



# COVID-19 and endoscopy: implications for healthcare and digestive cancer screening

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The coronavirus disease 2019 (COVID-19) pandemic is affecting and changing the daily practice of gastrointestinal endoscopy worldwide. To protect patients and endoscopy unit personnel, endoscopy units have had to postpone a large proportion of endoscopic procedures. These delays might have an effect on the screening for and surveillance of digestive cancers.

The world and medical community are sailing in uncharted waters, experiencing a viral pandemic the likes of which we have not experienced in more than 100 years. No medical specialty is immune from its effects, including gastrointestinal endoscopy. The COVID-19 pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is affecting and changing the daily practice of gastrointestinal endoscopy (both diagnostic and therapeutic) and will do so for the foreseeable future. Thus, as gastroenterologists and endoscopists, we must adapt and carefully navigate this pandemic while continuing to provide high quality gastrointestinal endoscopy care and, at the same time, protect both our patients and our endoscopy unit personnel. In the past several weeks, international gastroenterology and gastrointestinal endoscopy societies have published a flurry of online guidelines and position statements and hosted online webinars focusing on endoscopy in the era of COVID-19<sup>1,2</sup>. These publications and internet-based ‘virtual’ conferences have provided detailed guidance on triage and risk stratification for COVID-19 for patients undergoing endoscopy, on infection prevention and control and on proper use of personal protective equipment. Importantly, these same publications have advised gastrointestinal endoscopy units to prioritize necessary endoscopic procedures and to strongly consider postponing elective, non-urgent procedures.

The need to protect patients, especially those patients at high risk of COVID-19 morbidity (for example, history of cardio-pulmonary disease, malignancy or immune suppression), and endoscopy unit personnel has forced gastrointestinal endoscopy units to postpone many procedures. Carefully weighing, case-by-case, the benefit of endoscopy with the risk of SARS-CoV-2 infection could have a substantial downstream effect on digestive cancers diagnosed and treated by gastrointestinal endoscopy, for example, colorectal cancer (CRC) and gastric cancer.

With the outbreak of COVID-19, many countries with population-based CRC screening programmes have suspended inviting individuals for faecal occult blood testing (FOBT; for example, guaiac-based or immunochemical-based tests) and/or endoscopy-based screening<sup>3</sup>. Depending on how long social and physical distancing and other viral spread mitigation rules continue to be in place, the lack of primary screening for CRC might affect millions of individuals worldwide, both at average and high risk. In terms of CRC prevention and detection, the short-term effect of such a delay is unclear. However, CRC screening programmes will eventually be resumed, albeit slowly, and, once resumed, might create a backlog of screen-positive patients requiring endoscopy. These patients have a 20–30% risk of advanced adenomas or neoplasia at endoscopy, so colonoscopy within 1 month is generally recommended<sup>4</sup>. In addition, in individuals testing positive using faecal immunochemical tests, the risk of CRC or advanced stage disease when colonoscopy is delayed by >6 months has been shown to be substantial<sup>5</sup>. Moreover, FOBT-positive individuals who have already been scheduled for colonoscopy during the COVID-19 pandemic have often cancelled their appointment or simply not shown up for their examination owing to their fear of viral transmission. Altogether, this situation will lead to a pent-up demand for colonoscopy and translate into an oversaturation of limited endoscopic capacity, leading to further diagnostic and therapeutic delays of advanced neoplasia or early-stage malignancies. Clear and thoughtful policies regarding the timely restart of primary CRC screening programmes and how to prioritize patients in urgent need for subsequent colonoscopy evaluation will be required.

In areas of the world at intermediate and high risk of gastric cancer (for example, Asia or select parts of Europe), gastric cancer screening using upper gastrointestinal endoscopy identifies individuals with extensive

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## Box 1 | Key research questions and future directions

- When and how should a patient suspected of having coronavirus disease 2019 (COVID-19) be tested in relation to performance of a gastrointestinal endoscopy procedure?
- How often, if at all, should gastrointestinal endoscopy staff be tested for COVID-19 and by which methods?
- Is there any difference in COVID-19 transmission risk between upper and lower gastrointestinal endoscopy?
- What is the basic personal protective equipment that is required for gastrointestinal endoscopy and how should potential shortages be confronted?
- What is the burden in terms of cancer progression from delaying gastrointestinal endoscopy procedures owing to the COVID-19 pandemic?
- How should postponed gastrointestinal endoscopy procedures be prioritized after the pandemic is over?
- What are the acceptable patient waiting times, stratified by the type of gastrointestinal endoscopy procedure?

intestinal metaplasia as well as early gastric cancer. Identification of early gastric cancer enables curative endoscopic or surgical resection, whereas identification of extensive gastric intestinal metaplasia enables those patients to be placed into endoscopic surveillance programmes<sup>6,7</sup>. We do not have evidence to suggest that those under surveillance for extensive intestinal metaplasia or other gastric cancer risk factors (for example, *Helicobacter pylori* infection, smoking, alcohol consumption or family history of gastric cancer) will be greatly affected by postponing their scheduled endoscopy. In fact, for these patients, the international endoscopy community is still struggling to agree on the appropriate surveillance intervals. Clinical trials are being conducted to better determine which patients require more intense surveillance and which patients can be released from surveillance. Thus, rescheduling the screening of these patients within a reasonable timeframe (for example, <6 months), might not substantially affect their prognosis. Interestingly, however, investigators have reported that delayed upper gastrointestinal endoscopy in FOBT-positive individuals from countries with intermediate risk of gastric cancer, might lead to missed early diagnosis and negatively affect survival<sup>6</sup>.

A substantial proportion of endoscopy procedures are for surveillance indications, mostly for routine post-endoscopic or surgical resection. In this context, even substantial delays in colonoscopy are unlikely to affect the outcome for patients as the additional efficacy of such surveillance has been downgraded by epidemiological data<sup>8</sup>. In a large retrospective cohort study from the UK evaluating the effectiveness of post-polypectomy colonoscopy surveillance on incident colorectal cancer, Cross et al. reported that, compared with the general population, CRC incidence without surveillance was similar among low-risk and intermediate-risk groups, but significantly higher in the high-risk group. However, a possible exception is the need for early colonoscopy surveillance following complex polyp resection (for example, endoscopic mucosal resection or endoscopic submucosal dissection) or following endoscopic management of early gastric cancer because these patients have been shown to be at high-risk for residual or

recurrent disease<sup>9,10</sup>. Delays for endoscopic surveillance are now common owing to endoscopy units temporarily suspending such procedures, a lack of endoscopy personnel to perform these procedures as many have been assigned to other medical wards to care for patients with COVID-19 or are sick or isolating themselves, or because patients decide to stay away from hospitals. These surveillance procedures will need to be rescheduled as early as possible, especially high-risk cases, such as those with known high-grade dysplasia or invasive cancer on histology, or with a positive margin at surgical resection.

Will the reduction in endoscopy procedures affect training schedules of gastrointestinal endoscopy trainees? To reduce health-care personnel exposure, most endoscopy units have implemented a policy that only essential and fully trained endoscopy personnel should be present in endoscopy cases<sup>1</sup>. This approach most often leaves trainees outside the endoscopy suite, and the timeline for their return to full time endoscopy training is unknown. Justifiably, trainees fear that their endoscopy skills will be diminished during their time away from the endoscope. However, we must remember that gastrointestinal endoscopy is not simply a technical discipline, it is also cognitive. Thus, we can look at this situation as an opportunity for our trainees to further develop their cognitive endoscopic skills. Training programmes can be adjusted during this unique time with increased use of online learning and the encouragement of endoscopy videos and technical training videos<sup>1</sup>. If feasible, use of animal labs and/or endoscopy simulators can also be advantageous for our trainees. Where appropriate, trainees might be given the option to participate in select endoscopy cases such as haemostasis in gastrointestinal bleeding, removal of an ingested foreign body or other therapeutic endoscopy cases in patients thought to be at low-risk of COVID-19.

There are numerous potential research questions that can be asked evaluating the effect of the COVID-19 pandemic and gastrointestinal endoscopy (BOX 1). However, if we focus specifically on the potential effect on endoscopic screening or surveillance for digestive cancers, we need to better understand the burden in terms of advanced dysplasia or early intramucosal cancer progression and the effects of delaying gastrointestinal endoscopy procedures. For example, what might be the best practices and policies for prioritizing postponed gastrointestinal endoscopy procedures for patients with high-risk digestive cancers when the pandemic is over?

The COVID-19 pandemic is having a disruptive effect on the workflow and safety of gastrointestinal endoscopy units worldwide. Most endoscopy units are managing the current situation with shortages of personnel and personal protective equipment, substantial reductions in the volume of digestive cancer screening or surveillance endoscopy procedures and enormous pressures on prioritizing endoscopic procedures and postponing many procedures without knowing exactly when patients can be rescheduled. Only once the smoke has cleared will we know the true effect of the COVID-19 pandemic on gastrointestinal endoscopy practice and digestive cancer screening and surveillance.

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#### Competing interests

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