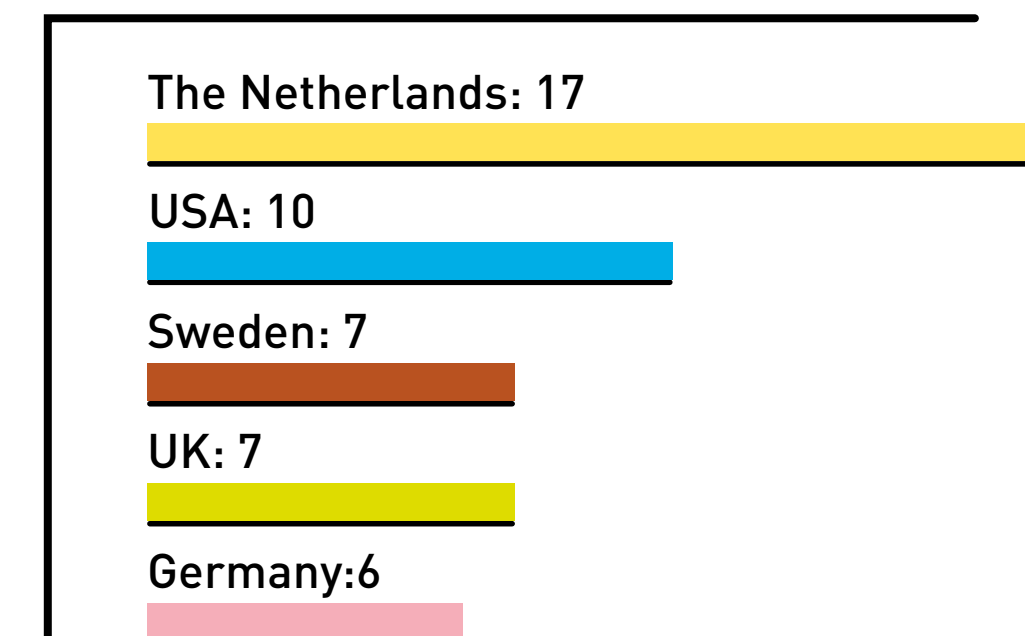


Submitted articles by region

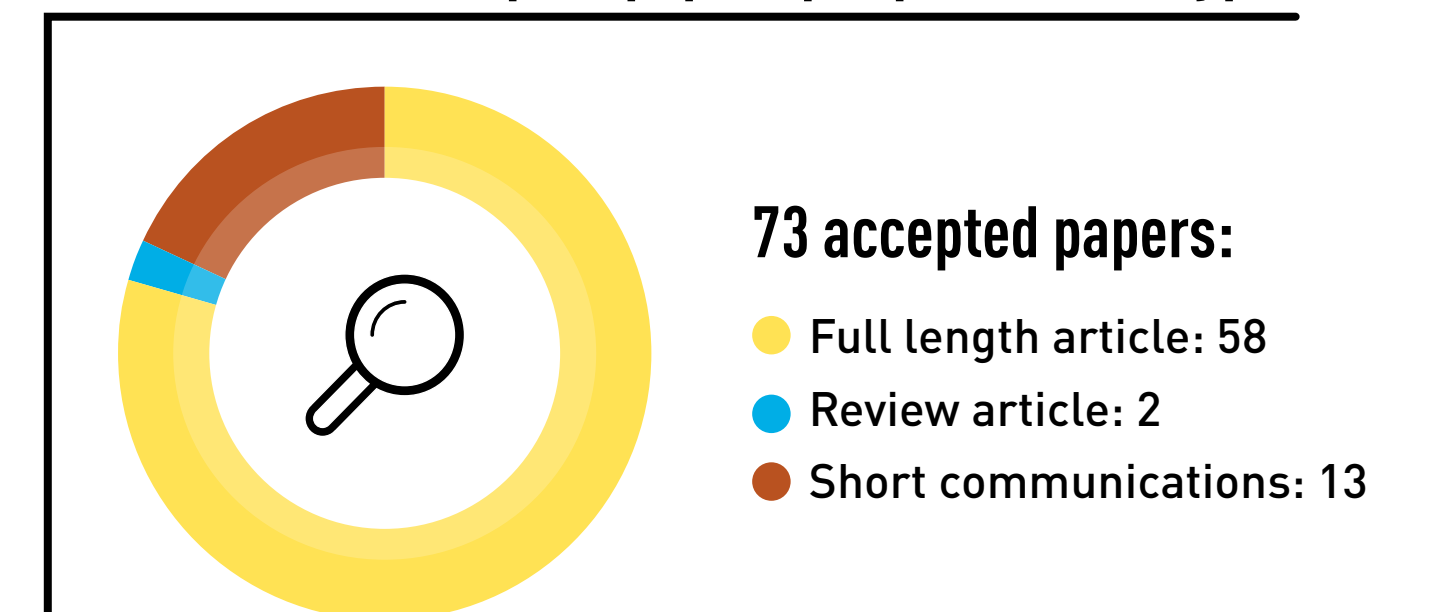


ACCEPTED PAPERS

Top 5 countries of accepted papers



Breakdown of accepted papers per publication type



MOST CITED ARTICLES IN 2021

Published between 2019 and 2021

34 citations in 2021

Clinical implementation of magnetic resonance imaging guided adaptive radiotherapy for localized prostate cancer

Tetar S.U., Bruynzeel A.M.E., Lagerwaard F.J., Slotman B.J., Bohoudi O., Palacios M.A.

└ 2019

19 citations in 2021

Evaluation of measures for assessing time-saving of automatic organ-at-risk segmentation in radiotherapy

Vaassen F., Hazelaar C., Vaniqui A., Gooding M., van der Heyden B., Canters R., van Elmpt W.

└ 2020

17 citations in 2021

A single neural network for cone-beam computed tomography-based radiotherapy of head-and-neck, lung and breast cancer

Maspero M., Houweling A.C., Savenije M.H.F., van Heijst T.C.F., Verhoeff J.J.C., Kotte A.N.T.J., van den Berg C.A.T.

└ 2020

These papers contribute to the 2021 Impact Factor.

MOST DOWNLOADED ARTICLES IN 2021

Regardless of publication date

3,100 downloads in 2021

Relationship between dosimetric leaf gap and dose calculation errors for high definition multi-leaf collimators in radiotherapy

Kim, J., Han, J., Hsia, A., Li, S., Xu, Z., Ryu, S.

└ 2018

3,076 downloads in 2021

Machine learning applications in radiation oncology

Field, M., Hardcastle, N., Jameson, M., Aherne, N., Holloway, L.

└ 2021

3,057 downloads in 2021

Clinical implementation of artificial intelligence-driven cone-beam computed tomography-guided online adaptive radiotherapy in the pelvic region

Sibolt, P., Andersson, L., Calmels, L., Sjöström, D., Bjelkengren, U., Geertsens, P., Behrens, C.

└ 2021

TOP ARTICLES BY SOCIAL MEDIA ATTENTION *

308 social media attention in 2021

Global availability of dosimetry audits in radiotherapy: The IAEA dosimetry audit networks database

Izewska J., Lechner W., Wesolowska P.

└ 2018

84 social media attention in 2021

Multi-center evaluation of dose conformity in stereotactic body radiotherapy

Lee J., Dean C., Patel R., Webster G., Eaton D.J.

└ 2019

33 social media attention in 2021

Machine learning applications in radiation oncology

Field, M., Hardcastle, N., Jameson, M., Aherne, N., Holloway, L.

└ 2021

*Social Media Attention is captured as a lifetime metric showing cumulative views, shares, likes comments etc. from publication up to YTD, regardless of publication date.

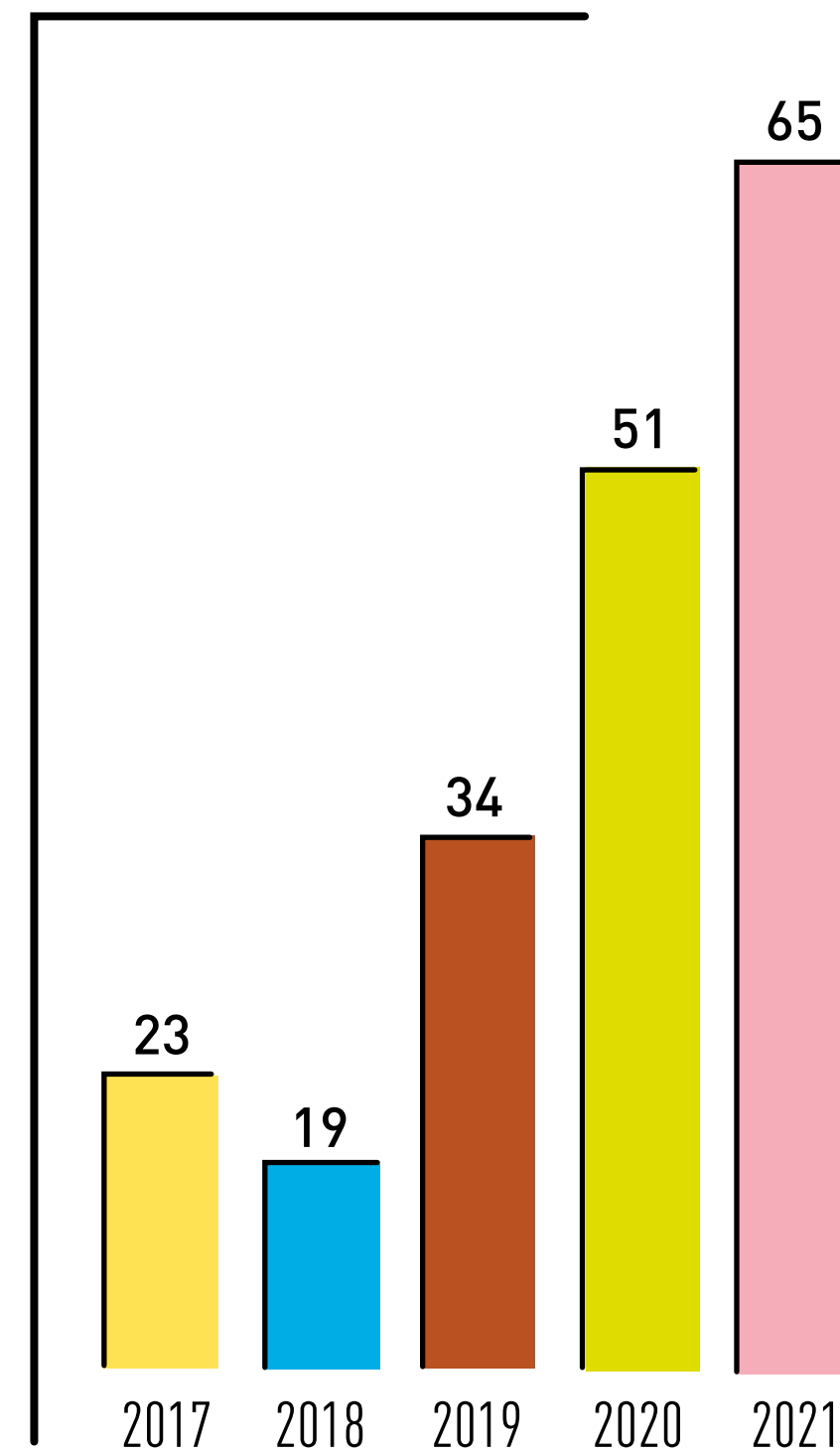
2.3 Technical Innovations & Patient Support in Radiation Oncology (tipsRO)

Editor: Michelle Leech (Dublin, Ireland)

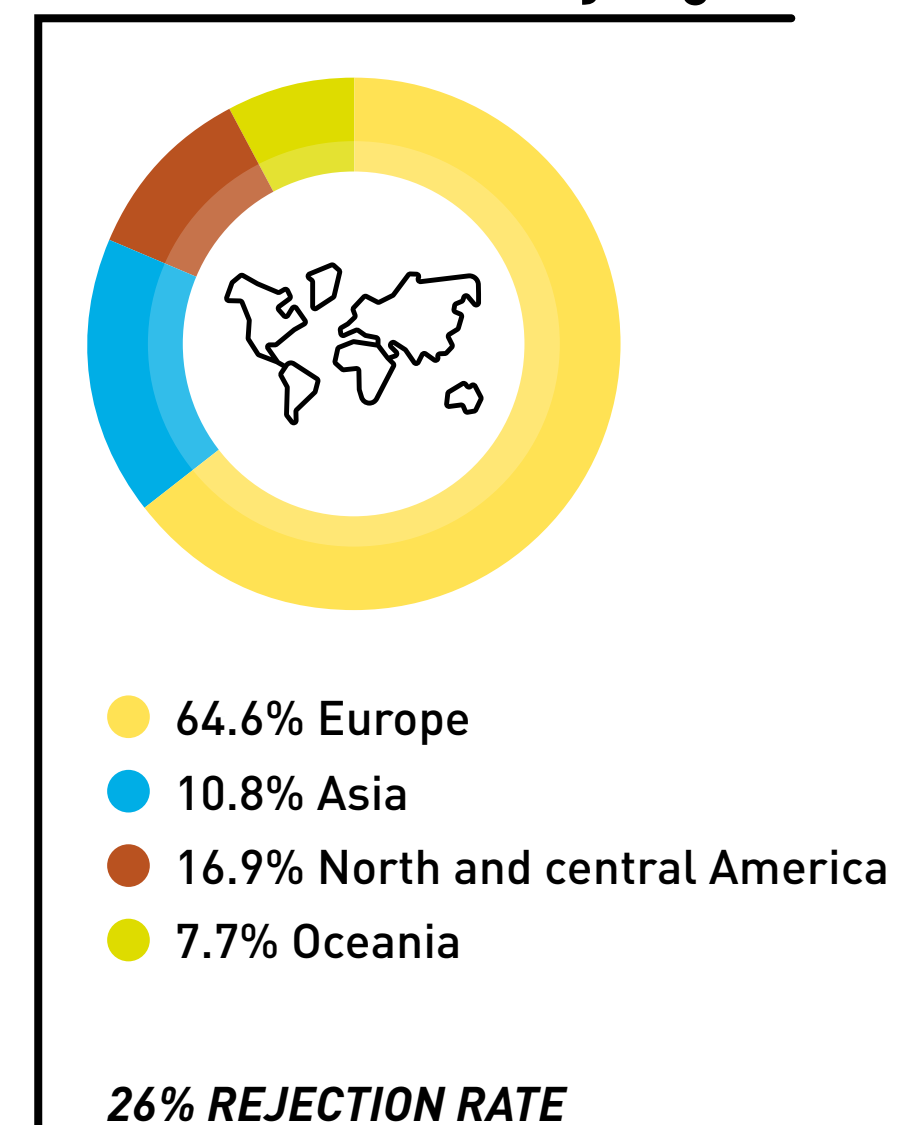
Technical Innovations & Patient Support in Radiation Oncology offers radiation therapists, nurses and allied health professionals a forum for the publication of original research, case reports, practice development and health evaluation articles, reviews, short communications, technical notes and correspondence on topics including treatment planning and workflows, treatment delivery and verification, supportive care, psycho-oncology, education and training.

SUBMITTED PAPERS

Evolution of the number of articles submitted

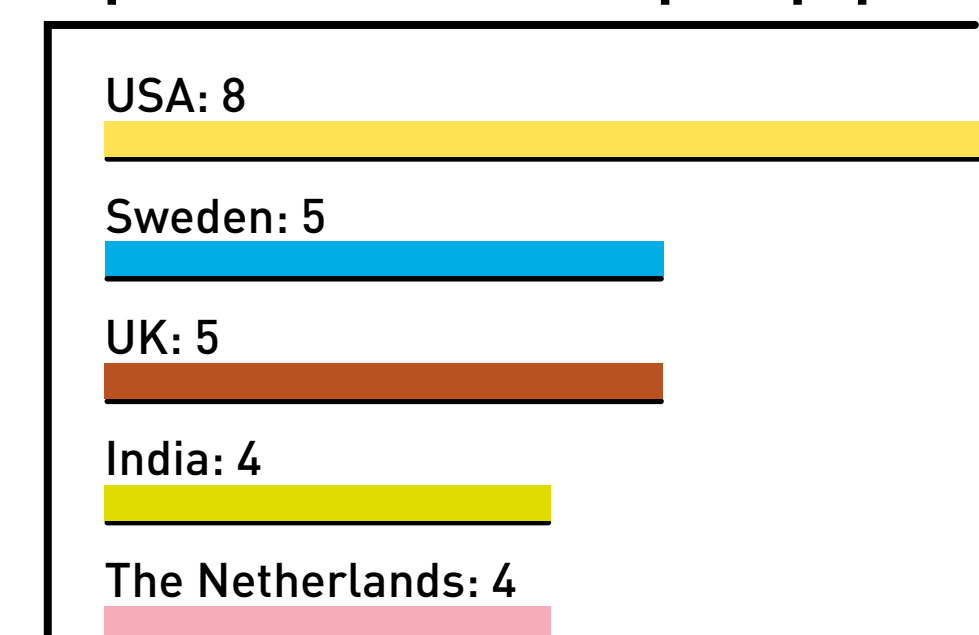


Submitted articles by region

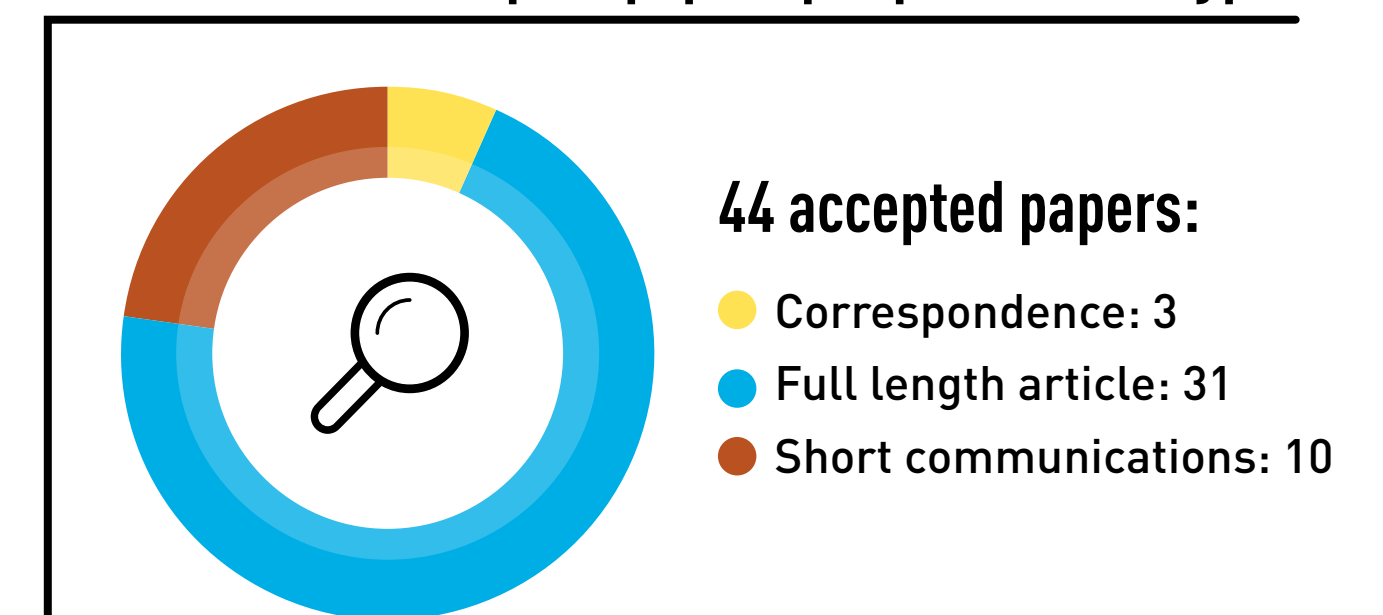


ACCEPTED PAPERS

Top 5 countries of accepted papers



Breakdown of accepted papers per publication type



MOST CITED ARTICLES IN 2021

Published between 2019 and 2021

10 citations in 2021

On-line adaptive MR guided radiotherapy for locally advanced pancreatic cancer: Clinical and dosimetric considerations

Placidi L., Romano A., Chiloiro G., Cusumano D., Boldrini L., Cellini F., Mattiucci G.C., Valentini V.

└ 2020

8 citations in 2021

Advanced practice: An ESTRO RTTC position paper

Duffton A., Devlin L., Tsang Y., Mast M., Leech M.

└ 2019

8 citations in 2021

Sarcopenia in cancer: Risking more than muscle loss

Anjanappa M., Corden M., Green A., Roberts D., Hoskin P., McWilliam A., Choudhury A.

└ 2020

These papers contribute to the 2021 Impact Factor.

MOST DOWNLOADED ARTICLES IN 2021

Regardless of publication date

3,873 downloads in 2021

Side effects in breast implants related to radiotherapy in breast cancer reconstructive surgery

Winkel de Faria Castro Fleury, E., Jasmin Huanca Bernal, K., Lucena Miranda Madeiro, A., Luis Cervera Ocana, W., Carlos Vendramini Fleury, J., Caobianco, L.

└ 2021

3,833 downloads in 2021

Sarcopenia in cancer: Risking more than muscle loss

Anjanappa M., Corden M., Green A., Roberts D., Hoskin P., McWilliam A., Choudhury A.

└ 2020

2,377 downloads in 2021

ESTRO ACROP guidelines for positioning, immobilisation and position verification of head and neck patients for radiation therapists

Leech, M., Coffey, M., Mast, M., Moura, F., Osztavics, A., Pasini, D., Vaandering, A.

└ 2017

TOP ARTICLES BY SOCIAL MEDIA ATTENTION *

339 social media attention in 2021

Analysis of dose using CBCT and synthetic CT during head and neck radiotherapy: A single centre feasibility study

Hay L.K., Paterson C., McLoone P., Miguel-Chumacero E., Valentine R., Currie S., Grose D., Schipani S., Wilson C., Nixon I., James A., Duffton A.

└ 2020

91 social media attention in 2021

Advanced practice: An ESTRO RTTC position paper

Duffton A., Devlin L., Tsang Y., Mast M., Leech M.

└ 2019

74 social media attention in 2021

Side effects in breast implants related to radiotherapy in breast cancer reconstructive surgery

Winkel de Faria Castro Fleury, E., Jasmin Huanca Bernal, K., Lucena Miranda Madeiro, A., Luis Cervera Ocana, W., Carlos Vendramini Fleury, J., Caobianco, L.

└ 2021

*Social Media Attention is captured as a lifetime metric showing cumulative views, shares, likes comments etc. from publication up to YTD, regardless of publication date.

2.4 ESTRO Newsletter

The ESTRO newsletter provides a more informal space for members to read about the latest developments in the radiation oncology field and its community.

In each issue expert editors, selected from the membership, curate contents for themed disciplinary 'Corners' or report on specific topics. The newsletter typically includes information on the latest advances in research and practice, interviews with key opinion leaders, conference findings, a selection of research papers and paper reviews.

Find all the articles on the ESTRO Website:

www.estro.org/About/Newsroom/Newsletter

Top five most read corners in 2021 (online)

1. Read it before your patients
2. Physics
3. Brachy
4. Young ESTRO
5. RTT corner

RESEARCH

ESTRO is committed to supporting research relevant to its members and to the Radiation Oncology community. The scope of ESTRO involvement varies with the research topic, the type of research activity, and the level of support requested.

On the next pages are explanations of research activities in which ESTRO was involved in 2021.

E²-RADIATE - EORTC-ESTRO Radiation infrastructure for Europe programme

E²-RADIatE (EORTC 1811 study) is a platform that collects real-world data through prospective data registries in radiotherapy. A collaboration between the European Organisation for Research and Treatment of Cancer (EORTC) and ESTRO, it aims to be a pan-European infrastructure and a more efficient framework across the field of Radiation Oncology to generate robust data in cancer treatment and to further develop and integrate the discipline into therapeutic strategies.

E²-RADIatE comprises three innovative cohorts:

- └ **OligoCare** (EORTC 1822-RP) is a pragmatic observational cohort study to evaluate radical radiotherapy for patients with oligometastatic disease. The main objective is to identify patient, tumour, diagnostic and treatment characteristics impacting overall survival.
- └ **ParticleCare** (EORTC 1833-RP) has as objective to provide continuing evidence of the benefit of particle therapy at a European level for the most common tumour types. Almost all particle therapy facilities in Europe will participate in this cohort.
- └ **ReCare** (EORTC 2011-RP) will gather clinical evidence on the safety and efficacy of high-dose re-irradiation and to guide clinical practice and inform on consistent standards of care.

E²-RADIatE (EORTC 1811)

Country & Site Activation

As of 14th December 2020, 20 sites in six countries were activated for E²-RADIatE and opened for enrolment in OligoCare. Another 30 - 40 sites in 13 countries are planned for activation by the first half of next year. If you are interested in participating, please visit the website for more information.

project.eortc.org/e2-radiate/platform

OLIGOCARE (EORTC 1822-RP)

The OligoCare cohort of E²-RADIatE continues to recruit very well enrolling the 1000th patient at the end of 2021. The first preliminary results from this cohort were presented at ESTRO 2021 with the poster “Real-world patient and treatment characteristics of oligometastatic disease – initial results of the ESTRO & EORTC E²-RADIatE OligoCare cohort” (Presentation Number: PD-0740).

An “ESTRO EORTC OligoCare Workshop: E2-RADIatE OligoCare cohort - An observational basket study evaluating radical radiotherapy for Oligo-Metastatic Cancer Patients” was hosted virtually on 30 June and 1 July 2021.

The first day of workshop consisted of presentations on oligometastatic disease by experts in the field. The second day focused on the OligoCare cohort with successful participation from the principal investigators of the recruiting centres. Presentation recordings are available on the ESTRO website for ESTRO members via following link: www.estro.org/Library.

European Particle Therapy Network (EPTN) ┘

EPTN, a task force of ESTRO, was created to promote clinical and research collaboration between the rapidly increasing members of European particle therapy (PT) centres and to ensure particle therapy became integrated in the overall Radiation Oncology community.

The seventh European Particle Therapy Network (EPTN) virtual workshop took place in a virtual setting on 22 October 2021 and was attended by 48 participants.

During the workshop, the results of two surveys that have been conducted among members of the particle therapeutics community to assess the impact of Covid-19, were presented. The results seem to indicate that the community has responded robustly to the pandemic challenge, with only minor implications for daily activities, referrals and the fraction schedules that have been used.

Since the last annual meeting held online in 2020, the EPTN has been further involved in the European Commission's Steering Group on Health Promotion, Disease Prevention and Management of Non-Communicable Diseases through its sub-group on proton therapy. This sub-group is co-chaired by representatives of the Directorate-General for Health and Food Safety (DG SANTE) and the European Investment Bank (EIB). At a sub-group meeting in January 2021, it was confirmed that possible investment in proton therapy had been put on hold until the need for/benefit of proton therapy was confirmed. On the other hand, the European Investment Bank (EIB) is willing to support a new research project on proton therapy with the European Commission and the European Atomic Energy Community (Euratom).

Continued activity in the working groups has resulted in the publication of several papers and scientific reports:

- └ Eekers DBP, et al. Update of the EPTN atlas for CT- and MR-based contouring in neuro-oncology. *Radiother Oncol* 2021; 160: 259-265. <https://doi.org/10.1016/j.radonc.2021.05.013>
- └ Sørensen BS, et al. Does the uncertainty in relative biological effectiveness affect patient treatment in proton therapy? *Radiother Oncol* 2021; 163: 177-84. <https://doi.org/10.1016/j.radonc.2021.08.016>
- └ Heuchel L, et al. Is a variable proton RBE considered in clinical practice? ESTRO survey among 25 proton centres. *Radiother Oncol* 2021; 161(Suppl.1) S313-314. DOI: 10.1016/S0167-8140(21)06904-8.

1. Highlights of the 2021 activities of the EPTN Working Parties

WP1: Clinical

WP1 has two tasks, the first of which is to produce a white paper on methodological issues that are encountered in clinical studies for the validation of the added value of proton therapy, either using classical approaches (phase I, II, III studies) or alternative methods. To this purpose, a first virtual meeting will be organised in the first quarter of 2022 with representatives of the EPTN centres and experts in the field of statistics in epidemiology.

WP2: Dose assessment, quality assurance, dummy runs, technology inventory

As of October 2021, 38 participants were contributing to WP2, from 27 centres based in 12 countries.

WP2 has decided to organise two workshops each year rather than one. One would be online to discuss updates regarding the running of activities and organisational aspects; and one would be in-person on a specific theme. The thematic WP2 workshop took place on 6 May 2021 as an online event on the topic of ultra-high-dose-rate (FLASH) dosimetry. The workshop was well received with over 60 participants. The next thematic

WP2 workshop will be on the TRS-398 Code of Practice in early 2022.

WP3: Education

The focal activity for WP3 is to provide training and educational opportunities for Radiation Oncology professionals who are already involved in, or are at least approaching, the field of particle therapy. The specific form of training events that the WP would like to trial is short workshops (two to three day), open to a small number of participants (30 people maximum), dedicated to a specific disease site, to discuss the specific issues of particle therapy in a way that is relevant to clinicians, medical physicists and radiotherapists.

The first workshop will be on brain and base-of-skull tumours and will be hosted by the Paul Scherrer Institute (PSI) in Switzerland in 2022.

If this first workshop test is successful, the WP plan is to design a series of periodic events, in which other disease sites will be discussed at other locations in Europe. These

workshops are meant to complement the ESTRO school course on clinical particle therapy, which remains the main educational ESTRO event on particle therapy and which represents an excellent starting point for those who are approaching the field of particles.

WP4: Image guidance in particle therapy

Image guidance for particle therapy (IGPT) is essential to guarantee accurate dose delivery and to minimise the effects of range uncertainties that are related to patient misalignment and anatomical changes that occur during the course of therapy. Multiple imaging modalities for IGPT are available and routinely used clinically. However, due to a lack of standardised procedures for IGPT, most centres have developed their own strategies, which are based on their available infrastructure, technical implementation and dose delivery methods. The need to collaborate among centres has been recognised and centres have set two primary goals: 1) to develop clinical consensus guidelines for IGPT; and 2) to pursue research projects to optimise existing IGPT techniques and to develop new ones.

As a first step in the development of clinical consensus guidelines, it is the aim of WP4 to gain insight into the current clinical practice parameters of IGPT in European particle therapy centres via multiple detailed surveys. Preliminary results from the summary response data will be shared between the WP4 sub-working groups.

A first IGPT research project that involves multi-centre evaluation of the inter- and intra-fraction patient-positioning accuracy for brain tumour patients undergoing particle therapy has been initiated. The study aims and endpoints are currently being defined within the working party. A call to participate in this study will be launched in early 2022.

Due to the Covid-19 pandemic, the annual WP4 workshop was moved to 2022.

WP5: Treatment planning systems in particle therapy

Treatment planning systems are essential to ensure that particle therapy is accurate and effective, and they are an important part of the particle therapy workflow. The aim of this working party is to review and provide recommendations on numerous aspects of the treatment planning process.

WP5 was initially split into groups to consider six main subjects:

1. Collective TPS specifications
2. Planning standards and case solutions (together with Italy, Poland, Austria, Czech Republic and Sweden (IPACS))
3. TPS commissioning and validation
4. Alternatives to patient-specific verifications
5. Computed tomography/Hounsfield unit (CT/HU) calibration
6. Robustness analysis.

Two new subject groups have now been added:

- └ The role of linear energy transfer (LET)
- └ 4D planning.

Several new directions for WP5 are being considered, including the formation of a new task group on adaptive processes and workflows, the drawing up of a more precise definition of the role of automatic treatment planning, performance of reviews of optimisation objectives and algorithms, and consideration of the role and validation of deformable registration algorithms.

WP6: Radiobiology and relative biological effectiveness

WP6 and the coordinator of working party 9 of the INSPIRE project on mathematical modelling and simulation, conducted a survey on current clinical practice regarding relative biological effectiveness (RBE) in European particle therapy centres. The questions in the survey were aimed at formation of an overview on whether RBE and LET were taken into account in clinical practice in European particle therapy centres and if so, how this was done in practical terms. All European centres were invited to take part in the survey, and all centres responded. The first data from the survey were presented at ESTRO 2021. The main findings were that almost all centres considered a variable proton RBE, particularly for organs at risk, but did not necessarily apply it. Most of these centres stated that they chose beam angles carefully to avoid an increase in risk. To move forward, they called for more clinical proton RBE data and tools to calculate LET and RBE during treatment planning.

WP7: Health economy

This working party aims to focus on cost accounting first and costs that, in a second step, can be used to support an economic evaluation of health. Ideally, an approach should be followed that enables alignment with the work already performed in the Health Economics in Radiation

Oncology (HERO) group, by using the time-driven, activity-based costing (TD-ABC) methodology.

In order to address the first theme of WP7, a TD-ABC exercise has recently commenced at the Christie Hospital Proton Beam Therapy Centre and the University of Manchester, UK.

This exercise will aid in the understanding of the cost base, and subsequently the cost-effectiveness, of proton beam therapy (PBT), and it will establish a base-line methodology that can be extended to other centres across Europe.

2. Collaborative EU projects

Proton versus photon therapy for oesophageal cancer (PROTECT)

PROTECT compares the clinical outcomes of proton therapy and state-of-the-art photon radiotherapy for locally advanced oesophageal cancer. In the PROTECT trial, the potential benefits of proton therapy will be tested in a trimodality treatment of radiotherapy, chemotherapy and surgery.

A total of 19 public and industry partners across Europe are joining forces in this ambitious collaborative clinical research project. The aim is to set new standards for the clinical use of proton radiotherapy.

The partnership behind the PROTECT trial has engaged 13 recruiting units, 38 institutions, 12 particle therapy facilities, 25 sub-sites and two major particle therapy equipment manufacturers. The project has received funding from the Innovative Medicines Initiative (IMI), the European Federation of Pharmaceutical Industries and Associations (EFPIA), and the companies Ion Beam Applications (IBA) and Varian, a Siemens Healthineers Company. It is the first public-private partnership in which funding from the industry has been matched by funding from the EU.

The funding was approved in July 2021. The project, which comprises 11 working groups, is expected to take six years.

Real-time adaptive particle therapy of cancer (RAPTOR)

RAPTOR is an EU horizon 2020-funded programme. It was initially headed by the University of Groningen and subsequently by PSI. The project brings together 13 beneficiaries and 15 partner organisations. The aim is to bring adaptive particle therapy to the clinic.

The project plan comprises an adaptation loop (imaging, verification, intervention), training and dissemination working groups. All PhD students have been recruited and, as an initial training session, the first meeting of the RAPTOR school took place on 13-17 December 2021.

Heavy ion therapy research integration-plus (HITRIplus) project

HITRIplus (hitriplus.eu) is a four-year research project funded by the European Commission under the horizon 2020 programme (H2020-INFRAIA-2020-1). The project, which started on 1 April 2021, aims to integrate and propel forward biophysics and medical research on

QuADRANT

Constant improvement in quality and safety of radiology, radiotherapy and nuclear medicine through clinical audit

cancer treatment that uses heavy-ion beams while jointly developing its sophisticated instruments. Through transnational access, HITRIplus gives a unique opportunity to European hospitals and oncology institutes to gain access to and share clinical expertise in heavy-ion therapy through the creation of links among clinicians who refer patients to hadron-therapy facilities. The project aims to attract universities, research centres and hospitals to use the beam time and research facilities of the heavy-ion centres. Its networks will structure and foster clinical and pre-clinical research on heavy-ion therapy. Joint research activities are developing new accelerator and beam-delivery technologies to extend the reach of the present generation of centres and to define a new European reference design, at lower cost and dimensions, to make ion therapy for cancer more accessible and to open new markets to European industry.

For more information on the activities of the EPTN please visit: www.estro.org/Science/Activities/EPTN

The QuADRANT project is led by the European Society of Radiology (ESR) together with the European Association of Nuclear Medicine (EANM) and ESTRO as consortium partners. QuADRANT aims to promote constant improvement in quality and safety of radiology, radiotherapy, and nuclear medicine through the implementation of clinical audit as part of Member States' healthcare systems.

Three ESTRO experts are involved in all the QuADRANT work packages.

Following the first QuADRANT workshop, held in December 2020, a report on the outcomes of the workshop was published in 2021. The report to the European Commission on the workshop, as well as all workshop slides, can be viewed here: [QuADRANT Workshop Report](#).

In 2021, the project main survey was conducted with the goal of reviewing the status of implementation of clinical audit in several European countries and identifying and

reporting on good practices and available guidance for clinical audit at national, European and international level. Additionally, interviews were conducted with experts in the field of clinical audit. The results of the QuADRANT main survey and expert interviews have been analysed and a report submitted to the European Commission. The final "Recommendations & Guidance Document" is planned for publication in late 2022.

GUIDELINES

The following guidelines were developed under the auspices of the Advisory Committee on Radiation Oncology Practice (ACROP) in 2021.

- └ ESTRO-ACROP recommendations on the clinical implementation of MR-Linac in radiation oncology
[www.thegreenjournal.com/article/S0167-8140\(21\)06162-4/fulltext](http://www.thegreenjournal.com/article/S0167-8140(21)06162-4/fulltext)
- └ Salvage stereotactic body radiotherapy (SBRT) for intraprostatic relapse after prostate cancer radiotherapy: An ESTRO ACROP Delphi consensus
pubmed.ncbi.nlm.nih.gov/33965893/
- └ IBS-GEC ESTRO-ABS recommendations for CT based contouring in image guided adaptive brachytherapy for cervical cancer
[www.thegreenjournal.com/article/S0167-8140\(21\)06248-4/fulltext](http://www.thegreenjournal.com/article/S0167-8140(21)06248-4/fulltext)
- └ ESTRO ACROP guidelines for the delineation of lymph nodal areas in upper gastrointestinal malignancies
[www.thegreenjournal.com/article/S0167-8140\(21\)06721-9/fulltext#secst075](http://www.thegreenjournal.com/article/S0167-8140(21)06721-9/fulltext#secst075)
- └ ESGO/ESTRO/ESP guidelines for the management of patients with endometrial carcinoma
[www.thegreenjournal.com/article/S0167-8140\(20\)31188-9/fulltext](http://www.thegreenjournal.com/article/S0167-8140(20)31188-9/fulltext)

ACROP endorsed guidelines in 2021

- └ Radiation Therapy for Treatment of Soft Tissue Sarcoma in Adults: Executive Summary of an ASTRO Clinical Practice Guideline
[www.practicalradonc.org/article/S1879-8500\(21\)00118-1/fulltext](http://www.practicalradonc.org/article/S1879-8500(21)00118-1/fulltext)
- └ External Beam Radiation Therapy for Primary Liver Cancers: An ASTRO Clinical Practice Guideline
[www.practicalradonc.org/article/S1879-8500\(21\)00233-2/fulltext](http://www.practicalradonc.org/article/S1879-8500(21)00233-2/fulltext)

2

**ESTRO
SCHOOL**



The ESTRO School's mission is to:

└ improve, professionalise and harmonise knowledge and practice in radiation oncology and associated professions in Europe and beyond

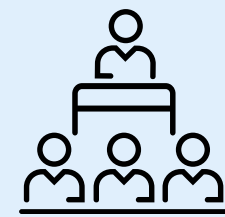
To this end, the School:

└ offers a wide range of live educational activities and online educational resources that enable professionals worldwide to acquire the top-most updated knowledge, skills and competencies in their daily practice.

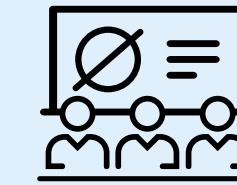
└ supports the implementation of the European Core Curricula with education and training programmes that target both young and senior Radiation Oncology professionals to deliver high-quality treatment and care to cancer patients.

In 2021, the ESTRO School demonstrated adaptability in a context still marked by travel and gathering restrictions due to the Covid-19, and pursued its efforts to allow the community to keep track with education and knowledge.

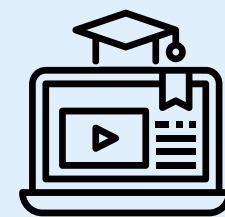
For the second year consecutively, most of the teaching courses were held online. Several new formats have been developed to enrich the educational programme and make it accessible to everyone:



Pre-recorded lectures



Modules spreading the programme over several weeks, or condensed in a few days



Live online lectures



Live broadcasting of some of the courses with the faculty members teaching live at the ESTRO office (using the ONLINE PLUS format)

1. TEACHING COURSES

1.1 A RICH PALETTE ON OFFER

The portfolio of live teaching courses includes basic and more advanced courses that are targeted at the various Radiation Oncology professions.

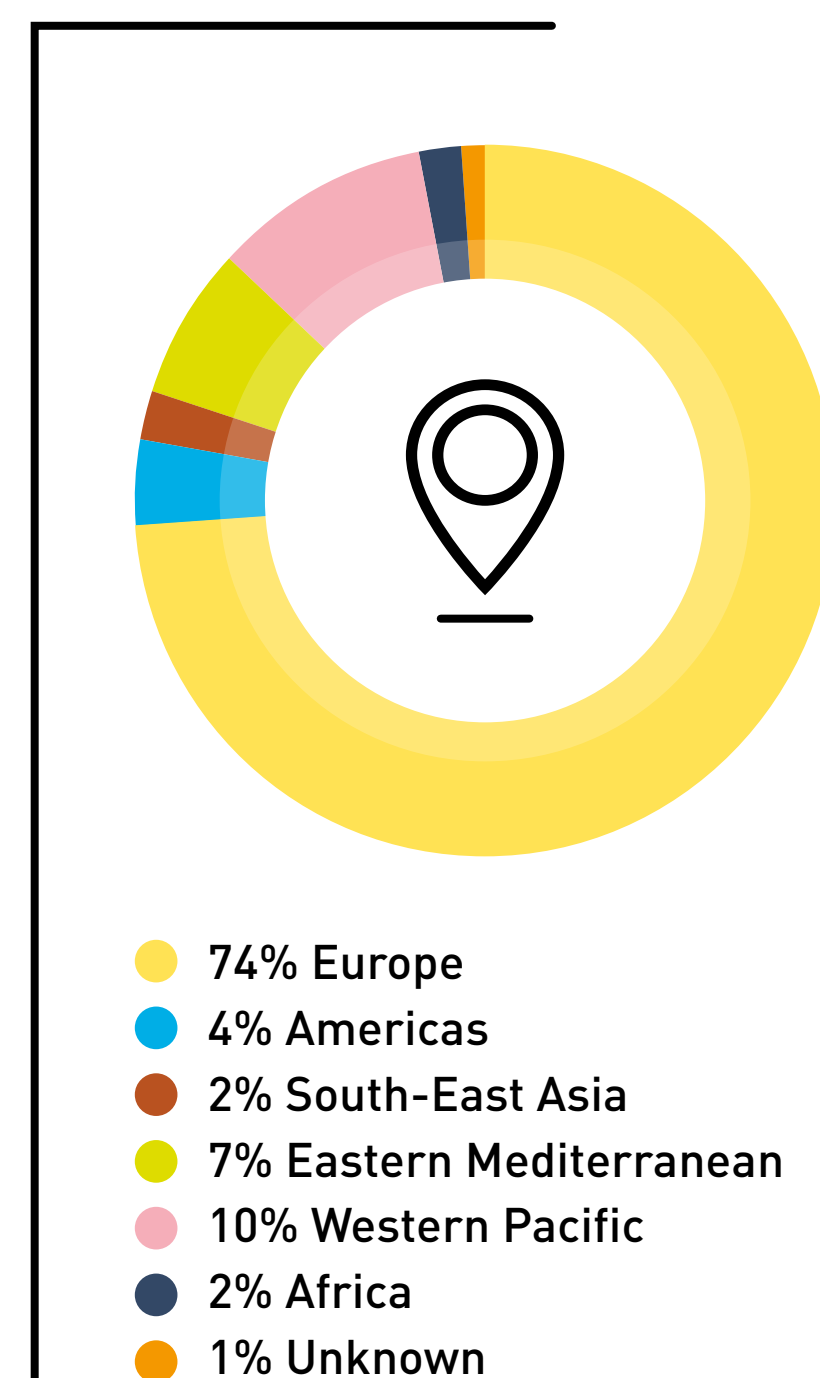
The topics cover the main areas of Radiation Oncology and multidisciplinary cancer treatment courses on:

- ↳ Radiotherapy treatment planning and delivery: external beam and brachytherapy
- ↳ Multimodal cancer treatment, in general and also site-specific treatment
- ↳ Imaging
- ↳ Best practice
- ↳ Research
- ↳ Biological aspects of Radiation Oncology

1.2 2021 AT A GLANCE

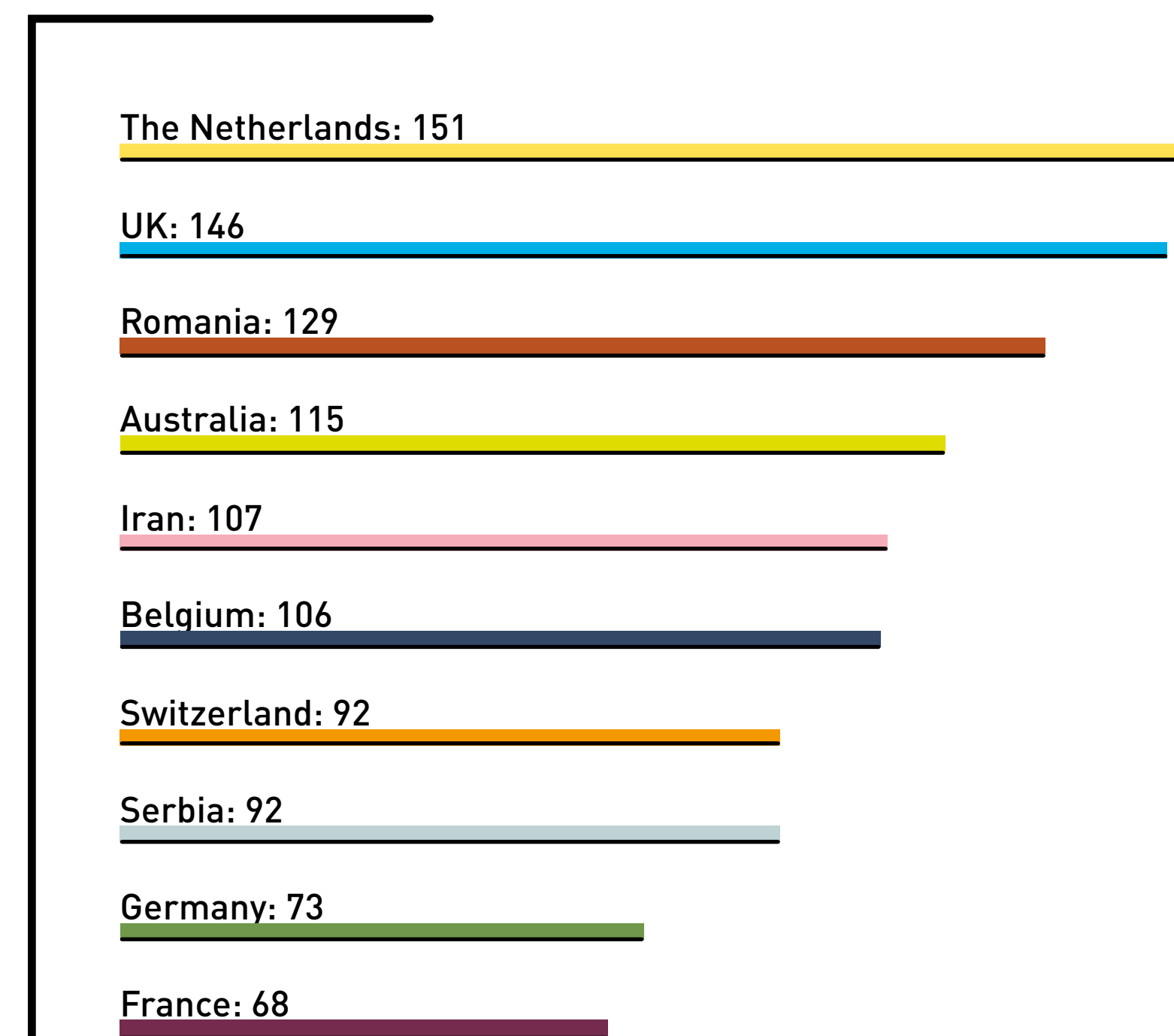
Breakdown participants per continent

Courses online and onsite



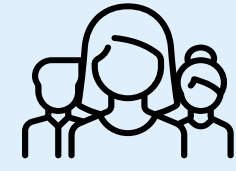
Top 10 countries

Courses online and onsite



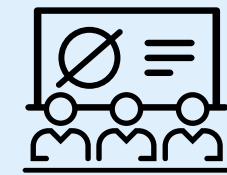
Top 3 most attended courses

- └ 270 participants
Implementation and Practice of Image-guided Stereotactic Body Radiotherapy
- └ 204 participants
Image-Guided and Adaptive Radiotherapy
- └ 151 participants
Basic Clinical Radiobiology

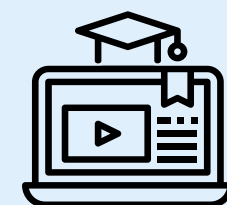


1,988
Participants

1,364
Members
624
Non-Members

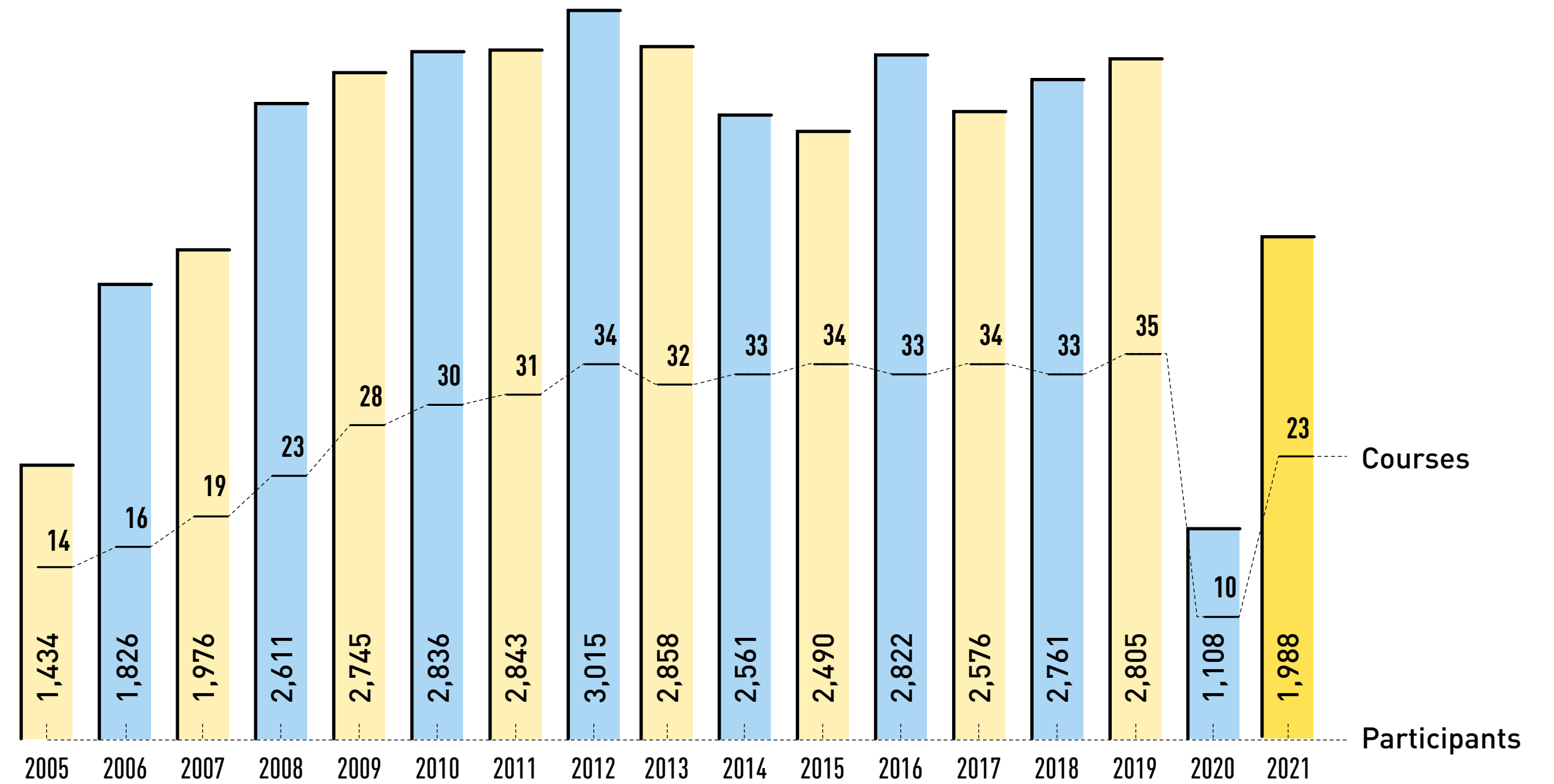


2
Onsite courses



21
Online courses

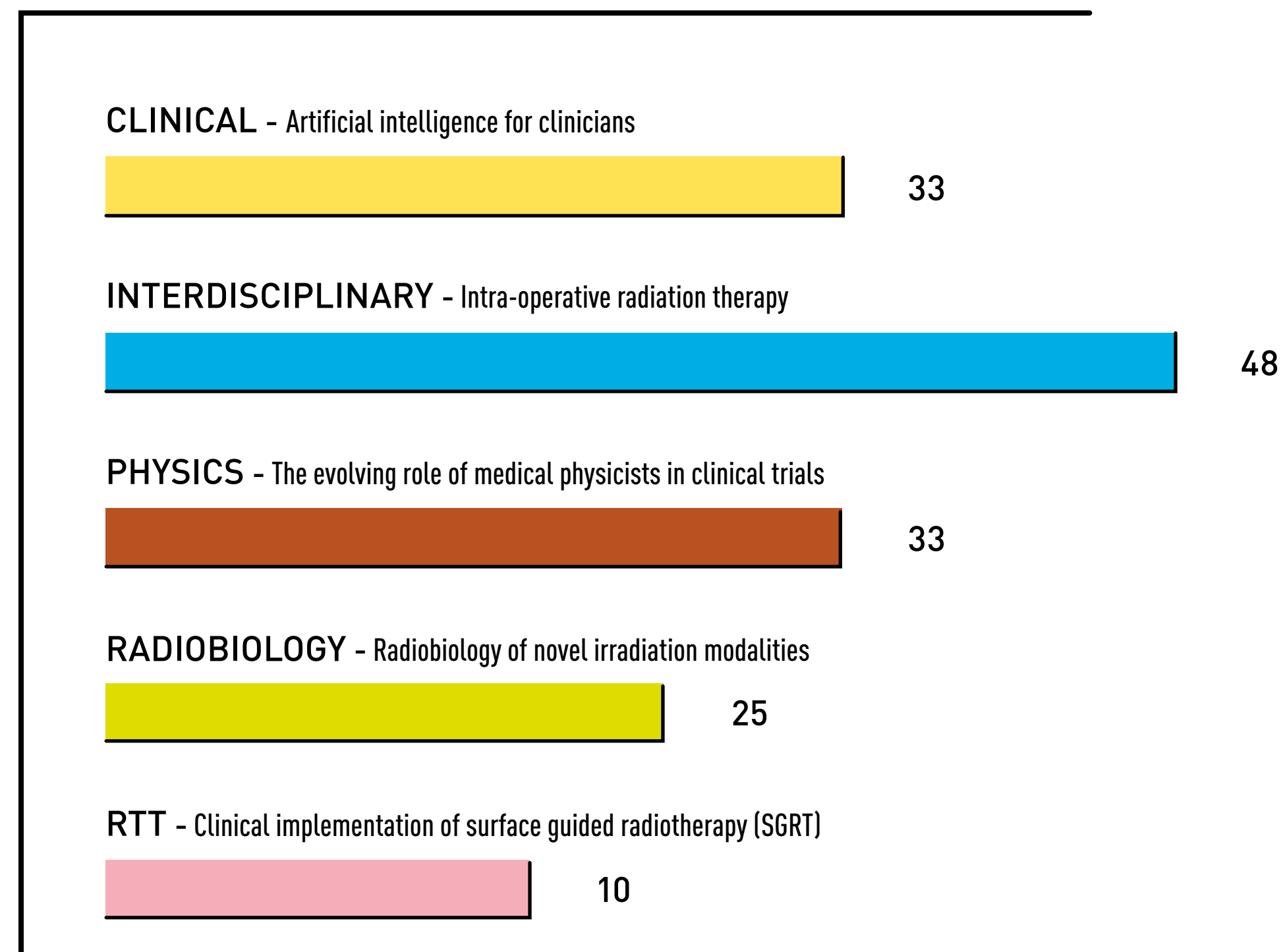
Growth in the number of courses and participants over the years



1.3 PRE MEETING COURSES

ESTRO offers one-day teaching courses that occur on the day before the start of its annual congress. Five pre-meeting courses took place onsite in Madrid on 27 August 2021 at the occasion of ESTRO 21.

Number of participants per pre-meeting course



2. E-LEARNING

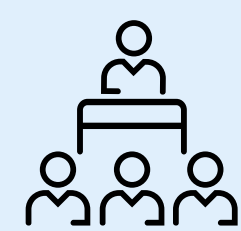
2.1 Training in delineation

An accurate and precise anatomical contouring of target volume and OaRs* is of utmost importance in radiotherapy. FALCON**, ESTRO's contouring programme, allows Radiation Oncology professionals to improve their contouring skills.

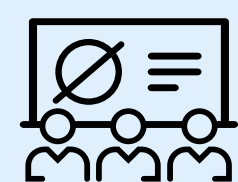
In using the FALCON EduCase software, trainees can compare their individual contours with those made by delineation experts and visualise the ESTRO international guidelines.

* Organs at Risk
**Fellowship in Anatomic deLineation and CONtourings

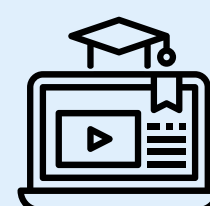
FALCON is integrated into the whole portfolio of the educational ESTRO activities:



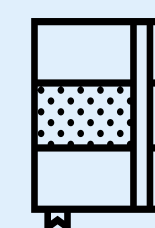
Live courses



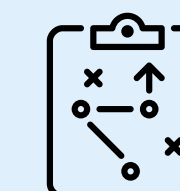
**Workshops
at ESTRO meetings**



**Online virtual
workshops**



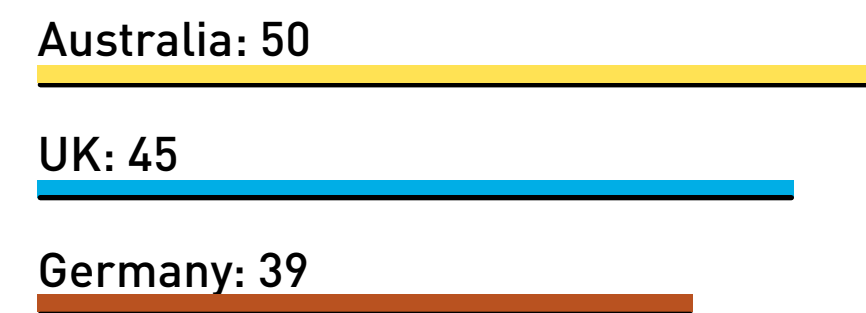
Support services
for clinical trials
and development of
guidelines



**Delineation workshops for
other societies**
(IAEA, national societies or other
societies active in the field of
oncology)

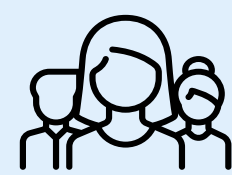
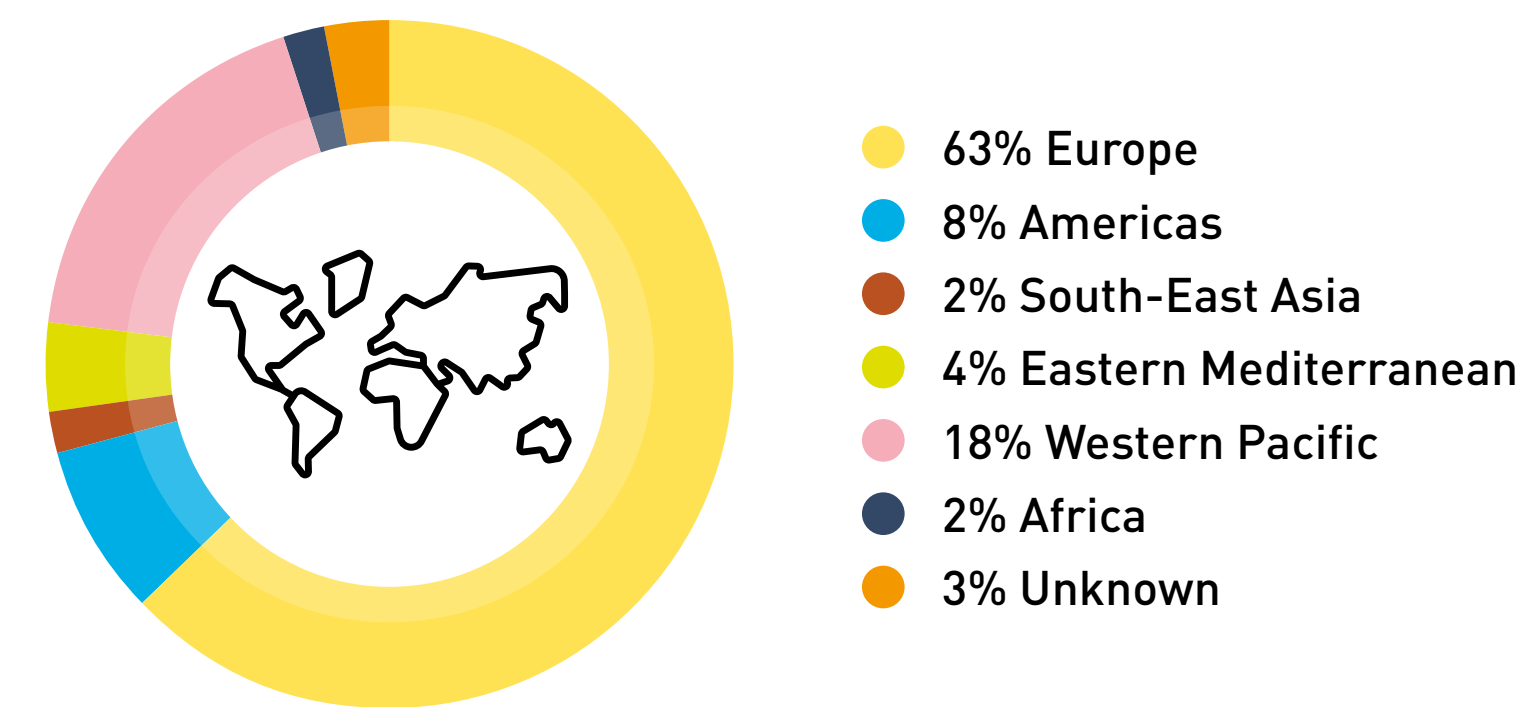
2.2 Online delineation workshops

Top 3 countries



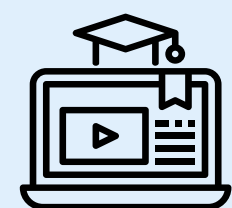
Geographic distribution of participants

at online blended FALCON workshops



418
Participants

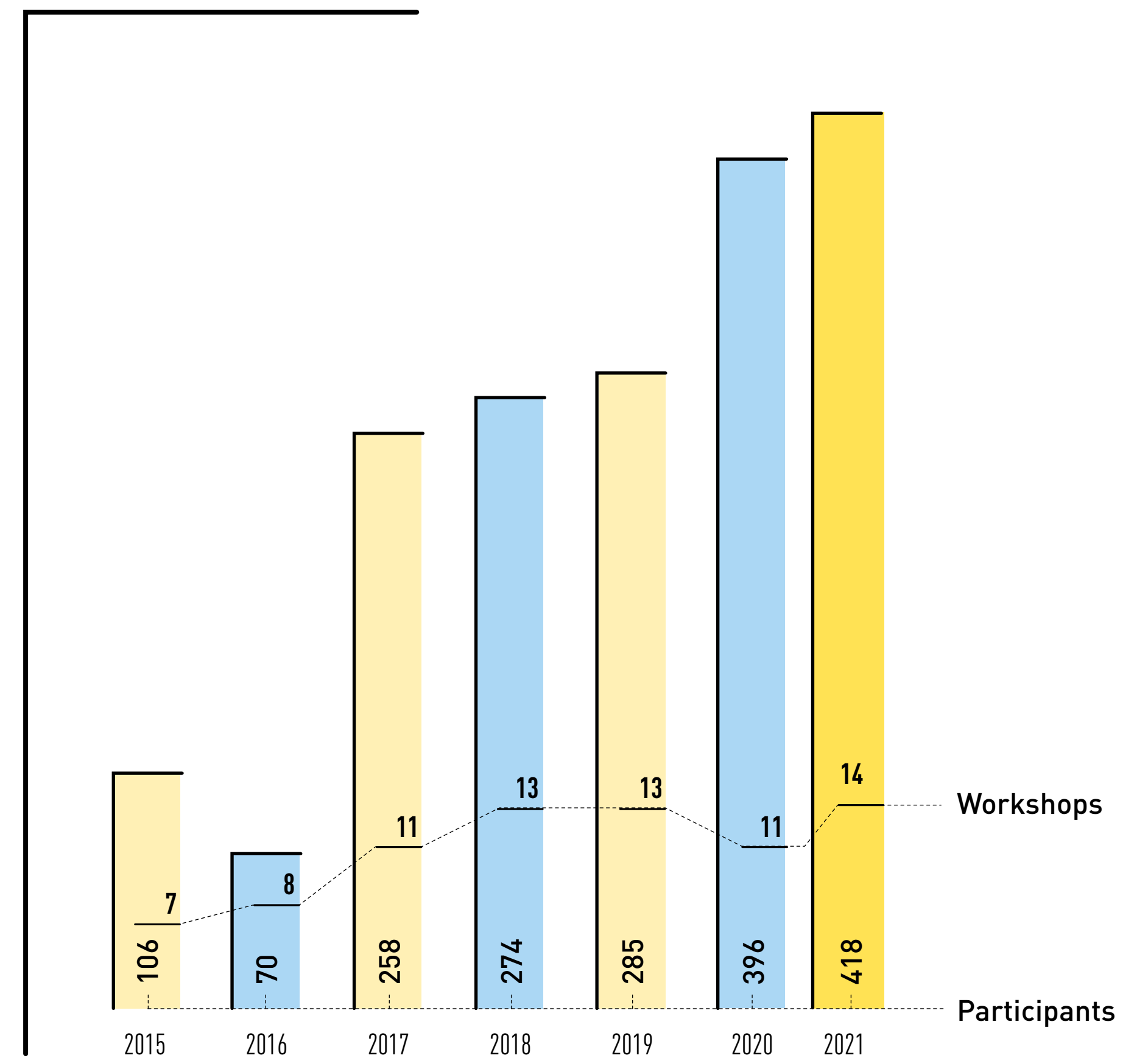
349
Members
69
Non-Members



14
Online
delineation
workshops

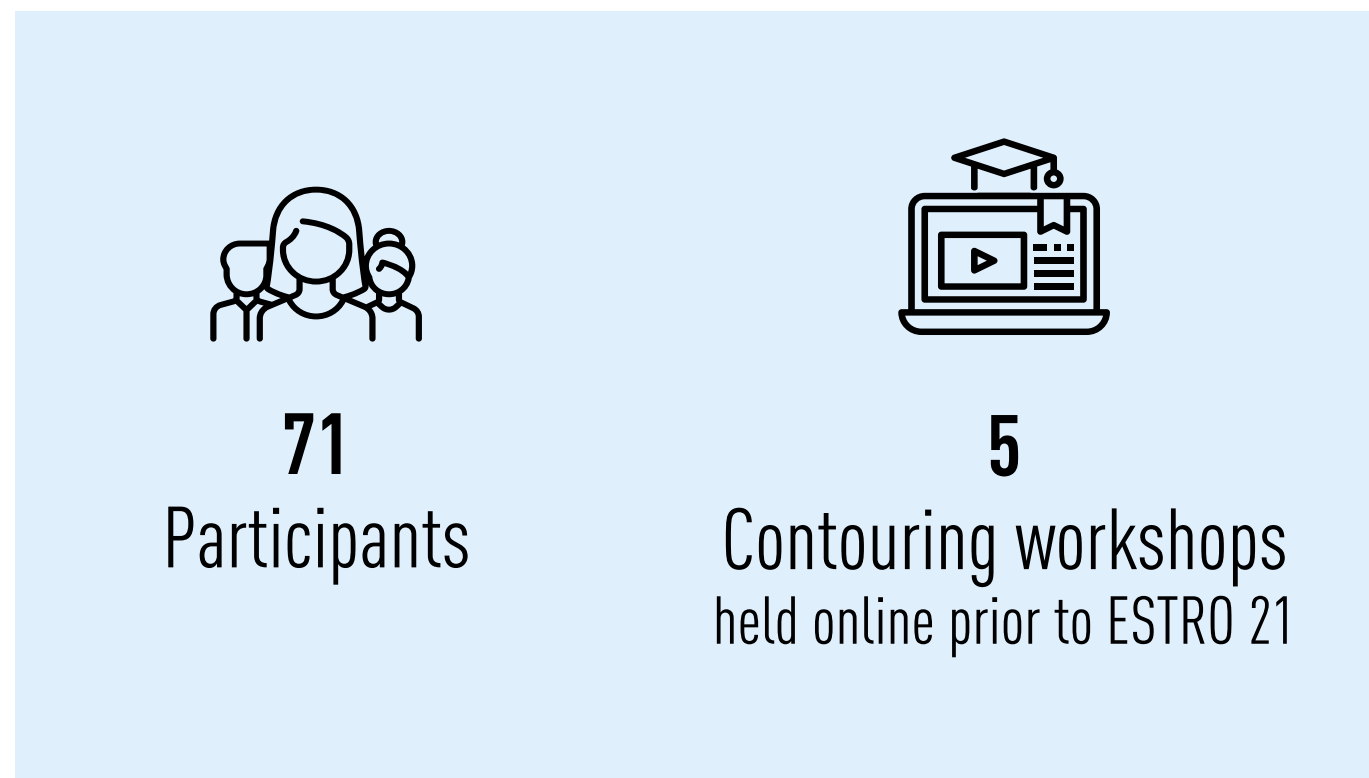
Evolution of number of participants

at online delineation workshops

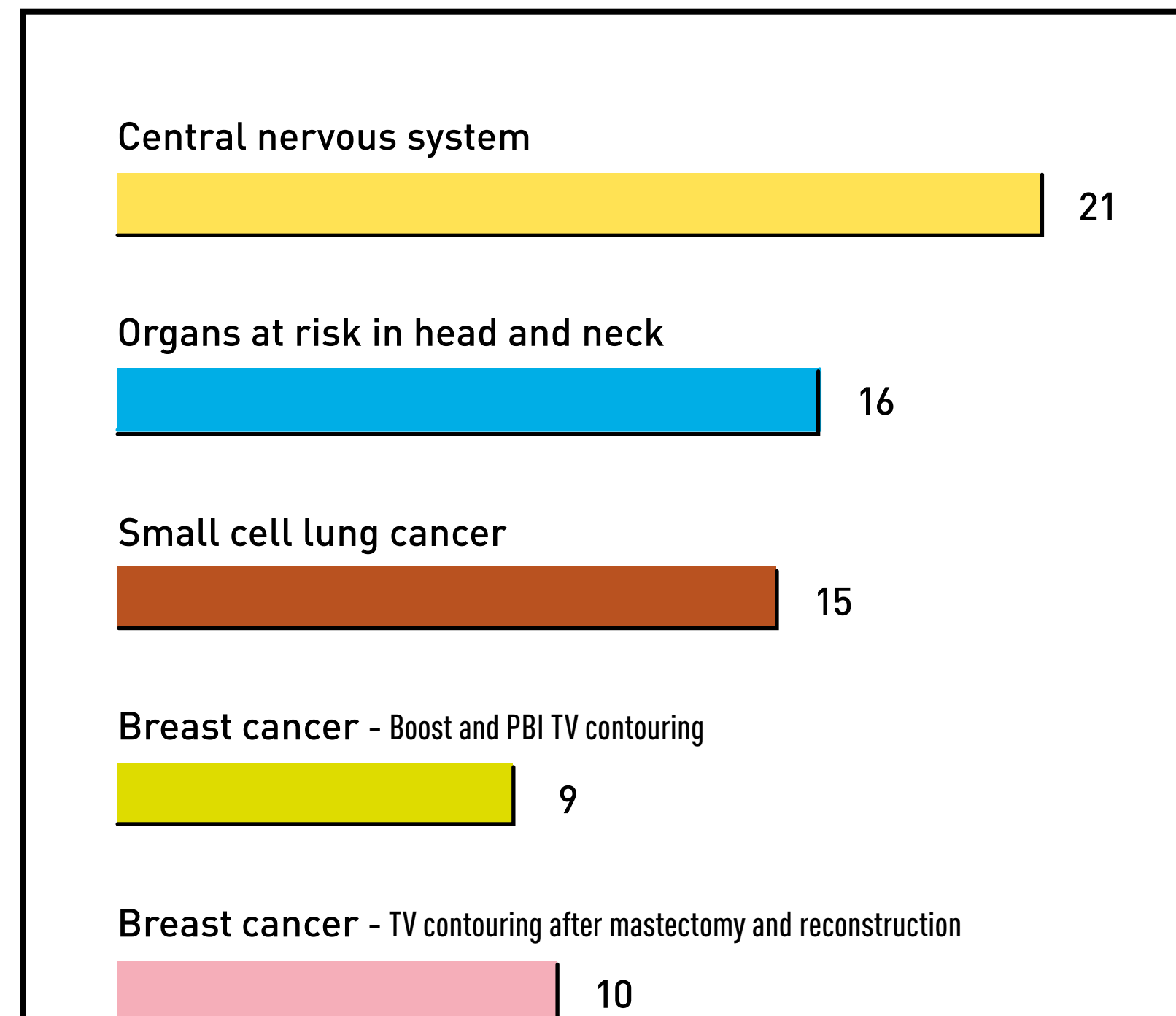


2.3 Delineation workshops at the ESTRO annual congress

In addition to the pre-meeting courses, ESTRO offers hands-on delineation workshops in the framework of the annual congress.



Number of participants per contouring workshop



3. CORE CURRICULUM

ESTRO and EFOMP (European Federation of Organisations for Medical Physics) have been working on the third revision of the Core Curriculum (CC) for education and training of Medical Physics Experts (MPE) in radiotherapy (RT).

3.1 Aim

The aim of the revision of the CC is to improve the standard and quality of training of MPE and hence contribute to further harmonisation of the level of MPE across Europe.

3.2 Process

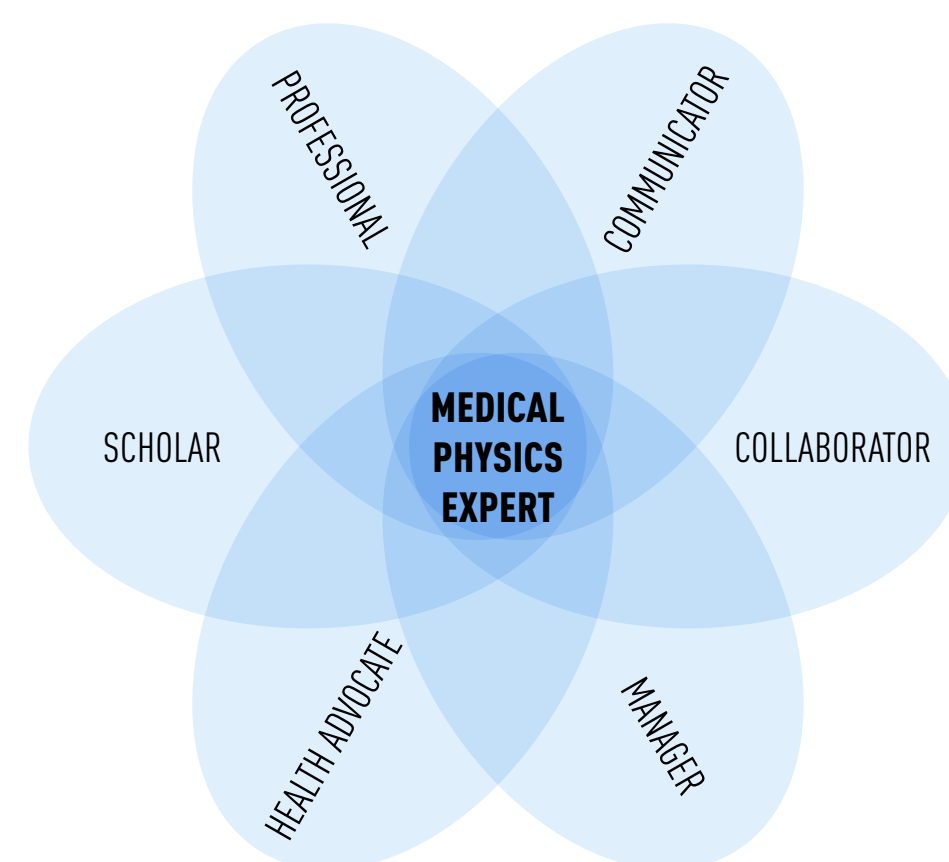
The working group active in the CC revision process included 27 MPE from 19 countries who were representatives from ESTRO and EFOMP education councils, young physicists/trainees and national societies representatives.

3.3 A competency-based education

The revision of the CC was based on:

- └ The latest European Commission guidelines on MPE (RP-174)
- └ EFOMP policy statement 12.1
- └ CanMEDS methodology, reinforcing the concept of competency-based education.

Specific competences were then highlighted as a priority: expertise, collaboration, contribution and awareness.



The CanMEDS model defines seven skills essential to allow medical experts to fulfil their role with efficacy.

3.4 Content

The revised CC is a proposal for a 4-year training programme offering a complete description of knowledge, skills and competences required to be licensed as an MPE.

The most recent advances in RT medical physics were defined as to be part of the third CC:

- └ MR-guided RT
- └ Automation
- └ Complex quantitative data analysis
- └ Personalised treatments
- └ FLASH RT.

It was highlighted that more emphasis was needed on:

- └ Quality management
- └ Particle therapy
- └ Science and innovation.

The revised core curriculum has been published on the *Green Journal*:

[www.thegreenjournal.com/article/S0167-8140\(22\)00097-4/fulltext](http://www.thegreenjournal.com/article/S0167-8140(22)00097-4/fulltext)

3

MEMBER SHIP & PARTNER SHIPS

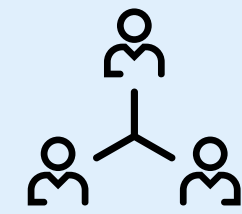
With more than 7,000 Radiation Oncology professionals from across the world, the ESTRO membership is the heart of our Society.

ESTRO contributes to the day-to-day practice and career advancement of oncology professionals through the dissemination of the latest trends in practice, research findings and knowledge.

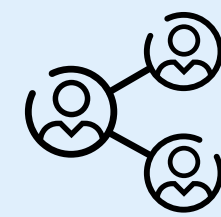
MEMBERSHIP

ESTRO offers several levels of membership, with benefits tailored to the needs of each member and their degree of involvement within the Society.

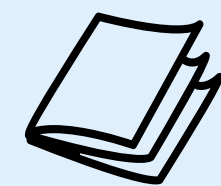
The full range of ESTRO membership benefits includes:



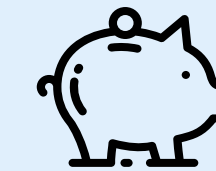
Belonging to a community of more than 7,000 Radiation Oncology professionals



Networking opportunities



Subscription to Radiotherapy & Oncology, the Society's journal, and reduced member fees for publishing in the ESTRO open access journals



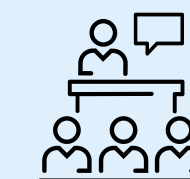
Reduced fees for attending ESTRO congresses, workshops and courses



Online access to scientific material, including events webcasts and delineation cases



Eligibility for grants, awards, ESTRO faculties and governance positions



Voting rights at the ESTRO General Assembly

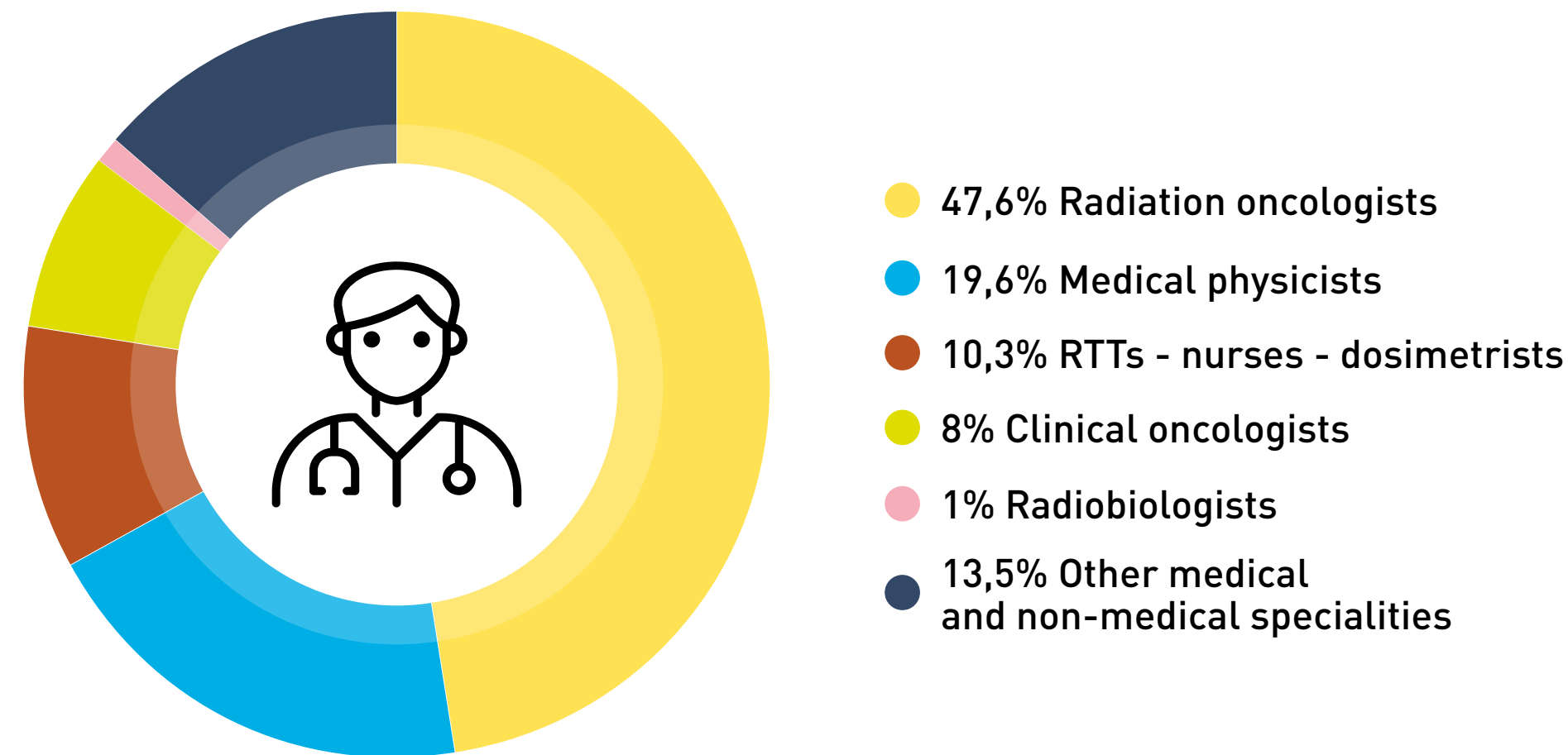
1. Profile of ESTRO Members


7,200
 Members


5
 Continents


114
 Countries

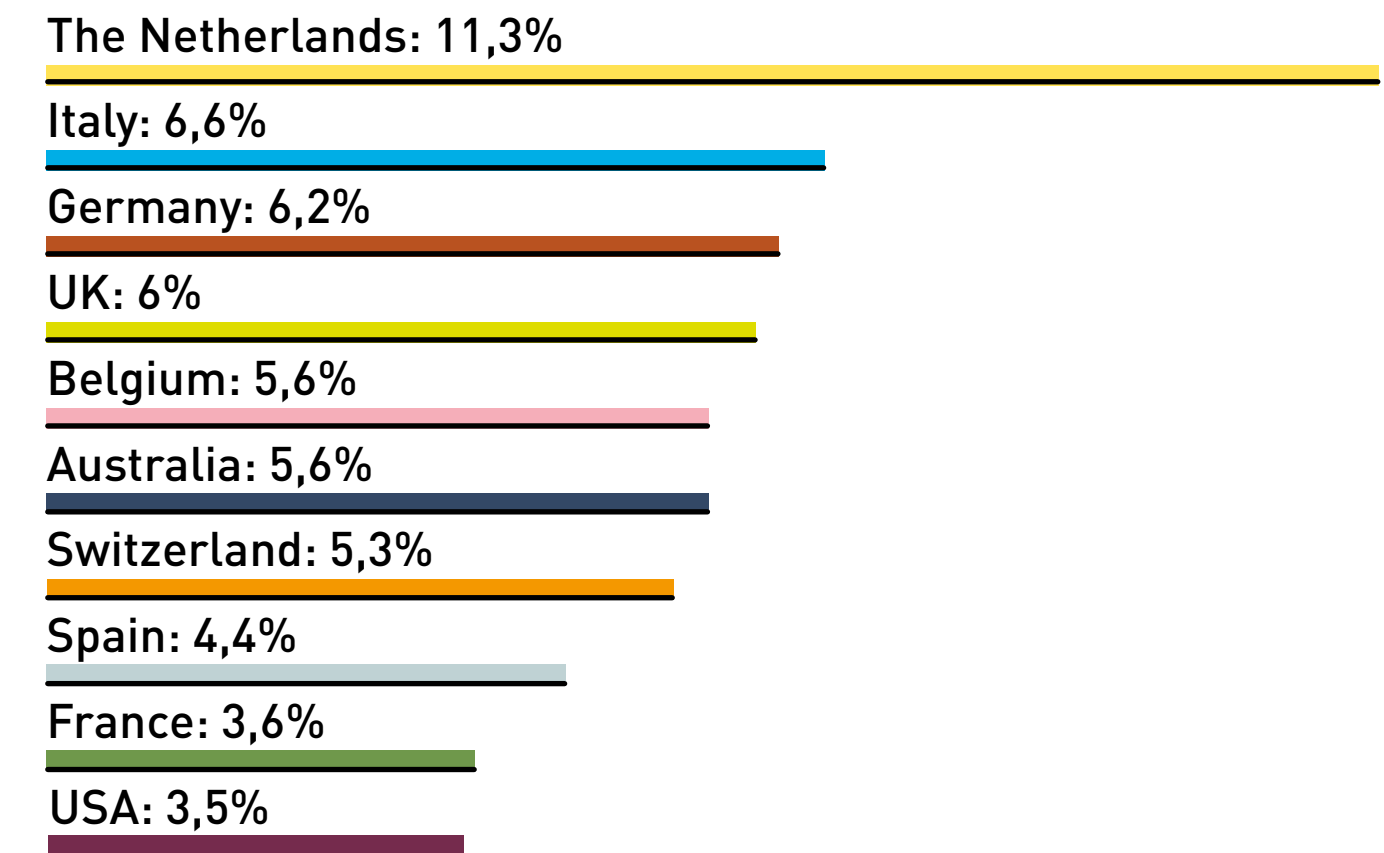
Breakdown of ESTRO members by speciality



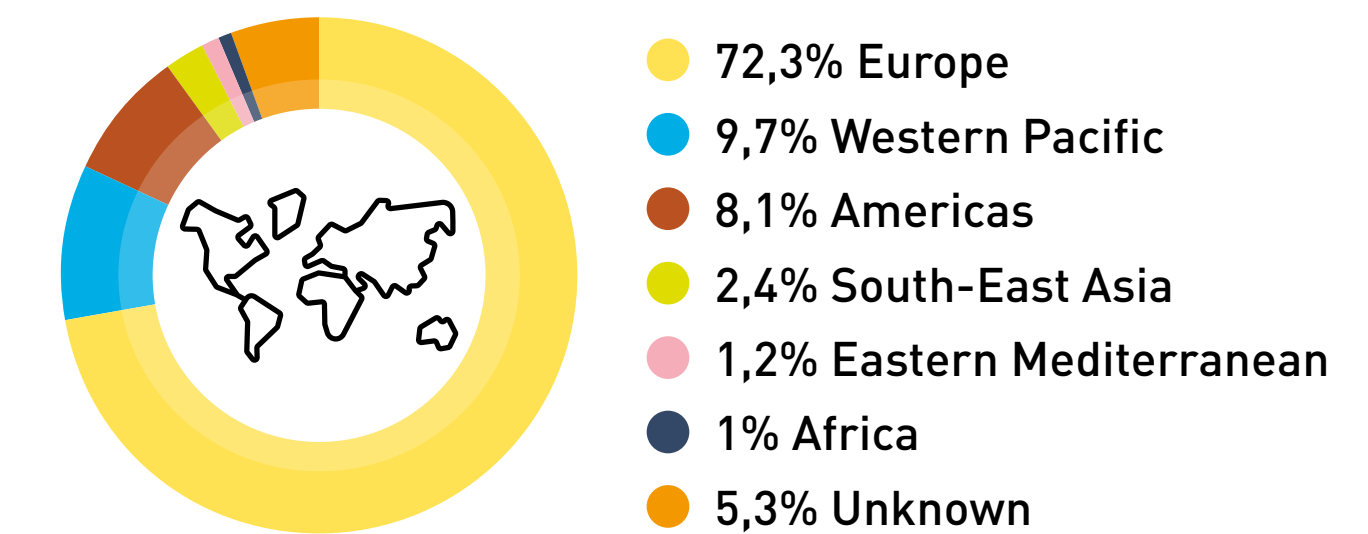
The ESTRO community extends far beyond these professional radiation oncology disciplines, taking in a wide range of other professions.

- This includes professionals from:
- other medical fields, such as surgeons, radiologists, medical oncologists, gynaecologists and urologists
 - and non-medical fields, such as public affairs specialists.

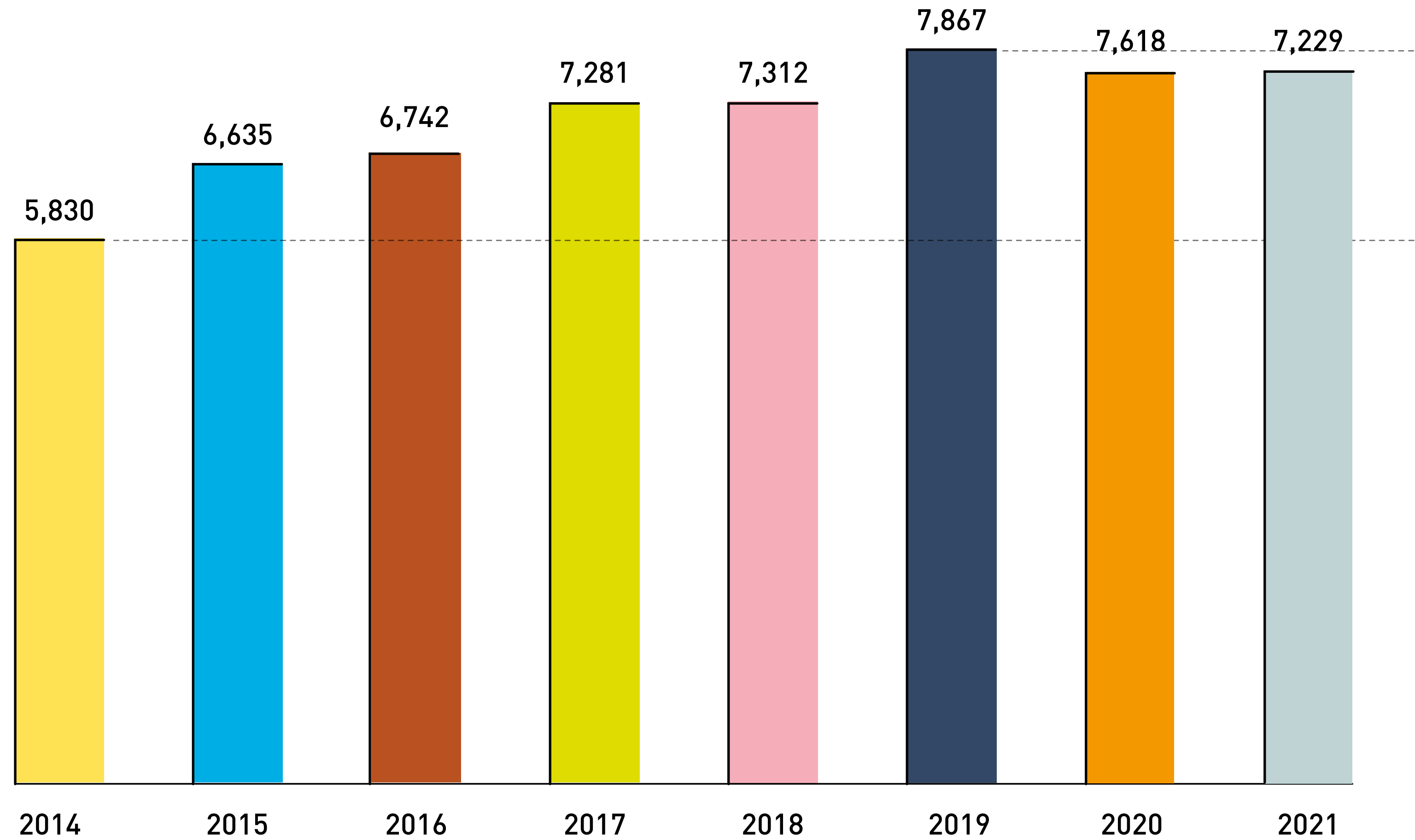
Top 10 countries



Geographical distribution



Evolution of membership



In 2021, the number of ESTRO members decreased by 5%, a drop that one can attribute to the Covid-19 pandemic.

However, the slight impact despite the global difficult context shows the strong commitment of the ESTRO members who seem to find in the membership programme an opportunity to leverage their professional development.

2. A wide range of membership categories

56,2%
INDIVIDUAL MEMBERS
(4,065)

36% FULL (2,607)

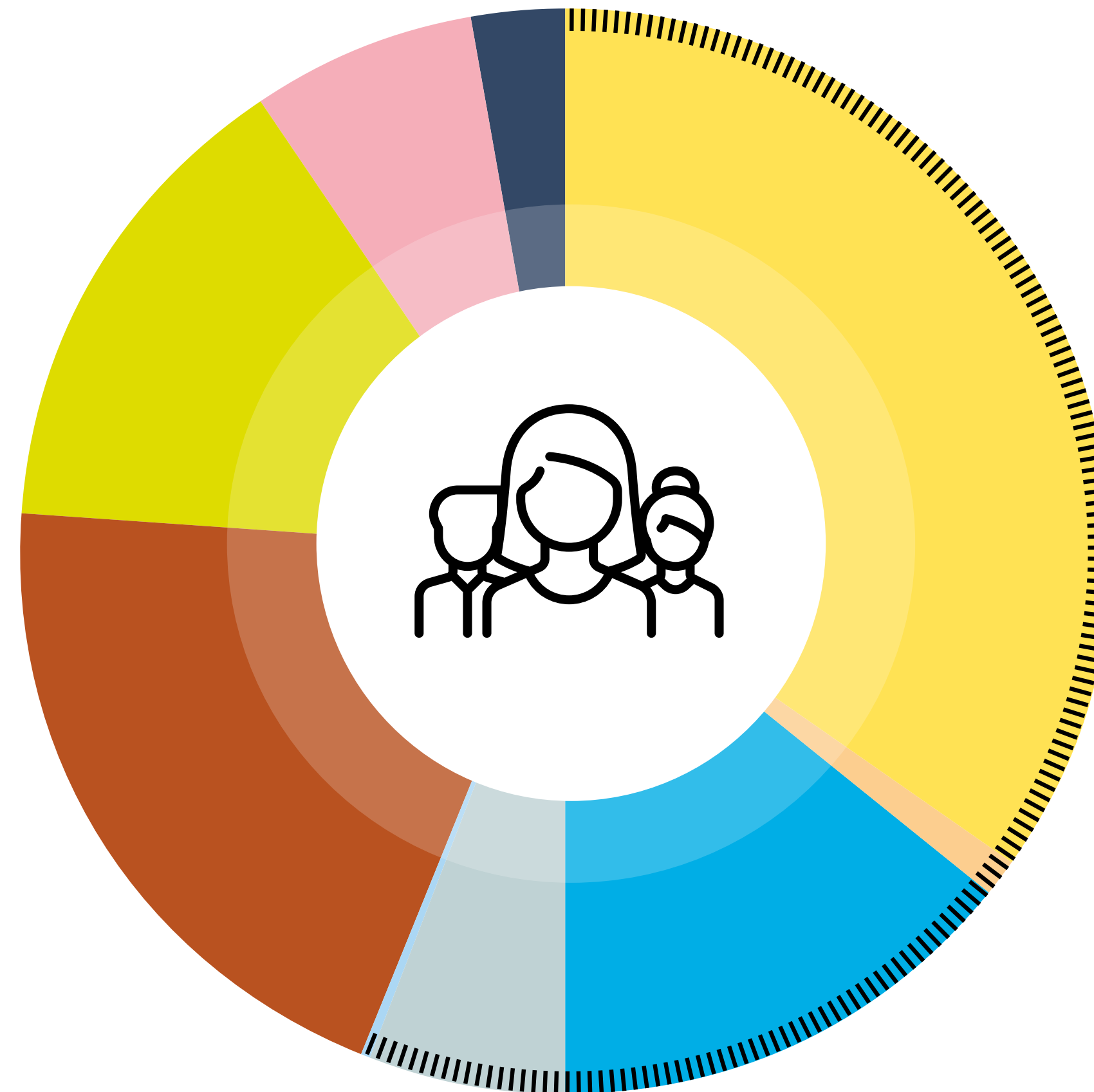
- 34,8% Active (2,517)
- 1,1% Supporting ambassador (80)
- 0,1% Emeritus (10)

20,2% ASSOCIATE (1,458)

- 14,1% Affiliate (1,022)
- 6% In-Training (428)
- 0,1% Honorary (8)

20,1%
INSTITUTIONAL MEMBERS
(1,452)

50 Institutes



14,4%
JOINT MEMBERS
(1,041)

- 8,1% Joint (586)
- 6,3% Joint In-Training (455)

6,6%
RTT ALLIANCE MEMBERS
(475)

23 National societies

2,7%
CORPORATE MEMBERS
(196)

36 Companies

3. Membership categories under the spotlight

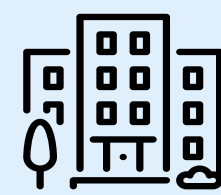
1. Institutional membership

The institutional membership is designed for centres aiming to support their oncology teams in their professional development. It also fosters interdisciplinarity and multidisciplinary within the departments.

With this category, centres can purchase packages of individual memberships on behalf of their employees, at attractive conditions.

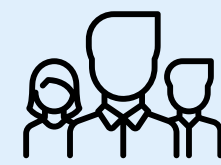
Centres also benefit from an increased visibility with:

- └ A dedicated institutional webpage on the ESTRO website
- └ A complimentary exhibitor booth at the Communities Pavilion during the annual congress
- └ Free online job postings
- └ An “ESTRO institutional member” logo.



50

Institutes in total
(see annex for list)



1,452

Employees supported
through this
membership category



1

New institutional
member in 2021

New institutional member in 2021:
**Cancer Diseases Hospital,
Zambia**

2. Supporting ambassador membership



111

Individuals signed up as supporting
ambassadors.

This membership category is reserved for professionals in the field of Radiation Oncology who are strongly committed to supporting the ESTRO activities in the enhancement of the radiotherapy community.

3. In-Training members and members under 40 years old

It is essential for ESTRO to invest and connect with the next generation of healthcare professionals and decision-makers.

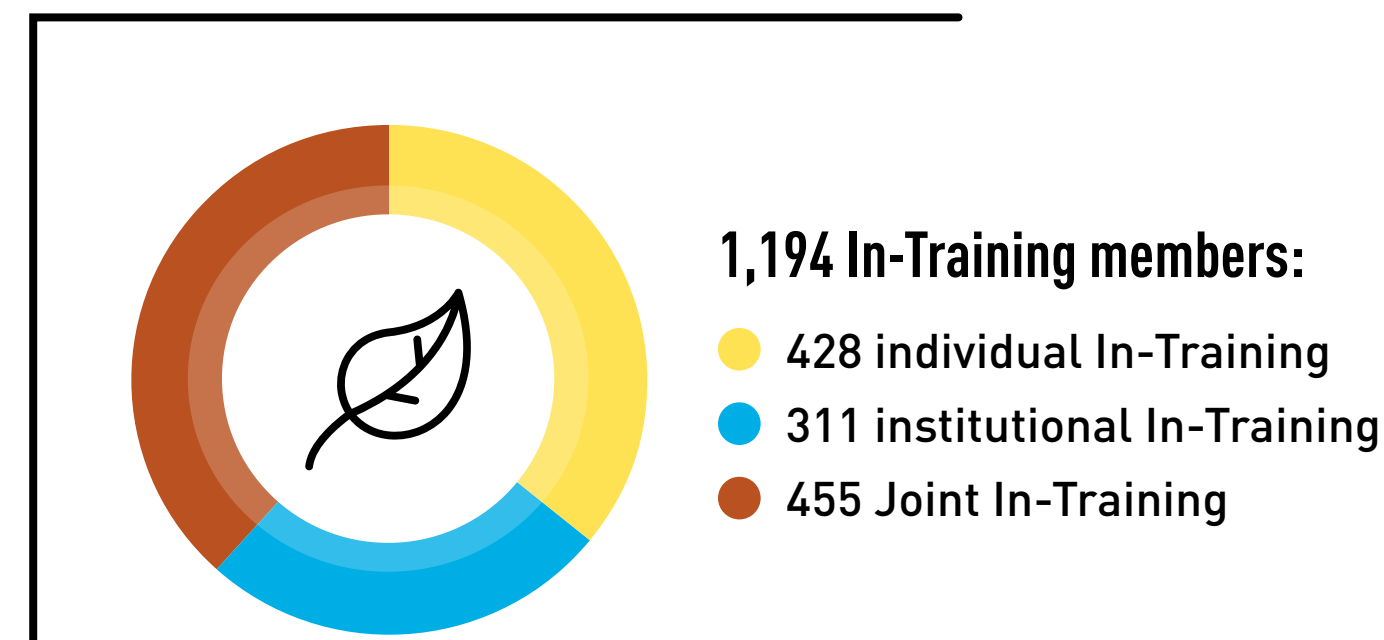
To this end, ESTRO consolidates its collaboration with European societies representing the new generation of Radiation Oncology professionals and encourages them to join the Society.

ESTRO In-Training members are professionals in the field of Radiation Oncology who are in training or full time PhD, have obtained their diploma within the last 10 years and are under 40 years old.



3,179
Young members in the Society
(younger than 40 years old)

Breakdown of In-Training members



Illustrations of the involvement of the new generation of professionals in the ESTRO community

The Young Corner

Dedicated section in the ESTRO newsletter with news from young national societies and young members sharing their experience through meetings, travel grant reports, etc.

The Young Track

All-day session held during ESTRO's annual congress, which focuses specifically on topics of interest to young professionals.

4. Joint membership

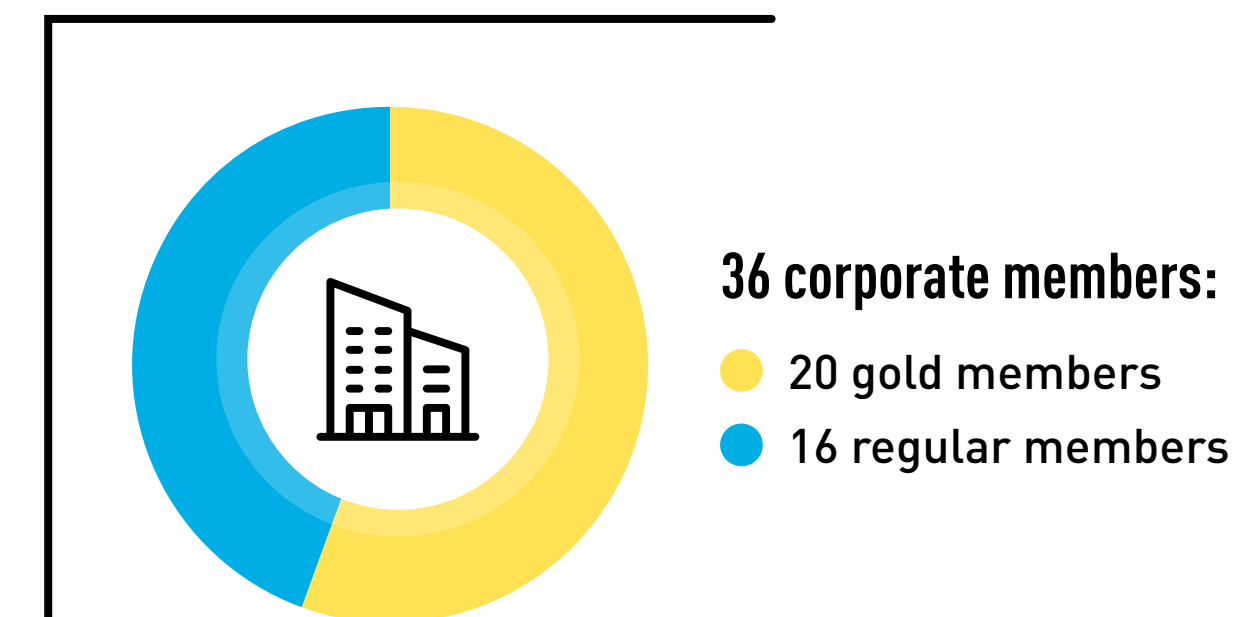
This category can be granted to individual members who benefit from a joint membership agreement, signed on a case-by-case basis between ESTRO and a non-European society or a young national society active in the field of Radiation Oncology.

5. Corporate members

The ESTRO Corporate Membership offers many opportunities to engage with the community of Radiation Oncology specialists and decision makers.

With the Gold membership, corporate partners are invited to sit at the ESTRO Advisory Corporate Council.

Corporate members in 2021



MOUS

Memoranda of understanding (MoUs) on science, education and membership are key agreements that enable ESTRO to establish new collaborations and nurture existing ones with other societies in the field of oncology.

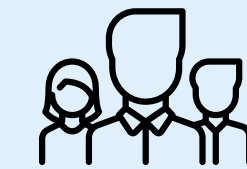
In 2021, ESTRO signed MoUs with the following national and international societies:

- └ European Organisation for Research and Treatment of Cancer (EORTC)
- └ European Federation of Organisations for Medical Physics (EFOMP)
- └ European Society of Radiology (ESR)
- └ American Society for Radiation Oncology (ASTRO)
- └ Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM).

Additional MoUs are being drafted and renewed in 2022.

RTT ALLIANCE

The objective of the RTT Alliance, initiated by ESTRO a few years ago, is to strengthen the collaboration with national societies representing RTTs, at both European and international level.



23

National societies members of the RTT Alliance

In 2021, two additional national societies joined the RTT Alliance:

- └ Association of Medical Radiology Engineers in the Federation of Bosnia and Herzegovina (UIMR FBiH)
- └ French Society of Radiologic Technologists (AFPPE).

Full list available in the Annex.

4

ESTRO CANCER FOUND ATION (ECF)

The ESTRO Cancer Foundation (ECF) continues its efforts to foster the outreach of radiotherapy at the European level, especially by implementing UpLung, a project initiated in 2020, and by launching in 2021 the Value Based HealthCare (VBHC) project. Both initiatives aim at improving the access of patients to high-quality radiotherapy treatment.

The Value Based HealthCare (VBHC) project

In 2021, ESTRO and the ECF launched VBHC, a new project run in partnership with Varian and Elekta, aiming to optimise patient access to high-value radiotherapy.

Over the past decades, cancer care expenditures have seen an unprecedented increase, following the ever-growing number of innovations made available in all aspects of cancer treatment¹. Rising budgets call for a careful appraisal of both outcomes and costs of new interventions being introduced in clinical practice. Whereas traditional cost-effectiveness or cost-utility tools tend to focus on whether an intervention meets a pre-defined threshold for cost per outcome. VBHC has been defined as ‘the health outcomes (that matter most to patients) achieved per dollar spent’².

The intent of VBHC is to provide a tool for assessing the value of radiotherapy innovations, in view of their clinical implementation and equitable access within a sustainable healthcare system.

The VBHC project will provide a framework to define value in Radiation Oncology by:

- └ Defining and categorising innovations in radiation oncology
- └ Defining endpoints needed for policy making in Radiation Oncology
- └ Linking endpoints and interventions with the evidence needed
- └ Providing a value framework, publications and communication collaterals (policy papers, key messages) for the radiotherapy community to adopt and the oncology community to acknowledge it, creating potential impact on health technology assessment (HTA) of Radiation Oncology innovations.

The VBHC project work is embedded in the HERO (Health Economics of Radiation Oncology) project of ESTRO, launched in 2012 with the ambition to generate a model and knowledge base for health economics and health services research in radiation oncology³.

In order to advance in the development of scientific outputs to support the development of a value-framework

for Radiation Oncology in the context of the HERO project, VBHC will be run in scientific collaboration with the University of Ghent.

The project will run for three years and will conclude by providing a framework for VBHC in radiation oncology with policy implications.

Links to publications related to the project:

[Value-based radiotherapy: A new chapter of the ESTRO-HERO project](#)

[Innovation, value and reimbursement in radiation and complex surgical oncology: Time to rethink](#)

REFERENCES

1. Jönsson B, Hofmarcher T, Lindgren P, Wilking N. The cost and burden of cancer in the European Union 1995-2014. *Eur J Cancer* 2016;66:162-70.
2. Porter ME. What Is Value in Health Care? *N Engl J Med* 2010;363(26):2477-81.
3. Lievens Y, Grau C. Health Economics in Radiation Oncology: Introducing the ESTRO-HERO project. *Radiother. Oncol* 2012;103(1):109-12.

Use of radiotherapy for Lung cancer in Europe - UpLung

UpLung, an ESTRO-HERO project run in partnership with AstraZeneca, was officially launched in November 2020 addressing the challenges of the uptake of radiotherapy for lung cancer patients in Europe.

Based on previous ESTRO-HERO expertise and cooperation with the **Collaboration for Cancer Out-comes Research and Evaluation (CCORE)**, this project has seen progress during 2021 with the development of updated lung cancer decision trees in Work Package 1, necessary in defining the optimal use of radiotherapy for lung cancer.

That is, how many patients diagnosed with lung cancer would require radiotherapy during the course of their disease, relying on evidence-based recommendations. Also, a systematic review of the literature on patterns of care for lung cancer treatment has been successfully completed to compare optimal use of radiotherapy in this tumour site with the actual use.

Starting from the concept of the CCORE decision-analytic trees, the work package first consisted of developing a set of new decision trees, adapted to the latest evidence-based care on lung cancer radiotherapy by stage, accounting for comorbidities, and guided by a review of the available guidelines and specific literature. These are currently being populated with new epidemiological data on lung cancer (incidence from Globocan; stage data from dedicated cancer registries). For the latter, the project has to initially team up with the Belgian Cancer Registry. After the analysis of this granular data input, an extrapolation will be performed towards radiotherapy utilisation at the European level, based on Globocan data.

Next to this quantitative analysis, a qualitative evaluation will be performed to deepen the understanding of the barriers and facilitators to closing the gap in utilisation and access.

5

FINANCIAL REPORT



1. Treasurer's report for 2021

Our Society as a whole is going through some difficult times, forcing us to anticipate and adapt constantly. Suddenly, the concept "VUCA-world" is no longer a theoretical concept to be contemplated, yet a harsh reality. To appreciate the annual report of 2021, I would like to commend the ESTRO office for showing great resilience and flexibility in coping with the uncertainties and constant changes that were thrown in our path. It's fair to say that we managed to get out of the COVID-19 storm with minimal damage, and to quote Nietzsche: "Was mich nicht umbringt, macht mich starker"*. As it is not over yet, we are not in a position to make drastic changes, however, we have learned a lot from this period and the main message will be to keep the efficient ways of working that emerged from 2019-2021 and merge them with those activities that made ESTRO strong in the past (to give but one example: blending telework, when useful, with face-2-face meetings to connect and discuss).

The new ESTRO offices are a nice illustration where a pleasant and inviting environment is created to stimulate networking and collaborations in small groups, whilst the absence of personalised desks mirrors the concept of

working at home for administrative tasks and individual projects, optimising economy and work-life balance at the same time.

Let's return to 2020 in some more detail: the auditors provided an unqualified opinion and the audited figures showed a total net result of -€371k and -€420k excluding and including financial and extraordinary charges respectively. While the total revenue generated by the ESTRO activities exceeded €4.93M the total of expenditures represented an amount of €5.31M.

At the time of writing this report, the figures for 2021 are being audited and the final result will be presented for approval at the next general assembly in May 2022. The year 2021 was yet again challenging for ESTRO's activities and its stakeholders. As the financial situation remained unpredictable, we were forced to carefully monitor operational costs in order to reduce pressure on cash whilst maintaining a solid scientific/educational program and continuation of services. With the help and efforts from all of you we were able to adapt activities and formats successfully. The cash flow in 2021 was more

solid compared to 2020, and we anticipate a slight positive result, contrary to the intermediary scenarios as they were presented in May and October 2021. Revenues and expenses at the end of 2021 are estimated at €6.02M and €5.94M respectively, with an expected total net result of €44k (including the financial and extraordinary results). The total revenue for the blended ESTRO 2021 annual meeting was above €3.36M. The revenue generated by the memberships represented €766k in 2021; with respectively €410k from the individual membership, €220k from the corporate membership and €136k from the institutional membership.

From a cumulative balance perspective, ESTRO will recover in 2022. However, we should keep in mind that we are not yet out of the storm, and cumulative balance and cashflow pressure are two separate and independent tiers. Therefore, the message from the previous annual report remains strong: ESTRO needs to build up its reserves in order to create a healthy buffer to face calamities such as the COVID-19 pandemic, without however, losing focus on re-investing revenue into services to its members. Diversification of our revenue sources will be key. The

governance task force has picked-up its activities again, and it was decided to initiate a budget cycle of three years aligning all of the Society's projects.

The ESTRO Portfolio (a defensive, Social Responsible (ethical) Investment profile, managing the cash reserves) was of course impacted by the pandemic and will be by the war in Ukraine. The total reserve showed a capital of €2.31M euro at the end of 2021, which was not too bad considering the general economic situation.

In closing, I would like to thank you all for your commitment to ESTRO and our industry partners for the continuous support. All things considered, together we seem to be managing this crisis quite well. As always, please feel free to contact me anytime with questions or concerns regarding ESTRO's financial situation, and of course, I look forward to meeting you all, in person, at our annual meeting in Copenhagen.

Think pink, and warm regards,

Dirk Verellen
ESTRO Treasurer

**What does not kill me, makes me stronger*

The figures presented in this report were approved at the ESTRO general assembly on 14 April 2021.

In 2021, operating revenues rose to almost €4.934 million, led by registrations at meetings and courses, and exhibition subscriptions.

The financial income constituted an amount of €10,000 while the financial charges, including bank charges and credit card commissions, represented €59,000.

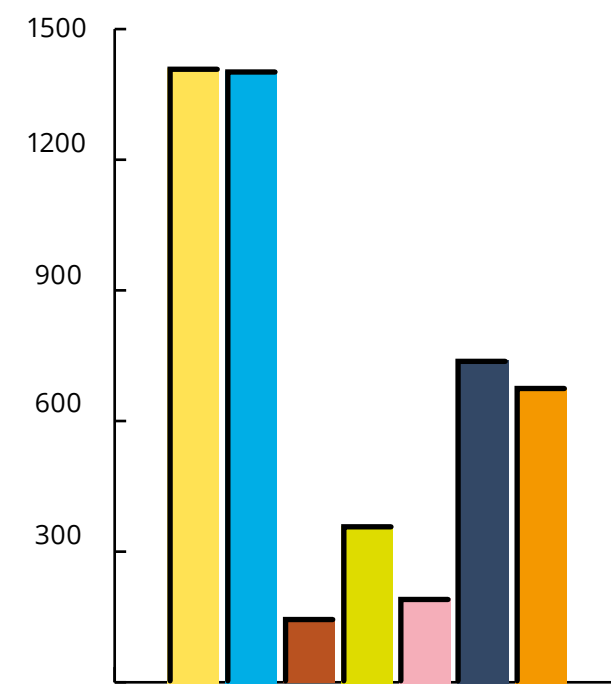
With operating expenses of €5.305 million, the net impact of income and expenditure is a net result of -€420,000.

2. ESTRO Audited Accounts 2021

Everything in KEUR except mentioned otherwise

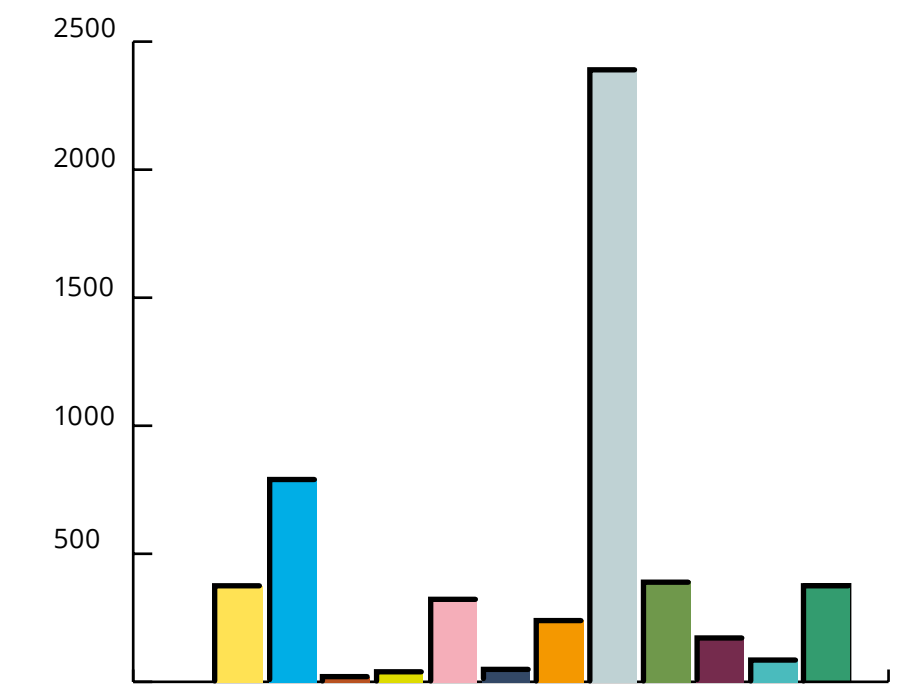
Revenue

● Registrations (meetings, courses, ...)	1,409
● Exhibition	1,401
● Advertisement/Sponsoring	149
● Membership	361
● Corporate Memb.	196
● Elsevier Royalties/Comm.	741
● Other Revenues	677
TOTAL	4,934



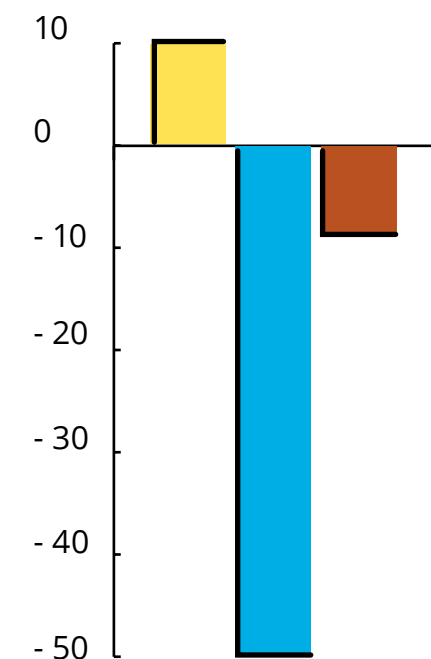
Expenditure

● Venue	379
● Tech. Equipment	795
● Promo. & Comm.	22
● Catering	40
● Scient. Educ. Prog & Commit.	325
● Governance (Commit & Council)	48
● Other Activity Costs	246
● Payrol charges	2,396
● General & Administration	398
● Elsevier charges	175
● General IT (incl. website)	93
● Communication/Marketing	388
TOTAL	5,305



Financial result

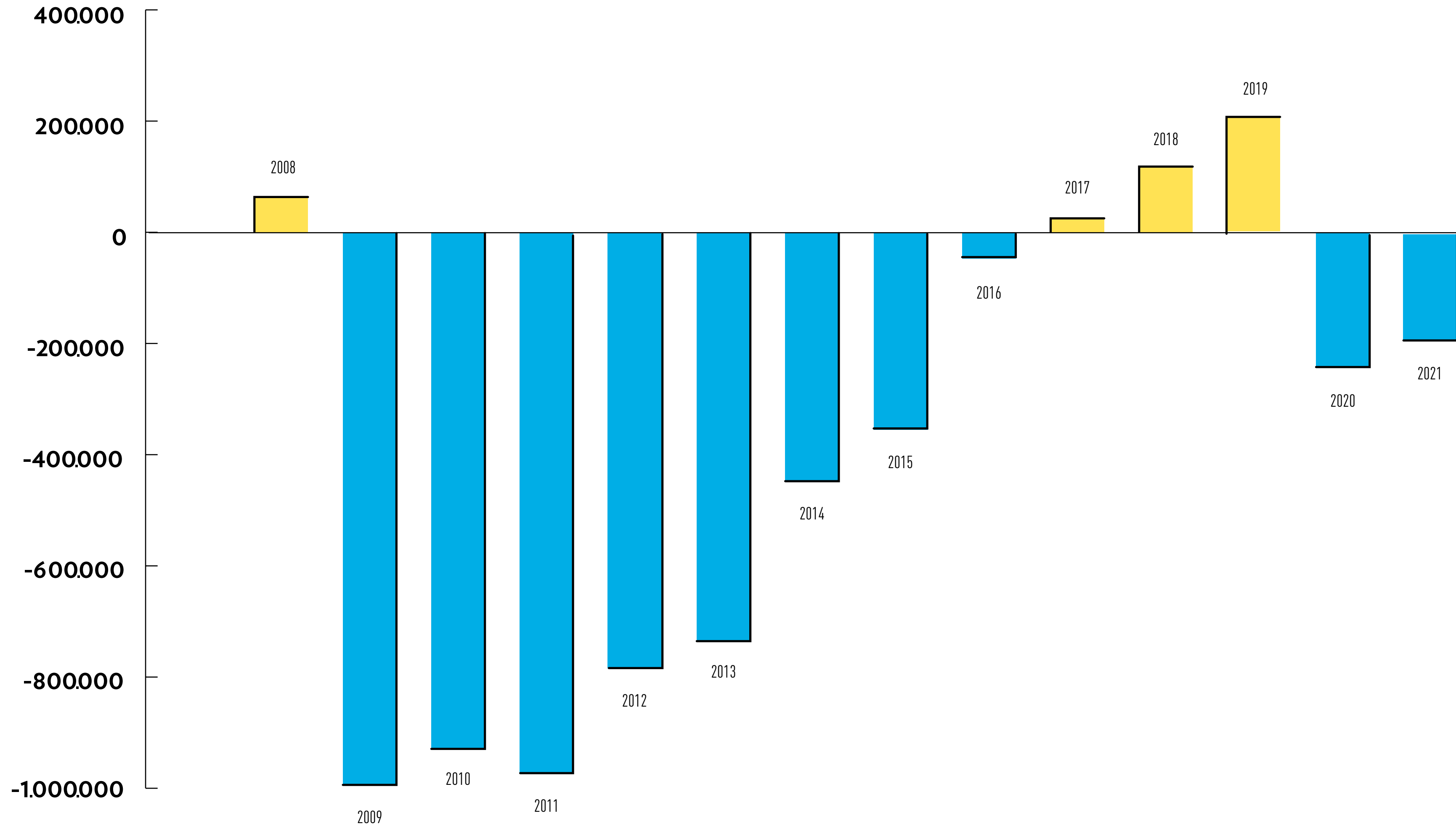
● Financial Incomes	10
● Bank & Credit card charges	-50
● Other Financial charges	-9
TOTAL	-49



Net Result (Net Profit)

-420

Consolidated Result 2008 - 2021



6

ANNEX



1. Governance & Constituent Bodies

Board of directors

Ben Slotman - Amsterdam, The Netherlands
President

Anna Kirby - London, UK
President-Elect

Umberto Ricardi - Turin, Italy
Past-President

Dirk Verellen - Antwerp, Belgium
Treasurer

Ben Heijmen - Rotterdam, The Netherlands
Member

Elizabeth Forde - Dublin, Ireland
Board Member

Esther Troost - Dresden, Germany
Board Member

Kari Tanderup - Aarhus, Denmark
Board Member

Marc Vooijs - Maastricht, The Netherlands
Board Member

Matthias Guckenberger - Zurich, Switzerland
Board Member

Nuria Jornet - Barcelona, Spain
Board Member

Michael Baumann - Heidelberg, Germany
Non-voting director – Green Journal Editor-in-Chief

Jesper Eriksen - Aarhus, Denmark
Non-voting director – Education Council Director

Executive council

Ben Slotman - Amsterdam, The Netherlands
President

Anna Kirby - London, UK
President-Elect

Umberto Ricardi - Turin, Italy
Past-President

Dirk Verellen - Antwerp, Belgium
Treasurer

Alessandro Cortese – Brussels, Belgium
CEO

Nominating council

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President

Anna Kirby - London, UK
President-Elect

Umberto Ricardi - Turin, Italy
Past-President

Scientific council

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Chair

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ESTRO President-Elect

Umberto Ricardi - Turin, Italy
ESTRO Past-President

Michael Baumann - Heidelberg, Germany
Radiotherapy & Oncology Editor-in-Chief

Pierre Blanchard - Villejuif, France
ctRO Editor-in-Chief

Ludvig Muren - Aarhus C, Denmark
phiRO Editor-in-Chief

Michelle Leech - Dublin, Ireland
tipsRO Co-Editor-in-Chief

Jesper Eriksen - Aarhus, Denmark
Education Council Chair

Catharine Clark - Guildford, UK
Physics Committee Chair

Claus Belka - Munich, Germany
ACROP Committee Chair

Ina Jurgenliemk-Schulz - Utrecht, The Netherlands
GEC-ESTRO Committee Chair

Karin Haustermans - Leuven, Belgium
Clinical Committee Chair

Philipp Scherer - Salzburg, Austria
RTT Committee Chair

Rob Coppes – Groningen, The Netherlands
Radiobiology Committee Chair

Steven Petit - Rotterdam, The Netherlands
yESTRO Committee Member

Ben Heijmen - Rotterdam, The Netherlands
ESTRO Board Representative

Marc Vooijs - Maastricht, The Netherlands
ESTRO Board Representative

Matthias Guckenberger - Zurich, Switzerland
ESTRO Board Representative

Yolande Lievens - Ghent, Belgium
HERO Co-Chair

Damien Weber - Villigen, Switzerland
EPTN task force Co-Chair

Education council

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Chair & Leader Live Programme

Kim Benstead - Cheltenham, UK
Leader Core Curriculum/UEMS Programme

Marie-Catherine Vozenin - Lausanne, Switzerland
Leader Mobility Programme

Michelle Leech - Dublin, Ireland
Leader Blended Learning Programme

Richard Poetter - Vienna, Austria
Leader Intercontinental Education Programme

Aileen Duffton - Glasgow, UK

Anna Kirby - London, UK

Ben Heijmen - Rotterdam, The Netherlands

Ben Slotman - Amsterdam, The Netherlands

Bradley Pieters - Amsterdam, The Netherlands

Eduardo Zubizarreta - Vienna, Austria

Eleonor Rivin del Campo - Villejuif, France

Kari Tanderup - Aarhus, Denmark

Nuria Jornet - Barcelona, Spain

Jolien Heukelom - Amsterdam, The Netherlands
Young Committee Observer

Mateusz Spalek - Warsaw, Poland
Young Committee Observer

Stakeholders council

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Chair

Anna Kirby, London - UK
ESTRO President-Elect

Ben Slotman - Amsterdam, The Netherlands
President

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Membership Officer

Dirk Verellen - Antwerp, Belgium
ESTRO Board Representative

Nuria Jornet - Barcelona, Spain
ESTRO Board Representative

Marc Vooijs - Maastricht, The Netherlands
ESTRO Board Representative

Joanna Kazmierska
Patient Advisory Group Liaison

Barbara Alicja Jereczek-Fossa - Milan, Italy
National Societies Committee Representative

Mary Coffey - Dublin, Ireland
Radiation Oncology Safety and Quality Committee (ROSQC) Representative

Clinical committee

Karin Haustermans - Leuven, Belgium
Chair

Antonietta Gambacorta - Rome, Italy

Corinne Faivre-Finn - Manchester, UK

Dorota Gabrys - Gliwice, Poland

Eric Deutsch - Villejuif, Paris, France

Esther Troost - Dresden, Germany

Florence Huguet - Paris, France

Hans Langendijk - Groningen, The Netherlands

Lorenzo Livi - Florence, Italy

Marianne Nordmark - Aarhus, Denmark

Pedro Lara - Las Palmas de Gran Canaria, Spain

Peter Hoskin - Northwood, UK

Martin-Immanuel Bittner, Cambridge, UK
Young Committee Observer

Physics committee

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Chair

Daniela Thorwarth - Tübingen, Germany
Secretary

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Christian Richter - Dresden, Germany

Coen Hurkmans - Eindhoven, The Netherlands

Cristina Garibaldi - Milan, Italy

Dirk Verellen - Antwerp, Belgium

Marianne Aznar - Manchester, UK

Nuria Jornet - Barcelona, Spain

Victor Hernandez - Tarragona, Spain

Wouter van Elmpt - Maastricht, The Netherlands

Ludvig Muren - Aarhus, Denmark
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Observer - Green Journal Physics Editor & EPTN

Frank-André Siebert - Kiel, Germany
GEC-ESTRO Braphyqs

Jenny Bertholet - London, UK
Young Committee Observer

Kathrine Røe Redalen - Trondheim, Norway
Young Committee Observer

RTT committee

Philipp Scherer - Salzburg, Austria
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Annette Schouboe - Aarhus, Denmark

Bartosz Bak - Poznan, Poland

Bernd Wisgrill - Vienna, Austria

Ilija Curic - Belgrade, Serbia

Ingrid Kristensen - Lund, Sweden

Isabel Lobato - Evora, Portugal

Ludwig Van den Berghe - Ghent, Belgium

Maddalena Rossi - Amsterdam, The Netherlands

Maeve Kerney - Dublin, Ireland

Márton Vékás - Somogy, Hungary

Monica Buijs - Amsterdam, The Netherlands

Rita Simões - London, UK

Sophie Boisbouvier - Lyon, France

Yatman Tsang - Northwood, UK

Elizabeth Forde - Dublin, Ireland
Board Observer

Sophie Perryck - Zürich, Switzerland
Young Committee Observer

Radiobiology committee

Rob Coppes - Groningen, The Netherlands
Chair

Anthony Chalmers - Glasgow, UK

Brita Singers Sørensen - Aarhus, Denmark

Ester Hammond - Oxford, UK

François Paris - Nantes, France

Heidi Lyng - Oslo, Norway

Kerstin Borgmann - Hamburg, Germany

Laure Marignol - Dublin, Ireland

Marc Vooijs - Maastricht, The Netherlands

Ludwig Dubois - Maastricht, The Netherlands
Young Committee Observer

GEC-ESTRO committee

Ina Jürgenliemk-Schulz - Utrecht, The Netherlands
Chair

Bradley Pieters - Amsterdam, The Netherlands
Past-Chair

Vratislav Strnad - Erlangen, Germany
Chair-Elect

Marisol De Brabandere - Leuven, Belgium
Secretary

Frank-André Siebert - Kiel, Germany
Chair BRAPHYQS

Jean-Michel Hannoun-Levi - Nice, France
Chair Breast

Luca Tagliaferri - Rome, Italy
Chair Head & Neck and Skin

Alexandra Stewart - Guildford, UK
Chair GI-GEC

Kari Tanderup - Aarhus, Denmark
Chair Gynaecology

Peter Hoskin - Northwood and Manchester, UK
Chair UroGEC

Csaba Polgár - Budapest, Hungary

Cyrus Chargari - Villejuif, France
Young Committee Observer

Li Tee Tan - Cambridge, UK
*Observer – GEC-ESTRO Representative
National Societies Committee*

YOUNG ESTRO committee

Pierfrancesco - Franco, Turin, Italy
Chair

Jenny Bertholet - Bern, Switzerland

Jean-Emmanuel Bibault - Paris, France

Martin-Immanuel Bittner - Oxford, UK

Cyrus Chargari - Villejuif, France

Ludwig Dubois - Maastricht, The Netherlands

Laura Mullaney - Dublin, Ireland

Jolien Heukelom - Rotterdam, The Netherlands

Steven Petit - Rotterdam, The Netherlands

Sophie Perryck - Zurich, Switzerland

Kathrine Roe Redalen - Trondheim, Norway

Mateusz Spatek - Warsaw, Poland

Radiation oncology Safety and Quality (ROSQ) Committee

Mary Coffey - Dublin, Ireland
Chair

Anita O'Donovan - Dublin, Ireland

Brian Liszewski - Ontario, Canada

Dirk Verellen - Antwerp, Belgium

Geoff Delaney - Sydney, Australia

John Kildea - Montreal, Canada

Maeve Kearney - Dublin, Ireland

Michael Milosovic - Toronto, Canada

Petra Reijnders-Thijssen - Maastricht, The Netherlands

Philippe Maingon - Paris, France

Tommy Knöös - Lund, Sweden

Velimir Karadza - Zagreb, Croatia

Laura Mullaney - Dublin, Ireland
Young Committee observer

Sophie Perryck - Zurich, Switzerland
Young Committee Observer

Advisory committee on radiation oncology Practice (ACROP)

Claus Belka, Munich, Germany
Chair

Jesper Grau Eriksen - Aarhus, Denmark
Education Council

Eduard Gershkevitch - Tallinn, Estonia
Physics Committee Representative

Jeroen Van de Kamer - Amsterdam, The Netherlands
Physics Committee Representative

Antonietta Gambacorta - Rome, Italy
Clinical Committee Representative

Peter Hoskin - Northwood, UK
Clinical Committee Representative

Laure Marignol - Dublin, Ireland
Radiobiology Committee Representative

Rob Coppes - Groningen, The Netherlands
Radiobiology Committee Representative

Philip Scherer - Salzburg, Austria
RTT Committee Representative

Yat Man Tsang - Northwood, UK
RTT Committee Representative

Jose Perez-Calatayud - Valencia, Spain
GEC-ESTRO Committee Representative

Vratislav Strnad - Erlangen, Germany
GEC-ESTRO Committee Representative

Pierfrancesco Franco - Turin, Italy
Young Committee Observer

Barbara Alicja Jereczek-Fossa - Milan, Italy
National Societies Committee Observer

National societies committee

Barbara Alicja Jereczek-Fossa - Milan, Italy
Chair

Nuria Jornet - Barcelona, Spain
Education Council & Physics Committee Representative

Bartosz Bak - Poznan, Poland
RTT Committee Representative

Cristina Garibaldi - Milan, Italy
Physics Committee Representative

Esther Troost - Dresden, Germany
Clinical Committee Representative

Jan Bussink - Nijmegen, The Netherlands
Radiobiology & ACROP Committees Representative

Li Tee Tan - Cambridge, UK
GEC-ESTRO Committee Representative

Ludwig Van den Berghe - Ghent, Belgium
RTT Committee Representative

Maia Dzhugashvili - Murcia, Spain
Board Nominee Representative

Pierfrancesco Franco - Turin, Italy
Young Committee Representative

Task force: European Particle Therapy Network (EPTN)

Organisers:

Cai Grau - Denmark

Damien Weber - Switzerland

Dietmar Georg - Austria

WP1 - Clinical coordinators

Hans Langendijk - Groningen, The Netherlands
Leader

Roberto Orecchia - Milano, Italy

Karin Hausterman - Leuven, Belgium

Daniel Zips - Tuebingen, Germany

Jacques Balosso - Grenoble, France

Esther Troost - Dresden, Germany

WP2 - Dose assessment, quality assurance, dummy runs, technology inventory

Oliver Jäckel - Heidelberg, Germany

Sairos Safai - Villigen, Switzerland

Stefan Menkel - Dresden, Germany

WP3 - Education

Morten Høyer - Aarhus, Denmark

Marco Schwarz - Trento, Italy

WP4 - Image guidance in particle therapy

Aswin Hoffmann - Dresden, Germany

Alessandra Bolsi - Villigen, Switzerland

WP5 - TPS in particle therapy

Håkan Nyström - Uppsala, Sweden

Tony Lomax - Villigen, Switzerland

WP6 - Radiobiology, RBE

Manjit Dosanjh - Geneva, Switzerland

Bleddyn Jones - Oxford, UK

Jörg Pawelke - Dresden, Germany

Martin Pruschy - Zurich, Switzerland

Brita S. Sørensen - Aarhus, Denmark

WP7 - Health economy

Yolande Lievens - Ghent, Belgium

Klaus Nagels - Bayreuth, Germany

HERO Group

Yolande Lievens - Belgium
Co-chair

Ajay Aggarwal - UK
Co-chair

2. Staff

CEO

Alessandro Cortese

Education

Viviane Van Egten
Education Manager

Laura La Porta
Senior Manager Education

Simone De Ioanna
Governance & Education Project Manager

Agnès Delmas
Committees & Education Project Manager

Karolina Kowalska
Committees & Education Project Manager

Andrea Collavini
Committees & Education Project Manager

Miika Palmu
Senior Project Manager

Alessandra Nappa
Project Manager

Science

Eralda Azizaj
Senior Manager Science

Jessica Pledge
Scientific Programme Manager

Public affairs & partnerships

Chiara Gasparotto
Director of Policy & Partnerships

Valerie Cremades
Membership & Partnerships Manager

Events

Agostino Barrasso
Procurement and Events Manager

Jean-Paul Biltiau
Congress Manager

Corporate relationships

Hande Van Gestel
Exhibition Project Manager

Society affairs & executive office

Amelie Laussucq
Senior Society Affairs & Policy Manager

Evelyn Chimfwembe
Manager Society Affairs & Research Projects

Laura Conde Tumbarell
Marketing & Communication Coordinator

Registration & administration

Sigrid Jacobs-Peeters
ESTRO Programmes Supervisor

Rebecca Hansmann
ESTRO Programmes & Office Administrator

Claire Thomas
ESTRO Programmes Administrator

Céline Dechamps
ESTRO Programmes Administrator

Finance

Arnaud Ponsart
Finance Manager

Gurkan Ulusoy
Accounting Coordinator

Dina Ardiana
Finance & HR Coordinator

Human Resources

Nathalie Cnops
Senior HR Manager

IT

Mickael Bohland
IT Development Manager

Benjamin Corroy
IT Support Officer

ESTRO Cancer Foundation - ECF

Arta Leci
ECF Project Manager

Consultants

Mieke Akkers
Education Project Manager

Jill Barnard
Communication and Programmes Administrator

Daneel Bogaerts
Graphic Designer

Cécile Hardon-Villard
Strategic communication

Essi Sarto
Scientific Programme Coordinator

3. Corporate Members

Gold corporate members

ACCURAY

BOSTON SCIENTIFIC

CIVCO RADIOTHERAPY

ELEKTA INSTRUMENT AB

Ion Beam Applications

MIM SOFTWARE INC

NEOMEDLIGHT

ORFIT INDUSTRIES

PHILIPS

QFIX

RaySearch Laboratories AB (Publ)

S.I.T. - SORDINA IORT TECHNOLOGIES S.P.A

SIEMENS HEALTHCARE GMBH

SUN NUCLEAR CORPORATION

VARIAN MEDICAL SYSTEMS INTERNATIONAL AG

VIEWRAY

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AQUILAB

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C-RAD POSITIONING AB

ECKERT & ZIEGLER BEBIG GMBH

KLARITY MEDICAL & EQUIPMENT CO., Ltd

LYZE MEDICAL TECHNOLOGIES

MACROMEDICS BV

MEVION MEDICAL SYSTEMS

MICROPOS MEDICAL

OPASCA GMBH

PMB-ALCEN

PTW Freiburg

RAD TECHNOLOGY

RADFORMATION

SCANDIDOS AB

STANDARD IMAGING

VISION RT Ltd

4. Joint members

Joint In-Training radiation oncology national societies

- Associazione Italiana di Radioterapia Oncologica Giovani (Young AIRO - AIRO GIOVANI)
- Belgian Society for Radiation Oncology (BeSTRO)
- Israeli Society for Clinical Oncology and Radiotherapy (ISCORT)
- Royal Australian and New Zealand College of Radiologists (RANZCR)
- Spanish Society for Radiotherapy and Oncology (SEOR)
- Tunisian Society of Radiation Oncology (STOR)
- Young Romanian Radiation Oncologists Group (YRROG)

Joint radiation oncology national societies and other oncology societies

- American Association of Physicists in Medicine (AAPM)
- Association of Medical Physicists of India (AMPI)
- Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM)
- Canadian Association of Radiation Oncology (CARO)
- European Society of Gynaecological Oncology (ESGO)
- International Association for the Study of Lung Cancer (IASLC)
- Iranian Society of Clinical Oncology (ISCO)
- Japanese Society for Radiation Oncology (JASTRO)
- Sociedad Chilena de Radioterapia (SOCHIRA)
- Sociedade Brasileira de Radioterapia (SBRT)
- South East Asian Radiation Oncology Group (SEAROG)

5. RTT Alliance

European RTT Alliance Members

- Austria: Society of Radiological Technology Austria
- Belgium: Association Francophone des Infirmiers et Technologies Exerçant en Radiothérapie
- Belgium: Vereniging Verpleegkundigen Radiotherapie en Oncologie
- Bosnia and Herzegovina: Association of Medical Radiology Engineers in the Federation of Bosnia and Herzegovina
- Bulgaria: Bulgarian Society of Radiation Therapy Technicians
- Croatia: Croatian Association of Radiation Technologists
- Denmark: Radiograf Rådet
- Estonia: Estonian Society of Radiographers
- France: French Society of Radiologic Technologists
- Georgia: Association of Georgia Radiation Treatment Therapists

Ireland: Irish Institute of Radiography and Radiation Therapy

Italy: Italian Association of Radiation Therapist and Medical Physic Technologists

Macedonia: Association and Chamber of Radiological Technologists of Macedonia

Malta: Society of Medical Radiographers

Poland: Polish Society of Electroradiology

Portugal: Portuguese Association of Radiation Therapists

Serbia: Serbian Society of Radiotherapy Technicians

Spain: Spanish Society for Radiotherapy and Oncology

Switzerland: Swiss Association of Radiographers

Turkey: Society of Radiation Therapy Technologists

Global RTT Alliance Members

- Brazil: Associação de Técnicos e Tecnólogos em Radioterapia do Rio Grande do Sul
- Chile: Sociedad Chilena de Radioterapia Oncológica
- India: Association of Radiation Therapy Technologist of India

6. Institutional Members

Belgium

AZ Turnhout
CHU Liège
GZA Ziekenhuizen, Sint Augustinus - Iridium
Kankernetwerk Antwerpen
Institut Jules Bordet
University Hospital Gasthuisberg (UZ Leuven)
Universitair Ziekenhuis Brussel

Czech Republic

University Hospital Hradec Kralove

Denmark

Aalborg University Hospital
Odense University Hospital

Estonia

North Estonian Regional Hospital Cancer Center

France

Institut de Radioprotection et de Sûreté
Nucléaire
Centre Oscar Lambret
Centre Léon Bérard
Institut Curie
Institut Gustave Roussy

Germany

Gemeinschaftspraxis fuer Strahlentherapie
Singen-Friedrichshafen
Kliniken Maria Hilf
Klinikum Rechts Der Isar, TU Munich
Klinik und poliklinik für Strahlentherapie und
Radioonkologie (Munich)

Hungary

University of Debrecen Clinic of Oncology

Italy

AOU Careggi - University of Florence
Fondazione IRCCS Istituto Nazionale Tumori
Humanitas Cancer Center
Fondazione CNAO

The Netherlands

Leiden University Medical Center
MAASTRO
NKI - Netherlands Cancer Institute
Radboud University Medical Center
Radiotherapiegroup (Deventer)
The Institute of Cancer Research
UMC Utrecht
VU University Medical Center
Maastricht University

Poland

Greater Poland Cancer Center

Portugal

Joaquim Chaves Clinicas Medicas Ambulatorio

Romania

Regional Institute of Oncology Iasi

Russia

OncoStop

Spain

Institut IMOR
Fundacio Institut d'Investigació Biomèdica de
Bellvitge (IDIBELL)

Sweden

Karolinska University Hospital
Södersjukhuset AB

Switzerland

Centre Hospitalier Universitaire Vaudois
Kantonsspital Graubünden
Kantonsspital St. Gallen
Luzerner Kantonsspital
University Hospital Zürich

UK

Velindre University NHS Trust
Western General Hospital, Edinburgh Cancer
Centre

Zambia

Cancer Diseases Hospital

7. Radiotherapy & Oncology and open access journals

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Editor-in-Chief Emeritus

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Emeritus Physics Editor

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Rob Coppes, PhD - Groningen, The Netherlands

Eric Deutsch, MD, PhD - Villejuif, France

Dietmar Georg, PhD - Vienna, Austria

Karin Haustermans, MD, PhD - Leuven, Belgium

Peter Hoskin, MD - Northwood, UK

Albert van der Kogel, PhD - Madison, Wisconsin, United States of America

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Birgitte Offeren, PhD - Aarhus, Denmark

Vincenzo Valentini, MD - Milan, Italy

Uulke Van der Heide, PhD - Amsterdam, The Netherlands

Editor, Biostatistics and Modelling

Steffen Löck, PhD - Dresden, Germany

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Emmanouil Fokas, MD, PhD - Frankfurt am Main, Germany

Daniel Richard Gomez, MD - Houston, Texas, USA

Alfonso Gomez-Iturriga, MD, PhD - Bizkaia, Spain

Cai Grau, MD, DMSc - Aarhus, Denmark

Vincent Gregoire, MD, PhD - Lyon, France

Anca-Ligia Grosu, MD - Freiburg, Germany

Matthias Guckenberger, MD - Zurich, Switzerland

Xiashan Hao, MD, PhD - Tianjin, China

Semi Harrabi, MD - Heidelberg, Germany

Ben Heijmen, PhD - Rotterdam, The Netherlands

Coen W Hurkmans, PhD - Eindhoven, The Netherlands

Geert O Janssens, MD, PhD - Utrecht, The Netherlands

Jing Jin, MD - Beijing, China

Johannes H.A.M. Kaanders, MD, PhD - Nijmegen, The Netherlands

Orit Kaidar-Person, MD - Tel Aviv, Israel

Joanna Kazmierska, MD, PhD - Poznan, Poland

Lucyna Kepka, MD - Warszawa, Poland

Tommy Knöös, PhD - Lund, Sweden

Tommy Kron, PhD, FCCPM, FACPSEM - Melbourne, Victoria, Australia

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Johannes A Langendijk, MD, PhD - Groningen, The Netherlands

Michelle Leech, PhD, MSc, BSc - Dublin, Ireland

Zhongxing Liao, MD - Houston, Texas, USA

Yvette van der Linden, MD, PhD - Leiden, The Netherlands

Philippe Maingon, MD - Paris, France

Gert de Meerleer - Leuven, Belgium

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8. Awards

Lifetime achievement

Arthur Sun Myint (UK)

Felipe Calvo (ES)

Krzysztof Bujko (PL)

ESTRO Award Lectures

Emmanuel Van der Schueren Award

Jesper Grau Eriksen (DK)
ESTRO Education: What did we learn from COVID-19?

Jens Overgaard Legacy Award

Hans Langendijk (NL)
Towards evidence-based radiation oncology

Regaud award

John Yarnold (UK)
Hypofractionation for breast cancer and some other things

Donal Hollywood Award

Brita Singers Sørensen (DK)
In vivo validation and tissue sparing factor for acute damage of pencil beam scanning proton FLASH

Klaas Breur Award

Yolande Lievens (BE)
Value-based radiotherapy: turning evidence into practice

Honorary Member award lectures

Josep Borras (ES)
Multidisciplinary cancer care: Adding value in times of change

Denis Lacombe (BE)
Multidisciplinary clinical cancer research: Can we make it better than just the sum of its parts?

Natalka Suchowerska (AU)
Targeting the Physics, but missing the Biology

Ralph Weichselbaum (USA)
Radiotherapy and Immunotherapy Combinations: The Hype and the Hope

Honorary Physicist

Coen Rasch (NL)
Honorary what?

Marie Curie Medal

Alvaro Martinez (USA)

GEC-ESTRO Iridium 192 award

Erik van Limbergen (BE)
Merits and challenges for Multicatheter Interstitial Brachytherapy (MCBT) in the treatment of Breast Cancer

ESTRO Academic Award

Jack Fowler University of Wisconsin Award
Sergey Primakov (NL)
AI-based NSCLC detection and segmentation: faster and more prognostic than manual segmentation

Company Award

ESTRO Elekta Brachytherapy award

Michelle Oud (NL)
Automated multi-criteria treatment planning for adaptive HDR-BT for locally advanced cervical cancer

GEC-ESTRO Best Junior Presentation - sponsored by Elekta Brachytherapy

Joshua Rodriguez-López (USA)
Does dose to the ureter predict for ureteral stenosis? - Analysis of 3D MRI-based brachytherapy

Posters

Best Clinical Poster award

Tiziana Rancati (IT)
Prediction of toxicity after prostate cancer RT: the value of a SNP-interaction polygenic risk score

Best Physics Poster Award

Pim Borman (NL)
Real-time multi-resolution image reconstruction for MR-guided prostate radiotherapy

Best RTT Poster Award

Heather Nisbet (UK)
An evaluation of a therapeutic radiographer led "Sexual Care after Radiotherapy" clinic

ctRO award – sponsored by Elsevier

Carrie Minnaar (ZA)
Modulated electro-hyperthermia improves three-year survival in cervical cancer patients

phiRO award – sponsored by Elsevier

Vivian van Pelt (NL)
Repeatability of free breathing diffusion weighted MRI for MR guided liver SBRT

tipsRO award – sponsored by Elsevier

Yawo Atsu Constantino Fiagan (BE)
Treatment uncertainty for ultra- vs. standard-hypofractionated breast RT based on in-vivo dosimetry

9. Newsletter

Read it Before Your Patients corner

Philippe Lambin

Hans Kaanders

Dirk de Ruyscher

Physics corner

Laura Cella

Alan McWilliam

Kathrine Røe Redalen

Brachytherapy Corner

Peter Hoskin

Bradley Pieters

Åsa Carlsson Tedgren

RTT corner

Ilija Čurić

Isabel Lobato

Annette Schouboe

Ludwig Van Den Berghe

Radiobiology corner

Rob Coppes

ROSQ

Mary Coffey

Course reports

Jesper Grau Eriksen

Marie-Catherine Vozenin

Laura La Porta

Viviane Van Egten

Young ESTRO corner

Jenny Bertholet

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