



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## Letter

# COVID-19 Outbreak and Cancer Radiotherapy Disruption in Lombardy, Northern Italy



*Madam* — Italy has been experiencing one of the world's deadliest COVID-19 outbreaks, and all healthcare facilities, including radiotherapy departments, have faced the unprecedented emergency. In order to investigate how radiotherapy directors in Lombardy (northern Italy) have managed the crisis, an online questionnaire (27 questions) via Google Forms, based on the first published COVID-19 reports, was sent to 34 CODRAL (Board of Directors of Radiation Oncology Departments in Lombardy) directors. Thirty-one (91%) specialists anonymously completed the survey. Within a few days of the outbreak, more than 75% of hospitals became COVID-19 centres. Following institutional indications, more than 80% of directors decided to interrupt or modify radiotherapy for some pathologies, preferring short treatments and home assistance where possible. About a half of centres reduced their clinical activity by 10–50%. Most hospitals (84%) cancelled out-patient follow-up visits and some (68%) activated telematic consultations. Triage procedures were adopted in virtually all centres. Almost a half of centres registered COVID-19-positive or suspected patients, and for some of them treatment was suspended. Nearly all radiotherapy centres declared that they would provide healthcare staff with surgical masks and gloves, while only a few of them also made other personal protective equipment available, including class II and III filtering facepieces (FFP2 and FFP3). Working from home solutions were adopted in about 30% of facilities. More than a half of centres had personnel in quarantine (between one and 12 persons off service). A considerable proportion of hospitals activated psychological support for patients and/or personnel. Our report shows how Lombardy radiotherapy departments have rapidly coped with the COVID-19 disruption. Significant reorganisation has been carried out in a short time with conversion to COVID-19 activities (wards, physicians transfer) and changes in radiotherapy practice. The priority was a balance between cancer patient care and safety, while protecting the healthcare professionals and providing any possible support in COVID-19 activities.

## Conflicts of Interest

The authors declare no conflict of interest.

B.A. Jerezek-Fossa<sup>\*†1</sup>, M.F. Palazzi<sup>‡1</sup>, C.P. Soatti<sup>§</sup>, L.F. Cazzaniga<sup>¶</sup>, G.B. Ivaldi<sup>||</sup>, M. Pepa<sup>\*</sup>, M. Amadori<sup>\*\*</sup>, P. Antognoni<sup>††</sup>, S. Arcangeli<sup>‡‡</sup>, A. Buffoli<sup>§§</sup>, G. Beltramo<sup>¶¶</sup>, S. Berlinghieri<sup>|||</sup>, M. Bignardi<sup>\*\*\*\*</sup>, S. Bracelli<sup>†††</sup>, L. Bruschi<sup>‡‡‡</sup>, S. Castiglioni<sup>§§§</sup>, G. Catalano<sup>¶¶¶</sup>, N. Di Muzio<sup>|||||</sup>, C. Fallai<sup>\*\*\*\*</sup>, L. Fariselli<sup>††††</sup>, A.R. Filippi<sup>†††††</sup>, A. Gramaglia<sup>§§§§</sup>, C. Italia<sup>¶¶¶¶</sup>, F. Lombardi<sup>|||||||||</sup>, S.M. Magrini<sup>|||||||</sup>, S. Nava<sup>\*\*\*\*\*</sup>, E. Orlandi<sup>†††††</sup>, N. Pasinetti<sup>†††††</sup>, E.L. Sbicego<sup>§§§§§</sup>, L. Scandolaro<sup>¶¶¶¶¶</sup>, M. Scorsetti<sup>|||||||||\*\*\*\*\*</sup>, F. Stiglich<sup>†††††</sup>, S. Tonoli<sup>†††††</sup>, R. Tortini<sup>§§§§§</sup>, R. Valdagni<sup>†\*\*\*\*</sup>, V. Vavassori<sup>¶¶¶¶¶</sup>, G. Marvaso<sup>\*†</sup> on behalf of the CODRAL (Board of Directors of Radiation Oncology Departments in Lombardy)

network

<sup>\*</sup> Division of Radiation Oncology, IEO, European Institute of Oncology, IRCCS, Milano, Italy

<sup>†</sup> Department of Oncology and Hemato-Oncology, University of Milan, Milano, Italy

<sup>‡</sup> Radiotherapy Unit, ASST Ospedale Niguarda, Milano, Italy

<sup>§</sup> Radiation Oncology Center, Ospedale Manzoni, Lecco, Italy

<sup>¶</sup> Radiation Oncology Center, Ospedale Papa Giovanni XXIII, Bergamo, Italy

<sup>||</sup> Radiation Oncology Center, Istituti Clinici Scientifici Maugeri, IRCCS, Pavia, Italy

<sup>\*\*</sup> Radiation Oncology Center, Ospedale C. Poma, Mantova, Italy

<sup>††</sup> Radiation Oncology Center, Ospedale di Circolo e Fondazione Macchi, ASST dei Sette Laghi, Varese, Italy

<sup>‡‡</sup> Department of Radiation Oncology, Policlinico S. Gerardo and University of Milan "Bicocca", Milano, Italy

<sup>§§</sup> Radiation Oncology Center, Istituto Clinico S. Anna, Brescia, Italy

<sup>¶¶</sup> Radiation Oncology Center, Centro Diagnostico Italiano (CDI), Milano, Italy

<sup>||||</sup> Unit of Radiotherapy, Ospedale di Esine - ASL Vallecambonica-Sebino, Esine, Italy

<sup>1</sup> Co-first authors.

- \*\*\* Radiation Oncology Center, Fondazione Poliambulanza, Brescia, Italy
- ††† Radiation Oncology Center, Ospedale, Busto Arsizio, Italy
- ‡‡‡ Division of Radiation Oncology, Ospedale di Treviglio, Caravaggio di Treviglio, Italy
- §§§ Radiation Oncology Center, S. Pio X-Humanitas, Milano, Italy
- ¶¶¶ Radiation Oncology Center, IRCCS Ospedale Multimedica, Sesto San Giovanni/Castellanza, Italy
- ||||| Radiation Oncology Center, IRCCS Ospedale S. Raffaele and University Vita Salute, Milano, Italy
- \*\*\*\* Division of Radiotherapy, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
- †††† Radiotherapy Unit, Fondazione IRCCS Istituto Neurologico Carlo Besta, Milano, Italy
- ‡‡‡‡ Radiation Oncology Department, Fondazione IRCCS Policlinico San Matteo and University of Pavia, Pavia, Italy
- §§§§ Radiation Oncology Center, Policlinico, Monza, Italy
- ¶¶¶¶ Radiation Oncology Center, Istituti Ospedalieri Bergamaschi, Ponte S. Pietro-Zingonia, Italy
- ||||||| Radiation Oncology Center, Brescia University Radiation Oncology Department, O. Alberti Radium Institute, Spedali Civili Hospital, Brescia, Italy
- \*\*\*\*\* Radiation Oncology Center, Istituti Clinici di Pavia e Vigevano, Vigevano, Italy
- ††††† Radiation Oncology Center, National Center of Oncological Hadrontherapy, CNAO, Pavia, Italy
- ‡‡‡‡‡ Radiation Oncology Department, Esine and University of Brescia, Esine, Italy
- §§§§§ Radiation Oncology Center, Istituto Clinico Sant'Ambrogio, Milano, Italy
- ¶¶¶¶¶ Radiation Oncology Center, Ospedale Sant'Anna, ASST Lariana, Como, Italy
- ||||||| Radiotherapy and Radiosurgery Department, Humanitas Clinical and Research Hospital - IRCCS, Rozzano, MI, Italy
- \*\*\*\*\* Department of Biomedical Sciences, Humanitas University, Pieve Emanuele, MI, Italy
- †††††† Radiation Oncology Center, Ospedale, Sondrio, Italy
- ‡‡‡‡‡‡ Radiation Oncology Center, Ospedale, Cremona, Italy
- §§§§§§ Ospedale di Casalpusterlengo, Azienda Ospedaliera della Provincia di Lodi, Casalpusterlengo, Italy
- ¶¶¶¶¶¶ Unit of Radiotherapy, Cliniche Gavezzen SPA, Bergamo, Italy
- ||||||| Radiotherapy Unit, IRCCS Policlinico San Donato, San Donato Milanese, Italy