



The International Society for  
Diseases of the Esophagus

## ISDE Guidance Statement

### Management of upper-GI Endoscopy and Surgery in COVID-19 outbreak

Philip W.Y. Chiu, Cesare Hassan, Hon Chi Yip, Giulio Antonelli, Prateek Sharma

March 30, 2020

*This is an official guidance statement of ISDE to address all the healthcare personnel involved in the management of patients affected by upper-GI diseases during the COVID-19 pandemic. This guidance is based on the best available evidence to date and will be updated as new evidence becomes available.*

Hospital-based transmission of COVID-19 unexpectedly plays a major role in the spread of the disease, generating an enormous pressure on Health Care Personnel (HCP), patients, and the community[1]. One-third of COVID-19 patients in Spain were HCPs, and up to 2 in every 10 HCPs in the red-area in North Italy were infected[2,3].

The magnitude of HCPs involvement represents a key difference in the COVID-19 spread between Western countries and China as only 3% of the Chinese HCPs were infected by the virus[4]. This difference may be explained by a different attitude between Western and Asian HCPs in adopting the necessary preventive measures. For instance, the use of a standard surgical mask – that was standard in Asian countries even before the COVID-19 outbreak – encounters some reluctance in Europe and the United States[1,5]. The same applies to the need for physical or social distancing between HCPs and patients or among HCPs themselves[6]. This is dramatically shown by the unexpected clustering of COVID-19 HCPs in the Western outbreak as compared with the Chinese experience.

Not all procedures are at the same risk of COVID-19 transmission[7]. Despite the dominant route of transmission being airborne droplets or surface contact, aerosol generation is considered to be an additional risk factor, as it was for the spreading of influenza. GI-endoscopy and surgery represent potential aerosol-generating procedures, putting additional risks on the HCPs[8]. Prolonged and difficult procedures are likely to further increase the HCPs' risk of becoming infected.

HCP protection is effective in preventing COVID-19 transmission[9]. Respiratory droplets can be disrupted by a simple mask, while surface contact can be mitigated by meticulous cleaning and disinfection. Aerosol generation, mainly attributed to coughing or exposure of the respiratory mucosa, may be antagonized by appropriate respirators, such as N95 or equivalents[9,10]. Of note, these were the same precautions widely used against Influenza transmission, before the population-based vaccination campaign marginalized its usefulness. On the other hand, protective measures tend to be underutilized in Western countries by the lack of resources due to the unprecedented brisk surging of this outbreak that found most of the health systems in these countries unprepared[11].

In addition to direct preventive measures, indirect strategies aiming to reduce the chances of contacts between HCPs and patients have been advocated[12]. Postponing elective procedures in low-risk patients, especially if at high risk of COVID-19 death, triaging any patient for clinical/epidemiological risk-factors for COVID-19, and isolation and separation of all infected or high-risk cases, are all effective strategies for containing the spread of COVID-19[8,12].

The aim of this Guidance Statement is to define a common pathway for managing COVID-19 concerns that may be applied to Departments with a special interest in upper-GI diseases and their management, including all medical personnel involved in both GI-endoscopy and surgery.

## Statements

- 1. It is recommended that each Institution prepare a multidisciplinary Infection Prevention and Control Protocol with Health Authorities to contain the risk of COVID-19 in the Endoscopy and Surgical Departments. Such protocol must address:**
  - a. The special pathway to diagnose and isolate patients/HCPs with or at high-risk of COVID-19;
  - b. Delivery of adequate personal protective equipment (PPE) to all the staff that is in direct contact with patients.
  
- 2. It is recommended that all HCP are adequately instructed on COVID-19 risks and how to protect from it. This must include:**
  - a. Use of surgical mask, gloves and hairnet to prevent COVID-19 hospital-based transmission;
  - b. Daily self-triage for COVID-19 symptoms/signs (see below);
  - c. Criteria for suspecting, isolating, and diagnosis of COVID-19 patients.
  
- 3. It is recommended that all the elective endoscopic procedures are pre-evaluated one or more days before, in order to:**
  - a. Postpone all procedures at low-risk of major causes of GI-related morbidity/mortality (**Table 1**);
  - b. Case-by-case assessment of those procedures with high-risk of GI-related morbidity/mortality according to the baseline GI-risk and the risk of severe diseases in the case of COVID-19, such as:
    - i. Respiratory cancer;
    - ii. Age >60 years;
    - iii. Non-oncological comorbidities.
  
- 4. It is recommended that all patients undergoing upper-GI endoscopy are triaged the day before or the same day for COVID-19 risk. Criteria for defining a patient at high-risk include one or more of the following:**
  - a. Fever >37.5C°;
  - b. Cough;
  - c. Dyspnea;
  - d. Exposure to patients with such symptoms/signs, COVID-19 disease, or travelling to high-risk areas.

- 5. Before endoscopy, it is recommended that all patients at high-risk, or who are infected by COVID-19 must abide by the following precautions:**
  - a. Isolation in separated rooms with bathroom. If not available, patients must be separated by at least 2 meters from other patients in ventilated rooms;
  - b. Use of physical barriers (plexiglas), surgical mask and cough etiquette;
  - c. Exposure to the fewest number of HCPs, consistent with adequate care;
  - d. Cleaning and disinfection after each case.
  
- 6. During upper-GI endoscopy, use of the following PPE is recommended:**
  - a. Surgical mask for all patients and staff if available. If not, at least for any HCPs who are in contact with patients, and for patients at high risk of, or are infected with COVID-19;
  - b. N95 or equivalent and goggles/face shield for all HCPs in direct contact with the patient during upper GI-endoscopic procedures. If not available, double surgical mask (patient/HCP) should be provided at least for high-risk infected cases;
  - c. Gloves, water-proof gown, hairnet, shoe cover for all procedures. Gowning must be performed as recommended.
  
- 7. For upper-GI endoscopy, the following precautions are recommended:**
  - a. In high-risk areas/high-risk or infected cases, only the minimum HCPs with adequate expertise should be involved in the procedure. Trainee involvement must be avoided;
  - b. High-risk or infected patients should be scoped in a negative pressure room. If not available, a fixed and isolated room only for such cases should be used.
  
- 8. After upper-GI endoscopy, the following procedures are recommended:**
  - a. Doffing must be performed as recommended;
  - b. Disinfection of the scope as by standard procedure;
  - c. Cleaning and disinfection of the room after any COVID 19 high-risk or infected cases;
  - d. Separated or isolated recovery room for high-risk/infected cases.
  
- 9. For elective non-urgent upper-GI surgical procedures, the following is recommended:**
  - a. Postponement of non-urgent elective operations. Patients who are scheduled to undergo surgery for benign upper-GI disorders such as hiatal hernia repair should be postponed to avoid exposing patients and HCP to unnecessary risk of COVID-19 transmission;
  - b. Consideration of alternative non-operative management for selected upper-GI diseases. Patients with gastroesophageal acid reflux could be temporarily managed with proton pump inhibitors instead of fundoplication;
  - c. Operating theatres, surgical wards should regularly monitor and confirm the adequacy of PPE, surgical masks, N95 respirators. Operations may need to be cancelled if the stock of these equipment runs low.

A list of proposed elective UGI surgical procedures to be postponed is provided in **Table 2**.

**10. Before urgent upper-GI surgical procedures such as cancer surgery, the following is recommended:**

- a. Patients should be assessed and triaged for the risk of COVID-19 one day before surgery. Patients who fulfill the criteria in Statement 4 should be properly investigated with COVID-19 diagnostic tests. They should also be kept in isolated separate rooms with precautions taken as Statement 5, until diagnostic tests rule out active infection;
- b. Adequate preoperative planning and communication should be conducted between the operating team, including anaesthetists, surgeons and operating room nursing staff, specifically related to the risk of COVID-19 transmission of each patient and preventive measures to be taken during the operation;
- c. The use of laparoscopy could be associated with viral contamination from aerosol formation. It should be avoided in cases with suspicion of COVID-19 infection. Both the United Kingdom and American surgical societies suggest against the use of laparoscopy unless the benefits obviously outweigh the risks. [13,14]

**11. During upper-GI surgical operations, the following is recommended:**

- a. All airway procedures are considered as aerosol-generating. Endotracheal intubation and extubation should be performed inside the theatre and with minimal required HCP and with N95 or equivalent and goggles/facial shield in addition to standard protective gears. Endoscopists, surgeons, and their teams should stay out of the room during, and for 10 minutes after intubation or extubation;
- b. Surgical staff should also be minimized throughout the operation. This will not only reduce the risk of COVID-19 transmission but also conserve PPE / surgical masks. No visitor should be allowed in any operating theatres, endoscopy suites, or other patient care areas;
- c. During transthoracic esophagectomy, if a bronchial blocker is used for one-lung ventilation, all personnel should wear N95 respirator or equivalent due to the presence of an open circuit in the ventilating machine;
- d. If a laparoscopic procedure is to be performed, the use of a device to filter the released CO<sub>2</sub> for aerosolized particles should be considered.

**12. For patients with active COVID-19 infection, it is recommended that:**

- a. Operations should be avoided as much as possible while the patient still tests positive for the virus unless the surgery is deemed life-saving and needs to be performed immediately;
- b. CO<sub>2</sub> insufflation should be avoided during transthoracic esophagectomy in COVID-19 cases;
- c. Operations should be performed in an operating theatre with negative pressure airflow, and all staff should be equipped with N95 or equivalent, goggles/facial shield throughout the procedure;
- d. Cleaning and disinfection of the operating theatre should be performed after COVID-19 cases according to CDC standards[15,16]: Routine cleaning and disinfection procedures using an EPA-registered, hospital-grade disinfectant from List N, are appropriate for SARS-CoV-2 in healthcare settings. Upon the patient leaving the room, re-entry should be delayed until sufficient time has elapsed for enough air changes to remove aerosolized infectious particles.

**13. For patients on chemotherapy and or radiotherapy for upper-GI cancers:**

- a. A case series from China reported a higher rate of severe events among cancer patients who suffered from COVID-19 infection, especially if they were on chemotherapy or had recent surgery[17]. It is recommended that careful selection of patients, balancing the benefits and risks to continue chemotherapy and radiotherapy, should be performed. Adjuvant therapy may be delayed in COVID-19 endemic areas in earlier stage upper-GI cancers after curative surgery;
- b. It is important to evaluate the capacity of institutions for providing chemotherapy and radiotherapy, including the available staff and resources on protective gears. Government organizations such as NICE have issued a guidance note to prioritize patients based on the curability and risk-benefit ratio of chemotherapy and radiotherapy[18].

**14. For patients undergoing esophagectomy for esophageal cancer, it is recommended:**

- a. For those actively infected by COVID-19, transthoracic esophagectomy should be postponed until symptoms have resolved and clearance of the virus confirmed. The risk of severe pulmonary complications after one-lung ventilation in actively infected patients is a major concern;
- b. Closely monitor the capacity of intensive care units performing esophagectomy. For high-risk endemic regions with a shortage of intensive care support, it may be better to divert surgery to institutions with better capacity in ICU care;
- c. For patients who received neoadjuvant chemoradiation, individualize the timing of surgery, balancing the risk of disease progression with the risk of surgery and COVID-19 infection. Patients who achieved complete clinical response may consider delaying the surgery for active surveillance. A recent study reported 11% false-negative rate with detailed endoscopic, EUS surveillance plus bite-on-bite biopsies[19].

**Table 1.** List of elective UGI endoscopic procedures to be postponed or re-evaluated\*

Dyspepsia
Iron-deficiency anemia
Treatment/surveillance upper-GI low-grade dysplasia (i.e., Barrett, gastric)
Achalasia dilatation/POEM
Elective variceal ligation
Ampullectomy/Duodenal polyp
Surveillance after gastroesophageal surgery
Surveillance of gastric atrophy/intestinal metaplasia
Surveillance after endoscopic resection of upper-GI neoplasia
Screening for Barrett’s esophagus
Evaluation of GERD symptoms
Non-cardiac chest pain
Failure of PPI therapy

\*any “alarm symptom” (weight loss, GI bleeding, dysphagia, vomiting) would not be included in this list.

**Table 2.** List of elective UGI surgical procedures to be postponed or re-evaluated

<b>Functional UGI surgery</b>
Fundoplication
Hiatus hernia repair (unless emergency presentation)
Heller’s cardiomyotomy
Surgery for esophageal diverticula
<b>Bariatric Surgery</b>
<b>Surgery for benign non-aggressive tumors of the UGI tract</b>
Leiomyoma
Schwannoma
Small GISTs without risk features

## REFERENCES

- 1 COVID-19: protecting health-care workers. *The Lancet* 2020; 395: 922
- 2 Remuzzi A, Remuzzi G. COVID-19 and Italy: what next? *The Lancet* 2020; 0 Im Internet: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30627-9/abstract](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30627-9/abstract)
- 3 COVID-19: Spain reports 462 more deaths in one day. Im Internet: <https://www.aa.com.tr/en/europe/covid-19-spain-reports-462-more-deaths-in-one-day/1775994>
- 4 Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. *JAMA* 2020;
- 5 Leung CC, Lam TH, Cheng KK. Mass masking in the COVID-19 epidemic: people need guidance. *The Lancet* 2020; S0140673620305201
- 6 Stein R. COVID-19 and Rationally Layered Social Distancing. *Int J Clin Pract* 2020; e13501
- 7 Jw T, Y L, I E, Pk C, Gl R. Factors involved in the aerosol transmission of infection and control of ventilation in healthcare premises. *J Hosp Infect* 2006; 64: 100–114
- 8 Repici A, Maselli R, Colombo M, Gabbiadini R, Spadaccini M, Anderloni A, Carrara S, Fugazza A, Leo MD, Galtieri PA, Pellegatta G, Ferrara EC, Azzolini E, Lagioia M. Coronavirus (COVID-19) outbreak: what the department of endoscopy should know. *Gastrointestinal Endoscopy* 2020; 0 Im Internet: [https://www.giejournal.org/article/S0016-5107\(20\)30245-5/abstract](https://www.giejournal.org/article/S0016-5107(20)30245-5/abstract)
- 9 Infection prevention and control for COVID-19 in healthcare settings - <https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-infection-prevention-and-control-healthcare-settings-march-2020.pdf>.
- 10 CDC sequence for putting on personal protective equipment (PPE). Im Internet: <https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf>
- 11 Shortage of personal protective equipment endangering health workers worldwide. Im Internet: <https://www.who.int/news-room/detail/03-03-2020-shortage-of-personal-protective-equipment-endangering-health-workers-worldwide>
- 12 ESGE and ESGENA Position Statement on gastrointestinal endoscopy and the COVID-19 pandemic – European Society of Gastrointestinal Endoscopy (ESGE). Im Internet: <https://www.esge.com/esge-and-esgena-position-statement-on-gastrointestinal-endoscopy-and-the-covid-19-pandemic/>
- 13 The Royal College of Surgeons of Edinburgh £ The Royal College of Surgeons of Edinburgh <img, Tun ar, Scotl, Row, Birmingham, Engl, Centre height=236" alt="RCSEd M for a larger map" title="RCSEd M for a larger map" /> GDTASS, Centre UM, Latif JY, B, Tun ar, Razak, Lumpur K, Malaysia. Intercollegiate General Surgery Guidance on COVID-19. The Royal College of Surgeons of Edinburgh Im Internet: <https://www.rcsed.ac.uk/news-public-affairs/news/2020/march/intercollegiate-general-surgery-guidance-on-covid-19>
- 14 SAGES Recommendations Regarding Surgical Response to COVID-19 Crisis. SAGES 2020; Im Internet: <https://www.sages.org/recommendations-surgical-response-covid-19/>

- <sup>15</sup> CDC. Coronavirus Disease 2019 (COVID-19). Centers for Disease Control and Prevention 2020; Im Internet: <https://www.cdc.gov/coronavirus/2019-ncov/infection-control/infection-prevention-control-faq.html>
- <sup>16</sup> US EPA O. List N: Disinfectants for Use Against SARS-CoV-2. US EPA 2020; Im Internet: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>
- <sup>17</sup> Liang W, Guan W, Chen R et al. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *The Lancet Oncology* 2020; 21: 335-337
- <sup>18</sup> COVID-19 rapid guideline: delivery of systemic anticancer treatments. NICE Guideline. Published 20.3.2020. IM Internet: <https://www.nice.org.uk/guidance/ng161>
- <sup>19</sup> Noordman BJ, Spaander MCW, Valkema R et al. Detection of residual disease after neoadjuvant chemoradiotherapy for oesophageal cancer (preSANO): a prospective multicentre, diagnostic cohort study. *The Lancet Oncology* 2018; 19: 965-974