ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ESMO OPEN SCIENCE FOR OPTIMAL CANCER CARE

EDITORIAL

# Reinventing ESMO after the COVID-19 pandemic: moving towards a sustainable academic society

For almost five decades, the European Society for Medical Oncology (ESMO) has brought people together from all over the world to improve cancer care. However, these activities, especially international congresses, contribute to climate change.[1] Therefore, ESMO created the Climate Change Task Force, whose remit is to examine the impact of ESMO's activities on greenhouse gas emissions and produce recommendations to reduce the society's carbon footprint.[2]

The Intergovernmental Panel on Climate Change (IPCC) recently published its latest report and is calling for very urgent climate action to ensure a liveable future for all.[3] All organisations and individuals have a responsibility to transform their activities in alignment with the Paris Climate Agreement, which aims to limit global temperature increase to 1.5°C. This is especially important for ESMO because increases in air pollution, exposure to ultraviolet radiation, industrial toxicants and infectious agents can all contribute to an increase in the risk of different cancers.[4,5] In addition, patients with cancer are vulnerable and face an increased risk of complications from heat waves, interrupted treatment schedules due to extreme weather events, the spread of new infectious agents and other threats driven by climate change.[6-9] The challenge we face today is to find the right balance between the ambition of maintaining and strengthening the ESMO network to advance cancer care and the ambition to limit greenhouse gas emissions.

To reach the aims of the Paris Climate Agreement, a future yearly carbon budget per person of a maximum of 2 tons of emitted carbon dioxide has been proposed by the United Nations. The Climate Change Task Force estimated that the ESMO Congress 2019 in Barcelona generated an average of ∼1.5 tons of carbon per congress attendee. In perspective, this means that ESMO members, on average, use up almost 75% of their annual carbon budget by attending the annual congress. The major contributor was travel, responsible for over 80% of emissions, with inter-continental travellers accounting for two-thirds of all ESMO 2019 emissions. Other main sources of carbon emissions were accommodation (∼8%) and venue temperature control (∼3%). These data are in line with similar estimates from other international academic meetings.[10-13] The coronavirus disease 2019 (COVID-19) pandemic mandated a fast transition to fully digital meetings and congresses, dramatically reducing carbon emissions. The fully digital ESMO Congress 2020 had an estimated 99% reduction in greenhouse gas emissions compared to 2019 (Figure 1). The rapid technological developments during the pandemic, experimentation with new forms of networking and sharing of scientific knowledge and the experienced gained by individuals and organisations forced to become accustomed to digital alternatives have opened new options. There is now the opportunity to reinvent ESMO post-COVID-19 using technological developments and experience gained to both strengthen and expand the ESMO network while at the same time lowering ESMO's carbon emissions. Here, we propose a roadmap for ESMO to reduce its climate impact in order to align with the Paris Agreement (Figure 2).

## RECOMMENDATION 1: HYBRID DIGITAL—PHYSICAL MEETINGS WITH LOCAL AND REGIONAL HUBS

All ESMO meetings should continue to offer hybrid digital formats offering speakers and participants a choice between attending on-site or digitally. This has the additional benefits of facilitating participation of delegates from low- and middle-income countries and supporting work—life balance through reduced travel time, thereby enhancing equity, inclusion and diversity at ESMO events.

Continuous investments should be made to enhance the digital experience, making it more interactive in order to increase its appeal. Meeting other ESMO members in person and networking will continue to be essential in developing collaborations and exchanging ideas. To reduce climate impact of in-person congress attendance, ESMO should consider developing official regional/local hubs at strategic, easily accessible locations, from which the main congress can be attended digitally whilst offering local and regional networking possibilities. We propose that attending a hub could be made more appealing by inviting local key opinion leaders to present live at hub locations in combination with additional live abstract presentation and discussion sessions. For digital and hub participants, this enhanced hybrid digital meeting concept reduces time away from home, thus supporting work—life balance, another important ESMO mission. Attending the congress digitally or at a hub location will be cheaper, potentially boosting attendance and reducing disparities in access to meetings due to costs. We propose that ESMO aims for 100% of scientific meetings to have a hybrid digital—physical format, targeting a 50% online participation rate, and that pilots are organised for ESMO Congress hub locations, both within and outside Europe.

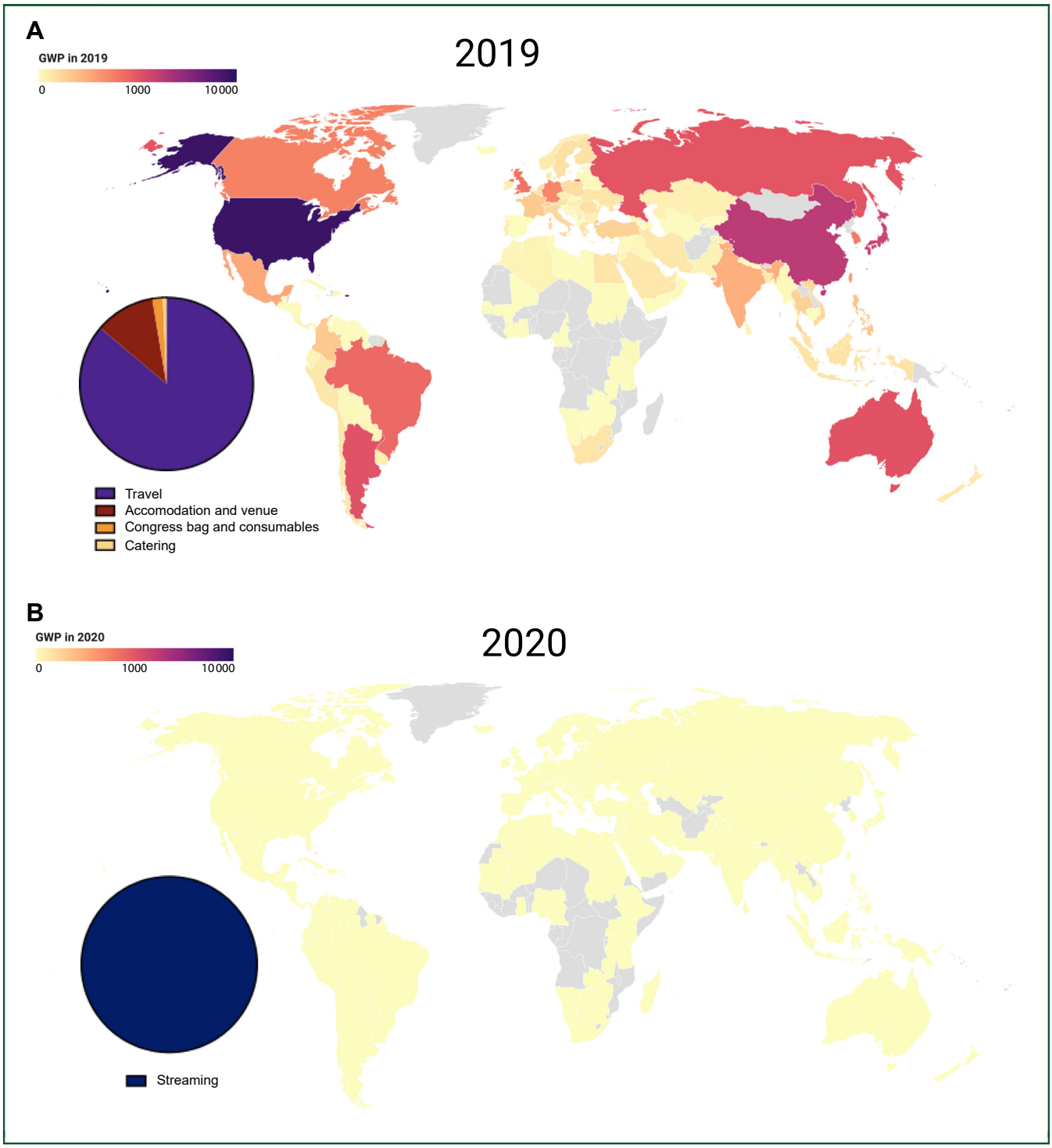


**Figure 1. Global warming potential (GWP) comparison at in-person versus fully digital congress.** GWP (measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide) from all activities at the ESMO Annual Congress in (A) 2019 fully in-person congress in Barcelona and (B) 2020 fully digital congress during the coronavirus disease 2019 (COVID-19) pandemic.

## RECOMMENDATION 2: OPTIMISATION OF THE ESMO EVENT CALENDAR

ESMO currently organises two main annual congresses: the ESMO Congress (Europe) and the ESMO Asia Congress (Singapore). In addition, there are annual tumour-specific or treatment-specific congresses as well as ESMO Summits in Africa and Latin America. Other educational programmes are also offered, including Advanced Courses, Preceptorships, Medical Student Courses and the Leaders Generation Programmes in Europe and Asia. For some of these courses, in-person participation is essential to provide networking opportunities, to guarantee optimal discussions and to allow adequate training. It is important that members, especially young members, attending these meetings in


**Figure 2.** **The vision for a sustainable European Society for Medical Oncology (ESMO).**

person are stimulated to benefit maximally from live networking events and interactive sessions.

We propose investigating how pooling of congresses by time and/or location could be done without compromising the attendee experience. For example, the ESMO Leaders Generation Programme Asia, as well as various Preceptorships and Advanced Courses, are already organised back-to-back with the ESMO Asia Congress. For these combined events, invited speakers are already invited for both activities to reduce the number of people travelling. Similarly, tumour-specific congresses, especially 2- to 3-day meetings, could be organised before or after the main annual congresses, at the same location or at a hub location, in order to reduce travel. Discussion with ESMO members and careful evaluation of pilot events are required to understand whether the increased periods of time that participants are away from work and family at one time are acceptable. We propose that investments continue to be made in the regional summits and that ESMO aims to increase the number of educational courses and tumour/treatment-specific courses organised back-to-back with main ESMO events in the same city.

## RECOMMENDATION 3: REDUCING CLIMATE IMPACT OF TRAVEL TO MEETINGS

Selecting a central congress location will reduce the total travel distance required for European participants and thus lower emissions. A central European location can reduce emissions by up to 40%, compared to a venue at the edge of Europe, even if all participants continue to travel by aeroplane (see Supplementary Tables S1 and S2, available at https://doi.org/10.1016/j.esmoop.2024.102531). If participants switch to train travel, instead of aeroplane, further reductions in emissions are possible. A central location increases the percentage of European participants who can reach the congress by train in an acceptable travel time (See Supplementary Tables S3 and S4, available at https://doi.org/10.1016/j.esmoop.2024.102531). We propose that ESMO aims to hold the majority of their annual congresses in central European locations and aims for at least 50% of participants within 6 hours' journey time travelling by train. During registration, journey times by train/bus should be highlighted, with links to major train/bus booking sites provided on the ESMO website. ESMO has committed to continuing to support, and help organise the train-to-ESMO initiative, inviting participants to travel to the congress together by train/bus and, in future, potentially enjoying a pre-congress programme during the trip. For participants who decide to travel by aeroplane, links to robust and easy methods for carbon off-setting could be provided during the meeting registration process. In addition, (financial) measures to stimulate eco-friendly travel to the conference should be explored. Finally, ESMO travel policies for invited speakers and recipients of travel grants could specify that aeroplane travel may not be reimbursed if the travel time using train/bus/electric car is $<$6 hours. However, case-by-case requests will be considered.

## RECOMMENDATION 4: REDUCING CLIMATE IMPACT OF ACCOMMODATION AND THE CONGRESS VENUE

The ESMO Housing Agency already includes information about sustainable measures where possible to help delegates make an informed choice. We propose that, in future, all ESMO-supported hotels should adhere to the highest environmental standards based on the Hotel Carbon Measurement Initiative.[14] In addition, the ESMO website could provide links to shared accommodation for any delegates wishing to book shared hotel rooms or spaces for group accommodation. This has the benefit of reducing costs, facilitating networking and can be particularly advantageous for younger participants and those from lower-income countries.

Temperature control at the conference should aim to avoid extreme temperatures, but not to increase or reduce the temperature unnecessarily. This avoids unnecessary use of heating or air conditioning.

Life-cycle analyses have demonstrated that vegetarian meals can halve emissions compared to omnivorous meals.[15] While ESMO cannot impose food choices, by providing locally sourced food and sufficient vegetarian and vegan meal options, as well as informing on the climate impact from food, delegates can be encouraged to make choices that have the lowest impact on the environment. By asking participants for their meal choices/preferences before the conference catering can be adapted to reduce waste. Packaging of food should be minimised, and beverages, both hot and cold, should be dispensed in a reusable cup, glass or bottle, which delegates could purchase at registration. There should be ample provision for water bottle refilling. To encourage participation in this scheme, those delegates using a reusable cup could receive discounts for beverages as is becoming common practice in many countries. However, this may be challenging to implement since ESMO is dependent on external parties at the conference venue for much of the catering. Waste collection at the conference should allow the separation of paper, glass and plastics for recycling. Since 2022, ESMO has stopped distributing congress bags at the annual congress and this is an important step in increasing the sustainability of the meeting. Although previous congress bags were reusable, most were unlikely to be used after the congress. The digital programme is already preferred over the paper version and paper-based industry advertising should be replaced by a digital alternative as much as possible. In addition, since the ESMO Congress 2022, ESMO actively promotes climate-friendly behaviour through information provided at the congress venue and through social media campaigns.

## RECOMMENDATION 5: REDUCING THE CARBON FOOTPRINT OF OTHER IMPORTANT ESMO ACTIVITIES

As an organisation, there are a number of additional avenues that can be explored in terms of reducing the climate impact. The ESMO flagship journal, *Annals of Oncology*, became fully digital from January 2022, a tangible first step in developing into a greener society. We recommend further reducing print production of other publications and promotional materials and working towards digital publications only. ESMO offices actively promote recycling and commuting by bicycle or public transportation and we recommend to continue current efforts to reduce the building's carbon footprint, for example, by installing solar panels and ensuring that buildings are energy efficient. In line with recommendation 2, for the meetings currently hosted at the ESMO Head Office, it could be evaluated whether they are suitable to be planned back-to-back with other ESMO events.

## RECOMMENDATION 6: DATA COLLECTION TO MONITOR ENVIRONMENTAL IMPACT

To ensure adequate monitoring of interventions, it is important to continuously collect data that can help understand the environmental impact of ESMO activities, as has been implemented since the 2022 congress. For meetings, this should as a minimum include participant hometown, mode of travel, use of carbon off-setting, digital attendance, number of hub locations and attendance at hubs, environmental standards of ESMO-supported hotels and data on sharing of accommodation. Data on conference consumables and waste processing should also be collected whenever possible. Carrying out a regular more comprehensive formal life-cycle

analysis should be considered in order to provide deeper and more detailed insights both to the ESMO organisation and to individual participants.[13]

## RECOMMENDATION 7: TAKE STEPS TOWARDS REDUCING CLIMATE IMPACT OF ONCOLOGY CARE AND LEAD BY EXAMPLE

The carbon footprint in cancer care is wide-reaching across the treatment continuum and across different specialties. Is there a wider role for ESMO to play in educating and supporting members/institutions to move towards a sustainable oncology community? ESMO could support this by providing educational materials, developing guidelines and raising awareness by highlighting and sharing successful initiatives. A first step has been taken by introducing an interactive climate session at the main ESMO Congress to eductate and share initiatives and best practices. ESMO could stimulate the inclusion of sustainability endpoints in international projects, grant proposals and clinical trial design. ESMO can lead by example by including such aspects in ESMO initiatives where relevant. In addition, since health care workers are trusted messengers in communities, ESMO should support individual ESMO members and ESMO leadership to advocate for climate smart behaviour in health care.

In conclusion, climate change has a huge impact on health and can affect the risk of cancer through increased risk of exposure to carcinogens and decreased access to cancer care services.[8] One of the ways ESMO can achieve its mission to prevent and cure cancer is by reducing its impact on the environment. As a consequence of the COVID-19 pandemic, there is now a unique opportunity to build back in a better way, using the lessons we have learned to improve our future. ESMO has already implemented a number of changes to reduce its climate impact (Table 1). Key recommendations include developing an attractive, future-proof, hybrid digital—physical congress, merging or combining multiple events to reduce the need to travel, optimise congress location to reduce the climate impact of travel as well as optimising congress-related activities including eco-friendly accommodation and catering and making all ESMO publications online-only. Educating and creating awareness will be central in successfully implementing these changes. Additionally, the collection of data to accurately monitor the environmental impact of different interventions is essential. Major future steps could include stimulating and supporting ESMO members to reduce the impact of oncology care on the climate and lead by example. Challenges to implementing changes in ESMO activities include increased time away from work/home when events are combined or due to train travel, the benefits of face-to-face contact, higher costs of sustainable options and limited influence when working with other large organisations. These issues can be addressed by a careful understanding of ESMO member opinions and concerns, discussions with other organisations and open discussions on financial aspects. As a large organisation, with a membership of over 35 000 individuals in 172 countries, ESMO has an opportunity to be a leading society in its response to the climate crisis. Here, we have proposed the first steps towards a sustainable future for the next generation of oncology professionals that will support core ESMO values, strengthen its network as well as increasing its versatility and reach.

**Table 1. Actions already implemented by ESMO towards becoming a sustainable society**

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| 1. Organising the ESMO Congress and the majority of tumour-specific conferences as hybrid digital—physical meetings since 2022 |
| 2. Supporting the train-to-ESMO initiative, which commenced at ESMO 2019 Congress as well as increased communication activities on sustainability at the congress venue |
| 3. Organising a climate session at the ESMO Congress from ESMO 2022 |
| 4. Terminating the production and use of conference bags which commenced at ESMO 2022 Congress |
| 5. Providing the conference programme and abstract books in digital form only |
| 6. Reduced use of heating/air conditioning at the congress venue |
| 7. Providing sustainability reports about official hotels implemented from ESMO 2022 Congress |
| 8. Reducing printed materials including the change to a fully digital mode of publishing *Annals of Oncology* from 2022 |
| 9. ESMO Head Office Lugano: Recycling has been implemented, there is increasing use of reusable energy and staff are supported in eco-friendly forms of home—work travel |

ESMO, European Society for Medical Oncology.

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