

ANESTHESIA FOR ENDOSCOPY AT PCAM

Since the Perelman Center for Advanced Medicine opened in 2008, we have been providing anesthesia for some cases in the Endoscopy Center every weekday there. Since July 2014, almost all procedures have the caduceus-like symbol in Orchestra™ Navigator that indicates request for anesthesia. Please review the following information, so you have some idea what to expect, since things may be different from what you are used to in the regular operating rooms. Please meet the attending anesthesiologist (name should be in Orchestra™ Navigator; right-click and click View... to get phone number) in the Endoscopy Center (Perelman Center for Advanced Medicine building, fourth floor, South Pavilion) around 0730 (0830 on Thursdays) so there will be time to get the first endoscopy started on time (scope in by 0800 (0900 on Thursdays)).

Most preoperative evaluations in this area are straightforward and can be done, along with obtaining anesthesia consent, right before the procedure. In the preoperative evaluation, pay particular attention to airway, aspiration risk, allergies, medical problems, medications or habits that promote tolerance to anesthesia drugs, and patient concerns. For cases where earlier anesthesia involvement is needed, the endoscopists should have requested an anesthesia consult. It's a good idea to document when there is a medical indication for anesthesia, such as inability to sedate with conventional agents suggested by previous experience or due to pregnancy or chronic use of painkillers, anxiolytics, and/or ethanol; significant cardiovascular disease such as cardiomyopathy, angina, myocardial infarction, hypotension, pacemaker or defibrillator; significant respiratory disease, such as use of supplemental oxygen, sleep apnea, and/or morbid obesity; or significant mental retardation or dementia. For MAC cases, this can be done in the MAC method event in the electronic anesthesia record (PennChart). After the patient has signed the anesthesia consent form, the "A" icon in Navigator should be clicked. (It's on the EC tab between the "R" and "S" icons to the right of the patient's name.)

As far as equipment and drugs, there is an emergency cart in the endoscopy suite with a defibrillator, an oxygen tank, an emergency drug box, and an emergency airway box, and each endoscopy room should be equipped with wall suction and oxygen and an AMBU bag and mask. I would suggest that, even if your plan is to use nasal cannula oxygen, you have a bag and mask plugged into another oxygen supply ready to go. The pharmacy stocks cassettes of medications for endoscopy in the CAM endoscopy anesthesia workroom; these can complement the emergency medications that should already be in each room there (including epinephrine, atropine, diphenhydramine, flumazenil, naloxone, and glucagon). Additional drugs and controlled substances can be obtained from the Pyxis® in the endoscopy suite (let me know if your sign-on does not work there).

Most cases are done with deep sedation or intravenous (IV) general anesthesia. Most patients would rather not recall the procedure, and the endoscopists want the patients to keep still during the procedure. Many of the medications we use for sedation are potent respiratory depressants, though, so monitoring exhaled CO₂ is important for patient safety (cf. ASA standards for basic anesthetic monitoring). Nurses usually help by placing the IV and routine monitors. Before induction, make sure the consent forms for the procedure and for anesthesia are complete. Unless you plan to place an endotracheal tube (e.g., in case of blood or food in the stomach, or vomiting), have the patient positioned (usually left lateral decubitus, except ERCP is often prone with the head turned to the side) and, for upper endoscopic procedures, have the gastroenterology team place the bite block, prior to induction. The gastroenterologist may request glucagon for gastrointestinal relaxation. Glucagon is usually supplied as a vial with 1 mg powder and a vial with 1 mL solvent; the usual initial dose is between 0.2 and 0.5 mg IV. It may affect blood glucose, so use with caution in diabetics and/or patients with insulinoma.

ANESTHESIA FOR ENDOSCOPY AT PCAM

There is an anesthesia supply cart in each procedure room in the Endoscopy Center. The carts have airway supplies, IV supplies, syringes, and other useful items. Contact the anesthesia technician if you need something re-stocked. (The name and number of the technician assigned to endoscopy should be posted in each room, but you could also call 215 738 1320 to find that out.) There are cables that can be used with regular nasal cannula or a breathing circuit and a disposable piece to monitor exhaled CO₂. Do not put trash in the carts. Do not leave unsecured drugs in the carts. Treat carts with care when opening, closing, or moving. Also there are IV poles with Alaris® pumps, and there is a movable anesthesia machine in the anesthesia work room. There is also a GlideScope® in the work room, and there is a gas monitor on a pole with wheels that can be used for monitoring inhaled anesthetic agents as well as exhaled CO₂.

Please discard used syringes and medications left over after each case rather than leaving unattended syringes and medications on the carts. Please make sure the cart surfaces are clear rather than messy at the end of the day. Please do not leave unsecured medication cassettes on top of the carts. Please return cassettes to the work room at the end of the day. To unlock a cart, rotate the black knob counterclockwise and release, press 2 and 4 at the same time and then 3, rotate the black knob clockwise, and turn the silver lever to the right. The carts can also be opened with keys, in case the combination lock fails; there are keys in the key box on 3 PCAM and with the endoscopy charge nurse. To lock a cart, close the drawers, turn the black knob counterclockwise, and turn the silver lever to the left.

The PennChart electronic anesthesia record is available in CAM endoscopy. After endoscopy, patients are taken to the recovery area, where you should give a report to the nurse as usual. Alternatively, if you and the endoscopy nurse agree that the patient's vital signs are acceptable, the patient is comfortable and conversing appropriately, and no complications occurred or are anticipated, then you may simply give a report, including drugs and fluids given, to the endoscopy nurse and then end anesthesia care.

Please inform the attending anesthesiologist before starting a case so he or she may be present. Also notify the attending anesthesiologist when any critical or unusual events occur, such as unanticipated need for airway intervention (e.g., nasal trumpet, mask ventilation, or increased F_IO₂), lack of patient tolerance despite routine doses of medication, planned use of fentanyl > 100 mcg, hypotension (mean blood pressure below 70% of baseline after routine intervention), hypoxemia (O₂Sat < 93%), and/or change in cardiac rhythm.

The attending anesthesiologist coordinator in the Endoscopy Center should carry the cell phone (number 215 687 3051), which is pre-programmed in the phones there, so that it can be dialed with the touch of one button (labeled anesthesia emergency). That way, if the anesthesia provider needs help from the attending anesthesiologist but is too busy caring for a patient to dial the anesthesiologist's personal cell number, anyone in the room should be able to notify the anesthesiologist. The phone should be kept in the endoscopy anesthesia workroom when not in use; a charger cable there plugs in the right side near the bottom. Please note: this system is designed for emergency use; if there is not an emergency, please use regular numbers.

If you have any questions or comments about your experience in anesthesia for endoscopy at Penn, please let me know. I hope you enjoy working with our world-class gastroenterologists.

Sincerely,

Jonathan W. Tanner, M.D., Ph.D.

Assistant Professor of Clinical Anesthesiology and Critical Care
Perelman School of Medicine, University of Pennsylvania
Dulles Building, Room 777

phone: 215 662 7053

FAX: 215 615 3898

e-mail: tannerj@uphs.upenn.edu

<http://www.med.upenn.edu/apps/faculty/index.php/g319/p9100>