

Framework for cancer management mapped to pandemic phases across the continuum of care

Phase	Prevention and early detection	Presentation, initial investigations and referral	Diagnosis, staging and treatment planning	Treatment			Care after initial treatment and recovery	Managing recurrent, residual or metastatic disease	End-of-life care	
				Surgery	Radiation oncology	Systemic treatments				
Acute Phase I: Semi-urgent setting: There are few COVID-19 patients, not rapidly escalating; hospital supplies and human resources are not exhausted; institutions still have ICU and ventilator capacity ¹⁰	Continue population-based cancer screening for breast, cervical and bowel cancer	Encourage community members to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results suspicious for cancer	Delay surgery for patients not predicted to have a negative outcome if surgery is delayed for three months ^{1,4}	Reduce radiation therapy fractions (hypofractionation) where appropriate ^{5,8}	Minimise face-to-face visits including monitoring, treatment administration and staging, with shift to telehealth and community-based care where available ⁹	Delay face-to-face follow-up appointments (as well as any hospital imaging and/or blood tests) for patients where feasible ¹	Consider delaying commencement of IV treatment for patients with refractory/resistant disease or palliative regimens with a low likelihood of response/benefit ¹	Maximise communication with telehealth, including videoconferencing where possible ¹	
	Continue human papillomavirus (HPV) vaccination through the National Immunisation Program	Utilise telehealth, including videoconferencing where possible, to assess patients with symptoms suspicious for cancer			Prioritise patients who have commenced a course of radiation therapy, and support these patients in completing their treatments ²	Defer nonessential investigations and routine follow-up ³	Maximise the number of reviews done by telehealth, including videoconferencing where possible ²	Minimise commencement of palliative regimens with high risk of complications requiring admission ¹	Consider early referral and communication with community palliative care services ¹	
	Consider social distancing in planning screening appointments	Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team			Postpone brachytherapy treatments where possible ⁶	Use oral anticancer agents where possible, but weigh any different toxicities with convenience ⁷	Consider arranging for blood tests and scans to be done locally rather than at hospital facilities, especially for patients being reviewed by telehealth ¹	Consider treatment breaks for patients with low-volume and/or stable metastatic disease ²	Empower patients and carers to manage symptoms at home, e.g., provide access to subcutaneous treatments	
	Follow up abnormal screening results identified in patients already screened, prioritising those highly suspicious for cancer ³					Add G-CSF to chemotherapy regimens with a significant risk of febrile neutropenia. ¹ Consider use of G-CSF as primary prophylaxis to protect patients and reduce admission rates ^{4,9}	Consider innovative models of care, e.g., shared follow-up care with GP	Use short-course radiation therapy schedules for symptom control ¹	Enhance provision of supportive and palliative care through innovative models of care	
Acute Phase II: Urgent setting: There are rapidly escalating numbers of COVID-19 patients, approaching limits of health system capacity; hospital supplies and human resources are limited; ICU and ventilator capacity is increasingly limited ⁵	Defer routine population-based cancer screening for breast, cervical and bowel cancer ¹	Encourage community members to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results suspicious for cancer	Prioritise surgery for patients for whom surgery within 4 weeks is expected to save life or prevent progression of disease beyond operability ^{2,4,4}	Consider delay in commencement of treatment where survival or morbidity is not compromised	Transition patients from intravenous (IV) treatments to subcutaneous or oral chemotherapeutic medications if there are acceptable alternatives ^{4,5}	Delay face-to-face follow-up appointments (as well as any hospital imaging and/or blood tests) for patients where feasible ¹	Minimise commencement of IV treatment for patients with refractory/resistant disease or palliative regimens with a low likelihood of response/benefit ¹	Maximise communication with telehealth, including videoconferencing where possible ¹	
	Follow up abnormal screening results identified in patients already screened, prioritising those highly suspicious for cancer ³	Utilise telehealth, including videoconferencing where possible, to assess patients with symptoms suspicious for cancer			Where possible, use hypofractionation for adjuvant and radical treatments to reduce the number of treatment slots required ⁶	Consider ways of reducing exposure for patients as a consequence of treatment. Consider ceasing treatment for patients where the goals of treatment are limited; defer IV/intraperitoneal (IP) treatments for patients with refractory/resistant disease ¹	Maximise the number of reviews done by telehealth, including videoconferencing where possible ²	Consider deferring palliative radiation therapy treatments, (except where these are for life-threatening conditions such as haemorrhage, superior vena cava obstruction) ⁸	Consider early referral and communication with community palliative care services ¹	
		Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team			Consider postponing/omitting supportive care treatments that are not time critical, e.g., zoledronic acid for bone metastases, or switching to oral options to avoid hospital visits. ^{1,9}	Treat all emergency and urgent patients where alternative management to radiotherapy is not possible; patients with rapidly progressing, potentially curable tumours; patients already on treatment ⁶	Consider postponing/omitting supportive care treatments that are not time critical, e.g., zoledronic acid for bone metastases, or switching to oral options to avoid hospital visits. ^{1,9}	Consider arranging for blood tests and scans to be done locally rather than at hospital facilities, especially for patients being reviewed by telehealth ¹	Consider deferring commencement of palliative treatments with high risk of complications requiring admission ¹	Empower patients and carers to manage symptoms at home, e.g., provide access to subcutaneous treatments
						Delay concurrent chemoradiation or adjuvant chemotherapy unless proven survival benefit for the addition of chemotherapy ¹	Consider innovative models of care, e.g., shared follow-up care with GP	Consider ceasing IV treatments for patients already on treatment depending on risk of COVID-19 exposure ¹	Enhance provision of supportive and palliative care through innovative models of care, e.g., virtual hospitals delivering care in the home	
Acute Phase III: Emergency setting: Health system capacity has been exceeded; hospital supplies and human resources are diverted to COVID-19 patients with no spare capacity; there is no spare ventilator or ICU capacity ¹⁰	Defer routine population-based cancer screening for breast, cervical and bowel cancer ¹	Encourage community members to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results highly suspicious for cancer	Prioritise urgent/emergency surgery for life-threatening conditions such as obstruction, bleeding and regional and/or localised infection, and permanent injury/clinical harm from progression of conditions such as spinal cord compression ¹	Delay commencement of treatment	Delay starting adjuvant treatment ¹	Delay face-to-face follow-up appointments (as well as any hospital imaging and/or blood tests) for patients where feasible ¹	Minimise commencement of IV treatment for patients with refractory/resistant disease or palliative regimens with a low likelihood of response/benefit ¹	Consider ceasing palliative treatments that have minimal chance of substantial benefit ¹	
	Follow up abnormal screening results identified in patients that are highly suspicious for cancer ³	Utilise telehealth, including videoconferencing where possible, to assess patients with symptoms suspicious for cancer			Treat all emergency and urgent patients where alternative management to radiotherapy is not possible; patients with rapidly progressing, potentially curable tumours; and patients already on treatment ⁶	Consider omitting or delaying adjuvant IV treatment if improvement in overall survival small ¹		Consider ceasing IV treatments for patients already on treatment depending on risk of COVID-19 exposure ¹	Prioritise management of patients with urgent symptomatic need ^{1,3}	
		Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team				Consider omitting concurrent chemoradiation if improvement in overall survival small ¹	Consider ceasing early or omitting cycles of immunotherapy in patients with good response to immunotherapy ¹		Enhance provision of supportive and palliative care through innovative models of care, e.g., virtual hospitals delivering care in the home	
						Consider deferring commencement of regimens associated with high risk of needing admission. Consider starting with a less toxic regimen, reducing use of combination immunotherapy agents that, although can have survival advantages, have a much higher risk of toxicity (including pneumonitis) requiring hospital admission ¹				
Early Phase Recovery: Curve A: Past the peak of COVID-19, with fewer new cases recorded each day. Hospital supplies and human resources are starting to become available, including hospital and ICU beds, ventilators, blood, healthy staff, personal protective equipment (PPE), and critical testing. A limited COVID-19-free environment is in place, with adequate coronavirus testing and PPE	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care									
	Consider social distancing in planning screening appointments and delivering screening interventions	Encourage community to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results suspicious for cancer	Gradual reintroduction of elective surgery, up to limit of capacity/resources, according to jurisdictional guidelines	Continue hypofractionation where appropriate; gradual reintroduction of more appropriate/cost-effective fractionation	Reintroduce adjuvant treatment as appropriate	Prioritise follow-up appointments (as well as any hospital imaging and/or blood tests) for high-risk patients	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	Gradual reintroduction of face-to-face care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	
	Prioritise delayed or high-risk patients	Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team		Review of risk to vulnerable patients and consideration of alternatives to interventions in a potential COVID-19 environment						
Early Phase Recovery: Curve B: Well past the peak of new COVID-19 cases by at least 14 days. Hospital supplies and human resources are more readily available to near-normal levels, including hospital and ICU beds, ventilators, blood, healthy staff, PPE, and readily available testing to track cases and monitor as needed individuals entering the hospital environment. A substantial and high-functioning COVID-19-free environment is in place	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care									
	Consider social distancing in planning screening appointments and delivering screening interventions	Encourage community to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results suspicious for cancer	Gradual reintroduction of elective surgery, up to limit of capacity/resources, according to jurisdictional guidelines	Continue hypofractionation where appropriate; gradual reintroduction of more appropriate/cost-effective fractionation	Reintroduce adjuvant treatment as appropriate	Prioritise follow-up appointments (as well as any hospital imaging and/or blood tests) for high-risk patients and patients whose appointments were delayed during acute phases	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	Gradual reintroduction of face-to-face care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	
	Prioritise delayed or high-risk patients	Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team		Review of risk to vulnerable patients and consideration of alternatives to interventions in a potential COVID-19 environment						
Late Phase Recovery: Curve A: Well past the peak of new COVID-19 cases by at least 14 days. Hospital supplies and human resources are more readily available to near-normal levels, including hospital and ICU beds, ventilators, blood, healthy staff, PPE, and readily available testing to track cases and monitor as needed individuals entering the hospital environment. A substantial and high-functioning COVID-19-free environment is in place	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care									
	Prioritise delayed or high-risk patients	Encourage community to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results suspicious for cancer	Gradual reintroduction of elective surgery, up to limit of capacity/resources, according to jurisdictional guidelines	Continue hypofractionation where appropriate; gradual reintroduction of more appropriate/cost-effective fractionation	Reintroduce adjuvant treatment as appropriate	Prioritise follow-up appointments (as well as any hospital imaging and/or blood tests) for high-risk patients and patients whose appointments were delayed during acute phases	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	Gradual reintroduction of face-to-face care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	
	Consider mitigation strategies to address backlog of delayed screens, including optimising use of resources to prioritise high-risk patients, and maximise participation in screening	Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team		Review of risk to vulnerable patients and consideration of alternatives to interventions in a potential COVID-19 environment						
Late Phase Recovery: Curve B: Well past the low peak of new COVID-19 cases by at least 14 days. Hospital supplies and human resources are available at normal levels, including hospital beds, and healthy staff. PPE is required only for suspected or confirmed cases or in high-risk settings, and readily available coronavirus testing to track cases and monitor as needed individuals entering the hospital environment. A substantial and high-functioning COVID-19-free environment is in place ¹⁰	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care									
	Prioritise delayed or high-risk patients	Encourage community to continue to present to GP with red flag symptoms of cancer	Prioritise diagnostic procedures for patients with symptoms and test results suspicious for cancer	Gradual reintroduction of elective surgery, up to limit of capacity/resources, according to jurisdictional guidelines	Continue hypofractionation where appropriate; gradual reintroduction of more appropriate/cost-effective fractionation	Reintroduce adjuvant treatment as appropriate	Prioritise follow-up appointments (as well as any hospital imaging and/or blood tests) for high-risk patients and patients whose appointments were delayed during acute phases	Gradual reintroduction of standard of care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	Gradual reintroduction of face-to-face care according to perceived risk: prioritising high-risk patients, depending on the environmental circumstances and each individual patient's risk of exposure to COVID-19 due to the resumption of care	
	Consider mitigation strategies to address backlog of delayed screens, including optimising use of resources to prioritise high-risk patients, and maximise participation in screening	Appropriately investigate and refer patients with symptoms suspicious for cancer to a specialist linked to a multidisciplinary team		Review of risk to vulnerable patients and consideration of alternatives to interventions in a potential COVID-19 environment						

¹ The Australian Cancer Centre, Medical Oncology Clinical Response Plan: From Max-Cancer to Cancer Centre, Melbourne, VIC, 2020.

² Government of South Australia, Systemic cancer treatment during COVID-19: Guidance for South Australia cancer service providers, Government of South Australia, Adelaide, SA, 2020.

³ Cancer Care Ontario, Patient planning and advice for patients with cancer, Ottawa, Ontario, Canada, 2020.

⁴ National Health Service, Clinical guidelines for the management of cancer patients during the coronavirus pandemic, 17 March 2020 (version 1.1), NHS, United Kingdom, 2020.

⁵ Joint and International Society of Chemotherapy treatment guidelines for the COVID-19 pandemic, IJC, 2020.

⁶ British Association of Surgical Oncology, BAOS Guidance: Strategy for Cancer Safety, Sustainability and Recovery in the COVID-19 Pandemic, BAOS, London, United Kingdom, 2020.

⁷ American Society of Clinical Oncology, ASCO COVID-19 Clinical Practice Guidelines: Integrated response for oncology practitioners, OncoLink, 2020.

⁸ American Society of Radiation Oncology, ASRO COVID-19 Clinical Practice Guidelines: Radiation oncology, OncoLink, 2020.

⁹ National Cancer Institute, NCI COVID-19 Clinical Practice Guidelines: Systemic therapy, NCI, 2020.

¹⁰ National Cancer Institute, NCI COVID-19 Clinical Practice Guidelines: Radiation oncology, NCI, 2020.