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### The Impact of COVID-19 on Radiation Oncology Treatments

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Fink, Lauren, "The Impact of COVID-19 on Radiation Oncology Treatments" (2020). *Medical Imaging Senior Posters*. 9.

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## Radiation Oncology

Radiation oncology, also known as Radiation Therapy is the practice of applying ionizing radiation to treat benign and malignant disease. This imaging modality is essential as approximately 50-60% of patients with a cancer diagnosis will be prescribed radiation treatments. Multiple steps must be completed prior to administering radiation to the patient

- Screenings are completed to make a diagnosis
- Blood drawn for laboratory analysis
- Doctors visits are needed to follow up on the screening results and to perform physical examinations
- Other imaging may be completed to fully evaluate the area of interest
- CT simulation will be completed to create an accurate patient setup to ensure the patient can achieve the exact positioning for treatment
- Treatment length varies depending on type of cancer, stage of disease, and tumor location (Small, 2017)

## COVID-19

The World Health Organization (WHO) declared COVID-19 a pandemic when 200,000 patients were confirmed positive and over 8,000 deaths occurred across 160+ countries. The outbreak caused a state of emergency and lockdowns were declared. Travel became restricted and personal protective equipment (PPE) became mandatory for the general public (Spinelli & Pellino, 2020).

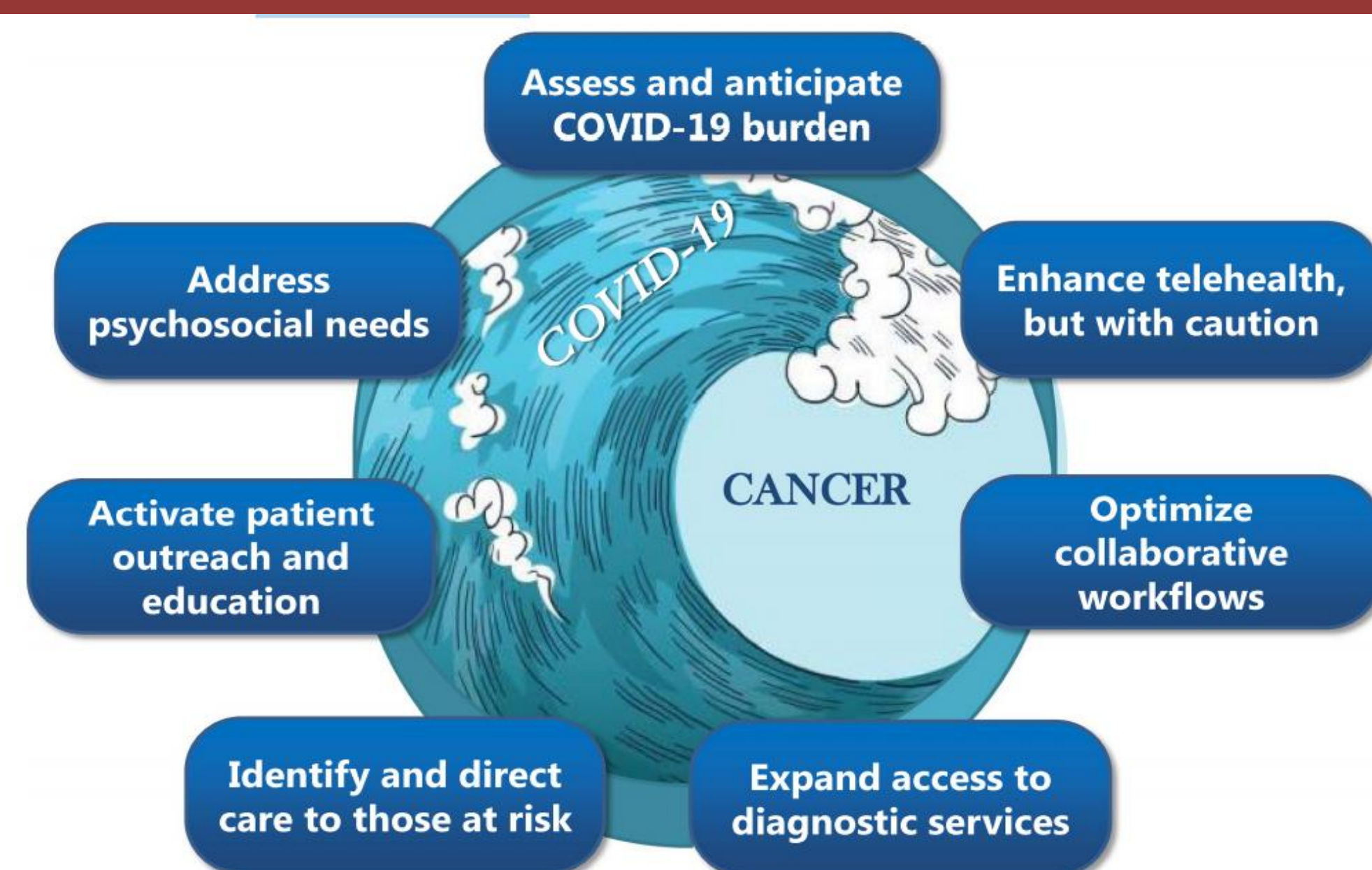


FIGURE 1 Essential components of an iterative, continuous approach to find optimal balance between impact of COVID-19 pandemic while safeguarding timely cancer diagnosis

(Helsper et al., 2020)

## Changes Implemented to Radiation Therapy Department due to COVID-19

- Policy changes were implemented within Radiation Oncology departments to prevent further spread of the virus, and to protect both patients and staff. Patients were educated on how the virus could affect them specifically (Anacak et al., 2020).
- Studies have proven that patients with cancer are at a greater risk of contracting the virus as a result of having a compromised immune system from being diagnosed with cancer (Yang et al., 2020).
- Cancer research projects were put on hold and most patient appointments were completed virtually through telemedicine (Chandra & Thomas, 2020).

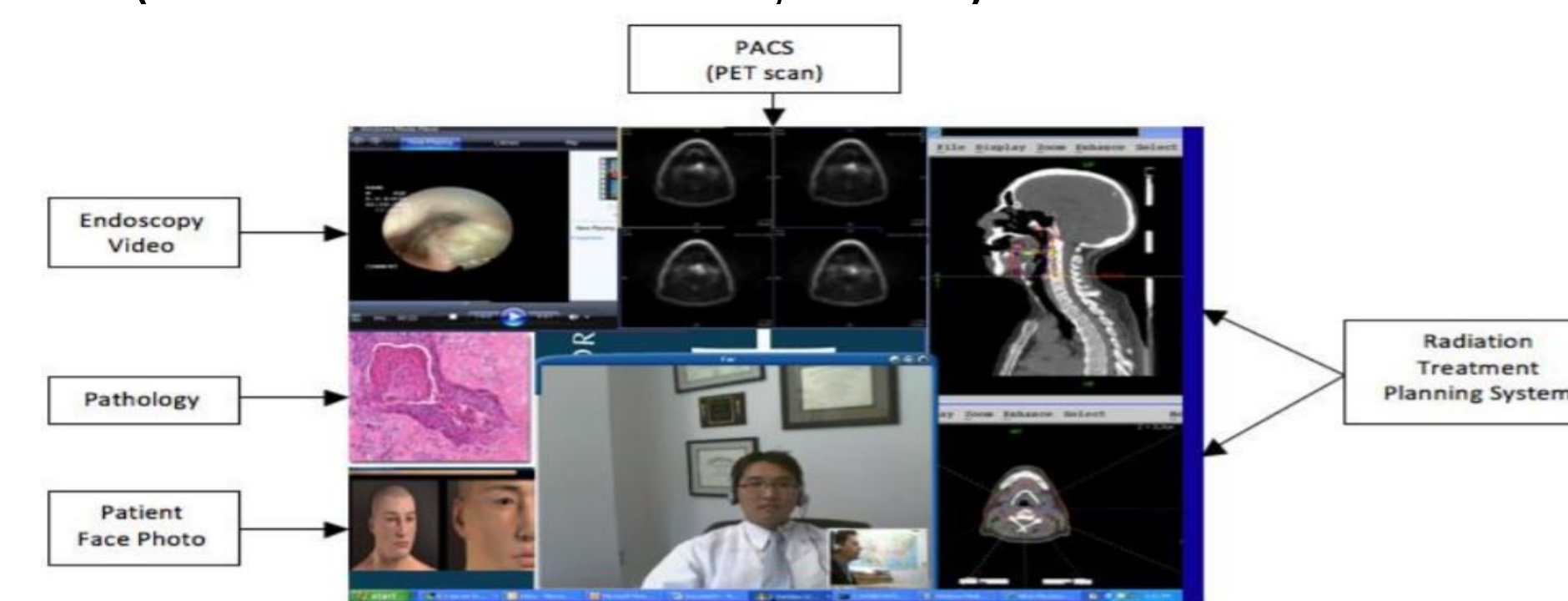


Figure 8. Image of virtual tumor board format for head & neck cancer (Mueller, Obcemea, & Sim, 2009)

## Telemedicine

Although telemedicine is essential in the current pandemic, there are risks associated with the technology.

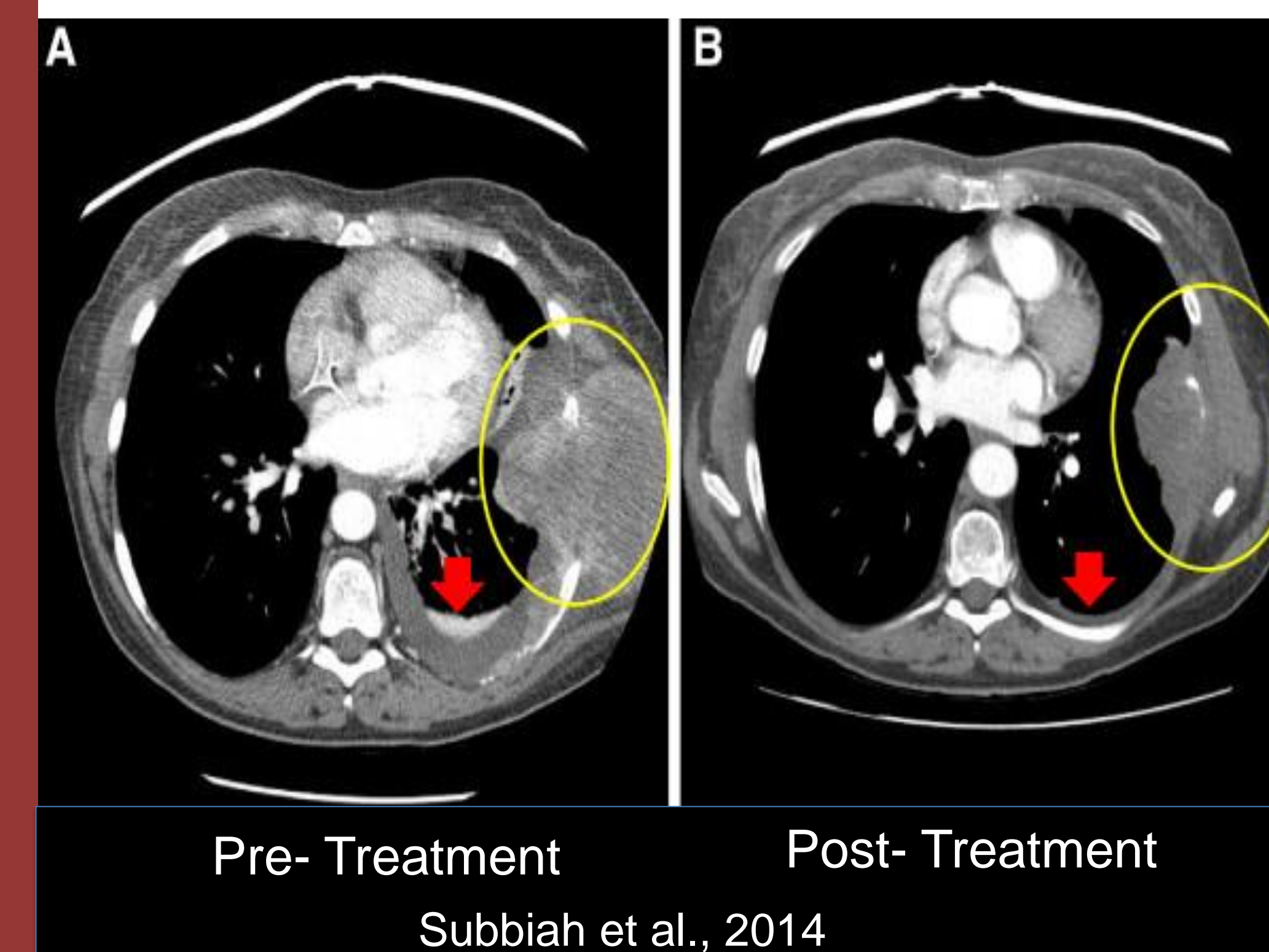
- Physical exams are crucial in cancer diagnosis and this aspect of medicine is not applicable through telemedicine visits.
- There are issues of digital inequality in the ability to access and use telemedicine within all populations.
- It is recommended that facilities do not rely **solely** on telemedicine. In-person office visits and home visits are essential to provide appropriate and accurate care to patients. (Helsper et al., 2020).

Prior to COVID-19, the medical field routinely followed ethical principles advocated by Immanuel Kant, in which the individual patient takes priority in the decision-making process. During the pandemic, ethical principles may be focused more on a utilitarian approach, which emphasizes the common good. (Tepper, 2020).

## Delay in Treatment

During the COVID-19 pandemic, efforts should be focused on promoting timely cancer diagnosis to prevent cases from progressing unnecessarily (Helsper et al., 2020). Nonurgent doctor appointments should be cancelled or rescheduled for a later date to slow the spread of the virus (Spinelli & Pellino, 2020).

Routine cancer screening and early symptom-based cancer detection is essential as it has a direct impact on the treatment outcome, and ability to cure the disease (Weller, 2020). Cancer referrals for primary care have decreased significantly due to primary and secondary care shifting their focus to the pandemic (Weller, 2020).



Because the medical field has shifted into a more utilitarian approach, there may be delays in the initiation of treatments, altering radiation therapy treatment courses, and the sequence of therapies that the patient is to receive may be impacted (Tepper, 2020).

The shutdown from COVID-19 resulted in both *delayed* and *lower quality* care. Patients with complex and advanced cancer diagnoses were unable to travel to appropriate cancer centers for their specific health needs. (Anacak et al., 2020). The longer that patients wait for new treatments, the longer the disease has to progress and decrease the odds of patient survival (Marcum et al., 2020).

## Enhancing the Quality of Care

- During the course of the pandemic, technological advancements and adjustments have been made to enhance the quality and effectiveness of telemedicine.
- It is predicted that after the pandemic subsides, check in and follow up appointments will still be done remotely due to convenience (Chandra & Thomas, 2020).
- The collaboration of ideas and resolutions during this time has enhanced the overall organization and effectiveness of the radiation oncology department (Kang et al., 2020).

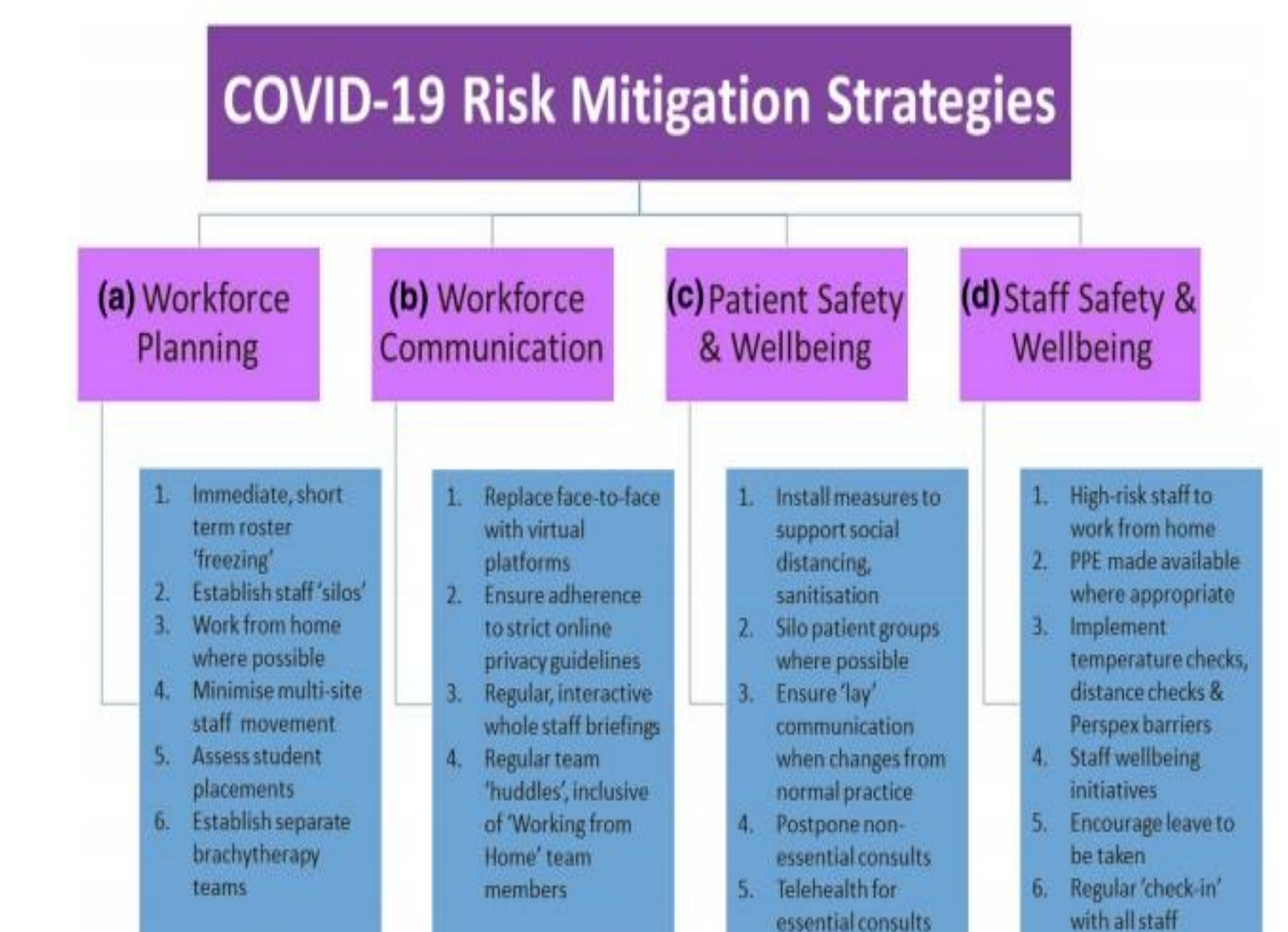


Figure 1. Summary of COVID-19 risk mitigation strategies initiated by the Peter MacCallum Cancer Centre's Radiation Therapy Services.

(Anderson et al., 2020)

## Conclusion

- Policy changes were implemented during the pandemic to protect patients, but by doing so, patients who were not top priority were dismissed.
- The cancellations and postponements of cancer screenings and other appointments caused a delay in timely diagnosis and treatment.
- By delaying treatment, cancer is able to progress and reduce the patients likely hood of fighting the disease.
- Policy alterations that have been made throughout the pandemic will carry over after the pandemic recedes due to the positive affects on patient care and safety (Marcum et al., 2020).
- Although the pandemic has had a negative impact on the Radiation Oncology field, it is a great time to make, and to implement collaborative changes to better protect patients and optimize the quality of care.
- Since cancer patients have a higher risk of contracting COVID-19 and a lower chance of surviving the virus, patients may be fearful of entering the hospital setting to receive treatment due to the risk of being exposed.