Dosing and Timing Chart on How to Use Indocyanine Green (ICG) by Procedure

Procedure	Purpose	Injection Type	Description	Dilution (25 mg in 10 mL of sterile water - 2.5mg/mL)	Requires Flush with Sterile Water	Proposed Dosage	Injection Time	First Indocyanine Green Detection	Indocyanine Green Duration	Camera Requirements (handheld device, laparoscope or both)	Tips & Tricks
Cholecystectomy	Bile duct visualization	Intravenous	-	Yes	No	1 to 2 mL	Recommended: At least 45 minutes before procedure	After Calot triangle is exposed	Visible during surgery	Both	Perform reflux maneuver to enhance visualization of cystic duct.
Colorectal Resection	Perfusion assessment	Intravenous	-	Yes	Yes	3 mL	Intraoperatively	30–60 seconds after administration	60 seconds–3 minutes	Both	Perform tissue vitality assessment as necessary prior to resection. Repeat assessment after anastomosis.
Liver Segmentation	Visualize liver segments	Other	Positive staining technique: inject directly into the portal branch.	Yes	No	0.1 mL*	Prior to hepatic dissection	Several seconds after administration	Remains stable during surgery	Both	Positive staining should be performed under ultrasound-guided portal branch puncture.
		Intravenous	Negative staining technique: Administer via peripheral intravenous access	Yes	Yes	1 mL	After portal pedicle closure	Several seconds after administration	Remains stable during surgery	Both	Clamp liver segment at the time of assessment.
Liver Cancer	Visualization of primary & metastatic liver tumors	Intravenous	-	Yes	Yes	0.5 mg/kg	7 days preoperatively	Real time during hepatectomy	Remains stable during surgery	Both	Hepatocellular carcinoma shows cancerous fluorescence signals. Metastatic tumors show rim fluorescence signals.
Esophagectomy	Perfusion assessment	Intravenous	-	Yes	Yes	3 mL	Intraoperatively	30–60 seconds after administration	60 seconds–3 minutes	Both	Perform tissue vitality assessment, as necessary, prior to resection. Repeat assessment after anastomosis.
Ureter Localization	Visualization of ureters	Other	Cystoscopy guidance is recommended for retrograde intraureteral dye administration.	Yes	No	5 mL per ureter	Prior to pelvic dissection	During pelvic dissection	Remains stable during surgery	Both	Advance ureteral catheter to ensure comprehensive assessment of the ureteral course.
Thyroidectomy	Visualization of parathyroid glands	Intravenous	-	Yes	Yes	1 mL	After thyroid gland dissection	30–60 seconds after administration	60 seconds–3 minutes	Handheld	Check perfusion of parathyroid glands at the time of assessment.
	Guided dissection during thyroid gland exposure	Intravenous	-	Yes	Yes	1 mL	During thyroid gland dissection	30–60 seconds after administration	60 seconds–3 minutes	Handheld	Check vasculature surrounding gland during superior pole dissection.
Lymphedema	Lymph vessel assessment	Other	Administration should be subcutaneous into bilateral interdigit hand or foot.	Yes	No	0.1 mL*	At time of lymph vessel evaluation	Minutes after administration	Hours	Handheld	Gentle, circular motion massaging can be performed to distribute dye.
Cervical/ Endometrial Cancer	Visualize lymphatic drainage & sentinel lymph node	Other	Administration of the dye should be performed at the level of the cervical submucosa, deep into the stroma. The dye should be distributed into 4 cervical quadrants.	Yes	No	1 mL	Prior to dissection & insertion of uterine manipulator	At start of procedure	Stable during surgery. Slowly diffuses through lymphatics	Both	Total 4 mL (1 mL per cervical quadrant).
Vulvar cancer	Visualize lymphatic drainage & sentinel lymph node	Other	Peritumoral	Yes	No	1 mL	At start of procedure.	Minutes after administration	Stable during surgery. Slowly diffuses through lymphatics	Both	Total 4 mL (1 mL per tumor quadrant borders).
Breast cancer	Visualize lymphatic drainage & sentinel lymph node	Other	Dye administration should be subcutaneous into periareolar region of each quadrant.	Yes	No	1 mL	At start of procedure.	Five to 10 minutes after administration	Stable during surgery. Slowly diffuses through lymphatics	Handheld	Total 4 mL (1 mL per periareolar quadrant). Gentle, circular motion massaging can be performed to distribute dye.
Breast reconstruction	Mastectomy skin flaps perfusion	Intravenous	-	Yes	Yes	3 mL	During skin flap manipulation and reconstruction.	30–60 seconds after administration	60 s–3 mins	Handheld	Adjunct to clinical assessment and surgical symmetry.
Colorectal & Gastrointestinal Carcinoma	Visualize lymphatic drainage & sentinel lymph node	Other	Administration should be peritumoral.	Yes	No	1 mL	Intraoperatively	Minutes after administration	Stable during surgery. Slowly diffuses through lymphatics	Both	Intramural tumor: Intraoperative administration avoiding too much depth into the mucosa. Gastric lymphatics mapping: consider endoscopic peritumoral dye administration 24 hrs prior to lymphadenectomy.
Melanoma	Sentinel lymph node identification	Other	Administration should be intradermal, surrounding the area of interest.	Yes	No	1 mL	Five minutes prior to manipulation of skin site.	Five to 10 minutes after administration	Stable during surgery. Slowly diffuses through lymphatics	Handheld	Dye administration should be performed prior to local anesthesia administration.

SPECIAL CONSIDERATIONS:
ALWAYS dilute with sterile water
ALWAYS flush with sterile water
Max dose is 2 mg/kg (e.g.: 120 mg or 4.8 reconstituted flasks of 25 mg/mL of ICG)
*For 0.1 and 0.2 mL doses, utilize an insulin syringe to draw/administer volume.

DISCLAIMERS:
- Doses are device-dependent
- The above dosage and timing information have been collated from worldwide surgeons expert in these procedures and is based on their recommendations and is not evidence-based.
- All dosages have been adjusted to the U.S. recommended dilution of 25mg of ICG in 10mL of sterile water
- Approval for listed indications may vary according to country.

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