

**Guideline**

## **ISDE guidance statement: management of upper gastrointestinal endoscopy and surgery in COVID-19 outbreak**

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**SUMMARY.** This is an official guidance statement of The International Society of the Diseases of the Esophagus (ISDE) to address all the operators involved in management of patients affected by upper gastrointestinal diseases during COVID-19 pandemic. This guidance is based on the best available evidence to date and will be updated as new evidence becomes available.

**KEY WORDS:** endoscopy, upper gastrointestinal surgery, upper GI surgery.

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Hospital-based transmission of COVID-19 unexpectedly plays a major role in the spreading of the disease in the Western countries, generating an enormous pressure on health care personnel (HCP), patients, and community.<sup>1</sup> One third of COVID-19 patients in Spain were HCPs, and up to two in every 10 HCPs in the red-area in North Italy was infected.<sup>2,3</sup>

The magnitude of HCPs involvement represents a key difference in the COVID-19 spreading between Western countries and China as only 3% of the Chinese HCPs was actually infected by the virus.<sup>4</sup> Such 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 current standard in Asian countries even before COVID-19 outbreak—encounters some reluctance in Europe and United States.<sup>1,5</sup> The same applies to the need of physical or social distance between HCPs and patients or among HCPs themselves.<sup>6</sup> This is dramatically shown by the unexpected clustering of COVID-19 HCPs in the Western outbreak as compared with the Chinese experience.

Not all the procedures are at the same risk of COVID-19 transmission.<sup>7</sup> Despite the dominant route of transmission remains through airborne droplets or surface contact, aerosol generation is considered to be an additional risk factor as it was for influenza spreading. Gastrointestinal (GI)

endoscopy and surgery represents potentially aerosol generation procedures, putting additional risks on the HCPs.<sup>8</sup> Long-lasting and difficult procedures are likely to further increase the professional risk of getting infected.

HCP protection is well effective in preventing COVID-19 transmission.<sup>9</sup> Respiratory droplets can be disrupted by a simple mask, while a surface contact by meticulous cleaning and disinfection. Aerosol generation, mainly to be attributed to coughing or exposure of the respiratory mucosa, may be antagonized by appropriate respirators, such as N95 or equivalents.<sup>9,10</sup> 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 jeopardized in Western countries by the lack of resources due to the unprecedented brisk surging of this outbreak that found unprepared most of the health systems in these countries.<sup>11</sup>

In addition to direct preventive measures, indirect strategies aiming to reduce the chances of contacts between HCPs and patients have been advocated.<sup>12</sup> 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

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**Table 1** Indications for upper GI endoscopy according to GI risk

<p>High GI risk</p> <ul style="list-style-type: none"> <li>Upper GI bleeding (with and/or without hemodynamic instability)</li> <li>Foreign body in esophagus</li> <li>Severe anemia (with and/or hemodynamic instability)</li> <li>Foreign body stomach high risk (sharp edges, large dimension, etc.) and/or low risk</li> <li>Dysphagia with and/or without alarm symptoms</li> <li>Follow up for Barrett HGD and stomach HGD</li> <li>PEG/NJ tube</li> </ul> <p>Intermediate/low GI risk</p> <ul style="list-style-type: none"> <li>Iron-deficiency anemia</li> <li>Esophageal, Barrett, and gastric LGD</li> <li>Achalasia dilatation/POEM</li> <li>Duodenal polyp</li> <li>Ampullectomy</li> <li>Elective variceal ligation</li> <li>Dyspepsia with no alarm symptoms</li> <li>Post-gastroesophageal surgical resections</li> <li>Post-endoscopic upper GI treatment (post-ESD, ampullectomy, Barrett ablation . . .)</li> <li>Follow up of gastric atrophy/intestinal metaplasia</li> </ul>
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GI: Gastrointestinal; HGD: High Grade Dysplasia; LGD: Low Grade Dysplasia; PEG: Percutaneous Endoscopic Gastrostomy; NJ: Nasojejunal; POEM: Per-Oral Endoscopic Myotomy; ESD: Endoscopic Submucosal Dissection

strategies in the containment of the COVID-19 spreading.<sup>8,12</sup>

Aim of this position statement is the need of ISDE to address simultaneously all the operators involved in both GI endoscopy and surgery in order to define a common pathway that may be applied to those departments with special interest in upper GI diseases and their management.

## STATEMENTS

1. The International Society of the Diseases of the Esophagus (ISDE) suggests to 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. Special pathway to diagnose and isolate patients/HCPs with or at high risk of COVID-19.
  - b. Delivery of adequate protectors to all the staff that is in direct contact with patients.
2. ISDE suggests that all the HCP staff is adequately and transparently 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. ISDE suggests that all the elective endoscopic procedures are pre-evaluated 1 or more days before in order to:
  - a. Postpone all procedures at low risk of major causes of GI-related morbidity/mortality.
  - b. Assessment case-by-case of those procedures with high risk of GI-related morbidity/mortality

according to the baseline GI risk and the risk of severe disease in the case of COVID-19 disease, such as:

- i. Respiratory cancer
- ii. Age > 60 years
- iii. Non-oncological comorbidities

A list of indications for upper GI endoscopy according to GI risk is provided in [Table 1](#).

4. ISDE suggests 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 are:
  - a. Fever > 37.5°C
  - b. Cough
  - c. Dyspnea
  - d. Exposure to patients with such symptoms/signs, COVID-19 disease, or traveling to high-risk areas
5. Before endoscopy, ISDE suggests that all patients at high risk or infected by COVID-19 must follow the following precautions:
  - a. Isolation in separated rooms with bathroom. If not available, patients must be separated by a at least 2 m from the other patients in ventilated rooms.
  - b. Use of physical barriers (plexiglas), surgical mask, and cough etiquette
  - c. Exposure to minimal HCPs
  - d. Cleaning and disinfection after each case
6. During upper GI endoscopy, ISDE suggests the use of the following protectors:
  - a. Surgical mask for all patients and all staff if available. If not, at least for any HCPs who are in contact, and at least for patients at high risk or COVID-19 infected.

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

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

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UGI: Upper Gastro Intestinal; GIST: Gastrointestinal Stromal Tumour

- 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, waterproof gown, hairnet, and shoe cover for all procedures. Downing must be performed as recommended.
7. For upper GI endoscopy, ISDE suggests the following precautions:
- 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 negative pressure room. If not available, a fixed and isolated room only for such cases should be used.
8. After upper GI endoscopy, ISDE suggests:
- 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, ISDE suggests:
- 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 theaters and surgical wards should regularly monitor and confirm the adequacy of PPE, surgical masks, and N95 respirators.

Operations may need to be canceled if the stock of these equipment runs low.

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

10. Before urgent upper GI surgical procedures such as cancer surgery, ISDE suggests:
  - a. Patients should be assessed and triaged for the risk of COVID 1 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 anesthetists, surgeons, and operation room nursing staffs, specifically related to the risk of COVID 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 United Kingdom and American surgical societies suggested against use of laparoscopy unless the benefits obviously outweigh the risks.<sup>13,14</sup>
11. During upper GI surgical operations, ISDE suggests:
  - a. All airway procedures are considered as aerosol generating, endotracheal intubation and extubation should be performed inside the theater and with minimal required HCP and with N95 or equivalent and goggles/face shield, in addition to standard protective gears.
  - b. Surgical staff should also be minimized throughout the operation. This will not only reduce the risk of COVID transmission but also conserve PPE/surgical masks. No visitor should be allowed in all operating theaters and 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 open circuit in the ventilating machine.
  - d. If laparoscopic procedure is to be performed, the use of device to filter the released CO<sub>2</sub> for aerosolized particles should be considered.
12. For cases with active COVID-19 infection, ISDE suggests:
  - a. Operations should be avoided as much as possible when the patient is still test positive for the virus, unless the surgery is deemed lifesaving 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 theater with negative pressure airflow, and all staff should be equipped with N95 or equivalent and goggles/facial shield throughout the procedure.
- d. Cleaning and disinfection of the operating theater should be performed after COVID-19 cases according to Center for Disease Control (CDC) standards<sup>15,16</sup>; routine cleaning and disinfection procedures using an Environmental Protection Agency (EPA)-registered, hospital-grade disinfectant from List N are appropriate for SARS-CoV-2 in healthcare settings. Upon patient leaving the room, entry should be delayed until sufficient time has elapsed for enough air changes to remove aerosolized infectious particles.

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