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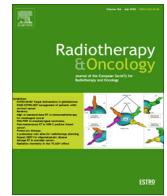
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Editorial

Are hybrid conferences the new standard?

Michael Baumann^{a,*}, Carol Bacchus^a, Marianne C. Aznar^b, Rob P. Coppes^c, Eric Deutsch^d, Dietmar Georg^e, Karin Haustermans^f, Peter Hoskin^g, Mechthild Krause^{h,i}, Eric F. Lartigau^j, Anne W.M. Lee^k, Steffen Löckⁱ, Birgitte V. Offersten^l, Jens Overgaard^l, David I. Thwaites^{m,n}, Albert J. van der Kogel^o, Uulke A. van der Heide^p, Vincenzo Valentini^q



^a German Cancer Research Center (DKFZ), Heidelberg, Germany; ^b Division of Cancer Sciences, Faculty of Biology, Medicine and Health, The University of Manchester, The Christie NHS Foundation Trust, United Kingdom; ^c Departments of Radiation Oncology and Biomedical Sciences of Cells & Systems, Section Molecular Cell Biology, University of Groningen, University Medical Center Groningen, The Netherlands; ^d Department of Radiation Oncology, Institut d'Oncologie Thoracique (IOT), Gustave Roussy, France; ^e Division Medical Radiation Physics, Department of Radiation Oncology, Medical University of Vienna/AKH, Wien, Austria; ^f Department of Radiation Oncology, University Hospitals Leuven, Belgium; ^g Mount Vernon Cancer Centre and University of Manchester, United Kingdom; ^h Department of Radiotherapy and Radiation Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden; ⁱ OncoRay – National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden – Rossendorf, Germany; ^j Academic Department of Radiotherapy, Oscar Lambret Comprehensive Cancer Center, Lille, France; ^k Department of Clinical Oncology, University of Hong Kong – Shenzhen Hospital and University of Hong Kong, China; ^l Department of Experimental Clinical Oncology, Aarhus University Hospital, Denmark; ^m Institute of Medical Physics, School of Physics, The University of Sydney, Australia; ⁿ Radiotherapy Research Group, Leeds Institute of Medical Research, St James's Hospital and University of Leeds, United Kingdom; ^o Department of Human Oncology, University of Wisconsin School of Medicine and Public Health, Madison, USA; ^p Department of Radiation Oncology, the Netherlands Cancer Institute, Amsterdam, The Netherlands; ^q Dipartimento di Diagnostica per Immagini, Radioterapia Oncologica ed Ematologia, UOC Radioterapia Oncologica, Fondazione Policlinico Universitario "A. Gemelli" IRCCS, Rome, Italy

This issue includes a perspective contribution by Lefresne et al. [1] on face-to-face scientific conferences versus virtual meetings and the implications for climate change. Generally, it is the policy of the Green Journal not to publish contributions with non-scientific content. In this specific case, the editors believe that the contribution by Lefresne and colleagues raises an important point that needs careful consideration and discussion in our scientific community. As scientists, we are at the forefront of research and strive to positively shape the future for humankind. Therefore, it is of key importance that the environmental impact of scientific activities is considered, and that our community develops and contributes to solutions to prevent further exacerbation of climate change with its substantial impact on health-related issues. This includes that pros and cons of face-to-face scientific meetings are carefully weighed.

The COVID-19 pandemic has taught us that virtual meetings are not only technically feasible and presumably less expensive but can also bring together a larger geographically dispersed community that cannot be reached with face-to-face meetings alone [2]. However, the pandemic has also shown us that online meetings can have some significant cons as well as pros for young scientists in particular [2]. Young scientists benefit more from in-person meetings, where they can get valuable feedback from peers that can help them refine their ideas and better shape future research. Face-to-face meetings are also a platform for building networks that can lead to new partnerships and projects and are particularly important for the future of early career scientists. There are also

significant financial implications for scholarly societies, as virtual meetings may not be as attractive as in-person meetings, resulting in lower attendance and revenue, but can cost similar amounts to organise and provide. It also remains unclear how our industry partners can be satisfied with online formats alone.

Probably everyone agrees that travelling will be associated with CO₂ emissions for the foreseeable future and that we urgently need to change our attitudes and behaviour. However, it is also true that there are many other causes of carbon emissions, including most other human activity. For example the Center for Climate and Energy Solutions list the main primary causes globally of greenhouse gas emissions as electricity and heat production (31%), agriculture (11%), transportation (15%), forestry (6%) and manufacturing (12%). They also state that energy production of all types and for all activities accounts for 72% of all emissions (<https://www.c2es>). A good strategy to decrease CO₂ emission needs to consider a canon of measures and a global approach. Health professionals and scientists must do their part and, also in the opinion of the editors of this journal, should be at the pioneering frontier not at the end of the caravan. Not to be neglected in this context are some positive aspects and behavioural changes that have emerged from the pandemic and the energy crisis, e.g. that in Europe the development of carbon-neutral means of travel and transportation such as electric vehicles has accelerated and people have become aware of their own carbon footprint. In addition, tele-conferencing, tele-counselling and mobile working have rapidly become a reality in research institutions and hospitals worldwide.

Taken together, we are dealing with a much more complex problem that cannot be solved simply by not traveling to conferences anymore, which may have huge associated implications on

* Corresponding author at: German Cancer Research Center (DKFZ), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany.

E-mail address: michael.baumann@dkfz.de (M. Baumann).

many levels, such as potentially lower quality of education and experience/science exchange, which in turn could lead to potentially lower quality of care and slower development of new treatments, as well as the financial implications.

So where do we go from here? Which option is best will depend on the goals of the meeting, the type of information being shared, the resources available, and last but not least, the audience. It is important that scholarly societies carefully consider the costs and benefits of each approach or offer hybrid solutions that support their mission and financial stability. Some of these aspects are considered in reference 2. Hybrid solutions offer possibilities to follow specific sessions for people who did not have an opportunity to travel, to faster switch between sessions and to re-watch specific talks. On the other hand, for large conferences it causes additional high costs that a society needs to be willing to cover. It is also important that scientific societies work together with professionals to de-carbonize and de-waste their conferences as rapidly as possible. Many scientific societies and conference support industries began this process many years ago, but there is still much to improve.

We commend the BC Cancer Planetary Health Unit and the authors for bringing this topic to the attention of a wider audience and sharing it with our scientific community, and hope that the members and leadership of scientific societies will make this a subject of continuous improvement.

The Editors

Conflict of Interest

The authors declare no conflict of interest.

References

- [1] Lefresne S, Brown M, Ellard E, Duncan G, Rose J, Darud M, et al. A Perspective on In Person Scientific Meetings. *Radiotherapy Oncol* 2023. in this issue.
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