

Recommendations for Clinical Oncology Treatment adaptation during COVID 19 Pandemic 2020

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Introduction

In light of the unprecedented situation arising out of the Coronavirus pandemic and the current governmental advisory the following recommendations have been formulated by the Department of Radiation Oncology at Tata Medical Center. These have been adopted from multiple international as well as national guidelines & recommendations released till date and will be reviewed on a regular basis. This is essential as current evidence indicates that patients with cancer have a very high mortality risk when they have COVID 19.

Guidelines regarding Chemotherapy use

Cancer	Type	Recommendations during COVID crisis
Breast Cancer	Adjuvant / Neoadjuvant	1. Change all in dose dense chemotherapy to three weekly chemotherapy. 2. Patients on three weekly chemotherapy will continue as per schedule. 3. All patients will receive prophylactic pegylated GSF.
	Palliative	1. Defer all chemotherapy by 4 weeks or till further notification. 2. Do not start new patients on palliative chemotherapy 3. All patients who are on palliative chemotherapy should receive prophylactic pegylated GSF if they are insistent on continuing therapy
Head Neck Cancer	Neoadjuvant	1. For all non-nasopharyngeal cancers, neoadjuvant chemotherapy should be stopped and patients should be started on radiotherapy - this may be curative intent / palliative intent on a case by case basis. 2. For nasopharyngeal cancers, neoadjuvant chemotherapy should be continued as before.
	Palliative	4. Defer all chemotherapy by 4 weeks or till further notification. 5. Do not start new patients on palliative chemotherapy 6. All patients who are on palliative chemotherapy should receive prophylactic pegylated GSF if they are insistent.
Gynecological Cancers	Definitive	1. Concurrent CTRT is to be continued as per current practice. Be extra careful, with respiratory symptoms and exclude proactively prior to the next cycle.
GU Prostate	Palliative	1. Defer all chemotherapy by 4 weeks or till further notification. 2. Do not start new patients on palliative chemotherapy 3. All patients who are on palliative chemotherapy should receive prophylactic pegylated GSF if they are insistent.
CNS	Definitive	1. Concurrent temozolamide should be continued

		as per scheduled with appropriate prophylaxis. 2. Adjuvant TMZ and PCV to be continued and started as per schedule.
	Palliative	1. Defer salvage chemotherapy for 4 weeks with supportive medical decompression as required.
GI Rectum	Neoadjuvant	1. Do not start new patients on NACRT. As per RT guidelines to be started on SHORT regimen
GI Anal Canal	Definitive	1. To start on Capecitabine and Mitomycin with radiotherapy. Mitomycin to be started on case to case basis.
GI Rectum	Palliative	1. To defer all existing as well as new palliative chemotherapy by 4 weeks.
GI Pancreas e	Definitive	1. Do not start patients
Lung	Definitive	1. If CT RT is started, then paclitaxel and carboplatin is the preferred regimen.
	Palliative	1. Defer new palliative chemotherapy if possible. 2. For patients with urgent indications for chemotherapy case by case decisions on the appropriate regimen and drugs should be taken with emphasis on choosing less hematotoxic regimens. 3. Defer chemotherapy by 4 weeks for patients ongoing palliative chemotherapy

Guidelines regarding Radiotherapy

Cancer	Type	Priority Group	Recommendations during COVID crisis
Breast Cancer	Adjuvant	5	1. First recommendation: Defer radiation by 4 weeks for patients with early luminal type A breast cancers who are node negative. 2. Option in case a patient does not wish to defer after counselling: Switch to 5 fraction (26 Gy / 5 fraction/ 1 week) regimen which has been found to be equitoxic.
Head Neck Cancer	Definitive	1	1. Concurrent / Definitive radiation will start on schedule. 2. Concurrent chemotherapy will continue as per schedule.
Gynecological Cancers	Definitive	1	1. Concurrent / Definitive for cervical / vaginal / vulvar cancers radiation will start on schedule for cervical cancers 2. Concurrent chemotherapy will continue as per schedule.
	Adjuvant	5	1. Adjuvant radiotherapy for cervical / vaginal / vulvar cancer cases who have undergone complete oncological surgery can be deferred by 4 weeks. 2. Adjuvant radiotherapy for endometrial cancer (EBRT / CVS) should be deferred by 4 weeks
GU Prostate	Definitive / Adjuvant	5	1. Radiotherapy for prostate cancers should be deferred by 4 weeks. Antiandrogen therapy should be continued in the meanwhile. Patients can take anti-androgen at home. 2. If patient is absolutely insistent on starting RT then please ensure that patients are started on 5 fraction (SHORT regimen)
Sarcoma	Adjuvant	5	1. Defer radiotherapy will be deferred by 4 weeks.
CNS	Definitive	1	1. Glioblastoma, Ependymomas, recurrent & high grade meningiomas & Medulloblastomas will be continued with the same regimen and started as per schedule. 2. Hypofractionation to be adopted based on patient's age and PS as currently followed.

	Definitive	5	1. Low grade gliomas & meningiomas can be deferred by 3 months / case based. decision
Hematological	Definitive	5	1. Low grade NHL : Defer by 3 months
		1	1. High grade NHL and HD to be started as per schedule.
Pediatrics	Definitive / Adjuvant	1	1. High grade NHL and HD to be started as per schedule
Benign disease	NA	5	1. Defer all ongoing treatments 2. No new patients to be started.
GI Rectum	Neoadjuvant	3	1. Preferably start patients on short course RT. 2. Planned for NACRT to start on short course RT.
GI Anal Can/ Esophagus	Definitive	1	1. Will continue RT and start RT as per schedule. 2. SCOPE protocol: No neoadjuvant chemotherapy is to be given for new cases. 3. For existing SCOPE patients continue chemotherapy as per plan. 4. Prefer hypofractionated RT (esophagus) for new starts.
GI Pancreas	Definitive	3	1. Defer RT for 4 weeks.
Lung	Definitive	1	1. On CTRT patient the treatment should continue 2. For new patients, encourage hypofractionation without chemotherapy (55 Gy / 20 #). 3. CT RT should be done for very selected patients. 4. Complex procedures like SRS/SBRT should be deferred.

Palliative Radiotherapy

1. Defer all palliative radiotherapy for the next 4 weeks for most indications
2. Patients with cord compression and other urgent indications for palliative RT can be given on a single fraction RT.
3. For SVCO if stenting cannot be done then radiotherapy is preferred over palliative chemotherapy (20 Gy / 5 #)
4. More than 5# regimens should be avoided for all palliative indications as far as possible.

References:

1. Liang, Wenhua, Weijie Guan, Ruchong Chen, Wei Wang, Jianfu Li, Ke Xu, Caichen Li, et al. 2020. "Cancer Patients in SARS-CoV-2 Infection: A Nationwide Analysis in China." *The Lancet Oncology* 21 (3): 335–37.
2. National Health Services. 2020. "Clinical Guide for the Management of Cancer Patients during the Coronavirus Pandemic," March.
https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/Specialty-guide_Cancer-and-coronavirus_17-March.pdf.

Justification for the contingency recommendations for treatment adaptation as well as the planned staff self-quarantine policy in the Department of Radiation Oncology

1. The ongoing SARS COV-2 pandemic is entering phase III (community transmission) in India. Given the limited testing in India, the total number of cases for the disease in India is likely to be a significant underestimate of the true burden of the disease. /
2. Data from the only study of cancer patients with COVID-19 disease recently published in NEJM suggests that they have a higher risk of severe events (a composite endpoint defined as the percentage of patients being admitted to the intensive care unit requiring invasive ventilation, or death) compared with patients without cancer (1). In this study, patients who received chemotherapy had an odds ratio of 5.34 for developing severe complications as compared to patients who were not on therapy. Patients with cancer also deteriorated faster and elderly cancer patients had a very poor prognosis. Data from other centres is still awaited but given the nature of the infection, expert opinion is that cancer patients with SARS COV-2 infection have a higher risk of morbidity and mortality.
3. Several agencies have released consensus guidelines on the management of cancer patients during the pandemic. These are all attached/linked for your reference and are aligned with each other. All of them recommend deferring anti-cancer treatments with no or limited impact on survival, or those where the timing of radiation/chemo are not known to change outcomes.
 - a. ASCO guidance for systemic treatment(2)

- b. ESTRO guidance on radiotherapy(3)
 - c. ASTRO for radiotherapy (4)
 - d. NHS (UK) (5) on both. (6).
4. We have been in informal discussions with many of our clinical oncology colleagues in various reputed institutes in India. Some of these institutes have developed their own plans./
- a. RCC Trivandrum: Have deferred all chemotherapy, radiotherapy and surgery scheduled between 23/03/20 - 28/03/20 by a week. (Figure 1)
 - b. Cancer Institute Adyar: Have suspended treatments including surgery, radiotherapy and chemotherapy. (Figure 2)
 - c. Tata Memorial Centre, Mumbai - (based on NCG meeting broadcast)
[zoom_1.mp4](#)-
 - i. Deferred surgeries for elderly individuals with comorbidities who are considered high risk
 - ii. Deferred radiotherapy for certain anatomical sites, and reduced/modified use of concurrent chemotherapy
 - iii. Following ASCO guidance on systemic therapy
5. We have prepared a communication plan for the patients where all levels of staff will be counselling patients to ensure that distress is minimized. Treatment decisions based on the recommendations will be made on a case to case basis, and, the patient's choice, as always, shall be paramount. All such recommendations and discussions will be captured and documented in the HMS.
6. We are aware that the current situation does not allow us to make projections beyond the next few weeks but we believe if we do our bit in limiting the spread of COVID 19 by avoiding treatment that is not emergency then the impact of this infection on the health care service delivery in the state as well as the nation will be significantly reduced.
7. The NHS guidelines categorize patients (for surgery, systemic treatment and radiotherapy) into priority levels. We have summarized below the levels for systemic treatment and radiotherapy. Adjuvant and palliative treatments occupy lesser levels of priority.

Priority Level	Radiotherapy	Chemotherapy
1	Category 1 tumours being treated or planned for treatment with CTRT / RT (with/without brachytherapy) where the scope for compensation of gaps is limited.	Curative therapy with a high (>50%) chance of success
2	Urgent palliative radiotherapy e.g. Spinal cord compression	Curative therapy with an intermediate (15- 50%) chance of success.
3	Radical radiotherapy for Category 2 tumours where radiotherapy is the first definitive treatment OR Postoperative radiotherapy where there is known residual disease following surgery	Non-curative therapy with a high (>50%) chance of >1 year of life extension.
4	Palliative radiotherapy where the use of RT will reduce the burden on other services e.g SVCO / hemoptysis	Curative therapy with a low chance of success or non-curative therapy with an intermediate chance of > 1-year life extension
5	Adjuvant radiotherapy where there has been complete resection of disease and there is a <20% risk of recurrence at 10 years OR Radical radiotherapy for prostate cancer patients on ADT	Non-curative therapy with >50% change of palliation but < 1-year life extension

6	NA	Non-curative therapy with an intermediate change of palliation
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Note that category 1 tumours for radiotherapy are cancers of:

Head & Neck Cancers	Lymphomas (high grade/Hodgkin's)	Medulloblastomas
High-grade gliomas	Cervical/vulvar/vaginal cancers	Cancers of oesophagus
Non-small cell cancer lung	Small cell cancer lung	Squamous cell cancer of the skin

In our recommendation document, all of these malignancies will continue to receive radiotherapy as per their existing schedule. We are recommending that patients with category 2 tumours fitting priority level 5 defer radiotherapy as it has been deemed to be safe from an oncological standpoint. These principles are routinely used when we have to rationalize machine usage in the event of a breakdown in our department as well as nationally and internationally (7). Category 2 tumours include tumours of breast cancer, transitional cell cancer and carcinoma of the prostate. Of these category 2 patients, the major bulk of our patient load will be in the form of breast cancer patients. For these patients, we know that delays in adjuvant radiotherapy do not seem to affect overall survival(8). For prostate cancer patients who are on ADT, a delay in starting radiotherapy by 3 - 6 months after initiation of ADT is also routine.

Furthermore, for these patients, there is an option in the form of shorter one-week hypofractionated treatments that we can offer to concerned patients as an alternative. For the vast majority of our patients who are undergoing definitive treatment with radiotherapy, there will be no change in schedule/interruptions in treatment during therapy. All ongoing patients will continue to be on their scheduled treatment.

Staff Quarantine

Sir as you are well aware, radiotherapy is a treatment where a process chain has to be followed. During this process chain, the patient moves through multiple rooms and comes into contact with multiple levels of personnel who have to work in teams to ensure that care is delivered safely. For example during the treatment of patients on the 4 machines at least 2 radiographers have to be present at all times both of whom come in contact with the patient. Our physicists are actively involved in planning and simulation of the patients as well as quality assurance. Given the nature of transmission of the SARS COV-2 virus, plastic and metal surfaces ubiquitous in radiotherapy use are a source of infection to all personnel. An additional constraint in radiotherapy is that only a certain group of qualified and trained staff can do a certain activity as per the regulatory norms. For example, radiotherapy machines have to be manned by 2 radiographers during treatment delivery as per AERB norms.

In order to ensure that all our category 1 patients continue on their scheduled treatment without interruptions during the course of the pandemic, we need to ensure that a certain level of staffing is available at all times. We are also aware that more drastic measures like limiting radiotherapy machines for certain categories of patients may be required especially if they have concurrent COVID 19 infection. In this respect, the safest policy is to ensure a certain proportion of staff is quarantined for a period of 1 - 2 weeks such that in case a team of persons is exposed to a COVID 19 case, the quarantined team can ensure that service is delivered in an uninterrupted fashion.

This policy has been suggested again by multiple national and international organizations (for example the Australian consensus guideline⁽⁹⁾ The TMCH policy (NCG web meeting) and the Tamil Nadu government guidelines (Figure 3)) which suggest that during the phase of community transmission of COVID 19 staffing arrangements and leave need to be reorganized in such a manner that only minimum staff are available for the provision of

services. This reserve force of staff will be absolutely essential in the next few weeks as community transmission of COVID 19 increases in West Bengal and India.

Department of Radiation Oncology Tata Medical Center: Staff Contingency and pathway during COVID epidemic 2020

All staff are on duty even when they are not on-premises. Staff who have been asked to stay at home will be available during this time for any emergency service. All staff will avoid meeting with each other during this period and should ensure that geographic isolation is maintained (in the two phases).

In order to ensure that a group of staff is available for continuation of services during the entire period, we have divided the health care workers in our department into teams. The rota is dynamic and will be adapted as per need of service. The following number of staff should be available during this period in rotation in the hospital during duty hours.

Category	Number of Staff Available
Consultants	3
Fellows	6
Physicists	4-5
Radiographers	12-16
Coordinators	1-2

Staff Group Policies:

Consultants- Consultants must provide cover across disease sites however the team divided has been structured such that appropriate site-specific cover is available. Consultants will decide on the plan for treatment with radiation or chemotherapy based on the consensus document developed to combat the COVID 19 pandemic. Appropriate cover in the clinic will be made available with 1-2 consultants and a 3rd consultant will be present and cover for inpatient rounds.

Consultants will also provide leadership on clinic appointment structuring, staff rota arrangements, highlight social distancing, reiterate appropriate hand hygiene is maintained and boost staff morale.

Any suspected COVID 19 patient will need to be intimated to a consultant prior to sending the information to the COVID core team. Appropriate use of PPE must be ensured prior to reviewing such a patient.

In the unfortunate event of a consultant being suspected to have symptoms suggestive of COVID infection, immediate reporting to other consultants must be done, who in turn will in writing report to the TMC COVID team. Appropriate medical supervision must be arranged and if necessary the reserve team support should be made available. TMC policies on isolation etc. must be followed

Fellows- Departmental fellows have been updated on COVID strategies and are at the forefront of providing clinical and telephonic support. Contingency planning is in place.

Any suspected COVID 19 patient will need to be intimated to a consultant prior to sending the information to the COVID core team. Appropriate use of PPE must be ensured prior to reviewing such a patient. Social distancing must be practised between staff and also with patients and families. Clinical care must not be compromised. In case a patient needs senior inputs, the consultant under whom the patient has registered could be contacted over the phone irrespective of the presence of the consultant on site. Fellows must ensure the safety of patients as much as their own personal safety during clinical care.

In the unfortunate event of a fellow being suspected to have symptoms suggestive of COVID infection, immediate reporting to consultants must be done, who in turn will in writing report to the TMC COVID team. Appropriate medical supervision must be arranged. TMC policies on isolation etc. must be followed.

Physicists- Although the Physics team is less likely to come in direct contact with patients on a day to day basis, clinical contact is possible during initial set up, planning CT scan, brachytherapy procedures/optimisation/transfer etc. Hence contingency team planning for physics has been recommended.

The team will work in close sync with the scheduling team such that any patient who will need rescheduling could be appropriately scheduled. Appropriate social distancing must be maintained in Physics room and planning areas. Physics team needs to ensure all safety measures as taken during usual treatment days including social distancing of staff, appropriate use of PPE by physics staff and radiographers.

In the unfortunate event of a physicist being suspected to have made contact or symptoms suggestive of COVID infection (cough, breathlessness and fever as defines by our COVID team), immediate reporting to consultants must be done, who in turn will in writing report to the TMC COVID team. Appropriate medical supervision must be arranged. TMC policies on isolation etc. must be followed.

Radiographer- Radiographers are the frontline workers and will need to deal with patients and their relatives on a day to day basis. They have all been inducted in safety hygiene processes. A team leader amongst the group could be identified who ensures that the hand hygiene, use of PPE, cleaning the couch of scanner and linacs post patient treatment is of utmost importance. Details of the use of PPE and cleaning material will be as per TMC administration recommendations. Please note, any suspected COVID 19 case must be intimated to the physicists, consultants and thereafter the TMC COVID team.

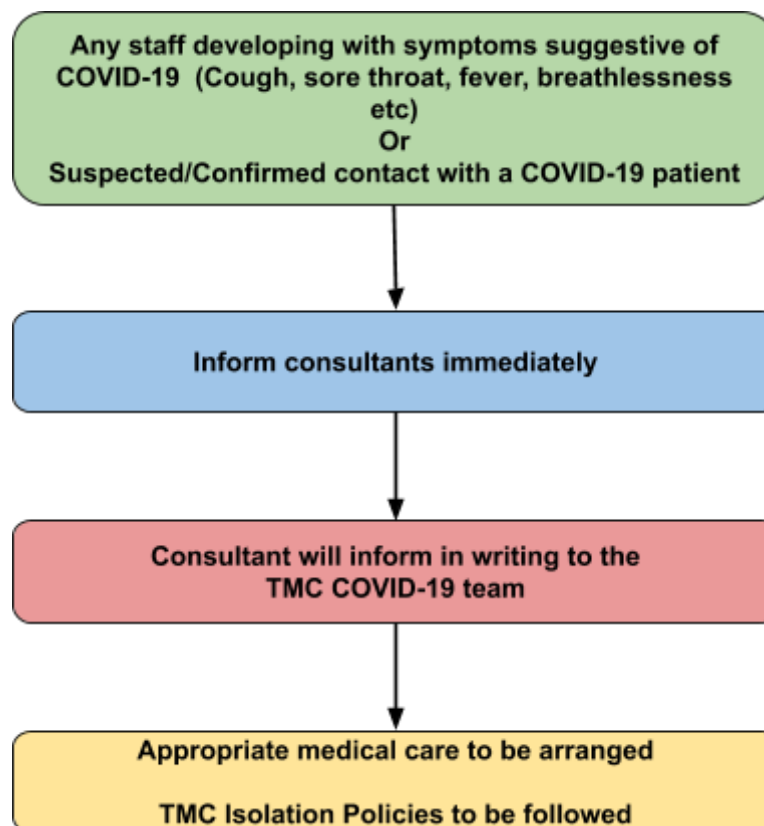
The team will work in close sync with the physics and scheduling team such that any patient who will need rescheduling could be appropriately scheduled. Appropriate social distancing must be maintained in Physics room and planning areas. Physics team needs to ensure all safety measures as taken during usual treatment days including social distancing of staff, appropriate use of PPE by physics staff and radiographers.

In the unfortunate event of a radiographer being suspected to have made contact with a

COVID case or symptoms suggestive of COVID infection, immediate reporting to consultants must be done, who in turn will in writing report to the TMC COVID team. Appropriate medical supervision must be arranged. TMC policies on isolation etc. must be followed.

Coordinators- Scheduling coordinators will need to book and adjust the patients for treatment as was agreed in the departmental protocol. An adjusted schedule needs to be reviewed by a senior registrar or a consultant. Appropriate PPE and social distancing, as well as hand hygiene, needs to be followed.

In the unfortunate event of a staff being suspected to have made contact with a COVID case or symptoms suggestive of COVID infection, immediate reporting to consultants must be done, who in turn will in writing report to the TMC COVID team. Appropriate medical supervision must be arranged. TMC policies on isolation etc. must be followed.



Good practices during planned staff quarantine

While on planned staff quarantine, staff must ensure that they

- practice isolation and social distancing,
- avoid contact with family/friends who have a history of travel to areas of high COVID infections
- Avoid travel
- Report symptoms suggestive of COVID in self, or among family members
- Be available by phone email to report to duty at short notice