Pediatric Endoscopy in the Era of COVID-19: A NASPGHAN Position Paper

Pre-Procedure Preparation

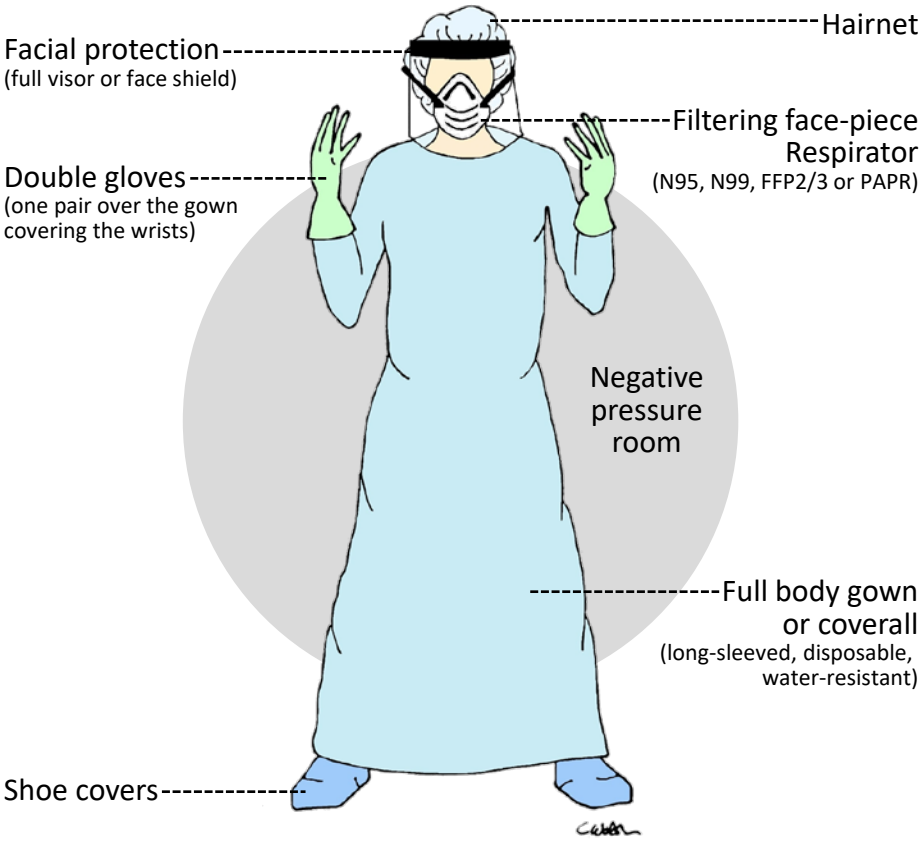
- Triage procedures based on priority (see next page):
  - Proceed, Pause (weigh risks/benefits), Postpone
- Postpone non-essential endoscopic procedures
- Strategically schedule personnel:
  - Minimize concomitant exposure of those with similar skills
  - Protect personnel at high risk for COVID-19
- Train personnel in COVID-19 infection prevention and control
- Test patients for COVID-19 prior to endoscopy when possible
- Consider separate pre- and post-endoscopy recovery areas for patients with confirmed COVID-19 infection
- Maintain safe distance (≥ 6 feet) during pre-procedure interview and informed consent when possible
- Patients/caregivers entering the endoscopy area should wear respiratory protective equipment
- Caregivers should *not* be brought into the endoscopy suite unless essential
- Use pre-procedure multidisciplinary huddle or time-out to discuss case logistics, potential risks and agree on a plan

In the Endoscopy Suite

- Use of a *negative pressure room* is recommended
- Only essential endoscopy personnel
- Endoscopy personnel should remain outside room during intubation/extubation when possible
- Only minimally required equipment and supplies
- Runner outside room for needed equipment
- Employ single-use equipment when possible
- Adapt endoscopy technique to minimize exposure
  - Minimize use of air/CO_2
  - Avoid removing endoscope caps
  - Apply suction when removing biopsy forceps
- Clear and open team communication is essential

Personal Protective Equipment

- Endoscopy is an aerosol generating procedure → *airborne, contact and droplet precautions* are recommended



Post-Procedure

- Use a post-procedure team debrief to identify areas for improvement
- Allow time for complete air exchange in the endoscopy suite prior to cleaning
- Follow-up with patients/caregivers 7 to 14 days post-procedure to ask about new diagnosis and/or development of symptoms suggestive of COVID-19

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Elective Procedures → POSTPONE

- Upper GI: abdominal pain with low suspicion of organic disease; mild dysphagia; celiac disease; eosinophilic esophagitis; *Helicobacter pylori;* or low-risk follow-up
- Staged ligation of esophageal varices
- Elective* foreign bodies (e.g., gastric coin)
- Staged dilation of gastrointestinal stricture
- IBD: guide therapy for mild disease activity
- Polyposis surveillance
- Polypectomy considered to be at low risk for malignancy
- Endoscopy and/or biopsy for clinical trials or research
- Non-urgent nutritional support/replacement (e.g., PEG, NJ)
- ERCP: stones without cholangitis and stent in place; chronic pancreatitis; ampullectomy follow-up; or staged stent exchange (e.g., q3mo planned exchange)
- EUS: suspected autoimmune pancreatitis or for 'benign' indications (e.g., pancreatic cyst with no high-risk features)
- Manometry for motility disorders
- Bariatric endoscopy, POEM and related procedures
- pH impedance, breath tests
- Liver biopsy for NAFLD/ NASH or to assess histologic remission in autoimmune hepatitis

Urgent Procedures → PAUSE, *weigh risks/benefits in deciding whether to proceed*

- Re-evaluation of life-threatening bleeding as indicated
- Non-life-threatening gastrointestinal bleeding
- Follow-up endoscopic band ligation of high-risk varices that have recently bled
- Urgent* foreign bodies (e.g., esophageal coin)
- Evaluation of caustic injury, able to tolerate oral intake
- Severe (inability to tolerate liquids) or moderate (inability to tolerate solids) dysphagia/odynophagia,
- Dilation of stricture: acute presentation or expecting to be symptomatic in a few weeks
- Urgent initial nutrition support or replacement PEG/NJ
- Suspected gastrointestinal malignancy
- Planned polypectomy, EMR/ESD for complex/high-risk lesions
- IBD: high suspicion of new IBD; guide treatment decisions for moderate/severe activity or complications of established/new diagnosis IBD (e.g., partial obstruction)
- Severe, progressive failure to thrive or chronic diarrhea, unresponsive to medical management
- Severe *C. difficile* colitis for fecal transplant†
- Anorectal manometry or suction rectal biopsy for suspected Hirschsprung's disease
- Liver biopsy: hepatitis with elevated aminotransferases, jaundice, INR, and/or serological evidence for AIH; liver transplant rejection; or suspected malignant tumor
- ERCP or PTC: bile leak or removal/exchange of temporary stent
- EUS: symptomatic pancreatic fluid collection

Emergent Procedures → PROCEED

- Potentially life-threatening gastrointestinal bleeding or ongoing transfusion dependent bleeding
- Emergent* foreign bodies (e.g., button battery, multiple magnets)
- Bowel obstruction amenable to endoscopic therapy
- Evaluation of caustic injury, if unable to tolerate oral intake and/or placement of NG required under direct visualization
- Endoscopic vacuum therapy for perforations/leaks
- Tissue sampling required to diagnose a life-threatening disease, including post-transplant lymphoproliferative disorders, graft-versus-host disease, and suspected intestinal graft rejection
- EUS: infected pancreatic necrosis or walled off necrosis
- ERCP: acute biliary obstruction
- Liver biopsy ± PTC: possible biliary atresia, acute liver failure or impending liver failure

*as per NASPGHAN foreign body clinical report (JPGN 2015;60: 562–574); †donor stool should be tested for COVID-19; Image source: Atlantic Training

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