



# Dosing Guide

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

Procedure	Region of interest	Dose	Route	Injection time	First ICG detection	ICG Duration	Camera requirements	References <i>(full ref details at end of this guide doc)</i>
<b>Perfusion/Vascular assessment</b>								
Breast reconstruction (immediate)	Skin and autologous flap	7.5 mg bolus	I.V.*	Intraoperatively	60-120 sec	2-4 min	NIR light source camera	1. 2018, Alstrup et al.,
Colorectal resection	Transection line	5 mg bolus	I.V.*	Intraoperatively	10-60 sec	3 min	Laparoscope, NIR light source camera	2. 2022, Wexner et al.,
Gastrectomy (Laparoscopic sleeve)	Proximal stomach	5 -15 mg bolus	I.V.*	Intraoperatively	30-60 sec	3-4 min	Laparoscope, NIR light source camera	3. 2018, Ortega et al.,
Mastectomy	Skin	0.2 mg/kg	I.V.*	Intraoperatively	30-60 sec	3-4 min	Laparoscope, NIR light source camera	4. 2018, de Vita et al.,
Oesophagectomy	Gastric conduit	5 mg bolus	I.V.*	Intraoperatively	60 – 100 sec	3-4 min	Laparoscope, NIR light source camera	5. 2017, Noma et al.,
Thyroidectomy	Parathyroid glands preservation - anatomy of feeder vessels to Parathyroid glands	0.1mg/kg	I.V.*	Intraoperatively	60-120 sec	3-4 min	NIR light source camera	6. 2017, Sadowski et al.,

\*Saline flush (10mL) recommended post I.V. administration of Verdye™ (ICG) Injection

Note: dose may need to be adjusted to take into account differences in the Near Infra-Red (NIR) camera system being used

Procedure	Region of interest	Dose	Route	Injection time	First ICG detection	ICG Duration	Camera requirements	References (full ref details at end of this guide doc)
<b>Tissue identification</b>								
Breast cancer	Sentinel Lymph Node (SLN)	2 mL (2.5 mg/mL) (2-4 injection sites)	I.D. into lateral areolar region	After induction of anaesthesia with subsequent breast massage	Beginning of surgery	Remains visible during procedure as it diffuses slowly via lymphatics	Open procedure, NIR light source camera	7. 2022, Bargon et al.,
Cervical cancer	SLN	0.25 mL (2.5 mg/mL)	Submucosal peritumorally at 2, 4, 8 and 10 o'clock	Onset of surgery	After 10 min	Remains visible during procedure as it diffuses slowly via lymphatics	Laparoscope, NIR light source camera	8. 2020, Lührs et al.,
Cholecystectomy (adult)	Bile Ducts	5 mg	I.V.*	3 hr before surgery	Beginning of surgery	Remains visible during procedure	Laparoscope, NIR light source camera	9. 2017, Boogerd et al.,
		Or 0.0119 mg/kg		Or 1 hr before surgery				10. 2023, Baldari et al.,
Cholecystectomy (paediatric)	Bile Ducts	0.4 mg/kg	I.V.*	18 hr before surgery	Beginning of surgery	Remains visible during procedure	Laparoscope, NIR light source camera	11. 2019, Esposito et al.,
Colorectal cancer	Lymphatic drainage and metastatic lymph nodes	0.25 mg/kg	Combined subserosal and submucosal injection	Pre-operatively (highest sensitivity) Intra-operatively (highest specificity)	Beginning of surgery Or Intra-operatively	Remains visible during procedure as it diffuses slowly through lymphatics	Laparoscope, NIR light source camera	12. 2017, Emile, et al.,
Endometrial cancer	SLN mapping	2 mL (1.25 mg/mL)	Combined cervical (1 mL) and submucosal (1 mL) deep (1-2 cm) into the cervical submucosa	By time trocars get placed	After 10 mins	Remains visible during procedure as it diffuses slowly through lymphatics	Laparoscope, NIR light source camera	13. 2019, Rozenholc et al.,
Hysterectomy, Colorectal, Pelvic and Abdominal Vascular surgery (complex procedures)	Ureter localisation	2.5 mg/mL	5 mL into each ureteric catheter	Prior to procedure	Beginning of surgery	Remains visible during procedure	Laparoscope, NIR light source camera	14. 2023, Khan et al.,

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<b>Tissue identification</b>								
Liver resection	Liver segment - Positive staining	5 mL (0.025-0.05 mg)	Inject into portal branch under ultrasound guidance	Intraoperatively	Beginning of surgery	Remains visible during procedure	Laparoscope, NIR light source camera	15. 2021, Wang et al.,
	Liver segment - Negative staining	2.5 mg	I.V.*	After ligation of Glissonian pedicle to tumour seg	30-60 sec	3-4 min	Laparoscope, NIR light source camera	
	Colorectal liver metastases detection	10 mg	I.V.*	24 hr before surgery	Beginning of surgery	Remains visible during procedure	Open, Laparoscope, NIR light source camera	16. 2024, Achterberg et al.,
Lymphedema (lower limb)	Lymphatic vessels	0.05–0.1 mL (0.125-0.25 mg/mL)	Intra-dermal	Beginning of assessment	Beginning of assessment	Lymph flow tracked for 1 hr	NIR light source camera	17. 2022, Suami et al.,
Melanoma	SLN	Head & Neck 0.1-0.3 mL Elsewhere 0.2-0.3 mL (2.5 mg/mL)	Intra-dermal	Intra-operatively	Beginning of assessment	Remains visible during procedure	NIR light source camera	18. 2019, Knackstedt et al.,
Palomo varicocelelectomy	Lymphatic vessels	2mL (3.125 mg/mL)	Into the testicle	After opening the posterior peritoneum covering the inner spermatic vessels	Quickly after injection	Remains visible during procedure	Laparoscope, NIR camera	11. 2019, Esposito et al.,
Thoracoscopic segmentectomy (VATS)	Verification of anatomic segment borders	0.15 mg/kg	I.V.*	Intra-operatively	10-25sec after peripheral injection	30-120 sec	Laparoscope, NIR light source camera	19. 2018, Pischik et al.,
Vulvar cancer	Lymphatic drainage and SLN	2 mL (0.125 mg/mL)	Peritumoral injection - four quadrants	3-20 hr before procedure	After 10mins	Remains visible during procedure as it diffuses slowly via lymphatics	Open procedure	20. 2020, Deken et al.,

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