

COVID19 and education: restructuring after the pandemic

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Funding: The activity of the COVID19 Working Group was kindly supported from Chiesi and MSD.

Conflict of Interest: The authors declare no conflict of interest.

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Autorship: Maria Irene Bellini writing of the original manuscript; Liset Pengel, Luciano Potena, Luca Segantini critically reviewed.

Keywords: COVID-19; education; pandemic; telemedicine; webinar

Abbreviations

COVID-19: coronavirus disease 2019

ESOT: European Society for Organ Transplantation

SARS-CoV-2: severe acute respiratory syndrome coronavirus 2

COVID-19, the disease caused by SARS-CoV-2 infection has been declared a pandemic by the WHO in March 2020. The death toll has already surpassed 1 million casualties worldwide [1], with no distinction between high, middle and low-income countries.

Despite important advancement on virus treatment [2], no effective vaccination is available yet, so the fear of detrimental outcomes due to an uncontrolled virus spread remains real and thus affecting government and public health responses.

As an infectious disease, whose agent can be transmitted via human contact, containment measures such as social distancing have been adopted worldwide, with lockdown and quarantine imposed to respond to the halt of the pandemic. Inevitably, large gatherings have been banned since, and therefore in-person academic activities, including conferences and traditional scientific societies meetings have been cancelled or postponed, with an urgent call to foster alternative education strategies.

The purpose of health profession education is to improve the health of communities, and given the current circumstances, to adapt to the onset of COVID19, the novel unexpected threat to human health. An unprecedented need to share information in a rapidly evolving scenario has led to cooperation and innovation among medical societies [3]. These initiatives aim to spread knowledge which has the potential to save lives and counteract anxiety and frustration secondary to the unforeseen circumstances and the detrimental effects of SARS-CoV-2[4]. Web-based technology and social media platforms can be used to counteract the physical distancing in a dynamic fashion, reaching a broad and different audience [5].

Webinars (web-seminars) have been used regularly by professional bodies and academic institutions, as well as teleconferences held via various online software, but the additional value provided by the discussion over internet has been exponentially growing, given the new reality of social distancing [6].

While many will remember SARS-CoV-2 as a source of disruption, it is likely that the new competencies developed in education will be better suited to address today's emerging needs and realities, allowing members from all over the world and outside the traditional healthcare organisation to meet with no time or zone restrictions.

The need for patient-centred care during the pandemic has been stressed by patients, and health care professionals [7, 8]. In particular during the pandemic, patients or other groups that are not routinely able to join the traditional face-to-face events, were actively involved and engaged into the ongoing debate much more than an indoor event would have previously allowed [9]. Traveling might in fact represent an impediment, particularly for disabled or end stage organ disease patients and indeed, the overcome of this barrier has already represented a fundamental gain of the COVID19 era, highlighting the patient reported outcomes contribution [4]. There are also other initiatives confirming that the conversion of traditional face-to-face education to online platforms can be very effective, even for patient care [10].

On a separate note, being aware that between 2–5 tonnes of CO₂ are emitted by every attendee flying intercontinentally to attend a conference [11], it is important to recognize that the push towards more online meetings and educational activities will be beneficial for the overall sustainability of science dissemination.

The pandemic has provided also a unique opportunity for registry development: to maintain a rigorous standard for evidence-based medicine, big data resulting from multicentre [12, 13] and multi-Societies [14] collaborations are needed in order to provide scientific validation, thus a new input for surveys and studies requiring online participation seems to gain momentum at the present. The European Society of Organ Transplantation (ESOT) has pioneered the importance of relevant information dissemination and dialogue among its members from trusted resources, such as the official Society website itself, in the effort to improve the community health [15]. Dynamism and strategic leadership are essential to keep the pace with the community transformation and strive for medical education: an alternative business model, as part of its e-learning platform earlier this year was developed to provide the scientific

community with a repository of video lectures and webinars on COVID19, that could be watched remotely at any time, allowing for more interaction by the participants in a forum, which has proven to be a highly used resource among transplantation professionals [15]. The e-learning platform allows individuals to raise awareness or clinical questions within specific communities, mobilize resources and provide support in the absence of physical contact. This initiative leads to an ongoing learning experience for users and provides ample opportunities for education. A platform that allows the sharing of recommended management of a transplant programme with the evolution of the disease assists the transplant community and counteracts the struggle of an unknown situation. Furthermore, research reveals that social media is most effective in tackling the loneliness that might result from the lockdown measures and could enhance existing relationships, as well as forging new meaningful connections, particularly for scientists and at different career stages [16].

The massive extension of open access publications and other online material, required to be at the forefront of this unprecedented emergency, has amplified the impact of one of the major issues during the pandemic: the rush to publish at the cost of scientific rigour. This was confirmed in a recent evaluation of retracted COVID-19 articles. The study identified 26 retracted articles of which 17 were analysed in depth for their reasons for retraction or withdrawal. The main reasons for retraction of articles were concerns, issues and errors in the results and/or conclusions, and concerns, issues and errors in the data [17]. The post-publication debate by the scientific community has unfortunately shown how an extraordinary amount of articles that did not reflect scientific quality was fast-track peer reviewed and published even in high impact journals, only to keep the pace with the increasing global spread of the disease. It is a real concern that even prestigious journals did not follow their normal procedures to

ensure scientific integrity and reproducibility[18, 19]. Despite the nature of social media might be lacking a detailed critical appraisal of content, in this occasion their immediacy allowed peer review from multiple sources almost extemporarily and contributed to retract misleading information timely before it could have caused more harm.

There has been a dramatic rise in the number of publications on SARS-CoV-2 and organ transplantation since the start of the pandemic. However, clinical data are mostly reported as case studies or small case series. As a result, position statements and clinical practice guidelines are based on low level evidence providing little robust guidance for health care professionals during the pandemic. The establishment of COVID registries and publications of COVID specific analyses from existing registries will help to build a more solid evidence base in transplantation [20-22].

This stigma has been considered also in the development of a new safe and effective vaccination, and although several trials are ongoing, extreme carefulness needs to be the guide for clinical safety, before rushing into such a delicate new scenario, since science cannot preclude from rigour.

Aside from an easily accessible and trusted source of thematic content, the advancement of remote learning will certainly push for a higher grade of flexibility from both learners and educators. Due to the spread of SARS-CoV-2, surgical trainees were likely to see the number of in-theatre educational opportunities limited, hence particularly for surgical training, a shift towards virtual assessment, potentially complemented via an online enhanced experience of the operation, might become a new standard of practice in the case of a new unforeseen pandemic occurrence.

Finally, another emerging previously underutilised reality during COVID19 is telemedicine: virtual clinic and testing via smartphone applications use to avoid overcrowded and potentially infectious doctor's offices or to track and isolate asymptomatic carriers.

Is telemedicine then here to stay? While it is undoubtful that the healthcare system benefitted from the use of this technology in response to the above described barriers related to social distancing, the longer-term use of the telemedicine needs to be ascertained. Telemedicine is an alternative to face to face care that is cost-effective and particularly during the pandemic an acceptable choice to patients who felt more vulnerable because of reduced access to hospitals. However, some groups have already identified which clinical and administrative activities will remain after the pandemic[22].

Unfortunately, for most of the disease whose failed tertiary prevention could significantly impact on mortality figures, there is still uncertainty whether the lack of in-person care and treatment might be substituted. The overall financial impact on hospital and global community economy of telemedicine and web-technologies in general could then result in a lack of cost-effectiveness in the longer term for the community health. The same principle seems also to translate into the Society traditional education meetings, where even if the scientific content might be spread and communicated in alternative ways than a frontal lecture, the lack of the in-person networking as well as the social interaction offered by a gathering seems difficult to replace via a remote experience.

In conclusion, the new costs related to the development of high technology and web-based applications need consideration with the overall financial impact of the

lockdown. Historically, many ground-breaking inventions resulted from the biggest crisis, so it is very likely that the whole educational offer from the academic institutions and Societies will learn from this pandemic and evolve to a changed model where new and traditional formats, such as frontal lectures used more than 2000 years ago by the ancient Greek and Latin philosophers, will work side by side.

References

1. <https://coronavirus.jhu.edu/map.html>.
2. Horby, P., et al., *Dexamethasone in Hospitalized Patients with Covid-19 - Preliminary Report*. N Engl J Med, 2020.
3. <https://unos.org/news/covid-19s-impact-on-organ-donation-and-transplantation/>.
4. Bellini, M.I., F. Tortorici, and M. Capogni, *Resuming elective surgical activity after the COVID-19 wave: what the patients need to know*. Br J Surg, 2020. **107**(9): p. e345-6.
5. Bellini, M.I., et al., *Social Media Use Among Transplant Professionals in Europe: a Cross-Sectional Study From the European Society of Organ Transplantation*. Exp Clin Transplant, 2020. **18**(2): p. 169-176.
6. Lau, G. and M. Sharma, *Clinical practice guidance for hepatology and liver transplant providers during the COVID-19 pandemic: APASL expert panel consensus recommendations*. Hepatol Int, 2020. **14**(4): p. 415-428.
7. Waterman, A.D., et al., *Amplifying the Patient Voice: Key Priorities and Opportunities for Improved Transplant and Living Donor Advocacy and Outcomes During COVID-19 and Beyond*. Current Transplantation Reports, 2020.
8. Browne, T. and A. Grandinetti, *Please don't forget about us: The need for patient-centered care for people with kidney disease and are high-risk for poor COVID-19 outcomes*. American Journal of Transplantation. **n/a**(n/a).
9. Massey, E.K. and A. Forsberg, *Dealing with uncertainty after transplantation in times of COVID-19*. Transpl Int, 2020.
10. Sayer, G., et al., *Transition of a Large Tertiary Heart Failure Program in Response to the COVID-19 Pandemic*. Circulation: Heart Failure, 2020. **13**(9): p. e007516.
11. https://www.atmosfair.de/en/green_travel/annual_climate_budget/.
12. Bellini, M.I., F. Tortorici, and M. Capogni, *Kidney transplantation and the lock-down effect*. Transpl Int, 2020.
13. Loupy, A., et al., *Organ procurement and transplantation during the COVID-19 pandemic*. Lancet, 2020. **395**(10237): p. e95-e96.
14. Polak, W.G., et al., *Impact of COVID-19 on liver transplantation in Europe: Alert from an early survey of European Liver and Intestine Transplantation Association (ELITA) and European Liver Transplant Registry (ELTR)*. Transpl Int, 2020.
15. <https://edu.esottransplantlive.org/>.
16. Bik, H.M. and M.C. Goldstein, *An introduction to social media for scientists*. PLoS Biol, 2013. **11**(4): p. e1001535.
17. Soltani, P. and R. Patini, *Retracted COVID-19 articles: a side-effect of the hot race to publication*. Scientometrics, 2020. **125**(1): p. 819-822.
18. Mehra, M.R., et al., *Retraction: Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19*. N Engl J Med. DOI: 10.1056/NEJMoa2007621. New England Journal of Medicine, 2020. **382**(26): p. 2582-2582.

19. Mehra, M.R., F. Ruschitzka, and A.N. Patel, *Retraction-Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis*. Lancet, 2020. **395**(10240): p. 1820.
20. Belli, L.S., et al., *COVID-19 in liver transplant recipients: preliminary data from the ELITA/ELTR registry*. Lancet Gastroenterol Hepatol, 2020. **5**(8): p. 724-725.
21. Michaels, M.G., et al., *Coronavirus disease 2019: Implications of emerging infections for transplantation*. American Journal of Transplantation, 2020. **20**(7): p. 1768-1772.
22. Caillard, S., et al., *An initial report from the French SOT COVID Registry suggests high mortality due to Covid-19 in recipients of kidney transplants*. Kidney International, 2020.