Challenging cancer inequalities within Europe through education and training: ESO's vision

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Disparities in cancer incidence and mortality between Central and Eastern Europe (CEE) and Western Europe persist. Among the causes are a lack of a timely diagnosis and lack of access to trained specialists. The European School of Oncology (ESO), a non-profit provider of education in cancer medicine, has been operating in CEE since the 1980s. This article provides an overview of the challenges in cancer care faced in CEE and of ESO's activities to improve inequalities.

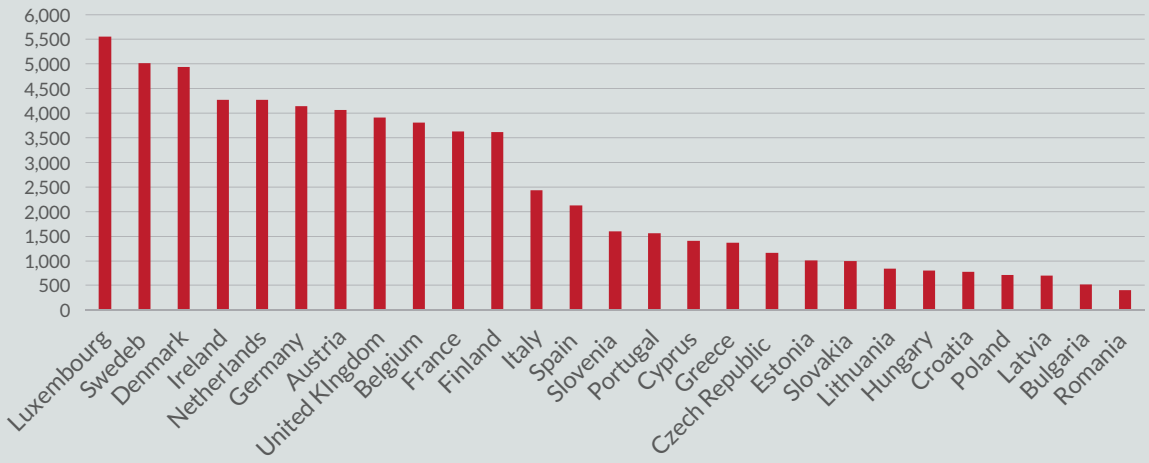
Cancer incidence and mortality differ significantly within Europe. Although the incidence of many cancer types is higher in Western Europe, mortality per incidence rate is generally higher in Central and Eastern Europe *(1)*. And while mortality has been decreasing in Western Europe (WE), this trend is not seen in most countries in Central and Eastern Europe (CEE) *(2,3,4,5)*. The causes of these disparities are multifactorial, including but not limited to risk factor exposure, health system and cancer care infrastructure, availability of medication, late stage at diagnosis and lack of access to trained oncology specialists. The last two factors are those on which the non-profit European School of Oncology, with its mission "to contribute through education to reducing the number of cancer deaths and to ensuring early diagnosis, optimal treatment, and holistic patient care", has been focusing its activities to advance cancer care in CEE.

ESO's vision and philosophy are encapsulated in its motto, "learning to care". Founded in 1982, ESO provides evidence-based, patient-oriented oncology education to health professionals, including clinical and medical oncologists, radiation therapists, surgeons, pathologists, nurses, patient advocates and medical students. Due to its financial independence, ESO can set its own priorities, paying attention to developing the transfer of knowledge in areas that are disadvantaged, such as countries and regions with limited economic resources. This article highlights the challenges in cancer care faced in Central and Eastern Europe, and ESO's current and future activities which address these challenges.

Challenges in cancer care in Central and Eastern Europe

Central and Eastern European (CEE) countries represent the group of countries comprising Albania, Bulgaria, Croatia, the Czech Republic, former Yugoslavian countries, Hungary, Moldova, Poland, Romania, Slovakia, and the three Baltic states: Estonia, Latvia and Lithuania. Due to their similar economic background in the post-communist system, these countries are usually analysed together. Ten CEE countries are currently part of the European Union; however, healthcare and its management are a national responsibility in the EU and the lowest rates of healthcare spending per capita in 2015 were reported in "new" European Union countries *(6)* (Figure 1). In many CEE countries, the collection of health outcome data and cancer registry data are limited, making it difficult to assess

Figure 1: Per capita healthcare expenditure (in EUR) in European Union Member States in 2015



Data source: Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php/Healthcare_expenditure_statistics#Health_care_expenditure, no data available for Malta

access to care *(7)*. However, there are important limitations across CEE in the availability and access to the services required for qualitative management of cancer patients. These limitations cover the entire spectrum from research to palliation and together lead to worse clinical outcomes in the region.

Complete and accurate pathology is crucial for making optimal treatment recommendations, and testing for molecular markers has significantly impacted clinical practice. While diagnostic pathology and immunohistochemistry are usually available in academic centres in the main cities of Eastern Europe, these resources are frequently not available in smaller centres (8); testing for molecular alterations is only patchily available in most of the CEE countries *(9)*. Multigene panel testing has become available in CEE countries, but costs must be covered by the patients, while medical oncologists often lack the expertise needed for interpreting the results.

Research is underrepresented in CEE, with the negative economic trend across the CEE region leading to a sustained migration of trained researchers to Western Europe. Clinical research is mainly carried out by pharmaceutical companies, and due to issues concerning access to newer therapies, Eastern Europe has a high recruitment potential. While new therapeutic options have become available through clinical trials, access to these medicines is often delayed for patients in CEE: one study showed delays of up to 10 years in certain CEE countries between EMA approval of trastuzumab and its reimbursement *(10)*.

Several countries in CEE have centralized cancer centres that provide all cancer surgical procedures, while even basic surgery may be in shortage or not available at all in distant rural areas *(11)*. And although radiotherapy is a critical component of comprehensive cancer care, most CEE countries do not have the quality or quantity of radiotherapy needed for an adequate service to their population. Under-capacity rates in the region, i.e., the percentage of patients in the county who would not have access to radiotherapy, range from 20% to 70% *(12)*.

Across CEE countries, the paradigm for palliative care is slowly shifting towards the integration of supportive and palliative care throughout the continuum of cancer care. However, limited resources, centralization of services, lack of patient-oriented information, limited registries and absent or inadequate national cancer control plans lead to a situation in which many patients who live with advanced cancer are in dire need of palliation services.

Challenges in training and education

To inform its strategic plan for the coming years, ESO has gathered input from oncologists from Central and Eastern Europe on the challenges their countries face in the training and education of oncology professionals. These inputs provide a snapshot of oncology training across a diverse landscape of healthcare systems.

While some countries offer specializations in medical oncology, radiation oncology and surgical oncology, in others, resident training either covers all oncology fields or even splits time between internal medicine and oncology. Regardless of their country's model, many professionals reported a lack of training in specific, highly needed fields of oncology, such as molecular oncology, immunotherapy, molecular diagnostic tests and their application, genetic counselling and advanced radiotherapy techniques. In some CEE countries, continuing medical education, which could bridge this gap, is either not well organized, has a highly limited budget or does not exist at all. Limitations in available equipment and therapies also limit educational opportunities for oncology residents. Worryingly,

Figure 2: Countries in Central and Eastern Europe in which ESO has carried out training activities

access to medical journals and even textbooks constitutes a problem in some CEE countries.

The expert panel also reported that while residents in some countries have only limited access to patients and spend their residency mostly as "observers", residents in others are used to "make life easier" for oncologists, thereby either limiting practical exposure or the time available for further training. In some countries, residents rarely participate in clinical trials and research. A lack of mentorship, with many mentors underprepared and undervalued for their role, was described by most experts. On a more systemic level, several experts described multidisciplinary teams as either non-existent, especially outside major cities, or non-functional.

ESO's activities in Central and Eastern Europe

After more than 35 years in operation, ESO is the oldest organisation exclusively dedicated to increasing the knowledge of health professionals in all fields of cancer medicine. ESO has a dedicated Eastern Europe and Balkan Regions programme to coordinate educational activities in the area, as well as a Eurasia programme focused on Russia, the Baltic region, and the surrounding geographical area.

ESO's mission in CEE is to promote and secure independent academic education of all professions involved in cancer care, boost education on the multidisciplinary cancer care approach, support the training of young oncologists in the region, establish leadership programmes and foster professional and scientific collaboration between countries.

ESO has been operating in the Balkan region since 1989. Since 2001, ESO has been running a series of training courses in different countries in CEE, focusing not only on developing the skills of qualified oncologists, but also of oncology residents, oncology nurses, general practitioners and medical students.

In 2011, ESO organized the first Masterclass in Clinical Oncology in the Balkan region. "ESO Masterclass" is an interactive, highly specialized, residential course for young oncologists and oncologists in-training. The ESO EEBR Masterclass in Clinical/Medical Oncology is designed for physicians in medical oncology, radiation oncology and surgical oncology wishing to improve their skills in the management of cancer patients. The programme exposes 50 selected participants from the region to a full spectrum of issues in clinical oncology, with plenary lectures on state-of-the-art clinical evaluation and treatments, with reference to clinical guidelines. Practical training is offered through clinical case presentations with interactive discussions. In 2018, ESO, together with EONS, organized the first EEBR Masterclass in Oncology Nursing, specifically designed to meet the needs of cancer nurses in CEE countries. Masterclasses are also held for the Baltic region and Eurasia. In all cases, priority is given to applicants practicing in the relevant countries and experts are drawn from the area to facilitate the exchange of experience.

Since 2014, ESO has been organizing refresher courses on specific cancer types for qualified medical and clinical oncologists in Central and Eastern Europe. Refresher courses are aimed at previous participants of Masterclasses and provide an update on state-of-the-art therapeutic options and an overview of the latest advances in the field for the 45 selected participants

All authorized presentations from ESO events are made available on the ESO website. More e-learning materials are offered through e-ESO, including CME-accredited live e-sessions that provide the opportunity to interact with international experts.

The visiting professorship meeting (VPM) programme was established in 2012 to enable knowledge transfer between opinion leaders in specific fields of oncology, local experts and young oncologists. Each year, ESO supports five meetings between visiting professors and clinical institutes in the Eastern European and Balkan Region, and two VPMs in the Eurasian region. The VPM focuses on a tumour type and

discipline. It is organised for up to 50 participants from the host clinical institute, as well as from other institutes in the region or country, and promotes the best possible cancer care given the specific local situation.

ESO offers fellowship programmes for doctors and nurses at clinical training centres. This programme, which is open to applicants also from CEE, offers oncologists and oncology nurses the opportunity to spend up to six months in a clinical setting that is specifically designed to increase knowledge, improve professional development and encourage mobility. A structured educational programme tailors the experience to the individual fellow's needs and specialisations.

The Eurasia programme aims to create a specific educational programme for Baltic and Eurasian countries. The main focus is to organize courses on cancer types that are considered a priority issue for the population of each country and address all stakeholders involved in cancer care, from specialised doctors and nurses to hospital managers and administrators. Since 2014, four Masterclasses in Clinical Oncology have been held in the region. The "Eurasia Courses" are clinically-oriented courses for young oncologists focused on specific cancer types and have been running since 2015. ESO also holds sessions during the annual International Oncology Forum "White Nights" in St. Petersburg, Russia.

In 2016, ESO started a cooperative programme in Kyrgyzstan, with the aim of improving breast cancer diagnosis and treatment. This has already resulted in the setting up of an immunohistochemistry laboratory in Bishkek, as well as personnel exchange and shared educational programmes between Kyrgyzstan, Switzerland and Italy. This successful cooperation will serve as a model for setting up diagnostic and treatment packages and for providing structured educational pathways to doctors, nurses and patient advocates.

Overall, ESO has provided training activities in 18 countries in Central and Eastern Europe. Through the nine Masterclasses organised in the Balkans since 2011, two refresher courses per year since 2014, and several visiting professorship programmes, more than 1500 young oncologists and oncologists in-training from the Balkans will have received high-quality speciality training by ESO over a period of eight years. Many more professionals will have been trained through ESO's e-learning activities in the region.

How can ESO improve training in Central and Eastern Europe?

The input from oncologists from countries in CEE will inform ESO's future strategy for educational activities that address so-far unmet needs in the region. As countries in the region face different challenges, individual activities may be more relevant to a subset of countries. A specific presentation on access to care issues is included in each Masterclass to provide participants with specific information that can be used to lobby their health authorities to improve care. Development of leadership skills and capabilities for engaged professionals from different countries is a special priority for ESO to help in the creation of a future generation of leaders that will catalyse improvement of care delivery.

To improve knowledge about state-of-the-art oncology, ESO may widen its educational offerings in CEE to residents and medical students. Masterclasses in Oncology Basics for residents, as well as focused courses on select topics especially relevant for CEE or which are so far lacking in national curricula (creating functional MDTs, creating National Cancer Control Plans) are planned. Official recognition of ESO courses by countries in CEE may improve participation and visibility. ESO may achieve a comparatively big impact on resident education, with relatively low investment, by providing or improving access to medical journals and textbooks, which is particularly an issue in LMICs.

Improving the education and involvement of supervisors, particularly in areas where mentors are not adequately prepared for their role, is another aim of ESO. This will include dedicated courses on mentorship, leadership programmes, as well as activities to promote adherence to established curricula.

Within the Clinical Training Centres programme, ESO offers trainee oncologists the opportunity to spend several months in a reputable clinical centre. However, this training opportunity is currently offered only at centres in Western Europe and language barriers may hinder interaction, especially with patients. Fellowships in centres in the Eastern European and Balkan region may also improve cooperation between regional centres and, due to cultural and historical similarities, may address challenges similar to those faced by fellows in their home countries and centres.

A structured educational plan, not limited in applicability to CEE, will point residents towards appropriate courses and training possibilities. This could be developed into an ESO residency, allowing young oncologists to build their personal career pathways within ESO. ESO offers a broad range of e-learning materials, partly CME accredited, as well as all authorized presentations from ESO events. Efforts will be made to improve the visibility of this option, which is particularly relevant in regions where CME is underserved.

Conclusions

According to EUROCARE-5, cancer survival has improved across Europe, starting in 2000, due to access to better diagnosis and treatment. However, differences in outcomes are still evident, comparing CEE with the rest of the EU *(13)*.

ESO uses its position as a financially-independent provider of evidence-based, patient-oriented education in all fields of cancer medicine to drive access to knowledge, particularly in traditionally underserved regions, such as Eastern Europe, the Balkans and Eurasia. ESO's strategic vision for the next three years will stipulate an enhancement of educational activities in this region, with a focus on improving the training of future leaders in oncology. ■

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Dr Fedro Alessandro Peccatori, MD, PhD, is Director of the Fertility and Pregnancy Unit at the European Institute of Oncology (IEO) and Scientific Director of the European School of Oncology (ESO) Milan, Italy. Fertility and pregnancy issues in young women with cancer are his main research interests, together with education in oncology. He has published more than 190 peer-reviewed articles on women's cancer and serves on the editorial board of CROH and TJ. He is full ASCO, ESGO, AIOM and ESMO member, where he is part of the Adolescent and Young Adult (AYA) working group. He has lectured in many national and international conferences.

Dr Nicholas Pavlidis was Fellow at the National Institutes of Health (NIH), Bethesda, USA; Fellow at the Royal Marsden Hospital, London, UK; Professor of Oncology, Medical School, University of Ioannina, Greece; Member and Secretary EORTC, Early Drug Development Program; Chairman of the ESMO Guidelines Task Force; Chairman of the ESMO-ASCO Global Curriculum Task Force; Councilor, ACCOE; Medical Director, Bank of Cyprus Oncology Centre, Cyprus; and Dean of Medical School, University of Cyprus. Nicholas Pavlidis is Emeritus Professor at the University of Ioannina, Greece, and Coordinator of the Career Development Programme of the European School of Oncology.

Dr Marco Siano, MD, is Head Physician of the Unité d'Oncologie Médicale and of the Interdisciplinary Service de Cancérologie (SIC) of the Hôpital Riviera-Chablais of the two cantons of Vaud and Valais in Switzerland. Previously, he worked at the Cantonal Hospital in St Gallen where he began his oncological career in 2005. Further education took place at the Istituto Oncologico della Svizzera Italiana in Bellinzona (Prof. Franco Cavalli and Prof. Michele Ghielmini) and the 'Istituto Nazionale de Tumori' (INT) in Milan (Prof. L. Licitra). At the same time, his interest in head and neck tumors, thyroid and skin tumours was aroused. Various projects were continued and initiated after his return to St Gallen. In particular, the effect and exploration of predictive factors for anti-EGFR-directed therapies in head and neck cancer (gene signatures, miRNAs and mutations) were investigated. Dr Siano is President of the SAKK's Head and Neck Tumor Group (Swiss Association for Clinical Cancer Research), founding member of the SHNS (Swiss Head and Neck Society) and coordinator of the online education programmes e-eso of the European School of Oncology (ESO).

Dr Matti Aapro, MD, is a member of the Board of Directors of the Genolier Cancer Centre as well as a Member of the Breast Centre in Genolier, Switzerland. He received his medical degree from the Faculty of Medicine, University of Geneva, Switzerland. He was a fellow at the Arizona Cancer Center in Tucson and the founding chair of the Medical and Radiation Therapy Department at the European Institute of Oncology in Milan

He is also a board member of ECCO (European CanCer Organisation). He serves the International Society for Geriatric Oncology (SIOG) as an executive board member. He is executive board member of the European School of Oncology (ESO). He is a past-President of the Multinational Association for Supportive Care in Cancer (MASCC); President of Honour of the French-speaking Society for Supportive Care (AFSOS), and Advisor to the Japanese Association for Supportive Care in Cancer (JASCC). He has been a board member of the European Organization for Research and Treatment of Cancer (EORTC) and of the European Society of Medical Oncology (ESMO).

Dr Aapro chaired the scientific and organizing committees

of UICC's (International Union against Cancer) World Cancer Congress of 2008 in Geneva, and 2010 in Shenzhen (China). He is a member of the ESMO Faculty and chairs the ESMO 2017 Supportive/Palliative Care track. He is a board member of the Advanced Breast Cancer (ABC) meeting. Dr Aapro is Editor-in-Chief of Critical Reviews in Oncology/Hematology, *as well as Associate Editor for the geriatric section of the* Oncologist *and Editor-in-Chief of the Web site http://qualityoflife.elsevierresource.com. He is also founding editor of the* Journal of Geriatric Oncology. *He is past Associate Editor for* Annals of Oncology. *He has authored more than 350 publications.*

Dr Sophie Fessl, PhD, is a freelance science writer. After an undergraduate degree in biological sciences at the University of Oxford, she received a PhD in Developmental Neurobiology from King's College London. Sophie Fessl writes about new developments in oncology, neuroscience and basic science.

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