

COVID-19

Provincial Guidance on Diagnostic Imaging and Interventional Procedures (DI)

Beginning March 25, 2020 only essential diagnostic imaging and interventional procedures should be ordered for both inpatient and outpatient populations.

DI provides a complex multimodality set of diagnostic and interventional services which span all referral specialties. It is with this in mind that the following graduated contingency plan to minimize risk to patients, staff and our community is presented.

Effective immediately, it is recommended that non-urgent (appointments that can safely wait for eight (8) weeks) be postponed

Background

A Radiology Task Force, including physician stakeholders from all major modalities and services, met on March 19, 2020 to discuss how best to triage and prioritize patients during the COVID-19 pandemic. The meeting was followed by further consultation amongst Diagnostic Imagers in the Province. The Task Force members were:

Dr. Marco Essig	Provincial Lead Diagnostic Imaging
Dr. Martin Bunge	Section Head Pediatric Radiology
Dr. Bohdan Bybel	Head Section of Nuclear Medicine
Dr. Iain Kirkpatrick	Section Head Abdominal Imaging
Dr. Gordon Kulbisky	Section Head Interventional Radiology
Dr. Daniel Lindsay	Radiologist Selkirk Regional Hospital
Dr. Rob Lloyd	Radiologist Boundary Trails Regional Hospital
Dr. Noam Millo	Section Head Ultrasound
Dr. Stephen Ying	Head MRI and CT at HSC

Overall Strategy

To best protect patients, staff and the general public and to reduce risk of spreading COVID-19 the following work has been completed and recommendations made based on clinical guidance:

1. All requisitions have been reviewed and prioritized to determine those that are emergency, urgent and elective in nature. Lower priority requests will be postponed¹. The criteria for urgency categorization is modality specific (e.g. x-ray, CT, MRI, US, NM, interventional etc.). Each modality/DI service has developed their own criteria noting that these should be consistent for the same modality across different sites.
Any cases that may potentially be postponed will be subject to a re-review to ensure cases initially triaged as elective (or semi-urgent in the vulnerable patient population) have been appropriately categorized and that the deferral will not place the patient (based on the indication for the examination) at risk.
2. Priority will be given to justified in-patient or emergency patient DI requests. Note: due to the nature of the services DI provides, outpatient cases are not necessarily elective and will be subject to the same review process stated above.
3. In general, DI services or procedures which are essential for immediate patient management or care will be prioritized. Consultation with referral services will determine the impact of the requested study or intervention on patient management or care. Substantive consultation with CancerCare Manitoba has occurred in recognition of the need to appropriately prioritize oncology patients. In addition, medical services/clinics which continue to operate will be considered relative to the DI services provided. For example, while an orthopedic clinic continues to see patients, it will require access to x-ray services.
4. It is recommended that non-urgent cases and selected cases for patients at greater risk to COVID-19 be postponed immediately (see Appendix for specific guidelines). Note: we have seen significant evidence of elective cases proactively cancelling their appointments (e.g. a 50% decline in MRI volume at Pan Am Clinic over the last week). Staffing has also been taken into consideration (e.g. as a result of requirement to self-isolate, .
5. It is estimated that once non-urgent DI services are restricted, it will take approximately 8 to 12 weeks to determine when normal operations can be reestablished. Postponed cases will be re-evaluated in eight (8) weeks.

¹ Postponement will be in the form of an exam cancellation notice sent to the ordering physician and patient with explanation that the exam will be rebooked on a priority basis for a future date based on the progression of Covid-19 and its impact on health system resources.

6. The referring physician/service will be notified of the postponed bookings. For some cases the requesting physician/service may manage the patient without waiting for the DI test(s) and may cancel the request. For some patients additional information may be provided by the referring physician/service to increase the urgency of the request and result in a change in status. In either instance, there will be communications to referring physicians/services that they should contact appropriate DI service to re-request (and provide supporting rationale) the study should the patients clinical status change.
7. DI modality and service specific plans will need to be put into place with respect to the resumption of services. The first step will be to see if the test is still required. Plans to meet any significant backlog will require planning to identify short term solutions to expand capacity.
8. Unless deemed clinically urgent and essential DI services should be postponed for:
 - a. Any patient who has recently returned from travel, including travel within Canada within the past 14 days, even if asymptomatic.
 - b. Any patient who has been in direct contact with a known positive COVID-19 patient within 14 days, even if asymptomatic.
 - c. Any patient who has been in direct contact with a person who is undergoing testing for COVID-19 should not have an elective procedure until the results are confirmed negative, even if asymptomatic.
 - d. Any patient who has an influenza-like illness at the time they show up for their procedure.
 - e. Any patient who has an unexplained new cough, even if they do not have a fever.
9. For patients who are known to be COVID-19 positive or who meet the criteria of suspect case it is recommended that essential DI services are provided in discreet settings. There will be a need for timely cleaning services should the need arise to provide DI services to such patients:
 - a. Dedicated CT suites at HSC and SBGH
 - b. Dedicated MRI suites at HSC and SBGH
 - c. Dedicated NM Gamma Camera at HSC (adult and peds) and SBGH (adult)
 - d. Dedicated US suite at HSC and SBGH
 - e. Dedicated x-ray unit (portable) and general duty X-Ray rooms at HSC and SBGH, and designated X-Ray rooms in all sites with multiple X-Ray rooms
 - f. Interventional – HSC
 - g. Pediatric cases meeting the criteria for COVID-19 positive or suspect will be imaged in the COVID -19 designated MRI and CT suites

DI Modality/Service Specific Strategies

The following has been informed by discussions with the leads for each modality/service.

General X-ray

In general, all outpatient elective general x-ray services will be cancelled. X-ray will continue to provide emergency and in-patient services. X-ray will continue to support all in-hospital clinics (e.g. ortho) if they are continuing to operate.

CT and MRI

Prioritization for CT and MRI requests are based on the Canadian Association of Radiologists prioritization framework²:

Priority 1P1: Emergent: an examination necessary to diagnose and/or treat disease or injury that is immediately threatening to life or limb.

Priority 2P2: Urgent – an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan that is not immediately threatening to life or limb. Based on provided clinical information, no negative outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.

Priority 3P3: Semi-urgent – an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan, where provided clinical information requires that the examination be performed sooner than the P4 benchmark period.

Priority 4P4: Non-urgent – an examination necessary to diagnose and/or treat disease or injury, where, based on provided clinical information, no negative long-term medical outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.

The following procedures are considered non urgent and can be rescheduled:

- All non-oncology priority 4 examinations
- All non-oncology priority 3 examinations that can wait for at least 8 weeks

Ultrasound

The following procedures are considered non-urgent and can be rescheduled:

- All non-obstetrical priority 4 examinations
- All priority 3 examinations for patients that can wait at least 8 weeks

² <https://car.ca/wp-content/uploads/car-national-maximum-waittime-targets-mri-and-ct.pdf> accessed March 21, 2020

- Examples of studies that could be postponed are:
 - Thyroid
 - HCC screening
 - Gyne infertility or dysfunctional bleeding workup
 - MSK examinations that fall within the above prioritization categories.

Nuclear Medicine

Outpatient non-urgent procedures are considered non-urgent and can be rescheduled:

This will include most of the non-oncologic and non-cardiac nuclear medicine scans. All delayed examinations will have the requisition reviewed by a Nuclear Medicine Physician. This is to ensure needed scans are not inappropriately delayed. Physicians who have ordered an examination selected to be delayed will be notified. There will be a mechanism in place for them to contact a Nuclear Medicine Physician to request an exception.

In general prioritization will be given to studies involving oncology, infection, trauma, pulmonary embolus, gastrointestinal bleeds, and post surgical complications (e.g. looking for a leak in a transplant kidney) and other tests which will have an immediate impact on patient management.

Pediatrics

As per the general strategy, prior to postponing pediatric DI imaging or services, all requests will be reviewed to determine the appropriateness for postponing the examination for up to two months and a decision would be made at that time about rebooking as need be and circumstances allow. Once a decision is made to postpone the examination, a letter will be sent to the parent and the requesting physician informing them of the postponed status of the examination. The requesting physician will be encouraged to contact a Pediatric Radiologist in the event that they were of the opinion that postponement of the examination would significantly impact or potentially harm their patients.

Pediatric MRI examinations protocolled as low priority (P3) and (P4) would be postponed, this would be for both non-sedated patients and patient's being sedated by the intensivist sedation team. Due to the decision by Pediatric Anesthesia to offer an emergent service at this time, all low priority examinations have already been postponed.

Pediatric CT examinations to be postponed include:

- CT chest examinations for patients with chronic lung conditions such as cystic fibrosis provided that they are not acutely ill, patient's with suspected congenital lung diseases, patient's with post infectious bronchiectasis,
- CT spine examinations in patients with longstanding lower back pain without neurological signs or symptoms. For scoliosis surgical planning
- CT brain examinations in patients with chronic headaches and a normal neurological exam.
- CT sinus examinations in patients with chronic sinusitis.

- CT temporal bone examinations for congenital abnormalities resulting in hearing loss in the older child. Cholesteatoma follow up examinations.
- CT abdomen examinations for patients with asymptomatic renal calculi follow up study.

Pediatric Ultrasound (US) examinations to be postponed include:

- US of the kidneys for: Hydronephrosis follow up exams, Multicystic Dysplastic kidney follow up exams, spina bifida follow up exams, newborn patients born with ear pits/skin tags to rule out congenital renal anomalies,
- US of the pelvis for: Ovarian cysts follow up smaller than 5cm. Dysmenorrhea.
- Musculoskeletal US: For lumps and bumps that are small, mobile and soft, Rheumatology patients joint imaging.
- Abdominal US: For patients with diffuse abdominal pain with no clinical findings and no weight loss. For query fatty liver disease.
- Transcranial Doppler US exam for patients with Sickle Cell anemia, which on the previous US exam was in the range of normal.

Fluoroscopic examinations to be postponed include:

- All follow up vesicourethograms.
- All upper gastrointestinal tract Barium study exams to rule gastroesophageal reflux, all barium follow through exams for inflammatory bowel disease.
- All video fluoroscopic feeding study examination requests not originating from the Feeding Specialist, Pediatric Manitoba Home Nutrition Program & In-and Out-patient Feeding Eating & Swallowing Teams (FEAST).
- All Barium enema studies for constipation and vague abdominal pain. This includes Barium studies for Hirschsprung's Disease.

Breast Health/Mammography

Defer screening mammography which has already been started after discussion with CCMB breast screening program.

Cases performed as diagnostic mammography that are routine follow up cases with remote history of breast cancer would be postponed.

Urgent mammography, including needle localizations and biopsies, will continue to be performed if they relate to women being worked up for immediate management (e.g. surgery, chemo, RT).

Fluoroscopy

The following procedures are considered non-urgent and can be rescheduled:

- Hysterosalpingograms
- Arthrograms / facet injections / joint injections
- Barium-based examinations
- Non-urgent water-soluble contrast examinations (e.g. chronic fistulograms)

Sites will continue to book:

- Most water-soluble contrast examinations (e.g. postoperative examinations to rule out leaks)
- Inpatient fluoroscopy
- Small bowel feeding tube placements under fluoroscopy will be assessed on a case-by-case basis and should have a clear indication specifically for post-pyloric feeding and have failed a 72-hour trial of bedside weighted feeding tube placement before consideration. Clinicians may contact a radiologist to discuss if they have a patient who they feel falls outside of these parameters.

General Interventional

In general, surgical programs will be following the COVID-19 Guidance for Triage of Non-Emergent Surgical Procedures as outlined by the American College of Surgery (Appendix A).

Neurointerventional

All requests for neurointerventional services will be reviewed and, given the complexity of the cases, decisions will be made on a case by case basis relative to urgency and impact on patient care and management.

In general, any endovascular procedure that can be safely postponed for up to 3 months will be rescheduled.

Capacity to manage emergency and urgent cases will remain in place.

Appendix A

COVID-19: Guidance for Triage of Non-Emergent Surgical Procedures

In response to the rapidly evolving challenges faced by hospitals related to the Coronavirus Disease 2019 (COVID-19) outbreak, and broad calls to curtail “elective” surgical procedures, the American College of Surgeons (ACS) provides the following guidance on the management of non-emergent operations.

It is not possible to define the medical urgency of a case solely on whether a case is on an elective surgery schedule. While some cases can be postponed indefinitely, the vast majority of the cases performed are associated with progressive disease (such as cancer, vascular disease and organ failure) that will continue to progress at variable, disease-specific rates. As these conditions persist, and in many cases, advance in the absence of surgical intervention, it is important to recognize that the decision to cancel or perform a surgical procedure must be made in the context of numerous considerations, both medical and logistical. Indeed, given the uncertainty regarding the impact of COVID-19 over the next many months, delaying some cases risks having them reappear as more severe emergencies at a time when they will be less easily handled. Following careful review of the situation, we recommend the following:

- Hospitals should consider both their patients’ medical needs, and their logistical capability to meet those needs, in real time.
- The medical need for a given procedure should be established by a surgeon with direct expertise in the relevant surgical specialty to determine what medical risks will be incurred by case delay.
- Logistical feasibility for a given procedure should be determined by administrative personnel with an understanding of hospital and community limitations, taking into consideration facility resources (beds, staff, equipment, supplies, etc.) and provider and community safety and well-being.
- Case conduct should be determined based on a merger of these assessments using contemporary knowledge of the evolving national, local and regional conditions, recognizing that marked regional variation may lead to significant differences in regional decision-making.
- The risk to the patient should include an aggregate assessment of the real risk of proceeding and the real risk of delay, including the expectation that a delay of 6-8 weeks or more may be required to emerge from an environment in which COVID-19 is less prevalent.

In general, a day-by-day, data-driven assessment of the changing risk-benefit analysis will need to influence clinical care delivery for the foreseeable future. Plans for case triage should avoid blanket policies and instead rely on data and expert opinion from qualified clinicians and administrators, with a site-specific granular understanding of the medical and logistical issues in play. Finally, although COVID-19 is a clear risk to all, it is but one of many competing risks for patients requiring surgical care. Thus, surgical procedures should be considered not based solely on COVID-associated risks, but rather on an assimilation of all available medical and logistical information.

To further assist in the surgical decision-making process to triage non-emergent operations, ACS suggests that surgeons look at the Elective Surgery Acuity Scale (ESAS) from St. Louis University (below). Each surgical specialty has specific guidelines that are pertinent to the procedures within that specialty. We gratefully acknowledge and thank Allan Kirk, MD, PhD, FACS, and Sameer Siddiqui, MD, FACS, for their contributions and recommendations to this document.

ACS will continue to follow up with additional recommendations and refinements, as needed.

Elective Surgery Acuity Scale (ESAS)

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Tiers/ Description	Definition	Locations	Examples	Action
Tier 1a	Low acuity surgery/healthy patient outpatient surgery Not life threatening illness	HOPD ASC Hospital with low/no COVID-19 census	Carpal tunnel release Penile prosthesis EGD Colonoscopy	Postpone surgery or perform at ASC
Tier 1b	Low acuity surgery/unhealthy patient	HOPD ASC Hospital with low/no COVID-19 census		Postpone surgery or perform at an ASC
Tier 2a	Intermediate acuity surgery/healthy patient Not life threatening but potential for future morbidity and mortality. Requires in hospital stay	HOPD ASC Hospital with low/no COVID-19 census	Low risk cancer Non urgent spine Ureteral colic	Postpone surgery if possible or consider ASC
Tier 2b	Intermediate acuity surgery/unhealthy patient	HOPD ASC Hospital with low/no COVID-19 census		Postpone surgery if possible or consider ASC
Tier 3a	High acuity surgery/healthy patient	Hospital	Most cancers Highly symptomatic patients	Do not postpone
Tier 3b	High acuity surgery/unhealthy patient	Hospital		Do not postpone

HOPD – Hospital Outpatient Department

ASC – Ambulatory Surgery Center

There are several Interventional Radiology general procedural categories that can likely be postponed 1-3 months without significant impact on patient care and they include: (keeping in mind that each requisition form will still be reviewed case-by-case)

1. Angiography (with claudication as the primary indication)
2. Uterine Fibroid Embolizations
3. Transjugular Liver Biopsies
4. Venography for fistula creation
5. Palliative TACE procedures (the majority of TACE procedures are performed as a bridge to liver transplant and should therefore, not be postponed)
6. Routine nephrostomy, biliary and G/GJ tube exchanges – however, it should be noted that postponing more than 1-2 months may increase risk of catheter breakdown, infection, etc.
7. HSGs and fallopian tube recanalizations
8. Varicocele embolizations
9. Adrenal vein sampling

Additional procedure types not listed above may also be postponable, but again, this will be a case-by-case consideration (utilizing the guidelines outlined by the ACS) and only after consultation with the requesting physician and/or service.