

COVID-19 Levels of Surgery – April 3, 2020 1446

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This guideline provides a framework that can be used in a pandemic or mass casualty scenario where resources are constrained and not all cases can safely be performed. Levels are defined from 1 (urgent/emergent) to 5 (truly elective). As resources become more constrained, cases will be cancelled, starting with level 5, then moving to level 4, and so forth. In cases in which the provider believes we should proceed with a case that would otherwise not be done, the medical director of surgical services will adjudicate to determine whether we will proceed with that case.

1. Patient has imminent risk to life or limb within 48 hours if the surgery is not performed
Examples include, but are not limited to:
 - **CANCER HEALTH:** Emergent incision and drainage procedures, fasciotomies, hematoma decompression, Vascular compromise, abdominal compartment syndrome, treatment of acute hemorrhage and gynecologic emergencies, tumor compression of Vascular structures with compromise.
 - **CARDIOTHORACIC:** Uncontrolled severe heart failure requiring mechanical support, malfunctioning VAD, unstable angina requiring intraaortic balloon pump or escalating IV antianginals, papillary muscle rupture, blown mitral valve, VSD post-infarct, blown aortic prosthetic valve, active uncontrolled endocarditis, pericardial tamponade, post surgical bleeding, aortic dissection, uncontrolled cath lab STEMI, acute hemoptysis of frank blood that cannot be controlled by non-surgical means, heart transplant, ECMO (with standard indications)
 - **ENDOSCOPY:** Inpatient cases for patients with active GI bleed, esophageal foreign bodies, ascending cholangitis, Ogilvie's, etc.
 - **ENT:** Airway obstructing head and neck cancer patients
 - **GENERAL:** Perforated viscus, ischemic/necrotic bowel, closed loop bowel obstruction/volvulus, fulminant colitis, strangulated hernia, necrotizing fasciitis, Endoscopy for bleeding/obstruction, perforating trauma, solid organ injury causing hemodynamic instability, acute cholecystitis/appendicitis with evidence of sepsis
 - **NEUROSURGERY:** Subdural Hematoma evacuation, Ruptured aneurysm clipping, ruptured AVM surgery, decompressive craniectomy, resection of brain or spine tumor with significant mass effect, evacuation of intracerebral hemorrhage, laminectomy/fusion for decompression of spinal cord for acute injury, surgery for brain or spinal cord abscess or hematoma, thrombectomy for stroke
 - **OB/GYN:** unscheduled c-section (in labor or with pregnancy complication requiring delivery), ovarian torsion, acute obstetric or gynecologic hemorrhage, group A strep or tubo-ovarian abscess with sepsis uncontrolled by medical management, ectopic pregnancy, rescue cerclage
 - **OPHTHALMOLOGY:** Retinal hemorrhage or other condition causing compression on optic nerve, ocular trauma
 - **ORTHOPEDICS:** Septic joint/osteomyelitis, open fracture, multiple major long bone fractures, major pelvic/acetabular fractures, animal bites (deep/complex/infected), compartment syndrome, necrotizing fasciitis

- **PODIATRY:** Partial foot amputation (partial ray, TMA, toe amputation) for wet gangrene with evidence of sepsis. Incision and drainage of abscess in a patient with evidence of sepsis
 - **UROLOGY:** obstructing kidney stone with infection, Fournier's gangrene, testicular torsion, urinary retention with urethral stricture and inability to place catheter
 - **VASCULAR:** Traumatic bleeding, acute aortic injury, critical limb ischemia with need for urgent/emergent reVascularization, aortic dissection with visceral malperfusion, ruptured abdominal aortic aneurysm, acute mesenteric ischemia, compartment syndrome, amputations for wet gangrene with signs of sepsis, distal perfusion catheter placements and Vascular repair (ECMO patients), symptomatic aortic aneurysm in urgent need of open/endoVascular repair
2. Patient has risk to losing life or limb between 2 and 30 days if the surgery is not performed

Examples include, but are not limited to:

- **CANCER HEALTH:** Tumor resection to address imminent, intestinal, or organ compromise, surgeries related to subacute infection treatment
- **CARDIOTHORACIC:** Inpatient NSTEMI or STEMI on IV heparin with controlled ischemia, controlled active endocarditis, valvular heart disease rescued from heart failure, heart failure dependent on IV inotropes
- **ENDOSCOPY:** all other inpatient Endoscopy, some urgent outpatient cases
- **ENT:** Anaplastic thyroid cancer
- **GENERAL:** Acute cholecystitis/severely symptomatic cholelithiasis, acute appendicitis, debridement of infected wound, diverticulitis unable to be resolved with antibiotic therapy, inguinal hernia repairs for patients <2 yrs of age, feeding tube placement, partial bowel obstructions/intra-abdominal infection related to inflammatory bowel disease
- **NEUROSURGERY:** Resection of brain or spine tumor without immediate mass effect, laminectomy/fusion for decompression of spinal cord with significant mass effect and neurological deficit, removal of infected hardware including spinal cord stimulator, brain implants and all other spine or brain implants.
- **OB/GYN:** scheduled c-section, scheduled cerclage, acute severe ongoing gynecologic bleeding not requiring transfusion and uncontrolled by medical management
- **ORTHOPEDICS:** Most long bone fractures not at risk for fat-emboli syndrome, hip fractures, acute soft tissue infections, acute total joint infection
- **PODIATRY:** Incision and drainage of abscess, partial foot amputation (partial ray, TMA, toe amputation) for wet gangrene without evidence of sepsis.
- **UROLOGY:** cystectomy patients with aggressive bladder cancer, T2+ kidney cancer, large or high risk TURBT, orchiectomy for testicular cancer, ureteral stones with uncontrolled pain and prolonging hospitalization/repeated ED visits, nephroureterectomy for high risk urothelial cancer of the kidney, penile cancer
- **VASCULAR:** symptomatic carotid artery disease, thoracic aortic aneurysm > 6.5cm, asymptomatic AAA > 7.0cm, amputation for wet gangrene without signs of sepsis, graft infections requiring explant, severe PAD with worsening tissue loss/rest pain, some ECMO decannulations when able to continue ECMO

safely, fistulograms in threatened AV fistulas with urgent need for dialysis, clotted AV fistulas

3. Patient will face long-lasting harm with possible risk of mortality or metastases between 1 and 6 (should this be more like 3-4 months? The cancer and cardiac cases are best for that shorter period) months if the surgery is not performed

Examples include, but are not limited to:

- **CANCER HEALTH:** Biopsies/other diagnostic procedures, tumor resections to address likely potential Vascular/neural/intestinal/organ compromise, tumor staging procedures, planned tumor resections following neoadjuvant treatment. Surgeries aligned with completion of chemotherapy and radiotherapy should attempt to align to more optimal windows of timing when able.
- **CARDIOTHORACIC:** Lung cancer, cancer metastatic to lungs, stable angina, stable valvular heart disease, stable heart rhythm disorder (e.g., atrial fibrillation requiring surgical ablation in patients who are not candidates for anticoagulation)
- **ENDOSCOPY:** outpatient cases with high pre-test probability of cancer
- **ENT:** thyroidectomy for malignancy or low risk of tracheal compression, other routine head/neck cancer patients
- **GENERAL:** Hernia repairs with mod risk of strangulation, port placements, repeated episodes of infection secondary to diverticular disease or fistula(e)
- **NEUROSURGERY:** Resection of brain or spine tumor without major mass effect, elective aneurysm surgery/procedure, elective AVM surgery/procedure
- **OB/GYN:** Hysterectomy and/or oophorectomy for malignancy, prolapse with ureteral obstruction that cannot be temporarily alleviated by pessary
- **ORTHOPEDICS:** chronic soft tissue wounds or chronic total joint infections, most ortho/onc resections
- **PODIATRY:** Toe or partial foot amputation for a metastatic cancer (malignant melanoma on a toe)
- **UROLOGY:** T1 kidney cancer, high risk prostate cancer, cystectomy for lower risk bladder cancer
- **VASCULAR:** AAA 5.5-7.0 cm with risk of rupture if delayed greater than 6 months (per judgment), chronic mesenteric ischemia, carotid disease with string sign, PAD with more stable symptoms/minor tissue loss

4. Patient will face long-lasting harm but without significant risk of mortality if the surgery is not performed

Examples include, but are not limited to:

- **CANCER HEALTH:** Failed implant or reconstruction revision procedures (failed hardware/implant without infection), resections of precancerous masses or masses with low suspicion for malignancy
- **CARDIOTHORACIC:** Therapeutic pleural procedure on absence of respiratory compromise, diagnostic thoracic procedure with concern for infection/inflammatory process (not malignancy)
- **ENDOSCOPY:** outpatient cases with active symptoms and high pre-test probability for a condition needing urgent endoscopic diagnosis or therapy

- **ENT:** children with fever/pain with antibiotic failure requiring ear tube placement, children with severe sleep apnea requiring adenotonsillectomy, complex pediatric airway cases (supraglottoplasty for newborn stridor)
- **GENERAL:** severely symptomatic anorectal disease (fistulae, abscesses)
- **NEUROSURGERY:** carpal tunnel release for patients with neurological deficit, ulnar nerve release for patients with neurological deficit
- **OB/GYN:** evaluation for malignancy (biopsy, D&C) with high clinical suspicion, adnexal mass with risk for torsion (>6cm) accompanied by significant pain, high grade dysplasia (VIN3, VAIN3, CIN3), hysterectomy or myomectomy with ongoing bleeding and significant anemia (hgb <10) that has failed or is contraindicated for medical management.
- **OPHTHALMOLOGY:** Acute influence upon vision that would lead to long term vision impairment if surgery is not done within 6 months
- **ORTHOPEDICS:** Multi-ligament knee, acute ligament avulsions, ACL with unstable meniscus or gross instability, patella dislocations with loose joint body, tendon repair, joint manipulation following arthroplasty, minimally displaced fractures, meniscus root repair, loose joint body floating with potential for joint damage, OATS procedure wherein performance outside of 60 day window will cause further joint impairment, achilles repair, avulsion fractures, revision joint with impending failure
- **UROLOGY:** lower risk bladder cancer, intermediate risk prostate cancer
- **VASCULAR:** asymptomatic carotid high-grade stenosis, temporal artery biopsy

5. Truly elective cases - all other cases not meeting the above criteria

Examples include, but are not limited to:

- **CANCER HEALTH:** benign mass resection, prophylactic mastectomy, ostomy takedown
- **CARDIOTHORACIC:** stable atrial fibrillation maintained on anticoagulation, sternal wire removal due to pain
- **ENDOSCOPY:** screening and surveillance without active symptoms or other patients with active symptoms but no red flags and low pre-test probability
- **ENT:** nasal/sinus surgery, adult ear surgery, salivary gland surgery, routine tonsillectomy, routine laryngoscopy, goiter without dysphagia
- **GENERAL:** biliary colic, inguinal/ventral/umbilical hernias without evidence of strangulation/incarceration, reflux procedures, most hemorrhoid surgery, ostomy takedown, asymptomatic Crohn's disease, quiescent diverticular disease, screening/surveillance colonoscopy
- **NEUROSURGERY:** Placement of spinal cord stimulator, decompressive/fusion spine procedures without neurological deficit or myelopathy, removal of spinal cord stimulator, removal of hardware, replacement of cranial bone flap, deep brain stimulation surgery, epilepsy surgery
- **OB/GYN:** hysterectomy for all other indications not listed above, prolapse and incontinence surgery without ureteral obstruction, endometriosis surgery
- **OPHTHALMOLOGY:** Cataract
- **ORTHOPEDICS:** Meniscus non-displaced, elective arthroplasty, bunion/foot surgery, fusions foot/wrist/hand, hardware removals, microfracture, hip arthroscopy, shoulder arthroscopy minus rotator cuff repair, Tommy John

reconstruction, office hand surgery, elbow/wrist arthroscopy, scoliosis surgery,
labral repairs, knee arthroscopy not covered above, manipulation for frozen
shoulder without previous surgery