Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ANNALS OF ONCOLOGY driving innovation in oncology

EDITORIAL

The ESMO Call to Action on COVID-19 vaccinations and patients with cancer: Vaccinate. Monitor. Educate

11 March 2021 marks the first anniversary of a pandemic that has pushed the world into shutdown. Of the global population of almost 8 billion, Coronavirus disease 2019 (COVID-19) has affected >100 million people, with over 2 million deaths.[1] However, the magnitude of its impact has been heterogeneous, with some groups, including patients with cancer, being more severely affected than others. With initially limited understanding of this infectious disease transmitted by a coronavirus strain, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the World Health Organization (WHO) emerged as the global leader, despite the challenges. For specific disease groups, including cancer, scientific, and professional societies such as the European Society for Medical Oncology (ESMO), rose to the challenge of providing recommendations to optimise multiprofessional cancer treatment strategies during these unprecedented circumstances. From the perspective of minimising societal impact and subsequently finding a solution to the COVID-19 pandemic, transmission and protective measures were rapidly implemented. At the same time, manufacturers and regulators started the remarkably successful development of safe and effective vaccines.

Globally, solidarity became the number one priority, along with the race towards achieving 'normality', herd immunity, through vaccinations. The combination of the disproportionate impact on vulnerable populations, including patients with cancer affected by an elevated risk of serious morbidity and mortality, and a scarce resource (i.e. vaccines) required the creation of global and national vaccination strategies. However, as patients with cancer, especially when immunocompromised, were excluded from the pivotal trials of the vaccines being tested, the protection level towards COVID-19 after administering the vaccines remains unclear.[2] With 19.3 million cancer cases in 2020 alone and an inevitable increase in new (including preventable) cancer cases after the pandemic, ESMO launched a Call to Action on COVID-19 Vaccinations and Patients with Cancer to resolve this uncertainty and protect patients with cancer.[3,4]

IMPACT OF COVID-19 ON CANCER AND PATIENTS WITH CANCER

Cancer's complexity as a disease affects individuals in multiple ways including patients with active disease, on anticancer treatment, individuals with chronic disease after treatment, or cancer survivors.[5] Of these categories, immunocompromised patients are most susceptible to complications if they contract a new disease (e.g. COVID-19). Healthcare professionals have been subject to unimaginably difficult conditions: treating those affected by COVID-19 and ensuring that those with diseases requiring treatment continue to receive high-quality care, despite the challenging circumstances.

In patients with cancer, COVID-19's impact has been vast, ranging from high-risk of developing a severe form of COVID-19, and death; pausing, stopping, or never starting anticancer treatment due to the SARS-CoV-2 infection; fear of contracting the virus; and halting or limiting regular check-ups and monitoring.[4] The impact of the disease itself on these outcomes is yet to be seen. The lack of routine screening to detect new cancer cases early and the difficulties in patient adherence to treatment due to COVID-19 will most likely lead to a delayed influx of cases and hamper treatment in the coming years.[6]

COVID-19 AND THE ALLOCATION OF VACCINES

Almost a year after the declaration of this pandemic, the European Medicines Agency has already conditionally approved two COVID-19 vaccines (Comirnaty and COVID-19 Vaccine Moderna) and is evaluating a third vaccine application (ChAdOx1-SARS-CoV-2).[7] Furthermore, numerous countries have started their vaccination programmes, inoculating millions of people so far.[8] To assist countries with a fair and equitable distribution of the limited quantities of vaccines, the scarce resource, the WHO's Strategic Advisory Group of Experts on Immunization (SAGE) developed a values framework for allocation and prioritisation of COVID-19 vaccination. A few of the WHO framework principles and corresponding objectives aim to (i) reduce deaths and disease burden; (ii) protect the continuing function of essential services; and (iii) protect those who bear significant additional risks and burdens for the welfare of others.[9] The European Commission created a similar strategy, based on the work of Member States and expert organisations, including the WHO.[10]

ESMO'S REQUEST TO MEMBER STATES: VACCINATE. MONITOR. EDUCATE

On 8 January 2021, ESMO launched a Call to Action directed towards the EU Member States to underscore the importance of vaccinating early all patients with cancer, especially those on active anticancer treatment. Supported by over

PANEL: **ESMO's Call to Action: Vaccinate. Monitor. Educate.**[4]
In the context of the Member States developing their vaccination strategies, the European Society for Medical Oncology (ESMO), a scientific society representing >25 000 oncology professionals, would like to request the Member States to consider the following:

1. **VACCINATE ALL CANCER PATIENTS** in line with the WHO principles and objectives aiming to reduce deaths and disease burden. Patients with active disease or receiving anticancer treatment deserve an additional priority unless limitations exist.
2. **DILIGENTLY COLLECT DATA** via suitable studies and registries to monitor the effects of vaccines in the vulnerable population, including patients with cancer and their immune response.
3. **EDUCATE AND INSTIL CONFIDENCE** among the public and patients in receiving the vaccines and provide them with up-to-date information in lay language.

40 healthcare professional and patient organisations, the Call reflects the European oncology community's unified voice towards early vaccinations. The EMA-approved messenger RNA vaccines to date present no contraindications or safety concerns towards patients on active anticancer treatment and the immunocompromised.[11-13] Thus, representing >25 000 oncology professionals treating cancer patients daily, it is ESMO's responsibility to reiterate the importance of vaccinating those who are most at risk as soon as possible. Acknowledging the lack of data surrounding immunocompromised patients in the pivotal trials regarding their capacity to develop and maintain an immune response, ESMO emphasises the importance of monitoring the vaccine effects via suitable studies and registries. Lastly, instilling confidence regarding safety of the vaccines and vaccinations and providing information to the population in lay language are key to protect those who are most at risk of developing severe forms of COVID-19. Moreover, as they may not develop a sufficient immune response themselves, it becomes crucial that at least those in their vicinity, including their caregivers, are also vaccinated.

The intricacies of cancer as a disease are still unknown. However, we know that adherence to treatment and regular check-ups are two crucial ways to tackle the disease. As COVID-19 has affected the lives of patients with cancer in several ways, Member States can try to get their treatment schedules back on track through early vaccination and allow them the luxury of being near their loved ones.

Thus, as healthcare professionals and patient advocacy organisations representing patients with cancer and their families, we aim to ensure that WHO's principles and objectives are adhered to, namely, to reduce deaths and disease burden and protect those who most need protection.[4]

M. C. Garassino[1,†]*, M. Vyas[2,†], E. G. E. de Vries[3], R. Kanesvaran[4], R. Giuliani[5] & S. Peters[6], on behalf of the European Society for Medical Oncology
[1]*Thoracic Oncology, Medical Oncology Department, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy;*
[2]*European Society for Medical Oncology, Lugano, Switzerland;*
[3]*Department of Medical Oncology, University Medical Center Groningen, Groningen, the Netherlands;*
[4]*Division of Medical Oncology, National Cancer Centre Singapore, Singapore;*
[5]*The Clatterbridge Cancer Centre, Liverpool, UK;*
[6]*Department of Oncology, Lausanne University Hospital (CHUV), Lausanne, Switzerland*
(*E-mail: Marina.Garassino@istitutotumori.mi.it).

†Co-first authors.

Available online 12 February 2021

https://doi.org/10.1016/j.annonc.2021.01.068

ACKNOWLEDGEMENTS

The authors thank the ESMO Executive Board, Dr Keith H. McGregor (Chief Executive Officer, ESMO), Dr George Pentheroudakis (Chief Medical Officer, ESMO) for their support. The authors also thank the following organisations who have endorsed the ESMO Call to Action on COVID-19 Vaccinations and Patients with Cancer (endorsements received until 20 January 2021): 1. ABC Global Alliance; 2. Alleanza Contro il Tumore Ovarico (ACTO); 3. Association of Cancer Physicians (ACP); 4. Association of European Cancer Leagues (ECL); 5. Associazione Italiana contro le Leucemie-linfomi e mieloma (AIL); 6. Associazione Tumori Toracici Rari (TUTOR); 7. Belgian Society of Medical Oncology (BSMO); 8. CML Advocates Network; 9. Collegio Italiano dei Primari Oncologi Medici Ospedalieri (CIPOMO); 10. Cyprus Oncology Society (OEK); 11. Czech Society for Oncology (COS); 12. Diagnóza leukemie; 13. Digestive Cancers Europe (DiCE); 14. Dutch Federation of Cancer Patient Organisations (NFK); 15. Estonian Society for Medical Oncology (EOÜ); 16. European Cancer Patient Coalition (ECPC); 17. European Hematology Association (EHA); 18. European Liver Patients' Association (ELPA); 19. European Oncology Nursing Society (EONS); 20. European Society for Paediatric Oncology (SIOPE); 21. European Society for Radiotherapy and Oncology - ESTRO; 22. Finnish Society for Oncology; 23. Flemish Cancer Society (Kom op tegen Kanker); 24. German Society for Haematology and Medical Oncology (DGHO); 25. Hellenic Society of Medical Oncology (HeSMO); 26. Insieme per i Pazienti di Oncologia Polmonare (ipop ONLUS); 27. Institute of Oncology Ljubljana; 28. International Brain Tumour Alliance (IBTA); 29. Irish Society of Medical Oncology (ISMO); 30. Italian Association of Medical Oncology (AIOM); 31. Latvian Association of Medical Oncologists (LOKA); 32. Lung Cancer Europe (LUCE); 33. Luxembourg Society of Oncology (SLO); 34. Lymphoma Coalition; 35. Marcangola Rete Associazioni Oncologia Marche; 36. oPuce Foundation; 37. Polish Society of Clinical Oncology (PTOK); 38. Salute Donna Onlus and Salute Uomo; 39. Slovak Oncology Society (S.O.S.); 40. Spanish Society of Medical Oncology (SEOM); 41. Swedish Society of Oncology (SOF); 42. World Bladder Cancer Patient Coalition; 43. Youth Cancer Europe (YCE).

FUNDING

None.

DISCLOSURES

MCG reports grants and personal fees from Eli Lilly, Otsuka Pharma, Astra Zeneca, Novartis, BMS, Roche, Pfizer, Celgene, Incyte, Bayer, MSD, GlaxoSmithKline S.p.A., Sanofi-Aventis, Spectrum Pharmaceuticals, and Blueprint Medicine; personal fees from Boehringer Ingelheim, Inivata, Takeda, Seattle Genetics, Daiichi Sankyo, Janssen, and Mirati Therapeutics, Regeneron Pharmaceuticals; grants from Tiziana Sciences, Clovis, Merck Serono, United Therapeutics Corporation, Merck KGaA, Turning Point, Ipsen, MedImmune, Exelixis, Pfizer, and BMS & Celgene; nonfinancial support from MSD and Eli-Lilly. MV reports being an employee of the European Society for Medical Oncology. EdV reports institutional financial support for her advisory/consultancy role from Daiichi Sankyo, NSABP, and Crescendo Biologics, and institutional financial support for clinical trials or contracted research from Amgen, Bayer, CytomX Therapeutics, G1 Therapeutics, Genentech, Regeneron, Roche, Servier, and Synthon, all outside the submitted work. RK reports advisory board/speaker/received honoraria from J&J, Astellas, MSD, BMS, Amgen, Pfizer, Ipsen, AstraZeneca, and Eisai. RG reports being a core member of the European Medicines Agency Scientific Advisory Group-Oncology, an expert evaluator for the EU Commission on the topic 'Global Alliance for Chronic Diseases (GACD) 2 — Prevention and/or early diagnosis of cancer'; provides consultation/lectures (no remuneration) for Novartis, Mylan, Roche, Lilly, and Apogen; and institutional financial support (clinical trials, Italy) from MSD and Novartis. SP reports education grants, provided consultation, attended advisory boards, and/or provided lectures for the following organisations, from which she has received honoraria: AbbVie, Amgen, AstraZeneca, Bayer, BeiGene, Biocartis, Boehringer Ingelheim, Bristol-Myers Squibb, Clovis, Daiichi Sankyo, Debiopharm, Eli Lilly, F. Hoffmann-La Roche, Foundation Medicine, Illumina, Incyte, Janssen, Medscape, Merck Sharp and Dohme, Merck Serono, Merrimack, Novartis, Pharma Mar, Phosphoplatin Therapeutics, Pfizer, Regeneron, Sanofi, Seattle Genetics, and Takeda (Consultation/advisory role); AstraZeneca, Boehringer Ingelheim, Bristol-Myers Squibb, Eli Lilly, F. Hoffmann-La Roche, Illumina, Medscape, Merck Sharp and Dohme, Novartis, Pfizer, Prime, Sanofi, and Takeda (Talk in a company's organised public event); receipt of grants/research supports/(sub) investigator in trials (institutional financial support for clinical trials) sponsored by Amgen, AstraZeneca, Biodesix, Boehringer Ingelheim, Bristol-Myers Squibb, Clovis, F. Hoffmann-La Roche, GSK, Illumina, Lilly, Merck Sharp and Dohme, Merck Serono, Mirati, Novartis, Pfizer, and Phosphoplatin Therapeutics.

REFERENCES

1. Johns Hopkins, University of Medicine. Coronavirus Resource Center. Available at: https://coronavirus.jhu.edu/map.html. Accessed January 28, 2021.
2. ClinicalTrials.gov. COVID-19 Studies from the World Health Organization Database. Available at: https://www.clinicaltrials.gov/ct2/who_table. Accessed January 17, 2021.
3. International Agency for Research on Cancer. *Global Cancer Observatory*; 2020. Available at: https://gco.iarc.fr/today/data/factsheets/cancers/39-All-cancers-fact-sheet.pdf. Accessed January 14, 2021.
4. European Society for Medical Oncology. *COVID-19 Vaccinations and Patients with Cancer: Vaccinate. Monitor. Educate. An ESMO Call to Action*; 2021. Available at: https://www.esmo.org/policy/esmo-call-to-action-on-covid-19-vaccinations-and-patients-with-cancer-vaccinate-monitor-educate. Accessed February 8, 2021.
5. European Society for Medical Oncology. COVID-19 vaccination in cancer patients: ESMO Statements. Available at: https://www.esmo.org/covid-19-and-cancer/covid-19-vaccination. Accessed January 15, 2020.
6. Bakouny Z, Paciotti M, Schmidt AL, Lipsitz SR, Choueiri TK, Trinh Q. Cancer screening tests and cancer diagnoses during the COVID-19 pandemic. *JAMA Oncol*. 2021. https://doi.org/10.1001/jamaoncol.2020.7600.
7. European Medicines Agency. COVID-19: Latest Updates. Available at: https://www.ema.europa.eu/en/human-regulatory/overview/public-health-threats/coronavirus-disease-covid-19/covid-19-latest-updates. Accessed January 14, 2021.
8. Our World in Data. Coronavirus Pandemic Data Explorer. Available at: https://ourworldindata.org/coronavirus. Accessed January 15, 2021.
9. World Health Organization. WHO SAGE Values Framework for the Allocation and Prioritization of COVID-19 Vaccination. 2020. Available at: https://apps.who.int/iris/bitstream/handle/10665/334299/%20WHO-2019-nCoV-SAGE_Framework-Allocation_and_prioritization-2020.1-eng.pdf?sequence=1&isAllowed=y. Accessed February 8, 2021.
10. European Commission. Preparedness for COVID-19 Vaccination Strategies and Vaccine Deployment. 2020. Available at: https://ec.europa.eu/health/sites/health/files/vaccination/docs/2020_strategies_deployment_en.pdf. Accessed February 8, 2021.
11. European Medicines Agency. Assessment Report: Comirnaty. 2020. Available at: https://www.ema.europa.eu/en/documents/assessment-report/comirnaty-epar-public-assessment-report_en.pdf. Accessed February 8, 2021.
12. European Medicines Agency. CHMP Opinion: COVID-19 Vaccine Moderna. 2021. Available at: https://www.ema.europa.eu/en/documents/smop-initial/chmp-summary-positive-opinion-covid-19-vaccine-moderna_en.pdf. Accessed January 15, 2021.
13. World Health Organization. Interim Recommendations for Use of the Pfizer—BioNTech COVID-19 Vaccine, BNT162b2, under Emergency Use Listing. 2021. Available at: https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE_recommendation-BNT162b2-2021.1. Accessed January 15, 2021.