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COVID 19: Elective Case Triage Guidelines for Surgical Care

Updated March 27, 2020

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Breast Cancer Surgery

Developed by the COVID 19 Pandemic Breast Cancer Consortium (this consortium is made up of representatives from the NAPBC, CoC, ASBrS, and NCCN)

Phase I. Semi-Urgent Setting (Preparation Phase)

Few COVID 19 patients, hospital resources not exhausted, institution still has ICU vent capacity, and COVID trajectory not in rapid escalation phase

Surgery restricted to patients likely to have survivorship compromised if surgery not performed within next 3 months

Cases that need to be done as soon as feasible (recognizing status of hospital likely to progress over next few weeks):

- Neoadjuvant patients finishing treatment
- Clinical Stage T2 or N1 ERpos/PRpos/HER2 negative tumors*&
- Triple negative or HER2 positive patients*&
- Discordant biopsies likely to be malignant
- Excision of malignant recurrence

*In some cases institutions may decide to proceed with surgery versus subjecting a patient to an immunocompromised state with neoadjuvant chemotherapy, these decisions will depend on institutional resources

&Encourage use of breast conserving surgery whenever possible, defer definitive mastectomy and/or reconstruction until after the COVID 19 pandemic resolves provided radiation oncology services are available

&Autologous reconstruction should be deferred

Cases that should be deferred

- Excision of benign lesions-fibroadenomas, nodules, etc…
- Duct excisions
- Discordant biopsies likely to be benign
- High risk lesions-atypia, papillomas, etc…
- Prophylactic surgery for cancer and noncancer cases
- Delayed SNB for cancer identified on excisional biopsy
- cTisN0 lesions-ER positive and negative
- Re-excision surgery

- Tumors responding to neoadjuvant hormonal treatment
- Clinical Stage T1N0 estrogen receptor positive/progesterone receptor positive/Her2 negative tumors*
- Inflammatory and locally advanced breast cancers&

*These patients can receive hormonal therapy

&These patients should receive neoadjuvant therapy

Alternative treatment approaches to be considered (assuming resources permit):

- Clinical Stage T1N0 estrogen receptor positive/progesterone receptor positive/Her2 negative tumors can receive hormonal therapy*
- Triple negative and HER2 positive tumors can undergo neoadjuvant therapy prior to surgery
- Some Clinical Stage T2 or N1 ERpos/PRpos/HER2 negative tumors can receive hormonal therapy*
- Inflammatory and locally advanced breast cancers should receive neoadjuvant therapy prior to any surgery

*Many women with early stage, ER positive breast cancers to not benefit substantially from chemotherapy. In general, these include women with stage 1 or limited stage 2 cancers, particularly those with low-intermediate grade tumors, lobular breast cancers, low OncotypeDX scores (<25), or "luminal A" signatures. High level evidence supports the safety and efficacy of 6 to 12 months of primary endocrine therapy before surgery in such women, which may enable the deferral of surgery.

Phase II. Urgent setting

Many COVID 19 patients, ICU and ventilator capacity limited, OR supplies limited or COVID trajectory within hospital in rapidly escalating phase

Surgery restricted to patients likely to have survivorship compromised if surgery not performed within next few days

Cases that need to be done as soon as feasible (recognizing status of hospital likely to progress over next few days):

- Incision and drainage of breast abscess
- Evacuation of a hematoma
- Revision of an ischemic mastectomy flap
- Revascularization/revision of an autologous tissue flap*

*Autologous reconstruction should be deferred

Cases that should be deferred:

- All breast procedures

Alternative treatment approaches RECOMMENDED (assuming resources permit):

- Consider neoadjuvant therapy for eligible cases
- Observation is safe for the remaining cases

Phase III.

Hospital resources are all routed to COVID 19 patients, no ventilator or ICU capacity, OR supplies exhausted.

Surgery restricted to patients likely to have survivorship compromised if surgery not performed within next few hours

Cases that need to be done as soon as feasible (status of hospital likely to progress in hours):

- Incision and drainage of breast abscess
- Evacuation of a hematoma
- Revision of an ischemic mastectomy flap
- Revascularization/revision of an autologous tissue flap*

*Autologous reconstruction should be deferred

All other cases deferred
Alternate treatment recommended

- Same as above

General Recommendations

Case status (i.e. risk of death time frame) determination made by a multidisciplinary team, ideally in a multi-clinician setting (breast tumor board conference). This multidisciplinary discussion should be documented in the medical record.

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Cancer Surgery

Introduction

During the current COVID-19 pandemic, hospital leadership and individual providers are facing increasingly difficult decisions about how to conserve critical resources, such as hospital and ICU beds, respirators, transfusion capacity as well as protective gear (e.g. PPE) that is vital for protecting patients and staff from unnecessary exposure and intra-hospital transmission. While nothing will replace sound medical judgement and local adjudication, it has generally been advised that hospitals discontinue elective surgery, and guidance on the triage of non-emergent surgical procedures during the pandemic has been made available on the American College of Surgeons website. Guidance on the triage of elective surgery is based on an Elective Surgery Acuity Scale provided by Sameer Siddiqui, MD, FACS of St Louis University. Triage guidelines contained within this document below, specifically add another level of specificity on triage of elective cancer surgery patients during the COVID-19 pandemic. This information is intended to help institutions and providers who are facing a rising burden of hospitalized COVID-19 patients and a higher prevalence of community infection. Not all cancer conditions can be outlined, accordingly, this document will focus on how to manage the more common cancer types during the pandemic.

Guiding Principles for Cancer Care Triage

Resource Considerations

Individual provider decisions about proceeding with elective surgeries should not be made in isolation, but rather should take into consideration what is known about the availability of local institutional resources. Local authorities responsible for the preparedness of their facility for managing coronavirus patients should be sharing information frequently about local resource constraints, especially protective gear for providers and patients. This will allow providers to understand the potential impact each decision may have on limiting the hospitals capacity to respond to the pandemic. For elective cases with a high likelihood of postoperative ICU or respirator utilization, it will be more imperative that the risk of delay to the individual patient is balanced against the imminent availability of these resources for patients with COVID-19. These kinds of cases may need to be adjudicated on a frequent basis as the impact of COVID-19 on communities grows exponentially, with different baselines for different communities. This guidance document does not cover the management of patients who test positive for coronavirus, which is a different aspect of managing the pandemic and is covered elsewhere.

Cancer Care coordination

The basic tenets of cancer care coordination should be followed as much as possible using virtual technologies. Institutions with Tumor Boards may find it helpful to virtually gather their multi-disciplinary experts in order to consider either individual cases or for institutions with high case volumes to establish triage criteria based on local circumstances, COVID-19 prevalence and/or the availability of alternative,

non-surgical therapies. As much as possible, we encourage shared decision making. Further, we highly recommend multidisciplinary virtual discussions regarding priority for non-urgent cancer surgery. At a minimum, patients should be informed that decisions regarding non-urgent cancer surgery are consensus-based, and based on local and projected resources and disease prevalence as well as and tumor characteristics and expected outcomes from delays.

General Comments Regarding Cancer Care Triage

Recognizing that the COVID-19 situation may be highly variable and fluid in different communities across the country, we have organized decision-making into three phases that describe the acuity of the local COVID-19 situation. Hospitals will likely progress through these phases over the next several weeks to months, and then will also de-escalate thereafter. It is important that decisions regarding provision of cancer care are made in the context of these phases and that leaders of the cancer care team are updated regularly and frequently by hospital leadership to understand their particular environment at any given time during the crisis.

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Cardiac Surgery

The STS website has COVID-19 related information.

Additionally, Johns Hopkins has shared their document of guiding principles for triaging electives procedures (below).

The Johns Hopkins Health System remains committed to exceptional patient care during the COVID-19 pandemic. We also remain committed to the safety of our patients and staff, in addition to planning for care of all patients in the weeks and months ahead. This means carefully considering how we utilize our resources to ensure we are able to meet the needs of our patients, their families and our staff. In addition, it also means responding to the need to maximize social distancing and to reduce the risk of exposure to patients with defined and undetected COVID-19. We are working towards many operational changes across our health system to accomplish these goals, and modifying our criteria for performing invasive procedures is just one of the changes we will be making. We are taking these steps at this time because of the documented community spread and transmission of the COVID-19 virus.

Each entity has a unique environment and different distribution of patients who require invasive procedures. A list of agreed upon surgical and other procedures which can be considered elective, and those which are not, is being developed and will help guide decision making. This list adheres to the following definitions.

Definitions of Procedural Classifications

1) **Emergent and urgent procedures** – those procedures that are deemed time sensitive as delaying the procedure would cause harm to the patient.
2) **Elective and non-urgent procedures –** those procedures that can be rescheduled to a future time as the timing of these cases is flexible and is unlikely to significantly impact the patient's health outcome.

Elective and Non-Urgent Procedure Policy

Elective procedures will be cancelled beginning Wednesday, March 18th for two weeks. This policy will be reassessed routinely over this period of time to determine if it should be modified in any way, or extended.

Elective procedure decisions will follow these guiding principles throughout the health system.

Guideline Principles

The following rational for not performing certain procedures follows these guiding principles or triggers.

- Minimize the potential for exposure of surgical and peri-operative staff to aerosol generating procedures on unrecognized and asymptomatic carriers of COVID-19
- Minimize risk to all persons in the hospital environment from potential exposure to COVID-19, consistent with the key underlying principle of social distancing, for the purpose of reducing.
- Minimize risk of exposure of surgical patients to COVID-19
- Minimize use of critical supplies and equipment that can be redirected to care for more acute patients and for the care of COVID-19 patients. The conservation of PPE and other equipment is critical. Reducing the rate at which we utilize these supplies will help ensure they are available for critical use.
- Blood conservation. The nation's blood supply is dropping due to the elimination of blood drives and other factors. Minimizing elective procedures which require blood will help to preserve this resource.
- Staffing. It may become necessary to re-deploy staff to help cover more acute case load if we begin seeing staff become infected with COVID-19.
- ICU and inpatient bed capacity. Canceling some elective cases which require inpatient resources will preserve those resources for acute needs.

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Colorectal Cancer Surgery

Phase I. Semi-Urgent Setting (Preparation Phase)

Few COVID-19 patients, hospital resources not exhausted, institution still has ICU ventilator capacity and COVID-19 trajectory not in rapid escalation phase.

Cases that need to be done as soon as feasible (recognizing status of each hospital likely to evolve over next week or two):

- Nearly obstructing colon
- Nearly obstructing rectal cancer
- Cancers requiring frequent transfusions
- Asymptomatic colon cancers
- Rectal cancers after neoadjuvant chemoradiation with no response to therapy
- Cancers with concern about local perforation and sepsis
- Early stage rectal cancers where adjuvant therapy not appropriate

Diagnoses that could be deferred 3 months:

- Malignant polyps, either with or without prior endoscopic resection
- Prophylactic indications for hereditary conditions
- Large, benign appearing asymptomatic polyps
- Small, asymptomatic colon carcinoids
- Small, asymptomatic rectal carcinoids

Alternative treatment approaches to delay surgery that can be considered:

- Locally advanced resectable colon cancer
    - Neoadjuvant chemotherapy for 2-3 months followed by surgery
- Rectal cancer cases with clear and early evidence of downstaging from neoadjuvant chemoradiation
    - Where additional wait time is safe
    - Where additional chemotherapy can be administered
- Locally advanced rectal cancers or recurrent rectal cancers requiring exenterative surgery
    - Where additional chemotherapy can be administered

- Oligometastatic disease where effective systemic therapy is available

Phase II. Urgent setting

Many COVID-19 patients, ICU and ventilator capacity limited, OR supplies limited

Cases that need to be done as soon as feasible (recognizing status of hospital likely to progress over next few days):

- Nearly obstructing colon cancer where stenting is not an option
- Nearly obstructing rectal cancer (should be diverted)
- Cancers with high (inpatient) transfusion requirements
- Cancers with pending evidence of local perforation and sepsis

Cases that should be deferred:

- All colorectal procedures typically scheduled as routine

Alternative treatment approaches:

- Transfer patients to hospital with capacity
- Consider neoadjuvant therapy for colon and rectal cancer
- Consider more local endoluminal therapies for early colon and rectal cancers when safe

Phase III

Hospital resources are all routed to COVID 19 patients, no ventilator or ICU capacity, OR supplies exhausted. Patients in whom death is likely within hours if surgery deferred.

Cases that need to be done as soon as feasible (status of hospital likely to progress in hours)

- Perforated, obstructed, or actively bleeding (inpatient transfusion dependent) cancers
- Cases with sepsis

All other cases deferred

Alternate treatment recommended

- Transfer patients to hospital with capacity
- Diverting stomas
- Chemotherapy
- Radiation

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Emergency General Surgery

Revised 3/25/20

These guidelines are meant to provide advice for surgeons and to serve the best interests of patients based on estimates of risk for *average* patients (in terms of clinical condition, patient health, hospital resource availability) and are meant to be considered for patients presenting with general surgical emergencies during this pandemic. For patients who are known to be COVID-19 positive or at high clinical suspicion for COVID infection, non-operative management is preferred, if feasible and safe for the patient. If operation is required in these patients then appropriate PPE should be utilized and precautions taken to protect the healthcare team.

- The American College of Surgeons has a tremendous amount of respect and trust in the judgement and commitment of our Fellows. The information provided should not be considered rigid guidelines, and are not intended to supplant clinical judgement. Nor is the information intended to impede the development of consensus regarding institutional and local approaches to treatment guidelines. There is a great deal of uncertainty around this evolving pandemic and a large amount of regional variability. In this fluid and variable environment, information changes rapidly.

- It is very likely that the strategies outlined in this document may change as our understanding of unique challenges that COVID-19 poses within each country, state, and healthcare environment evolves.

Guiding Principles

- The goal is to provide timely surgical care to patients presenting with urgent and emergent surgical conditions while optimizing patient care resources (e.g. hospital and intensive care unit beds, personal protective equipment, ventilators) and preserving the health of caregivers.
- There is no substitute for sound surgical judgement

- Procedures and operations should be performed if delaying the procedure or operation is likely to prolong the hospital stay, increase the likelihood of later hospital admission, or cause harm to the patient.
- Patients who have failed attempts at medical management of a surgical condition should be considered for surgery to decrease the future use of resources
- Multidisciplinary shared decisions regarding surgical scheduling should be made in the context of available institutional resources that will be variable and rapidly evolving. https://www.facs.org/covid-19/clinical-guidance/review-committee

Specific Conditions to Consider

Acute Hemorrhoidal Thrombosis/Necrosis

Most acute hemorrhoidal conditions can be managed non-operatively based on the judgment of the surgeon. Where possible, management under local anesthesia in an outpatient setting may be appropriate. Emergency surgical procedures should generally be reserved for significant bleeding and severe disease or disease unresponsive to non-operative measures.

Perianal or Perirectal Abscess

Perianal abscesses that are superficial and localized may be managed with incision and drainage with local anesthesia based on the surgeon's usual indications. Incision and drainage of larger perirectal abscesses in the operating room should not be delayed in order to ensure adequate initial drainage, prevent extension of the disease to an invasive infection and shorten hospital stay. If the operating room is not available percutaneous drainage should be considered as an alternative and temporizing measure.

Soft Tissue Infections

Superficial and localized abscesses may be managed with incision and drainage with local anesthesia. Incision and drainage in the operating room of larger abscesses or those with an intra-muscular component is preferred to ensure adequate initial drainage and shorten hospital stay. Patients with concern for necrotizing soft tissue infections should proceed with emergent debridement.

Acute Pancreatitis with Necrosis

Antimicrobial therapy should be used if infected necrosis is confirmed. The "step up" approach is recommended which includes: percutaneous drainage, endoscopic debridement or by interventional radiologic techniques (note that I/R techniques may be preferred in COVID positive patients due to risk of aerosolization with endoscopy), followed by laparoscopic or open operative drainage if no other option available.

Van Santvoort HC, Besselink MG, Bakker OJ, et al. A Step-up Approach or Open Necrosectomy for Necrotizing Pancreatitis, N Engl J Med 2010:362-1491-1502. https://www.nejm.org/doi/full/10.1056/nejmoa0908821

Pneumoperitoneum, Intestinal Ischemia, Intestinal Obstruction

Patients presenting with suspected bowel perforation, intestinal ischemia, closed loop obstruction, or obstruction secondary to incarcerated hernia should proceed with emergent surgery. Non-operative management of small bowel obstruction secondary to adhesions should follow usual practice.

Appendicitis, Uncomplicated

There is some evidence that suggests that patients with uncomplicated appendicitis can be managed with IV antibiotics followed by transition to PO antibiotics. High failure rates of this approach (30-50%) have been noted with appendicolith and with CT evidence of disease extension outside of the RLQ. Based on the surgeon's judgment and the patient condition, a trial of antibiotics can be considered. Short stay or outpatient laparoscopic appendectomy is likely associated with a shorter length of stay. The duration of hospital stay should be weighed against the use of OR resources in this circumstance and should be based on surgeon judgment.

Frazee, RC, Abernathy SW, Davis M, et al. Outpatient laparoscopic appendectomy should be the standard of care for uncomplicated appendicitis. Journal of Trauma and Acute Care Surgery: January 2014 - Volume 76 - Issue 1 - p 79-83. doi: 10.1097/TA.0b013e3182ab0d42

Mahida JB, Lodwick DL, Macion KM, et al. High failure rate of nonoperative management of acute appendicitis with an appendicolith in children. https://doi.org/10.1016/j.jpedsurg.2016.02.056

Appendicitis, Complicated

Complicated appendicitis can be managed per usual practice. In brief, all patients should receive IV antibiotics until clinically improving, followed by transition to PO antibiotics. Patients with a defined abscess should undergo percutaneous drainage. Patients with evidence of perforation may be managed with percutaneous drainage or operation based on patient condition. Patients who fail non-operative management should proceed to surgery expeditiously

Symptomatic Cholelithiasis

Patients with symptomatic cholelithiasis and chronic cholecystitis should have their pain managed. If this is feasible, surgery should be delayed and performed electively. For patients with crescendo symptoms, and for those with pain refractory to medical management, consider laparoscopic cholecystectomy.

Choledocholithiasis

Patients with choledocholithiasis without signs of cholangitis may be managed expectantly. For those with larger stones, and those who fail to spontaneously pass their stone, an ERCP with sphincterotomy, followed by elective cholecystectomy in a delayed fashion is appropriate. Note that appropriate precautions should be taken for ERCP in patients with COVID-19 infection as it should be considered an aerosolizing procedure.

Acute Cholecystitis

Healthy patients with acute cholecystitis should undergo laparoscopic cholecystectomy to minimize hospital stay. If the patient is too high risk for surgery or an operating room is not available then consider IV antibiotics. Patients who fail to clinically improve on antibiotics, and those with signs of sepsis should undergo percutaneous cholecystostomy in addition to the administration of IV antibiotics

Cholangitis

Patients with ascending cholangitis often respond to broad spectrum antibiotics and appropriate resuscitation. For patients that fail to clinically improve and those with sepsis, ERCP and sphincterotomy are indicated. If there is a concern for concomitant cholecystitis, percutaneous cholecystostomy may be appropriate. Note that appropriate precautions should be taken for ERCP in patients with COVID-19 infection as it should be considered an aerosolizing procedure. Cholecystectomy should be performed in a delayed fashion.

Diverticulitis

Uncomplicated diverticulitis can be managed with usual care which includes IV antibiotics with transition to PO antibiotics. Patients who present with purulent or feculent peritonitis with diffuse pneumoperitoneum should undergo surgery. Hinchey class 1 and 2 diverticulitis should be managed with percutaneous drainage in addition to antimicrobial therapy. Patients with phlegmon may be successfully managed with antibiotics, with percutaneous drainage reserved for subsequent abscess development. Patients who fail non-operative management should proceed to surgery expeditiously

Revised March 25, 2020

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Gynecology

1.3: Gynecology (Temple University) (v3.23.20)

Suggestions for handling the scheduling of OB/Gyn surgical cases during COVID19 pandemic.

Emergency surgeries *(no delay)*

- Ectopic pregnancy
- Spontaneous abortion
- Adnexal torsion
- Rupture tubal-ovarian abscess
- Tubal-ovarian abscess not responding to conservative therapy
- Acute and severe vaginal bleeding
- Cesarean section
- Emergency cerclage of the cervix based on pelvic exam/ultrasound findings

Surgeries that if significantly delayed could cause significant harm

- Cancer or Suspected cancer
    - Ovarian, Tubal or Peritoneal cancer
    - Ovarian masses cancer is suspected
    - Endometrial cancer and endometrial intraepithelial neoplasia
    - Cervix cancer
    - Vulvar cancer
    - Vaginal cancer
    - Gestational Trophoblastic Neoplasia
- Cerclage of the cervix to prevent premature delivery based on history
- Pregnancy termination (for medical indication or patient request)

Surgeries that could be delayed for a few weeks

- Chorionic villus sampling/amniocentesis (CVS is performed between 11 and 14 weeks of gestation; amniocentesis is performed 15-22 weeks of gestation)
- D&C with or without hysteroscopy for abnormal uterine bleeding (pre- or postmenopausal) when cancer is suspected
- Cervical conization or Loop Electro-Excision Procedure to exclude cancer
- Excision of precancerous or possible cancerous lesions of the vulva

Surgeries that can be delayed several months

- Sterilization procedures (eg, salpingectomy)
- Surgery for fibroids (sarcoma is not suspected)
    - Myomectomy
    - Hysterectomy
- Surgery for endometriosis, pelvic pain
- Surgery for adnexal masses that are most likely benign (eg, dermoid cyst)
- Surgery for pelvic floor prolapse
- Surgery for urinary and/or fecal incontinence
- Therapeutic D&C with or without hysteroscopy with or without endometrial ablation for abnormal uterine bleeding and cancer is not suspected
- Cervical conization or Loop Electro-Excision Procedure for high grade squamous intraepithelial lesions
- Infertility procedures (eg, hysterosalpingograms, most elective embryo transfers)
- Genital plastic surgery
- Excision of condyloma acuminata (if cancer is not suspected)

Released March 24, 2020

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Metabolic and Bariatric

1.4 Metabolic and Bariatric Surgery (ASMBS) (v3.23.20)

Emergency

Needs immediate action; life threatening or permanent organ damage

- Patients in hemorrhagic shock
- Patients in septic shock
- Necrotizing soft tissue infections
- Perforated viscus
- Airway emergencies
- Risk of Ischemic bowel
- Specific Bariatric: Perforated marginal ulcer, bleeding, anastomatic or staple-line leak, obstruction particularly internal hernia, gastric band perforation or prolapse

Urgent

Needs surgery; may be delayed by a few days/weeks

- Bariatric: revisions for dysphagia, severe gerd, pain, dehydration/malnutrition, slipped band, anastomotic strictures at risk for aspiration
- Primary cases for patients pending surgery requiring preop weight loss ie transplant,etc..

Elective

May be delayed for months without threat to life or organ damage

- Bariatric: primary gastric bypass, sleeve, duodenal switch, gastric band
- Revisions for weight gain

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Neurosurgery

1.5 Neurosurgery (AANS, CNS)

Recommendations on Elective Surgery

CMS Adult Elective Surgery and Procedures Recommendations

ACS Recommendations for Management of Elective Surgical Procedures

https://www.aans.org/COVID-19-Update/COVID-19-Information-Hub

https://www.cns.org/covid-19

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Ophthalmology

The American Academy of Ophthalmology has released recommendations regarding urgent and nonurgent patient care. According to the statement, all ophthalmologists should cease providing any treatment other than urgent or emergent care immediately. This includes both office-based care and surgical care. For specific procedures, see table below.

Surgical Procedure	**Indications**
Biopsy of orbit	Suspected intraocular malignancy or immediate sight-threatening condition
Brachytherapy	Intraocular malignancy
Cantholysis	Sight-threatening conditions
Canthotomy	Sight-threatening conditions
Cataract surgery	Congenital cataract in the amblyopic period, monocular patients with documented vision loss precluding driving, reading or self-care, lens-induced glaucoma, angle-closure glaucoma, acute lens complications, or severe anisometropia of fellow eye post recent lens extraction in first eye
Closure of cyclodialysis cleft	Sight-threatening hypotony due to trauma
Corneal transplantation	Pediatric patients with corneal blindness in both eyes in their amblyopic period
Decompression of dacryocele	Neonate with obstructive respiratory compromise
Decompression of orbit	Orbital tumor with impending vision loss
Drainage of abscess	Orbital cellulitis
Drainage of choroidals	Appositional choroidal effusion, suprachoroidal hemorrhage, or flat anterior chamber
Enucleation	Ocular trauma, infection, intractable glaucoma, globe perforation, intractable pain, or intraocular malignancy
Evisceration	Sight-threatening infection, or intractable pain

Examination under anesthesia	Pediatric patients with retinoblastoma, endophthalmitis, Coats Disease, uveitis, glaucoma, ocular trauma, retinal detachment, or presumed intraocular foreign body
Excision of tumors	Malignancy or sight-threatening tumor
Exenteration	Life-threatening infection
Exploration of orbit	Life-threatening or sight-threatening conditions
Fenestration of optic nerve sheath	Progressive vision loss
Filtration surgery	Uncontrolled intraocular pressure that is sight-threatening who are poor candidates for trabeculectomy or aqueous tube shunts
Frontalis sling	Sight-threatening congenital ptosis
Goniotomy ab externo or ab interno	Uncontrolled intraocular pressure that is sight-threatening
Insertion of drainage implant with or without graft	Catastrophic or rapidly progressive glaucoma
Laser indirect retinopexy – complex	Retinal detachment, retinal tear, or ocular trauma
Laser photocoagulation	Pediatric patients with retinopathy of prematurity (if this can't be in NICU)
Pars plana lensectomy	Acute lens complications
Peeling of membrane/internal limiting membrane	Proliferative diabetic retinopathy, proliferative vitreoretinopathy, complex preretinal membrane, complex macular pathology, or macular hole
Pneumatic retinopexy	Retinal detachment
Probing of nasolacrimal duct	Dacryocystocele
Reconstruction of ocular surface or other tectonic procedures	Acute chemical injury, or acute Stevens Johnson Syndrome
Removal of aqueous drainage implant	Endophthalmitis, corneal touch, corneal decompensation, or exposed plate
Removal of intraocular foreign body	Presumed intraocular foreign body
Repair of anterior segment or cornea	Lacerations, blunt rupture, or deeply embedded corneal foreign body
Repair of canalicular laceration	Injury or trauma to their canaliculus
Repair of dehiscence of corneal graft or other anterior segment wound	Wound dehiscence or other wounds, including dislocated LASIK flaps
Repair of extrusion or complication of keratoprosthesis	Complications with implanted devices in their cornea or anterior segment
Repair of eyelid/face	Lacerations of eyelid or face
Repair of facial fractures	Displaced facial bone fractures
Repair of open globe	Ocular trauma

Repair of operative wound(s)	Bleb leaks, wound leaks, overfiltration, underfiltration, bleb scarring, sight-threatening hypotony, or shallow anterior chamber
Repair of orbital fracture	Hemodynamic instability or oculocardiac reflex
Repair of perforation or impending perforation of cornea or sclera	Corneal and scleral injury or trauma
Retrobulbar injection	Pain due to ocular diseases causing significant compromise of quality of life
Revision of drainage implant with or without graft	Implant/tube exposure that might be sight threatening, endophthalmitis, malpositioned tube endangering eye or excessive inflammation, a tube that might worsen vision due to corneal edema or iritis or cystoid macular edema, or with a severe tube malposition causing rapid visual loss
Scleral buckle	Retinal detachment, ocular trauma, intraocular infection, vitreous hemorrhage, retinal tear, or intraocular foreign body
Synechiolysis	Lens-induced glaucoma or angle-closure glaucoma
Tarsorrhaphy	Impending corneal compromise
Trabeculectomy with or without scarring	Catastrophic or rapidly progressive glaucoma and markedly elevated intraocular pressure, or uncontrolled secondary or primary glaucoma
Trabeculotomy	Uncontrolled intraocular pressure that is sight-threatening
Transscleral cyclophotocoagulation	Uncontrolled glaucoma or absolute glaucoma with a blind and painful eye
Vitrectomy	Retinal detachment, ocular trauma, intraocular infection, vitreous hemorrhage, retinal tear, intraocular foreign body, misdirected aqueous, ciliary block glaucoma, malignant glaucoma, a vitreous prolapse, or a tube shunt that blocks filtration
Washout of the anterior chamber	Hyphema that is sight-threatening

Updated March 27, 2020

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Orthopaedics

The AAOS supports the recommendations on delaying elective surgeries advocated by the Centers for Medicare and Medicaid Services (CMS), the American College of Surgeons (ACS), and the U.S. Surgeon General. **CMS Adult Elective Surgery and Procedures Recommendations**; **ACS Recommendations for Management of Elective Surgical Procedures**.

In addition, the ACS is publishing a twice-weekly newsletter to keep surgeons informed and updated on best practices.

Below, is a table of orthopaedic procedures and recommendations per University of Pennsylvania.

	Phase II Curtail elective practice		Phase III Eliminate elective practice	
	Schedule	**Reschedule**	**Schedule**	**Reschedule**
Sports	Acute knee pain with injury	Chronic knee pain	New lower extremity injury with inability to bear weight on extremity	All acute pains of lower extremity with ability to bear weight
	Acute shoulder pain with injury	Chronic shoulder pain	Any concern for infections	All acute pains of upper extremity with ability to move joint
	Acute ankle pain with injury	Chronic ankle pain	New upper extremity injury with inability to actively move joint	
	Acute elbow pain with injury	Chronic elbow pain	Concern for major muscle tear	
	Acute hip pain with injury	Chronic hip pain	Concern for Dislocation of joint	
			Concern for Fracture of bone	
Trauma	All new fractures	Fractures >4 weeks old	All new fractures	"Soft tissue injury"
	Acute traumatic injury		Quad tendon rupture	Patients without a diagnosis
	Nonunions/Malunions/Infections		Patellar Tendon rupture	Nonunions
			Acute change of a chronic injury with inability to function	Chornic Infections
				Malunions
				Nonunions
Adult Recon	Acute knee pain	Chronic knee pain	Hip dislocation	Acute or chronic knee pain
	Acute Hip pain	Chronic hip pain	Knee dislocation	Acute or chronic hip pain
	Unable to weight bear		Periprosthetic fracture	
	Hip dislocation		Acute inability to weight bear	
	Knee dislocation		Acute pain exacerbation with ptiot joint replacement	
	Pripr hip or knee replacement with acute pain exacerbation		Wound drainage, fever, concern for periprosthetic infection	
	Wound drainage, fever, concern for infection with prior joint replacement			
Spine	cervical myelopathy	low back pain	Clavicle fracture	
	acute radiculopathy	neck pain	progressive neurologic deficit (emergency)	
	acute compression fracture	flat back syndrome	epidural abscess (emergency)	
	discitis/osteomyelitis	scoliosis without neuro deficit	spine trauma	
	proximal junctional kyphosis	revision surgery (in absence of new progressive neuro deficit)		
	scoliosis with neuro deficit			
Ortho Onc	Infection including infected joints	Benign ST masses	Infection including infected joints	
	Sarcoma/other primary malignancy in a 'chemo or radiation window'	Benign bone tumors that can wait	Sarcoma/other primary malignancy in a 'chemo or radiation window'	
	Aggressive benign tumors (GCT)	Elective joint replacement	Aggressive benign tumors (GCT)	
	Impending path fx (including periprosthetic)		Impending path fx (including periprosthetic)	
	path fx		path fx	
Foot & Ankle	acute foot and ankle fractures	every thing else	acute foot and ankle fractures	every thing else
	achilles ruptures		achilles ruptures	
Shoulder & Elbow	Acute severe pain	Shoulder/elbow arthritis	Falls with inability to move shoulder or elbow	New onset shoulder or elbow pain without trauma**
	Falls with loss of function	Unchanged chronic pain with retained function **	Proximal Humerus Fracture	Shoulder/elbow arthritis
	Any fracture	Hospital discharge without inpatient consult	Humeral shaft fracture	Chronic shoulder pain with function intact
	Any acute changes in function of shoulder or elbow	Hospital consultation shoulder be triaged	Distal humerus fracture	Self scheduling without screening
	Any neurological issues	Chronic cuff disease with unchanged function**	Elbow fracture dislocation	Chronic shoulder dislocations with joint reduced
	Any infection		Elbow or shoulder dislocation	Chronic elbow dislocation with joint reduced
			Olecranon Fracture	
			New loss of function**	
			Acute onset neurological complaints	
			Any infection	
			Clavicle fracture	
Hand	Laceration with tendon, nerve injury	Healed lacerations with no tendon, nerve injury	acute Laceration with tendon, nerve injury within 2 weeks	lacerations over 2 weeks
	acute Infections	chronic and resolved infections	acute infection	chronic infection ie chronic osteomyelitis
	acute fractures hand, wrist, elbow requiring surgical treatment	tendonitis hand, wirst, elbow trigger finger, dequervain's, epicondylitis (tennis/golfer's elbow)	acute fractures requiring surgical management	tendonitis hand, wirst, elbow trigger finger, dequervain's, epicondylitis (tennis/golfer's elbow)
	acute injury hand, wrist, elbow within 2 weeks	nerve compression syndromes carpal tunnel, cubital tunnel, etc	Acute high energy injury hand, wrist,elbow pain without prior evaluation	nerve compression syndromes carpal tunnel, cubital tunnel etc
		chonic fracture over 6 weeks		nonop fractures and Fractures over 2 weeks
		injury hand, wrist, elbow over 2 weeks		injury hand, wrist, elbow pain over 2 weeks
		**OK for telemedicine		**OK for telemedicine

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COVID 19: Elective Case Triage Guidelines for Surgical Care

Otolaryngology

Healthcare facilities and clinicians should prioritize urgent and emergency visits and procedures now and for the coming several weeks. The following actions can preserve staff, personal protective equipment, and patient care supplies; ensure staff and patient safety; and expand available hospital capacity during the COVID-19 pandemic:

- Delay all elective ambulatory provider visits
- Reschedule elective and non-urgent admissions
- Delay inpatient and outpatient elective surgical and procedural cases
- Postpone routine dental and eyecare visits

Based on the most current compilation of information, the American Academy of Otolaryngology–Head and Neck Surgery is recommending that all otolaryngologists limit providing patient care activities to those individuals with time-sensitive, urgent, and emergent medical conditions.

It is important that members of the medical community unite and work with the general population and regulatory agencies to minimize the risk of the SARS-CoV-2 virus transmission from human to human in order to limit the development of new cases. This strategy provides the best chance to not overwhelm facilities with a limited supply of hospital beds, ICU beds, ventilators, and other critical supplies. Additionally, until disposable medical supplies and protective equipment become more available, we must conserve these for use where they are needed most.

The Academy strongly recommends that all otolaryngologists provide only time-sensitive or emergent care. This includes both office-based and surgical care. The Academy recognizes that “time sensitivity” and “urgency” is determined by individual physician judgment and must always take into account each individual patient’s medical condition, social circumstances, and needs. We must respond to the pandemic crisis and support our colleagues and communities. Please be safe!

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Pediatric Surgery

Guiding principles

- The goal is to provide timely surgical care to children with emergent and urgent pediatric surgical issues while optimizing patient care resources (e.g. hospital and intensive care unit beds, personal protective equipment, ventilators) and preserving the health of caregivers.
- There is no substitute for sound surgical judgement
- Surgery should be performed only if delaying the procedure is likely to prolong hospital stay, increase the likelihood of later hospital admission or cause harm to the patient.
- Children who have failed attempts at medical management of a surgical condition should be considered for surgery to decrease the future use of resources (e.g. recurrent infections in a branchial cleft cyst following course of antibiotics).
- Multidisciplinary shared decisions regarding surgical scheduling should be made in the context of available institutional resources that will be variable and rapidly evolving.
- Telemedicine and teleconsult services should be used for patient and physician interaction when available.

(The following list contains examples and is not meant to be comprehensive.)

Emergency cases

Delay is life threatening

- Acute intestinal obstruction
    - Abnormalities of intestinal rotation
    - Incarcerated inguinal hernia
    - Pyloromyotomy for hypertrophic pyloric stenosis
    - Intussusception reduction not amenable to radiographic reduction
- Extracorporeal life support
- Intestinal perforation
    - Necrotizing enterocolitis with perforation
- Trauma with uncontrolled hemorrhage or penetration
- Ischemia
    - Testicular torsion
    - Ovarian torsion
    - Limb ischemia from trauma or iatrogenic
- Most congenital anomalies

    - Esophageal atresia with tracheoesophageal fistula
    - Symptomatic congenital diaphragmatic hernia
    - Intestinal atresia
    - Intestinal diversion for anorectal anomalies
    - Intestinal diversion for Hirschsprung disease not improved with irrigations
- Appendectomy for acute appendicitis (depending on institutional resources outpatient or short stay should be considered for uncomplicated appendicitis in order to maintain hospital beds; depending on available resources patients with complicated appendicitis should receive parenteral antibiotics and percutaneous drainage if an abscess is present)
- Esophageal or tracheal foreign body ingestion (special note should be made of higher risk of COVID-19 for endoscopic procedures)

Urgent cases

Delays of days to weeks may be detrimental

- Most cancer surgery
    - Solid tumors (initial biopsy, resection following neoadjuvant therapy; consideration should be given for continuing chemotherapy in patients who will require postoperative intensive care or ventilation)
- Portoenterostomy for biliary atresia with jaundice
- Abscess incision and drainage
- Resection or diversion for acute exacerbation of inflammatory bowel disease not responsive to medical management
- Vascular access device insertion
  Consideration should be given to peripherally inserted central catheters
- Repair of symptomatic inguinal hernia
- Cholecystectomy for symptomatic cholelithiasis
- Gastrostomy if required for discharge

Elective cases

Delay results in minimal patient risk

- Vascular access device removal (not infected)
- Chest wall reconstruction
- Asymptomatic inguinal hernia
- Anorectal malformation reconstruction following diversion
- Hirschsprung disease reconstruction following diversion
- Inflammatory bowel disease reconstruction following diversion
- Enterostomy closure
- Breast lesion excision (i.e. fibroadenoma)
- Branchial cleft cyst/sinus excision
- Thyroglossal duct cyst excision
- Fundoplication
- Orchiopexy
- Bariatric surgery
- Splenectomy for hematologic disease
- Cholecystectomy for biliary colic
- Repair of asymptomatic choledochal cyst

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Plastic Surgery

The American Society of Plastic Surgeons recommends that all plastic surgeons cease providing any elective or non-essential services.

The full statement can be found here.

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Thoracic Cancer Surgery

Phase I. Semi-Urgent Setting (Preparation Phase)

Few COVID 19 patients, hospital resources not exhausted, institution still has ICU vent capacity, and COVID trajectory not in rapid escalation phase

Surgery restricted to patients likely to have survivorship compromised if surgery not performed within next 3 months

Cases that need to be done as soon as feasible (recognizing status of hospital likely to progress over next few weeks):

- Solid or predominantly solid (>50%) lung cancer or presumed lung cancer >2cm, clinical node negative
- Node positive lung cancer
- Post induction therapy cancer
- Esophageal cancer T1b or greater
- Chest wall tumors of high malignant potential not manageable by alternative therapy
- Stenting for obstructing esophageal tumor
- Staging to start treatment (mediastinoscopy, diagnostic VATS for pleural dissemination)
- Symptomatic mediastinal tumors – diagnosis not amenable to needle biopsy
- Patients enrolled in therapeutic clinical trials

Cases that should be deferred

- Predominantly ground glass (<50% solid) nodules or cancers
- Solid nodule or lung cancer < 2 cm
- Indolent histology (e.g. carcinoid, slowly enlarging nodule)
- Thymoma (non-bulky, asymptomatic)
- Pulmonary Oligometastases - unless clinically necessary for pressing therapeutic or diagnostic indications (i.e. surgery will impact treatment)
- Patients unlikely to separate from mechanical ventilation or likely to have prolonged ICU needs (i.e. particularly high-risk patients)

- Tracheal resection (unless aggressive histology)
- Bronchoscopy
- Upper Endoscopy
- Tracheostomy

Alternative treatment approaches to be considered (assuming resources permit):

- Early stage esophageal cancer (stage T1a/b superficial) managed endoscopically
- If eligible for adjuvant therapy, then give neoadjuvant therapy (e.g. chemotherapy for 5cm lung cancer)
- Stereotactic Ablative Radiotherapy (SABR)f
- Ablation (e.g. cryotherapy, radiofrequency ablation)
- Stent for obstructing cancers then treat with chemoradiation
- Debulking (endobronchial tumor) only in circumstance where alternative therapy is not an option due to increased risk of aerosolization (e.g. stridor post obstructive pneumonia not responsive to antibiotics)
- Nonsurgical staging (EBUS, Imaging, Interventional Radiology biopsy)
- Follow patients after their neoadjuvant for "local only failure" (i.e. salvage surgery)
- Extending chemotherapy (additional cycles) for patients completing a planned neoadjuvant course

Phase II. Urgent Setting

Many COVID 19 patients, ICU and ventilator capacity limited, OR supplies limited or COVID trajectory within hospital in rapidly escalating phase

Surgery restricted to patients likely to have survivorship compromised if surgery not performed within next few days

Cases that need to be done as soon as feasible (recognizing status of hospital likely to progress over next few days):

- Perforated cancer of esophagus – not septic
- Tumor associated infection – compromising, but not septic (e.g. debulking for post obstructive pneumonia)
- Management of surgical complications (hemothorax, empyema, infected mesh) – in a hemodynamically stable patient

Cases that should be deferred:

- All thoracic procedures typically scheduled as routine/elective (i.e. not add-ons)

Alternative treatment approaches RECOMMENDED (assuming resources permit):

- Transfer patient to hospital that is in Phase I
- If eligible for adjuvant therapy then give neoadjuvant therapy
- Stereotactic Ablative Radiotherapy (SABR)

- Ablation (e.g. cryotherapy, radiofrequency ablation)
- Reconsider neoadjuvant as definitive chemo-radiation, and follow patients for "local only failure" (i.e. salvage surgery)

Phase III.

Hospital resources are all routed to COVID 19 patients, no ventilator or ICU capacity, OR supplies exhausted.

Surgery restricted to patients likely to have survivorship compromised if surgery not performed within next few hours

Cases that need to be done as soon as feasible (status of hospital likely to progress in hours)

- Perforated cancer of esophagus – septic patient
- Threatened airway
- Tumor associated sepsis
- Management of surgical complications – unstable patient (active bleeding not amenable to nonsurgical management, dehiscence of airway, anastomotic leak with sepsis)

All other cases deferred
Alternate treatment recommended

- Same as above

General Recommendations

The Society of Surgical Oncology have recommendations for a number of additional cancer types.

Case status (i.e. risk of death time frame) determination made by Division, ideally in a multi-clinician setting (case review conference)

Consent language: You are being offered surgery now, because at this time we feel that your risk of being harmed by infections, including coronavirus, within the hospital is low, and that delaying surgery could reduce your chances of being cured of cancer. It is not possible to know either the risk of delaying surgery or the chance of getting an infection with perfect accuracy, but I did consult my colleagues and it is our group's opinion that surgery is a reasonable thing to do.

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Urology

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

ACS: COVID-19 Recommendations for Management of Elective Surgical Procedures

CMS Adult Elective Surgery and Procedures Recommendations **NEW**

COVID-19: Considerations for Elective Urologic Surgery with Dr. Chris Gonzalez

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Vascular Surgery

Category	Condition	Tier Class
	Ruptured or symptomatic TAAA or AAA	3 Do not postpone
	Aneurysm associated w/infection or Prosthetic graft infection	3 Do not postpone
	AAA > 6.5 cm	2b Postpone if possible
	TAAA > 6.5 cm	2b Postpone if possible
	AAA < 6.5 cm	1 Postpone
AAA		
	Peripheral aneurysm, Symptomatic	3 Do not postpone
	Peripheral aneurysm, Asymptomatic	2a Consider postponing
	Pseudoaneurysm Repair: Not candidate for thrombin injection or compression, rapidly expanding, complex	3 Do not postpone
	Symptomatic non-aortic intra-abdominal aneurysm	3 Do not postpone
	Asymptomatic non-aortic intra-abdominal aneurysm	2a Consider postponing
Aneurysm peripheral		
	Acute aortic dissection with rupture or malperfusion	3 Do not postpone
Aortic Dissection		

Aortic emergency NOS	AEF with septic/hemorrhagic shock, or signs of impending rupture	3 Do not postpone
	Infected arterial prosthesis without overt sepsis, or hemorrhagic shock, or impending rupture	3 Do not postpone
	Revascularization for high grade re-stenosis of previous intervention	2b Postpone if possible
Bypass graft complications	Asymptomatic bypass graft /stent restenosis	1 postpone
	Symptomatic Carotid Stenosis: CEA and TCAR	3 Do not postpone
Carotid	Asymptomatic carotid artery stenosis	1 Postpone
	Thrombosed or nonfunctional dialysis access	3 Do not postpone
	Infected dialysis access	3 Do not postpone
	Fistula Revision for Ulceration	3 Do not postpone
	Renal failure with need for dialysis access	3 Do not postpone
	Tunneled Dialysis Catheter	3 Do not postpone
	Fistula Revision for Malfunction/steal	2b Postpone if possible
	Fistulagram for malfunction	2b Postpone if possible
Dialysis	AV fistula and graft placement for dialysis (ESRD, CK4, and CK5 only)	2a Consider postponing
	Symptomatic acute mesenteric occlusive disease	3 Do not postpone
Mesenteric	Chronic mesenteric ischemia	2b Postpone if possible
	Acute limb ischemia	3 Do not postpone
PVD	Limb Ischemia: Progressive tissue loss, acute limb	3 Do not postpone

	ischemia, wet gangrene, ascending cellulitis	
	Fasciotomy for compartment syndrome	3 Do not postpone
	Peripheral Vascular Disease: Chronic limb threatening ischemia - rest pain or tissue loss	2b Postpone if possible
	Peripheral Angiograms and endovascular therapy for Claudication	1 Postpone
	Surgical Procedures for Claudication	1 Postpone
Thrombolysis	Lysis, Arterial and venous	2b Postpone if possible
	Symptomatic venous TOS with acute occlusion and marked swelling	2b Postpone if possible
	Thoracic Outlet Syndrome, Arterial with thrombosis	2b Postpone if possible
	Thoracic Outlet Syndrome, Neurogenic	1 postpone
TOS	Thoracic Outlet Syndrome, Venous otherwise	2a Consider postponing
Trauma	Traumatic injury with hemorrhage and/or ischemia	3 Do not postpone
	Acute iliofemoral DVT with phlegmasia	3 Do not postpone
	IVC filter placement	2b Postpone if possible
	Massive symptomatic iliofemoral DVT in low risk patient	2b Postpone if possible
	Procedures for Ulcerations secondary to venous disease	2a Consider postponing
	Asymptomatic May Thurner syndrome	1 Postpone
	IVC filter removal	1 Postpone
venous	Varicose veins, GSV ablations	1 Postpone

	Amputations for infection/necrosis (TMA, BKA, AKA)	3 Do not postpone
	Lower extremity disease with non-salvageable limb (amputation)	3 Do not postpone
	Deep Debridement of Surgical wound infection or necrosis	2b Postpone if possible
	Wounds requiring skin grafts	2b Postpone if possible
Wounds/ Gangrene/Amputation	Amputations for infection/necrosis (toes)	2b Postpone if possible
Spine	ALIF exposure for Spine team	2a Consider postponing
	Surgery/Embolization for uncontrolled bleeding in unstable patients	3 Do not postpone
	Surgery/Embolization for bleeding in stable patients	2b Postpone if possible
	MediPort for immediate infusion needs	2b Postpone if possible
Other	Port Removal for complication	2b Postpone if possible

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