# CONTENTS

1. **REVIEWS** ........................................................................................................................................... 2
2. **BACKGROUND** ................................................................................................................................... 2
   2.1 Pathophysiology ........................................................................................................................... 2
   2.2 Technology / Validation ................................................................................................................ 2
   2.3 Indocyanine Green ....................................................................................................................... 3
3. **FIELDS OF APPLICATION** .................................................................................................................. 3
   3.1 Intensive Care Medicine ................................................................................................................ 3
   3.1.1 Cardiac Surgery ......................................................................................................................... 3
   3.1.2 Sepsis And Septic Shock ............................................................................................................ 4
   3.1.3 Surgical .................................................................................................................................... 4
   3.1.4 Medical .................................................................................................................................... 5
   3.2 Liver Transplantation ..................................................................................................................... 5
   3.3 Liver Surgery / Resection ............................................................................................................... 7
   3.4 Hepatology / Gastroenterology ..................................................................................................... 8
   3.5 Hypovolemic Shock ...................................................................................................................... 9
4. **MONITORING THERAPEUTIC EFFECTS** ............................................................................................. 9
   4.1 Drug Therapies .............................................................................................................................. 9
   4.1.1 Septic Shock ............................................................................................................................... 9
   4.1.2 Liver Surgery / Dysfunction ....................................................................................................... 9
   4.1.3 Adjuvant Therapies .................................................................................................................... 10

- - - Very Highly Recommended
  ●●● Highly Recommended
  ● Recommended

*This document is intended to provide information to an international audience outside of the USA*
1. **REVIEWS**

Mobley CM and Zarrinpar A  
*Portable Device for the Analysis of Liver Function: A Boon to Liver Surgery and Critical Care*  
*Expert Rev Med Devices* 2015: epub  

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*Indocyanine green plasma disappearance rate as dynamic liver function test in critically ill patients*  
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*Curr Opin Crit Care* 2007; 13(2):207-14

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*Curr Opin Anaest* 2005; 18:111-6

Sakka SG, Meier-Hellmann A  
*Non-invasive liver function monitoring by indocyanine green plasma disappearance rate in critically ill patients*  

2. **BACKGROUND**

2.1 **Pathophysiology**

*Prospective assessment of hepatic function and mechanisms of dysfunction in the critically ill.*  

Sander M, Krimphove M, Spies C  
*Increasing Regional Blood Flow: The Splanchnic Region*  

2.2 **Technology / Validation**

Purcell P, Kruger P, Jones M  
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*ANZ J Surg* 2006; 76: 75-7

Sakka SG, van Hout N  
*Relation between indocyanine green (ICG) plasma disappearance rate and ICG blood clearance in critically ill patients.*  

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*Measurement of indocyanine green plasma disappearance rate by two different dosages*  
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2.3 Indocyanine Green
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3. FIELDS OF APPLICATION

3.1 Intensive Care Medicine

3.1.1 Cardiac Surgery
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J Crit Care 2014; 29(2): 224 – 9

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Indocyanine green plasma disappearance rate predicts cardiac surgery stay
Experimental & Clinical Cardiology 2014; 20(7): 838-55

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Perioperative indocyanine green clearance is predictive for prolonged intensive care unit stay after coronary artery bypass grafting - an observational study
Crit Care 2009; 13(5): R149

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Peri-operative plasma disappearance rate of indocyanine green after coronary artery bypass surgery

Sakka S, Hofmann D, Thuemer O, Schelenz C, Van Hout N
Increasing cardiac output by epinephrine after cardiac surgery: effects on indocyanine green plasma disappearance rate and splanchnic microcirculation
J Cardiothorac Vasc Anesth 2007; 21(3):351-6

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Increasing cardiac output by fluid loading: effects on indocyanine green plasma disappearance rate and splanchnic microcirculation
3.1.2 Sepsis And Septic Shock
Effects of dobutamine on systemic, regional and microcirculatory perfusion parameters in septic shock: a randomized, placebo-controlled, double-blind, crossover study

Relationship of systemic, hepatosplanchnic, and microcirculatory perfusion parameters with 6-hour lactate clearance in hyperdynamic septic shock patients: an acute, clinical-physiological, pilot study.
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Prognostic value of indocyanine green elimination assessed with LiMON in septic patients
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Scientific World Journal 2012: 172575

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Indocyanine green plasma disappearance rate as an indicator of hepato-splanchnic ischemia during abdominal compartment syndrome
Anesth Analg 2007; 104(4):1003-4

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ICG-liver test versus new biomarkers as prognostic markers for prolonged length of stay in critically ill patients - a prospective study of accuracy for prediction of length of stay in the ICU
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Indocyanine green plasma disappearance rate: a new tool for the classification of paediatric patients with acute liver failure
Liver Int 2014; 34(5): 689-94

The influence of continuous venovenous renal replacement therapy on the plasma disappearance rate of indocyanine green

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Prognostic value of the indocyanine green plasma disappearance rate in critically ill patients
Chest 2002; 122(5):1715-20

3.2 Liver Transplantation
Early Measurement of Indocyanine Green Clearance Accurately Predicts Short-Term Outcomes After Liver Transplantation
Transplantation 2015; epub

A rapid, reproducible, noninvasive predictor of liver graft survival
Vos JJ, Scheeren TW, Lukes DJ, de Boer MT, Hendriks HG, Wietasch JK
Intraoperative ICG plasma disappearance rate helps to predict absence of early postoperative complications after orthotopic liver transplantation
J Clin Monit Comput 2013; 27(5): 591-8
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Anesth Analg 1998 Jul;87(1):34-6

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Szijarto A, Hargitai B, Fischer S, Darvas K, Kupcsulik P  
Two-staged procedure of portal ligation and heptectomy monitored by ICG clearance  

Scheingraber S, Richter S, Ignà D, Flesch S, Kopp B, Schilling MK  
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Hepatogastroenterology 2008; 55(85): 1394-9


Kinetics of indocyanine green removal from blood can be used to predict the size of the area removed by radiofrequency ablation of hepatic nodules  
J Gastroenterol Hepatol 2006; 21:1714-9

Imamura H, Sano K, Sugawara Y, Kokudo N, Makuuchi M  
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Lee SG, Hwang S

*How I do it: assessment of hepatic functional reserve for indication of hepatic resection*


Imamura H, Seyama Y, Kokudo N, Maema A, Sugawara Y, Sano K, Takayama T, Makuuchi M

*One thousand fifty-six hepatectomies without mortality in 8 years*

Arch Surg 2003; 138: 1198-1206

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J Am Coll Surg 2000; 190: 574-9


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3.4 Hepatology / Gastroenterology


*Prognostic impact of ICG-PDR in patients with hypoxic hepatitis*

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*Incorporating indocyanine green clearance into the Model for End Stage Liver Disease (MELD-ICG) improves prognostic accuracy in intermediate to advanced cirrhosis*

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*Sensitivity and specificity of plasma disappearance rate of indocyanine green as a prognostic indicator in acute liver failure*

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Liver. 2001; 21(1):26-30

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Ribitsch W, Schneditz D, Franssen CF, Schilcher G, Stadlbauer V, Horina JH, Rosenkranz AR
Increased Hepato-Splanchnic Vasoconstriction in Diabetics during Regular Hemodialysis

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Accuracy and reproducibility of the measurement of actively circulating blood volume with an integrated fiberoptic monitoring system.
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4 MONITORING THERAPEUTIC EFFECTS

4.1 Drug Therapies

4.1.1 Septic Shock
Bicakcioglu M, Aydogan MS, Sayan H, Toprak HI, Isik B, Yilmaz S, Yologlu S
Effects of different positive end-expiratory pressure values on liver function and indocyanine green clearance test in liver transplantation donors: a prospective, randomized, double-blind study

Sayan H, Aydogan MS, Bicakcioglu M, Toprak HI, Isik B, Yilmaz S
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Effects of the stable prostacyclin analogue iloprost on the plasma disappearance rate of indocyanine green in human septic shock

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Effects of dobutamine on gastric mucosal perfusion and hepatic metabolism in patients with septic shock
Am J Respir Crit Care Med 1999: 160; 1983-6

4.1.2 Liver Surgery / Dysfunction
Sheng QS, Lang R, He Q, Yang YJ, Zhao DF, Chen DZ
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Hepatobiliary Pancreat Dis Int 2009; 8(1): 46-9
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The effects of levosimendan vs dobutamine added to dopamine on liver functions assessed with noninvasive liver function monitoring in patients with septic shock
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Link A, Girndt M, Selejan S, Mathes A, Bohm M, Rensing H
Argatroban for anticoagulation in continuous renal replacement therapy.
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