

COCIR Technologies are vital in the fight against COVID-19

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The fight against the further spread of the COVID-19 is confronting the healthcare system with novel challenges. Some of the strengths of medical technologies are their essential role in early detection, rapid and accurate diagnosis of diseases and monitoring of the treatment process. Yet of even greater importance is their contribution to acute therapies. Medical devices for therapy and support of treatments are making an invaluable contribution to the recovery of COVID-19 patients, particularly in such challenging times.

Below are some - non-exhaustive - concrete examples of how our sector is directly contributing to the fight against COVID-19

Medical Imaging

Computer Tomography systems (CT scanners) are used to monitor critically ill patients with acute lung failure and to ensure appropriate therapies (continuous monitoring). In the intensive care treatment of ventilated patients, a wide range of relevant indications for using of CTs should be considered. Low-dose CT is an important additional diagnostic tool to identify patients showing symptoms of COVID-19 but for whom a laboratory test proved negative. The low-dose CT scanner can be used to detect whether a viral pneumonia is present.

Classic x-ray systems - primarily used for imaging the thorax - are also used as a supplement throughout the entire care process for patients. Specifically, mobile devices sharply reduce the risk of infection as there is no need to transport patients. They are also easier to sterilise.

The use of **ultrasound systems** at the bedside may also be indicated, particularly for at-risk patients. These devices should also be available wherever infected citizens and patients are treated.

Electromedical Equipment

The virus can cause both unilateral and bilateral pneumonia. Patients with particularly severe COVID-19 pneumonia are invasively ventilated in the intensive care unit to counteract lung failure. **Ventilators** are the most important measure in the treatment of pneumonia.

However, the increased demand for ventilation systems not only requires a corresponding increase in capacity of CT systems to **monitor critically ill patients** with acute lung failure but also generate an increased need for blood gas systems to monitor those patients ventilated. These systems are used to monitor lung function in respiratory diseases such as those caused by COVID-19. Blood gas systems can also be used to clarify inflammation and incipient sepsis.

ZVEI has compiled a more detailed overview of the value of imaging and electromedical equipment [here](#) (in English).

Digital health technologies

Digital Health is also a sector we cover, and one for which we see many opportunities, although challenges remain. The need for confinement has seen technologies such as telemedicine and teleconsultations growing exponentially, in all EU countries and beyond. However, the necessary tools are not always there to facilitate the use of those.

Digital technologies, including software based on Artificial Intelligence, help in screening and tracking the outbreak of infectious diseases such as COVID-19 within a population. **Decision support software**, including for image analysis or triage, supports the detection and diagnosis of COVID-19, and helps healthcare organisations allocate resources efficiently. Digital infrastructure for Electronic Health and Medical Records allows the rapid sharing of

patient information and can support patient outcome predictions. **Telemedicine** provides a safe option for pre-triage patients and to facilitate remote monitoring of patients. This ensures access to care for citizens under confinement while minimising the risk of spreading the disease among citizens and healthcare professionals.

Radiation Therapy

Patients with cancer are a high-risk group in the COVID-19 pandemic. They are already vulnerable to infection because of their underlying illness and often immunosuppressed status. Hence, they are at increased risk of developing severe complications from the virus. Consequently, surgeries and immunosuppressing systemic therapies are currently being postponed. Radiotherapy, which is a key component of **modern cancer therapy**, is increasingly applied as an effective treatment option.

If clinically possible, radiotherapy can be administered in a shorter course and within fewer sessions. **Remote treatment planning solutions** enable radiotherapy teams to increase the share of staff working from home. This further minimises potential patient exposure to the virus.

Finally, radiotherapy patients regularly undergo CT investigations during the course of treatment. As radiographic changes in lung imaging have been reported 36 hours prior to symptom development,¹ this regular CT investigation can serve as a basic rapid assessment tool in the COVID-19 pandemic and provide further reasons to prioritise lifesaving radiotherapy treatment.

Read more [here](#) on how the radiotherapy community is responding to COVID-19.

¹ Suppli MH, Riisgaard de Blanck S, Elgaard T, Josipovic M, Pøhl M, Early appearance of COVID-19 associated pulmonary infiltrates during daily radiotherapy imaging for lung cancer., *Journal of Thoracic Oncology* (2020), doi: <https://doi.org/10.1016/j.jtho.2020.04.004>.