



Philippine College of Surgeons

ADVISORY ON TRIAGING AND RISK-STRATIFICATION OF ELECTIVE SURGERIES (as of May 2021)

I. Introduction

The scale of the pandemic has created substantial pressure on the healthcare system not only in the Philippines but globally. While most institutions continued to perform emergency surgeries, elective procedures were temporarily put on hold to reduce hospital visits by patients. This strategy was also resorted to so that health care manpower can be redirected to address the overwhelming COVID-19 case load. This situation however cannot continue for long as it puts patients at a higher risk for complications due to delayed management. Hence it is essential to resume routine, especially elective surgery.

To support the delivery of surgical services especially given the limited functional hospital capacities, prioritization of different procedures has to be undertaken. It is necessary that a universal standard is derived and common strategies provided which can be adopted by surgeons. To help address the challenges that hospitals face related to COVID-19, in particular, the need for institutions to limit elective surgical procedures^{1,2} as a result of the rising number of COVID cases, the Philippine College of Surgeons provides the following guidance regarding the triaging and stratification of elective operations.

This advisory summarizes the available evidence and is designed as an organized algorithm taking into consideration guidance provided by other sources. Key principles that are paramount to resuming elective surgeries safely given the inherent risk of COVID-19 disease transmission in a hospital set-up will be highlighted.

Whereas elements of the COVID-19 guidelines shared by the Philippine College of Surgeons in 2020 are incorporated in the present advisory, notable additions include:

1. Risk stratification and algorithm for triaging of elective procedures
2. Recommendations for timing of surgery after COVID-19
3. Surgical Issues related to COVID-19 vaccination

These recommendations are based on evidence available at the time of this writing and as further data emerge, these recommendations may need to be revised.

II. Requirements for Resumption of Elective Surgery

While some surgical cases may be postponed indefinitely, the vast majority are associated with disease that will continue to progress at variable, disease-specific rates². As these medical conditions persist and advance in the absence of surgical intervention, important medical and logistical issues have to be considered before deciding whether to either delay or to push thru with the surgical procedure.

In resuming elective surgeries, the four key areas that need to be addressed in order to prevent peri-operative SARS-CoV-2 Infection are:

A. Infrastructure

- A COVID-19 negative pathway for elective cases must be established. Maintaining dedicated pathways, hospital staff and treatment locations that separate screened and PCR-negative patients from contact with patients with suspected or confirmed SARS-CoV-2 infection is essential.
- When possible, COVID-19 positive and suspected patients are to be operated only in dedicated airborne infection isolating operating rooms that have negative pressure relative to the surrounding area.
- Isolation areas, recovery rooms, and negative pressure Operating Room theatres for operating on COVID-19 patients must be available.
- Adequate ICU beds preferably as separate rooms must be available.
- Physical distancing measures inside hospital premises, including clinics, operating theatres, waiting areas and recovery rooms must be strictly administered

B. Resources

- Hospitals should invest in resources important to prevent disease transmission inside the hospital set-up such as:
 - Personal protective equipment
 - Additional surgical equipment and supplies
 - Equipment for infection control
 - Covid-19 testing ability of the hospital in addition to other diagnostic services

C. Healthcare workforce

- It is necessary to make sure that the entire caregiving staff including surgeons, anesthesiologists, nurses and aides are disease-free and protected prior to performing an elective procedure.
- Practices that reduce the risk of acquiring SARS-CoV-2 infection such as hand hygiene, wearing masks and face-shields, social distancing, as well as minimizing time within healthcare environments should be adhered to at all times. Viral

transmission has been noted to occur especially in areas such as the pantry, lounge and nurses' stations where OR personnel congregate.

- Recommended personal protective equipment to be worn when caring for a patient with known or suspected COVID-19 infection should include either a properly fitted N95 mask or a powered air purifying respirator (PAPR), a face shield or goggles, a gown, and gloves.
- All health care workforce involved in surgical patient care should be regularly screened for COVID-19 symptoms and if possible tested preferably using SARS-COV 2 real-time reverse transcription – polymerase chain reaction (RT-PCR) before resuming elective cases and periodically thereafter to prevent in-hospital COVID-19 infections.
- Use extreme caution when removing and disposing of PPE to minimize the risk of self-contamination.
- Currently, there is no evidence to show that full vaccination will prevent health care workers from contracting or transmitting COVID-19 infections to fellow healthcare workers and patients

D. Patient selection

- Postpone non-urgent surgical procedures until the patient is determined to be non-infectious or not infected.
- Select patients depending on COVID-19 exposure history and testing result in addition to other factors like co-morbidity
- Despite effective control measures, the risk of COVID-19 transmission cannot be eradicated entirely especially in a hospital set-up that deals with COVID-19. Obtain appropriate informed consent that clearly explains the additional chance of infection and that the plan of action is tentative and subject to change depending on the local situation.
- In scheduling elective procedures, patients with progressing symptoms or those with a high risk of complication if delayed further, should be prioritized.

III. Triage and Stratification

Surgeries may be stratified according to indication and degree of urgency, bearing in mind that many elective surgical procedures can be upgraded in terms of priority at any time and become urgent or emergent. The unpredictable timeline of COVID-19 necessitates the development of safe strategies that will guide timely surgical decision making.⁴

Elective surgeries can be subdivided into two categories – essential or non-essential. Essential surgery is defined as a procedure that would have a negative impact on the patient’s health and clinical outcome if it is delayed over some period of time. Non-essential surgery is defined as a procedure that can be delayed without undue risk to the current or future health of a patient. (Examples of the procedures classified under these categories are cited in Table 1).

Table 1. Sample stratification of elective surgical procedures by indication/urgency.

Urgent-elective < 2 weeks	Elective (essential) 2 weeks – 2 months	Elective (non-essential) > 2 months
<ul style="list-style-type: none"> • High-risk cancer • Cardiothoracic procedures • Scheduled C-section • Spinal fractures • Vascular access 	<ul style="list-style-type: none"> • Lower risk cancer surgery & biopsies • Biliary surgery • Bariatric high-risk • Hernia repair (symptomatic) • Hysterectomy • Reconstructive surgery • Skin grafts / flaps / wound closures 	<ul style="list-style-type: none"> • Cosmetic surgery • Bariatric low-risk • Joint replacement • Vasectomy / tubal ligation • Infertility procedures

Modified from Stahel PF.⁵

Considering the complexity of trying to classify all operations into one of the three categories as listed above, it may be more useful to highlight some factors that are important in determining whether a surgical procedure is essential for a particular patient based on the surgeon’s assessment.

The following issues must be considered:

1. Threat to the patient’s immediate survival if surgery is not performed
2. Threat of permanent limb or organ dysfunction
3. Rapidly evolving neoplasm
4. Risk of progression of disease with reduction of possibility of recovery or more important intervention later, more morbid treatment, or risk of inoperability
5. Risk of worsening toward more severe symptoms, consuming more pain medications or developing chronic pain because of delay in treatment
6. Availability of alternative treatment to surgery as the standard of care
7. Benefit of surgery greater than the risk of exposing the patient to COVID-19 and its consequences

An alternative strategy that may be utilized in stratifying elective cases is the Elective Surgery Acuity Scale (ESAS) as proposed by Smeds and Siddiqui and adapted by the American College of Surgeons (ACS).²

Elective Surgery Acuity Scale (ESAS)				
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- 9 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

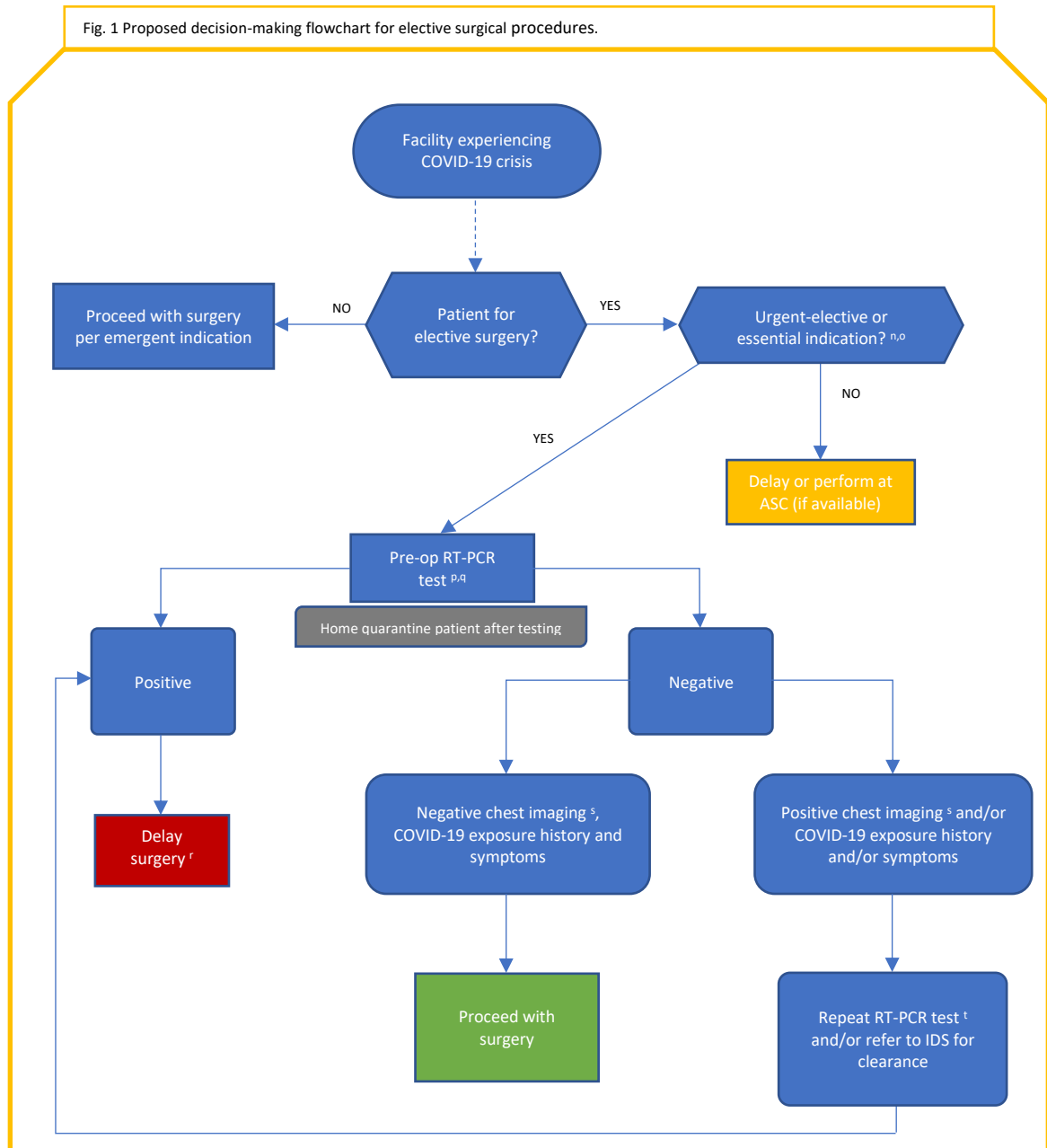
HOPD – Hospital Outpatient Department
ASC – Ambulatory Surgery Center

Adapted from Smeds MR and Siddiqui S. Proposed resumption of surgery algorithm after the coronavirus SARS-CoV-2 pandemic. J Vasc Surg. 2020 Aug; 72(2): 393–395.

It is recommended that facilities establish a prioritization policy committee consisting of surgery, anesthesia and nursing leadership to perform oversight functions and to develop a prioritization strategy appropriate for the locality and immediate patient needs.

IV. Recommended Algorithm for Stratifying Elective Procedures

Fig. 1 Proposed decision-making flowchart for elective surgical procedures.



Modified from Stahel PF.⁵

ⁿ See table 1 for surgical case stratification.

^o ASA risk should be considered.

^p Swab validity prior to an elective procedure varies from different institutions and depends on availability and RT-PCR test TAT (turnaround time).^{1,8} Current practice suggests validity of 2-7 days prior to surgery.⁷

^q Patient's companion also to be tested.

^r Seven weeks appears to be the ideal length of time to delay surgery. Risk of death is about 3.5 to 4 times higher in the first 6 weeks after surgery among patients with a preoperative COVID-19 diagnosis.¹⁰

^s Chest CT⁹ or x-ray⁶. Utilization depends on the facility's infection control guidelines.

^t In symptomatic patients with high index of suspicion for COVID-19 infection, a repeat PCR test is suggested.^{6,11}

V. Prevention of COVID-19 Infection

Recommendations to minimize the risk of patients either arriving in hospital incubating SARS CoV-2 or acquiring it while admitted in the hospital include:

A. Pre-operative Strategies

1. Minimize patient visits to the hospital by using teleconsultation whenever possible.
2. Provide patients with information about COVID-19 symptoms and ways of transmission. Instruct about the importance of using face mask and hand hygiene.
3. Where applicable, patients undergoing elective surgery should be advised to limit their social contacts for a 14-day period prior to the planned surgical procedure and to follow strict physical distancing and hand hygiene guidance.
4. If a patient declines to isolate preoperatively, carry out a risk assessment and discuss the risks and benefits of going ahead with the surgery.
5. Conduct proper pre-operative screening for exposure to or symptoms of COVID-19 to prevent admission of patients who are incubating SARS-CoV-2. Evidence suggests a 19.1% and 26.0% 30-day mortality in elective and emergency surgical patients, respectively, with around half of patients operated on when infected with SARS-CoV-2 experiencing postoperative pulmonary complications.
6. Patient testing policy should include accuracy and timing considerations. It is recommended that patients are screened and tested as close to the surgical procedure as possible. All patients must be tested within 48 hours up to a maximum of one week prior to surgery using SARS-CoV2 RT-PCR.
7. If RT-PCR testing is not readily available or practical, an FDA-approved antigen rapid detection test (Ag-RDT) may be used as an alternative¹¹ to RT-PCR in special circumstances such as:
 - i. When pre-operative negative RT-PCR test result will exceed the recommended 7 day validity period but is impractical to repeat because of long turnaround time.
 - ii. Patients with a negative pre-operative RT-PCR test result requiring additional surgical procedure after 7 days of the initial RT-PCR test but within the same confinement.
8. From the date of RT-PCR swabbing, patients should self-isolate until their planned admission.
9. Continue to monitor patients daily and watch out for COVID-19 symptoms until the day of surgery. Patients who have negative tests and continue to screen

negative for COVID-19-like symptoms until the time of the operation can proceed with their planned elective surgery.

10. Laboratory testing and radiologic imaging procedures should be determined by patient indications and procedure needs. Testing and repeat testing without indication is discouraged.
11. If upon screening the patient presents with new onset typical or atypical symptoms of COVID-19 or a history of contact with a person with confirmed COVID-19, the planned surgery should be postponed and a repeat RT-PCR test done 5 days after onset of symptoms.
12. Ideally, the pre-identified in-hospital companion should also undergo RT-PCR testing. The companion must be on home quarantine to avoid possible exposure to COVID-19 while awaiting the results of the test.⁶
13. An additional measure which should be considered is SARS-CoV-2 vaccination of patients several weeks before hospital admission and surgery to reduce the risk to the patients themselves.

B. Intra-operative Strategies

1. Universal precautions need to be taken irrespective of patient status to protect healthcare professionals from being exposed to COVID-19 because of its impact on the manpower of the hospital.
2. Surgeons should minimize equipment use and open only the packs that are needed.
3. Operating rooms should be thoroughly disinfected after each procedure.

C. Post-operative strategies

1. Additional care should be provided so that patients are free from cross-infection.
2. Patients should be monitored remotely for their daily temperature and symptoms of COVID-19 if any.
3. Discharge the patient as early as possible so that the rest of the post-operative period can be spent at home.
4. Surgeons can do teleconsultation with patients so that they will refrain from visiting the hospital unless it is absolutely necessary.

VI. Special Considerations

1. Surgery after COVID-19 Infection

While non-COVID-19 patients can be operated on with minimal risk, operating on a COVID-19 patient needs the utmost care to avoid potential patient and hospital staff morbidity. In addition, given the scale of the pandemic, peri-operative outcomes after a previous SARS-CoV-2 infection are an important concern, as a significant number of patients who have previously been infected may require surgery. Therefore, special attention and re-evaluation are needed if the patient has had COVID-19 disease given the multi-system and sometimes long-lasting ill-effects after coronavirus infection.

a. Pre-operative screening and patient self-isolation after COVID-19 infection

Elective surgery after SARS-CoV-2 infection must be safe for staff, other patients and the public so planned surgery should not be considered during the period that a patient may be infectious. Therefore, adherence to self-isolation guidelines is imperative.

Symptoms of COVID-19 usually present 4–5 days following infection with SARS-CoV-2. It is most contagious in the 2 days before and the 5 days after the onset of symptoms.

In asymptomatic and mild to moderately-symptomatic patients, it is rare for the virus to be cultured beyond 10 days after symptom onset. This underlies the World Health Organization recommendation for self-isolation of 10 days following a positive SARS-CoV-2 RT-PCR test.

In the severely ill or severely immunocompromised patients, infectivity may continue for a longer period. For this subgroup of patients, the risk of replication-competent virus is approximately 5 per cent at 15 days after symptom onset and extremely rare at 20 days.

For patients who are not severely immunocompromised and have been asymptomatic throughout their infection, isolation and other transmission-based precautions may be discontinued when at least 10 days have passed since the date of their first positive viral diagnostic test.

For patients who are not severely immunocompromised and experience mild to moderate symptoms, the CDC recommends discontinuing isolation and other transmission-based precautions when at least 10 days have passed since symptoms first appeared, at least 24 hours have passed since last fever without the use of fever-reducing medications, and symptoms (e.g. cough, shortness of breath) have improved.

In patients with severe to critical illness or who are severely immunocompromised, the CDC recommends discontinuing isolation and other transmission-based precautions when at least 15–20 days have passed since symptoms first appeared, at least 24 hours have passed since last fever without the use of fever-reducing medications, and symptoms (e.g. cough, shortness of breath) have improved. Consultation with infectious disease experts is strongly advised prior to discontinuing precautions for this group of patients. Clinical judgment ultimately prevails when deciding whether a patient remains to be infectious.

If emergency surgery is required during this period, full transmission-based precautions should be undertaken for protection of the staff.

It should be emphasized that PCR positivity does not correlate with secretion of the live virus so it is of little or no value in assessing the risk of infectivity in the 3 months after confirmed SARS-CoV-2 infection.

b. Timing of elective surgery after SARS-CoV-2 Infection

The same general principles of safe and effective peri-operative care as for patients with no history of SARS-CoV-2 apply. The timing of surgery after a previous SARS-CoV-2 infection however must account for the severity of the initial infection, ongoing symptoms of COVID-19, comorbid and functional status, clinical priority and risk of disease progression, and the complexity of surgery. Short and long-term complications of SARS-CoV2 infection such as chronic pulmonary dysfunction, myocardial inflammatory states, renal impairment, psychological distress, chronic fatigue and musculoskeletal deconditioning, could have an impact on postoperative recovery, and therefore must be considered in order to plan safe surgery.

For majority of patients infected with SARS-CoV-2, the clinical course is either a transient or asymptomatic disease followed by full recovery. Approximately 15% of infected patients are hospitalized, 5% require advanced oxygen therapies and around 1% of all cases require critical care admission. While nearly 5% of all patients still have residual symptoms at 8 weeks following SARS-CoV-2 infection, the rate is higher in patients who have been hospitalized with COVID-19.

Peri-operative risks are increased in patients with persistent symptoms of COVID-19 compared with those who have been asymptomatic or those in whom symptoms have fully resolved at the time of surgery. Evidence suggests that risks associated with operating on patients who still have symptoms following SARS-CoV-2 infection decrease in a time-dependent manner. Compared with patients who did not have previous SARS-CoV-2 infection, the odds ratio (95%CI) of 30-day mortality when operating at 0–2 weeks, 3–4 weeks, 5–6 weeks were 3.22 (2.55–4.07), 3.03 (2.03- 4.52) and 2.78 (1.64–4.71), respectively. However, at 7 weeks or more after a SARS-CoV-2 infection diagnosis, the risk of mortality was similar to

those who had never had SARS-CoV-2 infection (1.02 (0.66–1.56)). The timings of these mortality risks are also consistent in elective surgery, and when stratified by patient demographics, complexity of surgery and urgency of surgery.¹⁰

Because SARS-CoV-2 causes either transient or asymptomatic disease for most patients and therefore require no additional precautions beyond a 7-week delay, elective surgery may be scheduled after 7 weeks of a diagnosis of SARS-CoV-2 infection unless the risks of deferring surgery outweigh the risk of postoperative morbidity or mortality associated with COVID-19.

Patients with on-going persistent symptoms of COVID-19, those who have been hospitalized because of previously severe COVID symptoms, or have recently been treated with steroids or with underlying immunosuppression that might prolong viral clearance are at increased risk of postoperative morbidity and mortality even after 7 weeks. They require a longer preparation time, individual specialist assessment and multidisciplinary peri-operative management. Delaying surgery beyond 7 weeks should be considered, balancing this risk against their risk of disease progression and clinical priority. Based on the 2021 ASA guidelines, symptomatic patients who are diabetic, immunocompromised or hospitalized should have their surgery delayed for at least 8-10 weeks while patients who were admitted to an ICU should have their surgery after 12 weeks from diagnosis.

The time before surgery should be used for functional assessment, rehabilitation from severe illness, prehabilitation and multidisciplinary optimization as these greatly reduces complications especially if the patient has other medical problems. It is important that the patient's perception is changed so that this period will be seen as preparation time rather than waiting time.

2. Vaccination and surgery

Since COVID-19 vaccines are now available in the country, it is important to note that patients may experience some systemic reactions such as fever and chills within 1-3 days after vaccination. These events are self-limiting and most are reported to resolve fully within a week.

Separating the date of surgery from vaccination by 1 week is sensible and can assist the surgeon in decision-making so that symptoms such as fever can be correctly attributed to the consequences of either the vaccination or the surgery itself.¹²

Since studies at this time have not yet conclusively shown that vaccination for COVID-19 prevents transmission of the virus from the vaccinated individual to other exposed persons, even fully-vaccinated patients will still need to undergo pre-operative RT-PCR testing.

3. COVID Screening for Outpatient Surgical Procedures

In areas with a high prevalence of COVID-19 cases, pre-operative RT-PCR testing is recommended.

4. Modified WHO Surgical Safety Checklist

The Philippine College of Surgeons recommends the use of the Modified WHO Surgical Safety Checklist to help ensure patient and health care worker safety before any surgical procedure.

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APPENDIX I. Sample List of Surgeries Based on Indication/Urgency

Elective Urgent

Breast Surgery

- Incision and drainage of breast abscess
- Evacuation of a hematoma
- Revision of an ischemic mastectomy flap
- Revascularization/revision of an autologous tissue flap (but autologous reconstruction should be deferred)

Colorectal Surgery

- Nearly obstructing colon cancer
- Nearly obstructing rectal cancer
- Cancers requiring frequent transfusions
- Cancers with concern about local perforation and sepsis

Biliary Surgery

- Acute cholecystitis
- Choledocholithiasis with cholangitis (mild)

Orthopedic Surgery

- New lower extremity injury with inability to bear weight on extremity
- New upper extremity injury with inability to actively move joint
- concern for infections, major muscular tear, joint dislocation or bone fracture
- acute change of a chronic injury with inability to function
- periprosthetic rupture or infection
- sarcoma/other primary malignancy in a “chemotherapy or RT window”
- aggressive benign tumor with impending pathologic fracture
- acute onset neurological complaints

Pediatric Surgery

- Solid tumors
- 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

Thoracic Cancer Surgery

- Perforated cancer of esophagus – not septic
- Tumor associated infection – compromising, but not septic
- Management of surgical complications (hemothorax, empyema, infected mesh) in a hemodynamically stable patient

Elective Essential

Breast Cancer

- Neoadjuvant patients finishing treatment
- Clinical Stage T2 or N1 ER+/PR+/HER2 negative tumors
- Triple negative or HER2 positive patients
- Discordant biopsies likely to be malignant,

- Excision of malignant recurrence
- Inflammatory and Locally advanced breast cancer

Colorectal Surgery

- Asymptomatic colon cancer
- Locally advanced resectable colon cancer
- Rectal cancers after neoadjuvant chemoradiation with no response to therapy
- Early stage rectal cancers where adjuvant therapy not appropriate
- Locally advanced rectal cancers or recurrent rectal cancers requiring exenteration

Biliary Surgery

- Symptomatic cholelithiasis

Bariatric high-risk

- 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 i.e. transplant, etc.

Orthopedic Surgery

- Acute pains of lower extremity injury with ability to bear weight on extremity
- Acute pains of upper extremity with ability to actively move joint
- Laceration with tendon/nerve injury
- Acute fractures and injury of hand, wrist, elbow requiring surgical intervention
- Neurological issues

Pediatric Surgery

- Repair of symptomatic inguinal hernia
- Cholecystectomy for symptomatic cholelithiasis

Thoracic Cancer Surgery

Elective Non-essential

Breast Surgery

- Excision of benign lesions-fibroadenomas, nodules,
- Duct excisions
- Discordant biopsies likely to be benign
- High risk lesions-atypia, papilloma
- 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 ER positive/PR positive/Her2 negative tumors

Colon Surgery

- 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

Bariatric Low risk

- Primary gastric bypass, sleeve, duodenal switch, gastric band
- Revisions for weight gain

Pediatric Surgery

- 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
- Splenectomy for hematologic disease
- Cholecystectomy for biliary colic
- Repair of asymptomatic choledochal cyst

APPENDIX 2. Modified WHO Safe Surgery Checklist